

Gender-neutral learning material for MTBMLE in kindergarten and primary level learners

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Abstract

The use of mother tongue or the native language of the learners as a medium of instruction in Kindergarten, Grade 1, 2, and 3 has been the primary ideal of the K-12 curriculum. Thus, this study was an attempt to develop a Learning Material (LM) in Mother Tongue-Based Multilingual Education (MTB MLE) written in Bikol Central and with integration of gender-neutral aspects as its distinctive feature and be able to measure its effectiveness and statistical validity by the teacher-validators and kindergarten learners. Descriptive, evaluative, and developmental methods of research were used to achieve these objectives. Based on the results, the developed LM in MTB MLE has an excellent content and technical aspects in terms of activities and exercises, and content format. The utilization of the developed learning material leads learners to have a very highly significant difference in the pre-test and post-test results which can be attributed to the language used, the Bikol Central and the contextualized activities and exercises related to the experiences of the respondents. Finally, the various distinctive features of the LM such as its contextualized learning activities help the students to appreciate and understood the lessons being taught and became an avenue for them to develop awareness of Gender and Development concepts. In addition, it is suggested to conduct further studies contemplating on the other factors that is contributory to improve learners' learning skills.

Keywords: internal stakeholders, external stakeholders, education quality, private health institutes, health profession

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1. Introduction

Education is one of the most important drivers of positive social change, giving birth to responsible citizens and informed individuals and developing well-rounded human beings. The essence of education is supposed to prepare students the knowledge, shape the right behavior and morality, and develop skills in a particular domain (Siakas et al., 2019). Education serves key, complex functions at the physical, mental, emotional, and social levels of human development (Spiel et al., 2018). An inclusive, all-rounded education system that will enable individuals to fulfill their potential for the benefit of both themselves and society is more urgent than ever (Abdin, 2018). A system that meets the needs of each student through a holistic approach, providing every learner the opportunity to find and develop strengths and address specific weaknesses. As much as every child learns in different and very individual ways, even the most high-minded educators should rethink many aspects of the education paradigm to ensure a truly learner-centered upbringing bred from understanding how that unique child might learn. This will aid educators in making sure students are succeeding towards their personal goals and being provided an education along the way that serves them optimally in achieving growth and health as individuals.

CBSUA is a higher education institution that strongly promotes gender equality and the empowerment of women. As a leader in advancing development efforts related to these causes, the university demonstrates its commitment through various programs and projects, including research initiatives and community engagement activities. Serving as a Regional GAD Resource Center, CBSUA is dedicated to guiding and influencing other higher education institutions in adopting gender mainstreaming practices. This entails developing and validating instructional resources that address gender responsiveness, contributing to the establishment of a robust GAD resource center. The resource center aims to support comprehensive gender-focused integration and mainstreaming efforts across the educational landscape. Furthermore, equitable access to education has been a longstanding advocacy of CBSUA. Specifically, the university has actively engaged in initiatives catered to address the educational needs of disadvantaged and marginalized sectors, including indigenous communities. The university's commitment to inclusivity is deeply rooted in its mission to provide transformative education that empowers all learners, irrespective of their background or identity.

The purpose of this study is to create and validate a Learning Material designed specifically for Mother Tongue-Based Multilingual Education at the elementary level. This instructional resource will serve as a teaching aid and medium of instruction for both teachers and students during classroom interactions. The Learning Material is crafted in a contextualized, gender-neutral format, written in Central Bikol, to ensure inclusivity and relevance for young learners. By developing and validating this gender-neutral learning material, the study aims to contribute to the advancement of gender equality and the empowerment of women in the educational domain.

Objective of the Study - The main objective of the study is to evaluate the gender-neutral learning material in Mother Tongue-Based Multilingual Education (MTB MLE) for Kindergarten and primary learners. Specifically, develop a gender-neutral learning material with essential features for MTB MLE in Kindergarten and primary level learners; Find out the statistical validity of the learning material in MTB MLE; and Determine the effectiveness of the learning material in the level of mastery of learning competencies in MTB MLE.

Theoretical Framework - This research study is grounded in several key theories: Reinforcement Theory, Instructional Aid Theory, Theory on the Use of Instructional Materials, and Gender Theory. Reinforcement Theory (Skinner, et al. 2008), a model within the limited effects framework, is relevant in communication studies.

It suggests that individuals actively seek and retain information that reinforces their existing beliefs and attitudes. Instructional Aid Theory (Seuferts & Brunken, 2006) posits that the human brain and memory operate dynamically during communication. This theory highlights certain factors that are essential to understanding the role of instructional aids. Such aids should be carefully planned to support specific concepts within a lesson effectively.

The Theory on the Use of Instructional Materials (Adekunle & Eniola, 2008) emphasizes that learning at any level benefits from exposing students to a range of sensory experiences. When students can engage multiple senses in learning, they often understand concepts more quickly and retain information better. Instructional materials offer teachers engaging ways to present content and inspire students to deepen their learning. Moreover, Gender Theory (Jule, 2017) investigates how societies understand and construct gendered behaviors—such as those considered masculine, feminine, or queer—within various contexts, from literature and sociology to health sciences and cultural studies. Gender encompasses social expectations, roles, and behaviors that are shaped within society. This study's Learning Material (LM) will be designed to promote gender neutrality and awareness for kindergarten and primary-level teachers and students, supporting an inclusive learning environment.

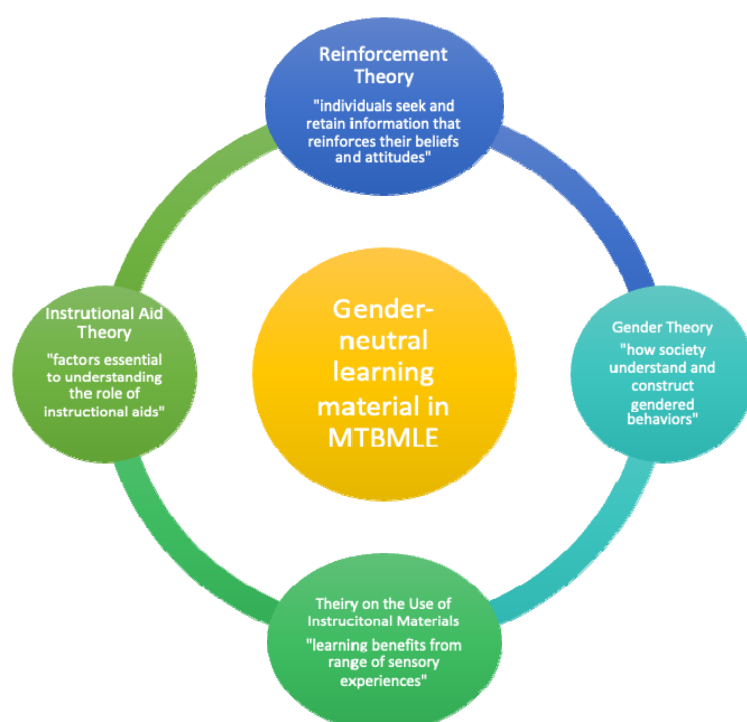


Figure 1. Theoretical Framework

2. Research methodology

Descriptive, evaluative, and developmental methods of research were used. Descriptive was used to describe the features of the learning material in MTB MLE (Bikol Central). Evaluative method was employed to measure the statistical and curricular validity of the developed learning material. Developmental method was used in making the MTB MLE learning material written in Bikol Central. As presented in Table 1, the following were the distribution of the respondents of the study.

Table 1

Distribution of the respondents of the study

Respondents	Number
Teacher-Validators	15
Learners	19
TOTAL	34

Validators. Include the purposely selected master teachers, kindergarten and primary level teachers from Pili East District, Camaligan Central School, and San Pascual Central School. The validation process of the LM contents and activities covering the first and second quarter was done with use of Evaluation on Individual Lesson and Its Activities (EILIA).

Learners. These are the 19 kindergarten learners enrolled in San Pascual Central School who were subjected to study. Pre-test was administered to the respondents before utilizing the LM. After the prescribed duration of two (2) quarters, respondents underwent a post test to determine if there was a significant difference in their performance in terms of mastery in the learning competencies along Vocabulary and Concept Development (VCD), Phonics and Word Recognition (PWR), Phonological Skills (PS), and Letter names and sounds.

Research Instruments. There were two (2) instruments used, the (1) teacher-made test for the pre and post test and (2) Evaluation of Individual Lesson and Its Activity (EILIA). **Pre and Post Teacher-Made Test.** Composed of 15-item questions aligned to the competencies in MTB MLE learning area specifically in Phonics and Word Recognition (PWR), Phonological Skills (PS), Vocabulary and Concept Development (VCD), and Letter names and sounds. The results of these tests will determine if the utilization of LM had a significant effect on the mastery level of the competencies in PWR, PS, VCD, and Letter names and sounds in MTB MLE. **Evaluation of Individual Lesson and Its Activity (EILIA) Instrument.** EILIA was composed of two parts: Part I was for the evaluation of the individual lessons of the LM and Part II contains the evaluation of the technical aspects of the LM. This instrument was used for the purpose of assessing the lessons and the activities in every topic which will determine the effectiveness of the LM in the level of mastery of the learning competencies in MTB MLE.

Methods of Data Analysis. Descriptive statistics which include the frequency count, percentage technique, mean and standard deviation were employed to determine the effectiveness of the MTB MLE learning material particularly in terms of its lesson and activities. T test was used to compute the statistical validity of the developed LM using the result of the pre-test and post tests administered to the respondents before and after the utilization of the LM. This tool determined the effect of the LM in the level of mastery of the learning competencies specifically in Phonics and Word Recognition (PWR), Phonological Skills (PS), Vocabulary and Concept Development (VCD), and Letter names and sounds. Prior to the start of utilizing the learning material, the researcher-made pre-test was administered by the teacher to the 19 kindergarten learners to determine their level of mastery of the learning competencies in Vocabulary and Concept Development (VCD), Phonics and Word Recognition (PWR); and Phonological Skills (PS), and Letter names and sounds. After which, the teacher will discuss lessons based on the learning areas' content and competencies to be developed. The utilization of the book occurred at the time when the respondents answer the activities and exercises based on the lessons being discussed.

3. Result

3.1 *Developed gender-neutral learning material in MTB MLE and its essential features*

Learning new ideas becomes more accessible when learners are provided with recognizable materials connected to the learning area and subject matter. The learning material must be tailored to the intellectual abilities of the learners to effectively measure their learning. Additionally, the materials created should foster an inclusive learning environment that accommodates diverse gender identities, ensuring that all students feel represented and valued (Ober et al., 2023). Hence, this study emphasized the development of gender-neutral learning material in Mother Tongue-Based Multilingual Education, along with other essential features.

Gender-neutral LM. One of the distinct features of the learning material is the integration of Gender and Development (GAD) concepts in the lessons. This is in support of the GAD programs and projects to address

gender issues and stereotyping on the use of instructional materials in the teaching and learning process. Also, it will create awareness among teachers, learners, and readers on treating girls and boys fairly during the instructional process since according to UNESCO (2015), working with gender equality in teacher education encompasses a range of practices and policies including institutional culture, teacher attitudes, gender-responsive policies and, more importantly, designing gender sensitive pedagogy and instructional materials (Gender Equality and Education, 2023). Furthermore, diversity should be reflected in the content, language, and illustrations of the learning material to ensure an inclusive learning environment.

3.2 Curricular validity of the learning material in Mathematics for Kindergarten learners

Ensuring the curricular validity of learning material in Mathematics involved a rigorous validation process. This process confirmed that the material was aligned with educational standards, effective, age-appropriate, and culturally-relevant. A need assessment was conducted to understand the specific requirements of kindergarten learners, teachers, and the educational context. Inputs from educators, parents, and curriculum experts were gathered. The DepEd's K to 12 Curriculum Guide was used to ensure curricular alignment.

The concepts of Gender and Development (GAD) were integrated in the activities for the learners' better awareness and understanding of gender-neutrality. This initiative desires to equalize the status and condition of and relations between women and men in the society at their early age. The learning contents of the learning material avoids reinforcing traditional gender stereotypes and ensures inclusivity for the learners specially for the Kindergarten and primary level children. Language, the Bicol Central, examples, and images that are free from gender bias, foster an environment where learners feel represented and respected regardless of their gender identity were employed in the material. These were for the purpose of promoting equal opportunities, challenge gender norms, and create a more inclusive learning experience that reflects the learners' diversity. Hernandez and Cudiamat (2018) manifested their support to the integration of gender-sensitive teaching strategy that remains to be a challenge among educators. This social issue requires more in-depth exploration especially in the classroom to promote its significance and determine its applicability and effectiveness.

3.2.1. Contextualized through indigenization of contents

The learning material is contextualized for young learners, specifically kindergarten and primary level students, to better support their learning of MTB-MLE. The material's contexts are drawn from concrete applications relevant to the learners' interests. The examples used are familiar to the students and connected to their personal experiences. Contextualized learning can enhance learner performance by relating content to real-world situations and aligning with their experiences. This approach is identified as a promising strategy that actively engages learners and promotes improved learning and skills development (Puastuti & Sinthiya, 2021).

The study incorporated the concepts of indigenization into the lessons, activities, and learning experiences. This approach aimed to make the learning more inclusive, relevant, and respectful of diverse cultural backgrounds, fostering a deeper understanding of indigenous histories, traditions, and contributions. It helped bridge cultural gaps, promoted cultural diversity, and enhanced the overall educational experience. According to Ober et al., (2023) one of the goals and effects of contextualization is to capture students' attention by illustrating the relevance of the learning experience. The Contextualized Learning Material enabled students to find and create meaning through experience, drawing from their prior knowledge to build upon existing knowledge.

3.2.2. Utilization of Bikol Central Language

One of the distinctive features of this learning material is the language utilized, the native language of the Bicolano learners, that is Bikol Central. The language used in the book is in conformity with the ideals of Republic Act No. 10533, otherwise known as the Enhanced Basic Education Act of 2013. An Act Enhancing the Philippine Basic Education System by strengthening its curriculum and increasing the number of years for basic education. The introduction of Mother Tongue- Based Multilingual Education (MTB-MLE) specifically in

Kindergarten, Grades 1, 2 and 3 is to support the goal of “Every Child- A- Reader and A –Writer” by Grade 1.” Research stresses the fact that children with a solid foundation in their mother tongue develop stronger literacy abilities in the school language. Their knowledge and skills transfer across languages. This bridge enables the learners to use both or all their languages for success in school and for lifelong learning.

The lessons and learning activities included in the book were written in Bikol Central language. Concepts and examples were related to the real situation and relevant to the respondents’ experiences that will help the learners actively engage and promotes improved learning and skills development. Using the learners’ local language is believed to enhanced understanding. Learners often grasp concepts more effectively when taught in their native language. this improves comprehension, retention, and overall academic performance. it also helped build their confidence. Learning in one’s native language can boost their confidence as they feel more comfortable expressing themselves and participating actively in discussions and activities.

Adapted contents based from the curriculum. The content of the book is based on the curriculum guide of the MTB MLE K to 12 Curriculum, and the teaching and learning principles of the subject which focuses on meaning and correctness. It emphasized the development of domains such as Phonics and Word Recognition (PWR); Phonological Skills (PS); and Vocabulary and Concept Development (VCD), and Letter names and sounds.

3.2.3. Other Essential Features of the MTB MLE learning material

In this study, the learning material in MTB MLE was comprised of the other essential features: Preface, Table of Contents, Lessons which were composed of Introduction, Activities/Exercises which were contextualized, and References.

a. Preface. A short introduction in the learning material or book stating the subject, scope, and aims of its development. In this study, the book was titled, “Madya Na! Mag-adal Kita kan Mother Tongue”, (Kontekstuwalisado asin Dyender-Nyutral na Materyal sa Pag-adal sa Mother Tongue-Based Multilingual Education). This was written in Bikol Central language and integrated in the lessons and activities are the concepts of Gender and Development for the learners’ appreciation and awareness of gender equality, women empowerment, and other gender issues.

b. Table of Contents. This is consisting of the systematically arranged lessons and activities indicating their corresponding page numbers for ease accessibility of the lessons.

c. Lessons. Are the topics, readings, exercises, and activities to be studied by the learners in MTB MLE. These includes the four (4) lessons, namely; Lesson 1- Alphabet; Lesson 2- Vocabulary and Concept Development (VCD), Lesson 3- Phonics and Word Recognition (PWR); and Lesson 4- Phonological Skills (PS).

d. References. Provide the information necessary for the learners and readers to identify and retrieve each work cited in the book.

3.3 Statistical validity of the learning material in MTB MLE

Table 2 revealed the results of the t-test to find out the statistical validity of the LM in MTB MLE using the pre-test and post-test administered to the learners. The results from the pre-test ($M = 3.68$, $SD = 0.82$) and post - test ($M = 12.53$, $SD = 1.74$) scores before and after the utilization of the learning material in MTB MLE shows an increase of scores. The findings indicate that the utilization of the learning materials had a statistically significant impact on the test scores of Kindergarten learners in the Mother Tongue-Based Multilingual Education program. The null hypothesis was rejected, with a highly significant t-value of -21.01 ($p < 0.05$). This suggests that the use of the LM was a contributing factor to the improved academic performance of the Kindergarten students, regardless of the specific teaching methods or strategies employed by the teacher-respondents.

Table 2*Result of the t- test for statistical validity of the MTB MLE learning material*

	n	Mean	Standard Deviation	t	Two-Tailed (df=24,a = 0.05 Critical Value (CV)	p-value
Pre-test	19	3.68	0.82	-21.01	+/-2.10	4.08E-14***
Post -test	19	12.53	1.74			

Note: ***p < 0.001; **p < 0.01; *p < 0.05; ^ap > 0.05

The importance of instructional materials in teaching and learning cannot be overstated, as they serve as fundamental tools at all educational levels. The absence of inadequacy of such materials can lead teachers to present subject matter in an abstract, dry, and uninspiring manner. In contrast, a diverse range of instructional materials, such as textbooks, charts, maps, audiovisual resources, and electronic media like radios, tape recorders, televisions, and video players, can significantly enhance the learning experience by making it more engaging and interesting for students (Monika et al., 2023). This positive impact on student learning and performance further underscores the crucial role that well-designed and effectively utilized instructional materials play in the educational process (Bukoye, 2019). The results clearly indicate that the use of the contextualized, gender-sensitive MTB-MLE Learning Material had a positive impact on the

3.4 Effectiveness of the learning material in MTBMLE

The learning material in a form of book for MTB MLE was developed to assist the learners, elementary educators, parents or guardians, and other professionals by serving as a supplemental learning resources in teaching the Mother Tongue-Based Multilingual Education. It was designed to help the teachers and kindergarten and primary level learners to improve their mastery level in the competencies for Vocabulary and Concept Development (VCD), Phonics and Word Recognition (PWR); Phonological Skills (PS), and Letter names and sounds. (Please refer to the learning material for specific competencies to be developed in VCD, PWR, PS, and Letter names and sounds). This can also be utilized by the teachers and parents as an instrument for remedial instruction particularly in reading as affirmed by the LM validators.

The teacher-validators validated the content, technical aspects, and gender-neutrality of the LM using the Evaluation of Individual Lesson and Its Activities (EILIA). The lessons and activities evaluated by the experts were the following; Lesson 1- Alphabet; Lesson 2- Vocabulary and Concept Development (VCD), Lesson 3- Phonics and Word Recognition (PWR); and Lesson 4- Phonological Skills (PS). Respondents assessed these lessons using the rating scale below: 4.21 - 5.00 Excellent (E); 3.41 - 4.20 Very Good (VG); 2.61 - 3.40 Good (G); 1.81 - 2.60 Fair (F); and 1.00 - 1.80 Poor (P)

Content aspects of the learning material were evaluated along 1) lesson introduction, 2) lesson content, and 3) activities and exercises. The assessment of the Technical aspects includes the 1) organization of the lessons, 2) appropriateness of instruction and activities, and 3) content format. While the gender-neutral aspects were validated through 1) Language usage, 2) Images and illustrations used, and 3) Examples and Scenarios.

Table 3*Result of the t- test for statistical validity of the MTB MLE learning material*

INDICATORS	LESSONS				OVERALL MEAN	DESCRIPTION
	1 A	2 VCD	3 PWR	4 PS		
I. CONTENT ASPECTS	4.55	4.36	4.47	4.62	4.50	Excellent
1. Lesson Introduction	4.23	4.35	4.20	4.76	4.38	Excellent
2. Lesson Content	4.58	4.29	4.44	4.63	4.48	Excellent
3. Activities and Exercises	4.86	4.46	4.77	4.49	4.64	Excellent
II. TECHNICAL ASPECTS	4.41	4.53	4.54	4.63	4.58	Excellent
1. Organization of the lessons	4.26	4.72	4.53	4.67	4.54	Excellent
2. Appropriateness of instruction and activities	4.43	4.35	4.51	4.76	4.51	Excellent
3. Content format	4.65	4.81	4.58	4.70	4.68	Excellent

III. GENDER-NEUTRAL ASPECTS	4.38	4.40	4.42	4.55	4.44	Excellent
1. Language usage	4.51	4.37	4.25	4.59	4.43	Excellent
2. Images and illustrations used	4.44	4.51	4.39	4.55	4.47	Excellent
3. Examples and scenarios	4.19	4.31	4.61	4.52	4.41	Excellent

Legend:

- Lesson 1- Alphabet (A)
- Lesson 2- Vocabulary and Concept Development (VCD)
- Lesson 3- Phonics and Word Recognition (PWR)
- Lesson 4- Phonological Skills (PS)

As shown in Table 3, both the content and technical aspects of the learning material designed in Mother Tongue-Based Multilingual Education for elementary learners gathered an excellent rating of 4.50 and 4.52 respectively. Along the three parameters of content aspects, the activities and exercises marked with the highest rating of 4.64 and described as excellent. The activities and exercises indicated in the learning material were assessed to be appropriate to the lesson to be learned, promotes constructivist learning approach, allows independent learning, and the content format are clear and understandable, appropriate to its purpose and provide examples needed for the exercise that may help learners to accomplish the activity correctly and successfully. This is supported by the affirmation of the validators during the interview that the activities and exercises provided in the learning material were suited to the level of the intellectual abilities and skills of the learners. Moreover, the respondent teacher-validator added that these activities and exercises can be utilized also for remedial instruction of those learners in the higher grade level needing further mastery of competencies and skills such as in reading.

In addition, data gathered revealed that the lesson introduction was the least rated aspect, nonetheless, excellent with an over all mean of 4.38. Prior to the start of formal presentation of the activities and exercises, lesson introduction is necessary because it serves as an advance overview of the lesson. It also helps awakens the interest and comprehension of the lessons to be taught. In terms of technical aspects, content format got the highest overall mean of 4.68 and described as excellent. Results revealed that the content format of the learning material is clear and understandable that majority of the exercises provide introduction that will give a general overview of what the activity is all about. Content format is generally appropriate to its purpose, its parts included are necessary and will contribute to help learners learn their lessons. Among the four (4) lessons included in the learning material, Lesson 3 which is the Phonics and Word Recognition (PWR) was found out to be with the highest mean of 4.81. This lesson contained short explanation needed for the exercise that may help learners to accomplish the activity correctly, and the content format is relevant to the topic and its purpose.

Along the technical aspects, the appropriateness of instruction and activities was the lowest with the rating of 4.51, however, with descriptive analysis of excellent. According to the teacher-respondent, there was a need for a more interactive elements or hands-on activities to capture learners' interests and involvement in a more dynamic learning environment. As to the Gender-neutral aspects, the learning material was found out to be excellent in all of the four lesson components with mean rating of 4.44. In terms of the images and illustrations used, the rating of 4.47 manifested that visuals in the LM depicted diverse gender roles and representations effectively. The material likely avoid perpetuating traditional stereotypes, showcasing a commitment to inclusive and balanced visual content.

Language used in the learning material is inclusive and avoids reinforcing gender stereotypes. It suggested that efforts have been successful in incorporating gender-neutral pronouns, avoiding gender-specific job titles, and promoting balanced representation through language. Moreover, the rating in terms of examples and scenarios (4.41) indicated that the examples and scenarios presented in the LM are inclusive and avoid gender bias. It suggested that diverse situations are portrayed, reflecting a commitment to providing learners with content that resonates with varied experiences and perspectives. Thus, this rating along gender-neutrality aspects reflected a comprehensive and successful approach to creating gender-neutral learning material specifically in MTB MLE. The attention to language, visuals, and content scenarios demonstrates a commitment to inclusivity

and equality, contributing to a positive and supportive learning environment. It also indicated that the validation process had effectively addressed potential gender biases in different aspects of the learning material.

4. Conclusions and recommendations

After an in-depth analysis, it was concluded that the developed learning material in MTB MLE has an excellent curricular validity in terms of content and technical aspects. More so, the performance of the learners has increased after the utilization of the developed learning material, which is attributed to the language used, the Bikol Central, to the contextualized activities and exercises based on the real-life experiences of the respondents which was explicitly implied in the results of the statistical validity of the learning material. Finally, the various distinctive features of the LM such as its contextualized learning activities help the students to appreciate and understood the lesson being taught and became an avenue for them to develop awareness of gender and development concepts. However, the material cannot as yet be considered the sole contributing factor to the improved achievement of the learners. It can also be attributed to the innate intellectual ability of the learners and teacher's techniques in teaching. Thus, it is suggested to conduct further studies contemplating on the other factors that may offer opportunity to improve learners' learning skills.

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