



DEVELOPMENT OF CONTEXTUALIZED COMIC LEARNING MATERIALS IN EARTH AND LIFE

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ABSTRACT

The research focused on developing a Contextualized Comic Learning Materials in Earth and Life Science as a means to enhance student learning and improve teaching delivery. The study follows the Research and Development (R&D) model by Gay (1990) and consists of five stages: literature study, planning, development and validation of the prototype, revising prototype empirical test, and dissemination and implementation.

The findings of the study demonstrate that teachers strongly agree with the clarity of expression and explanations, relevance to real-life situations, statements of desired learning outcomes, and organization of the content of the contextualized comic learning material. Additionally, student respondents have positive responses towards the visual appeal and content of the material.

This research suggests that Contextualized Comic Learning Materials in Earth and Life Science can be implemented as innovative learning materials to supplement Science instruction. However, further research is needed to fully understand the impact of contextualized comic material when used as a supplementary material.

KEYWORDS; Comic, Contextualized, Development, Learning Materials.

I. INTRODUCTION

The field of education is constantly evolving, with educators seeking innovative and engaging approaches to enhance student learning and understanding. With the use of instructional materials and the right approach, it can certainly help in making lessons interesting and useful in increasing students' understanding. Instructional materials enhance the teaching/learning process by exhibiting information necessary to acquire knowledge and skills. Instructional materials are meant to improve the quality of education for effective academic performance of students in schools [3].

Meanwhile, contextualization is an incredible technique steering learners' interest in exploring the content in a meaningful and relevant setting. The application of contextualized learning strategies and the development of interactive alternative learning materials is seen as a good strategy to introduce and perform difficult topics or lessons [11]. With contextualization, teachers can present the lesson in a more meaningful and relevant context based on the learner's previous experiences and real-life situations [6]. Contextualizing instructional materials ensures that learning experiences are relevant, meaningful, and accessible to diverse learners and learners can better understand, connect, and apply what they learn, leading to improved learning outcomes and increased engagement.

One of the emerging contextualized learning materials is the use of comics as an educational resource. Comic materials present information in a visually appealing and narrative-driven format, offering a more immersive and interactive learning experience.

Comics usually contain cartoons, presented in a simple, concise, and easily understood because it is equipped with dialogue between characters [18]. If the subject matter is designed in such a way as a comic, then in addition to be a medium of entertainment, comics can also be used as learning media. In the study of Le Doux, et.al. (2016), findings revealed that comics are the right media for learning because the emotional involvement of readers will significantly affect the memory and recall of the subject matter that is obtained. Additionally, comics are learning media that can attract student attention. Simple drawings and dialogue between characters make it easy for students to understand the contents of the story so that comics can be used as informative and educative media for students [12]. In recent years, research has shown that incorporating visual and interactive materials in teaching can significantly improve student comprehension and retention rates. Nurdin, Risnawati, and Ayurila (2019) suggested that the use of appropriate learning media in learning can improve students' knowledge, motivation, and interest in education.

Thus, this research focuses on the creation and evaluation of educational comic materials specifically tailored for the subject areas of Earth and Life Science sought to bridge the gap between abstract concepts and real-life applications, making learning more relatable and accessible to students. The study aimed to explore the potential of comics in facilitating conceptual understanding and engagement for students in these disciplines and to align with the curriculum for Earth and Life Science, highlighting important concepts, processes, and phenomena through engaging visuals and thoughtful storytelling.



Moreover, by designing and evaluating contextualized comic materials, this study also aimed to offer educators a valuable resource that can improve teaching practices and promote student interest and understanding in these important science disciplines.

The following objectives of this study have been accomplished by the researcher.

- To design and develop of the Contextualized Comic Learning Materials in Earth and Life Science align with curriculum
- To ensure the quality of developed Contextualized Comic Learning Materials in Earth and Life through teacher and student's evaluation of its clarity of expression and explanations; statements of desired learning outcomes; organization of the content of the comic and relevance to the life situation
- To provide information about the strengths and weaknesses of the developed contextualize comic learning materials in Earth and Life Science in terms of its visual appeal and content.

II. METHODOLOGY

2.1 Research Design

This study employed the developmental research design. Developmental research is a systematic study of design development and evaluation process with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced models that govern development (Richey & Klein, 2013). The contextualized comic learning materials in Earth and Life Science developed according to the Research and Development (R&D) procedure proposed by Gay (1990) with the following steps: literature study, planning, development and validation of the prototype, revising prototype, empirical test, and the final stage is dissemination and implementation.

Quantitative approach was also utilized in evaluating the Contextualized Comic Learning Materials in Earth and determine its strength and weakness in terms of visual appeal and content.

2.2 Research Instrument

The study utilized two sets of questionnaires to gather data from the respondents. The first questionnaire was adapted from Bulalayao (2011) and was employed to assess the developed instructional material in terms of its clarity of expression and explanations, relevance to the life situation, statements of desired learning outcomes; and organization of the content of the contextualized comic learning material. A four-point Likert was utilized to carefully examine the extent to which the resource meets the criteria.

Meanwhile, the second questionnaire utilized used is for identifying the strengths and weaknesses of the contextualized comic material in terms of content and visual appeal. The questionnaire adapted a four-point Likert scale which comprised of 12 item statements to be responded to as strongly agree/slightly agree/agree/disagree.

2.3 Respondents

The evaluation involved thirty Grade 11 students and Science teachers from Camp Tinio National High School (CTNHS). The Grade 11 students assessed the contextualized comic learning materials in terms of their visuals and content. Meanwhile, the all Science teachers from CTNHS rated the materials on factors such as clarity of expression and explanations, relevance to real-life situations, statements of desired learning outcomes, and organization of the content. The teacher-respondents were selected using a purposive sampling technique which targeted specific individuals to suit the purpose of the study. The student's respondents were selected randomly from a total population of 420 students.

2.4 Data Analysis

The quality of the comics was measured based on the assessment provided by the participant at the empirical test. In addition, students' visual ability was also measured after developing the contextualized comic material. The data were analyzed using frequency distribution and weighted mean. Frequency Counts was utilized to show the difference in assessment results. The data were tallied and counted to arrive at a frequency distribution of their organization into tables. Moreover, the weighted of each item statement was used to arrive at the verbal description of the respondent's description of contextualized comic learning materials in Earth and Life Science.

III. RESULTS AND DISCUSSION

3.1 Development of contextualized comic learning materials in Earth and Life Science

The development of the Contextualized Comic Learning Materials in Earth and Life Science adapted the Rand D model instructional development proposed by gay (1990). it underwent five stages namely literature study, planning, development and validation of the prototype, revising prototype, empirical test, dissemination, and implementation.

- **Literature study-** This step involved searching for relevant pieces of literature on the Science contents and the digital aspect for developing contextualized comic learning materials in Earth and Life Science. The researcher carefully scrutinized the module in Earth and Life Science to gather important literature and supplemental materials that will enhance the development of contextualized material
- **Planning. This stage involved** checking the curriculum guide and analyzing the result of the MPS (Mean Percentile Score) to identify the specific topics to be included in the comic materials. This also involved considering secondary data, articles, write-ups, and digestion of literature to come up with the development. Consultations with other science and graphic Illustrators teachers were also a part of the planning stage.
- **Development and validation of the prototype.** In this stage, the contents of the contextualized comic learning materials in Earth and Life were accomplished. Furthermore, the validation of the prototype involved coordination and

consultation with the Science experts and Master teachers and their suggestions and recommendations were employed for

the improvement of the comic material.



Figure1 Sample Illustrations of the developed Contextualized Comic Material

- **Revising prototype.** This stage is the finalization of the developed contextualized learning material considering the experts recommendations. The final copy of the contextualized comic learning materials produced was subjected to teachers' ratings and students' evaluations.
- **Empirical test-** In this stage, the students from Camp Tinio National High School in previewed and assessed developed materials in terms of visual appeal and content of the contextualized comic learning materials in Earth and Life. The contextualized comic learning materials were given to students as supplementary materials for the lessons on animal and plant cells and earth subsystems. The researcher asked the assistance of his co-teacher for the evaluation phase to avoid any biases in the comments acceptance or anything as perceived by the students towards the developed Contextualized Comic Learning Materials in Earth and Life Science. The developed Comic Learning Materials were also subjected to quality assessment by teachers' rating based on the clarity of expression and explanations, relevance to the life

situation, statements of desired learning outcomes; organization of the content of the contextualized comic learning material.

- **Dissemination and implementation-** The developed contextualized comic learning resources was proposed for its utilization as a learning material in Earth and Life Sciences for Senior High School after being accepted and recognized by specialists in the field of Science.

3.2 Teachers' evaluation on contextualized comic learning materials in Earth and Life Science

The table shows that respondents are strongly agreed with the clarity of explanation and expression of the Contextualized Comic Learning Materials in Earth and Life Science with an average weighted mean of 3.63 indicating strong agreement the writing style of comic material, clear discussion of the lesson, and the use of simple illustrations. It can be observed as well that the teachers evaluation strongly agreed with the comic material's statement of desired learning outcomes average having a weighted mean of 3.67. The critical part of instructional materials is the crafting its



objectives and according to Coronacion (2023), a comic often contains specific objectives, experiences, and discussions carried out in sequence and logical [11].

Meanwhile the rating given by the teachers in terms of the organization of the content shown in Table 2. Presented that the highest rating given was 3.73 and the calculated weighted mean was 3.68. This indicating that the teachers strongly agreed that through the Contextualized Comic Learning Materials in Earth and Life Science, students were able to observe independence and self-confidence. Findings also revealed that teachers strongly agree that the organization of the lesson is logical and properly sequenced. Thus, the learning material helped the students think logically and

critically

In terms of the relevance and suitability of the Contextualized Comic Learning Materials in Earth and Life Science to life situations, the results of the findings showed that the comic material was functional, relevant to the student's needs, and the stated objective was suited to the learner's level of mental development. Data shows that the highest rating was 3.77 and the average weighted mean was 3.75. Based on the data, the teachers strongly agreed that the comic material was suitable for learners' mental development, and its functionality in understanding concepts of plant and animal cells and Earth's subsystem.

Table 1. Teachers' Evaluation on Contextualized Comic Learning Materials

1.The Clarity of Expression and Explanations	Weighted Mean	Verbal Description
1.The language of comic material is clear.	3.67	Strongly Agree
2.The writing style of the comic material makes it enjoyable to read.	3.73	Strongly Agree
3. The discussion of the lesson is simple and clear	3.67	Strongly Agree
4. The illustrations used are simple and correct makes the procedure more understandable.	3.67	Strongly Agree
Average Weighted mean	3.63	Strongly Agree
2.2Statement of desired learning outcomes		
9. The objectives are specific, measurable,attainable, reliable and bounded.	3.67	Strongly Agree
10. The interaction at the end of each activity reinforced the basic concepts in plant and animal cells and earth subsystems	3.67	Strongly Agree
11. The illustrations reflects the behavioral objectives in the module.	3.63	Strongly Agree
Average weighted mean	3.67	Strongly Agree
2.3Organization of the content		
12. The organization of the lesson is logical and properly sequenced.	3.60	Strongly Agree
13. The comic learning materials help learners to think logically and critically.	3.70	Strongly Agree
14. Through the comic learning materials students are able to observe independence and self-confidence.	3.73	Strongly Agree
Average weighted mean	3.68	Strongly Agree
2.4 Relevance to the life situation		
15. The comic learning material is functional and relevant.	3.77	Strongly Agree
16. The lesson is relevant and suited to the learner's level of mental development.	3.77	Strongly Agree
17. The stated objective is relevant to the student's needs.	3.77	Strongly Agree
18. The materials used in the activities are available and familiar to the students.	3.77	Strongly Agree
Average weighted mean	3.75	Strongly Agree

3.3 Strengths and Weaknesses of the contextualized comic learning materials in Earth and Life science

Table 2 shows the visual of the developed comic material as perceived by the respondents. The colors of the comic strips used by the proponents were identified as attractive as per the evaluation of the students. Based on the results, the student's respondents strongly agreed the contextualized comic has accurate drawings

and colors as well as the students enjoyed the drawings and enjoyed them as learning material tools in teaching the subject.

The result indicates that the colors used in all frames were inviting to the student's attention and really made them interested to read. Furthermore, way back in old books, it is observed that students tend to look after the combination of colors used made them



interested to read the books. The colors make the comic visual feel alive, not bored quickly, attractive, and beautiful. In both comics, there are some graphic elements such as flowers, light circles, colored spots, and others when emphasizing a story. Student's respondents claimed:

“ hindi po boring , nakakaenjoy and mga kulay na ginamit (the colors used were nice to see, not boring, and fun to look at).

According to Jim (2017) color, or a lack thereof, is an essential storytelling device. Color can stylize a work or evoke an immediate emotion. The right color choice or lighting can contextualize a scene and communicate entire ideas to an audience. Comics are a truncated form of storytelling and when a colorist/artist/creative team understands their toolbox well enough and chooses color as their primary tool in constructing a scene [15].

Table 2: Design of the contextualized comic learning materials

Strengths and weaknesses in terms of visual appeal	Weighted Mean	Verbal Description
1. I can easily understand the message of the strips in the contextualized comic material.	3.29	Strongly Agree
2. The characters/drawings are clearly presented according to the topic.	3.38	Strongly Agree
3. I find the contextualized comic material very useful as I easily comprehend the pictures.	3.56	Strongly Agree
4. The drawings and colors used are accurate.	3.44	Strongly Agree
5. I can easily recognize the lessons through the strips.	3.61	Strongly Agree
6. The drawings and illustrations in the contextualized comic material are enjoyable learning tool.	3.72	Strongly Agree
Average weighted mean	3.50	Strongly Agree

Meanwhile the **Table 3 below shows** the result of the assessment of the content of the developed comic learning materials, which is vividly shown that almost all of the statements got a positive or a perfect response from the respondents. It can be said that the science content of the developed capstone has always played an integral part in learning, skills development, and as context for language study. The texts are interesting and motivating keys to the students which ensure rich and meaningful content. The student's respondent claimed that:

“Sana may glossary, Yung parts na nandun yung ibang term “ (hoping that at the end of the Contextualized Comic Learning Materials In Earth And Life Science there is a glossary for

unfamiliar words with meaning.)

According to Oxford University Press ELT (2014), in today's fast-moving and increasingly digital world students are less likely than ever before to read or listen to something solely because it's good for them, or because it contains examples of a particular structure. They are likely to want to know which specific skills they're working on, but also what information they can take from the text and make use of in their life outside the classroom [16]. A good text needs to be engaging, but it also needs to contain information that remains relevant and useful to the student once the lesson is over. Texts need to provide take-away value both in terms of linguistic development and real-world.

Tale 3. Content of the contextualized comic learning materials

Strengths and Weaknesses in terms of Content	Weighted Mean	Verbal Description
1. The words/term used in the strips of developed materials/contextualized comic can be easily recognize.	3.59	Strongly Agree
2. The language used in the developed materials/contextualized comic can be easily understood.	3.40	Strongly Agree
3. The developed learning materials can motivate me in my learning process.	3.26	Strongly Agree
4. The language used in the developed materials motivated me to participate in the discussions.	3.60	Strongly Agree
5. The words/terminology used in the developed materials are appropriate to the drawings.	3.77	Strongly Agree
6. The used of the developed materials is helpful in studying the lessons.	3.71	Strongly Agree
Average weighted mean	3.47	Strongly Agree



4. CONCLUSIONS

Based on the findings derived from this study, the following conclusions were drawn:

1. The development of instructional materials like contextualized comic learning materials is made possible using the research and development (R and D) model.
2. The contextualized comic learning materials possessed the good characteristics of learning material based on the evaluation of the science teachers in terms of their clarity of expression and explanations, statements of desired learning outcomes, and organization of the content of the contextualized comic learning materials. relevance to the life situation.
3. The contextualized comic learning materials have a positive visual appeal and motivating content for students but recognized that contain unfamiliar words, which are taken into consideration for the improvement of the developed comic material.
4. The teachers recognized the use of contextualized comic learning materials in earth and life sciences as effective and innovative supplementary material in teaching science.

5. RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations are offered.

1. Building on the success of the research and development (R&D) model in creating instructional materials like contextualized comic learning materials, it is recommended to continue investing in R&D to create more innovative and effective teaching resources.
2. While the contextualized comic learning materials were evaluated positively in terms of clarity of expression and explanations, it is recommended to further improve the clarity to ensure that all students can easily understand the content.
3. It is suggested to enhance the organization of the content and ensure its relevance to the students' life situations. This will help students connect the material to their daily lives, making it more engaging and relatable.
4. Recognizing that the contextualized comic learning materials contain unfamiliar words, it is important to address this issue by either explaining the meaning of these words within the comic itself or providing a glossary at the end. This will ensure that students are not hindered by unfamiliar vocabulary when using the materials.
5. Given the effectiveness of the contextualized comic learning materials in earth and life sciences, it is recommended to explore the possibility of using similar materials in other subjects as well. This can provide a more holistic approach to learning and engage students in different subjects using a similar interactive and visually appealing format.

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7. CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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