

Development and Evaluation of Learning Activity Sheets in Problem Solving Involving Multiplication for Grade 2 Mathematics Learners

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Abstract

This study developed and evaluated Learning Activity Sheets (LAS) in Mathematics 2 designed to improve Grade 2 learners' ability to solve routine and non-routine word problems involving multiplication of whole numbers, including money. The study was anchored on the ADDIE Instructional Design Model, Cognitive Theory, and the Zone of Proximal Development. A quantitative research design was employed, involving twenty-four Grade 2 Mathematics teachers and five members of the District Quality Assurance (QA) Team from Kasibu West District, Division of Nueva Vizcaya. Data were collected using an Evaluation Rating Sheet for Print Resources patterned after the Department of Education Learning Resources Management and Development System standards. Mean and independent t-test were used to analyze the data. Findings showed that multiplication word problems were identified as the least mastered competency among Grade 2 learners, necessitating the development of contextualized instructional materials. The developed LAS received Very Satisfactory ratings in terms of content (3.94), format (3.94), presentation and organization (3.91), and accuracy and recency of information (4.00), with an overall mean rating of 3.95. Statistical analysis revealed no significant difference between the evaluations of the Grade 2 teachers and QA Team, indicating strong agreement regarding the quality and suitability of the materials. The study concluded that the developed LAS are acceptable and effective supplementary instructional resources for Mathematics 2. It is recommended that teachers utilize and develop similar instructional materials, while future studies further examine their effectiveness through experimental research. The study supports Sustainable Development Goal 4 (Quality Education) and Sustainable Development Goal 10 (Reduced Inequalities) by promoting inclusive and learner-centered instructional resources. Its sustainability contribution lies in strengthening educational quality, supporting equitable learning opportunities, and providing validated instructional materials that can enhance classroom instruction and institutional improvement.

Keywords: Addie Instructional Design Model; Grade 2 Mathematics; Learning Activity Sheets; Multiplication Word Problems; Quality Evaluation; Quantitative Research; Sustainable Development Goals

1. Introduction

Mathematics is essential in developing learners' logical reasoning, analytical thinking, and problem-solving skills. However, international, national, and local assessments continue to reveal low mathematics proficiency among Filipino learners, particularly in solving word problems. In response, this study focuses on the development and evaluation of contextualized Learning Activity Sheets (LAS) in Mathematics 2 to improve Grade 2 learners' performance in solving multiplication word problems. Guided by the ADDIE instructional design model, the study aims to produce learner-centered and context-responsive instructional materials that address identified learning gaps.

1.1 Background of the Development of Learning Activity Sheets for Multiplication Word Problems

Quality education contributes significantly to economic growth, social mobility, and human capital development (Aktan, 2020). In mathematics education, well-designed instructional materials are necessary to help young learners connect mathematical concepts with real-life situations. Learning Activity Sheets (LAS) provide structured and guided learning experiences that promote independent learning and mastery of competencies. Despite educational reforms, Filipino learners continue to perform poorly in mathematics. PISA 2022 reported that only 16% of Filipino learners achieved baseline mathematics proficiency, placing the Philippines 77th among 81 participating countries (OECD, 2023). Similarly, SEAPLM results showed that only about 17% of learners could apply mathematical skills in problem-solving situations (Dela Peña, 2023). At the local level, the Rapid Mathematics Assessment identified solving multiplication word problems as the least mastered competency among Grade 2 learners in Kasibu West District (DepEd Order No. 9, s. 2024). Difficulties are often associated with reading comprehension, mathematical vocabulary, number sense, and logical reasoning (Isidro, 2025; Bernardo, 2005). Studies indicate that contextualized and well-designed LAS improve learners' mathematical understanding and performance (Padernos, 2024; Hofileña & Bearneza, 2023; Brown, 2019). Thus, developing and evaluating contextualized LAS is necessary to address learners' identified needs.

1.2 Themes and Insights from Related Literature on Mathematics Performance and Learning Activity Sheets

Literature consistently shows that Filipino learners experience challenges in mathematics achievement. International assessments revealed low performance in mathematics, particularly in problem-solving and conceptual understanding (OECD, 2023; Mullis et al., 2020). National assessments likewise reported difficulties in basic numeracy skills among elementary learners (Department of Education, 2023). Research highlights the importance of early interventions and contextualized learning experiences in improving mathematics achievement (Boaler, 2016; Tolibas, 2025). Learner attitudes also influence mathematical performance, emphasizing the need for engaging and supportive instructional strategies (Apus & Quirap, 2024). Studies further demonstrate that Learning Activity Sheets enhance learner engagement and academic performance when aligned with learners' developmental levels and needs (Cajayon & Benavides, 2022; Lapinid, 2021). Contextualized LAS increase relevance and understanding by connecting mathematical concepts to learners' daily experiences (Arellano & Profugo, 2023). Effective instructional materials are also characterized by quality content, organization, usability, and alignment with learning competencies (Lacea & Buscano, 2023; Cevikbas, 2021; Chabay, 2019).

1.3 Local, National, and Global Context of Mathematics Instruction

Globally, mathematics proficiency remains a key indicator of educational quality, yet international assessments continue to reveal challenges in learners' mathematical competencies (OECD, 2023; Mullis et al., 2020). In the Philippines, educational policies such as Republic Act No. 10533 promote learner-centered and contextualized instruction, while DepEd policies recognize Learning Activity Sheets as important instructional resources supporting competency-based learning (DepEd Order No. 42, s. 2016; DepEd Memorandum No. 162, s. 2020; DepEd Order No. 18, s. 2020). Locally, results from the Rapid Mathematics Assessment in Kasibu West District identified multiplication word problems as a major learning difficulty among Grade 2 learners (DepEd Order No. 9, s. 2024). These findings highlight the need for contextualized instructional materials that directly address learners' learning gaps. Consequently, the development and evaluation of LAS provide a practical intervention aligned with local educational needs, national curriculum priorities, and global calls for improved mathematics achievement.

1.4 Theoretical or Conceptual Basis for the Development of Mathematics 2 Learning Activity Sheets

This study is anchored on the ADDIE Instructional Design Model, Cognitive Theory, and the Zone of Proximal Development (ZPD). The ADDIE Model provides a systematic framework for developing instructional materials through the phases of Analysis, Design, Development, Implementation, and Evaluation (Spatioti et al., 2022; Mdoanazide, 2024). Through this model, the identified learning gaps in multiplication word problems were analyzed and used as the basis for designing and evaluating the Learning Activity Sheets. The study is also supported by Cognitive Theory, which emphasizes learners' mental processes such as comprehension, reasoning, memory, and problem-solving (Kurt, 2023). Since multiplication word problems require learners to analyze information and apply mathematical concepts, the developed LAS incorporates step-by-step activities and visual representations that promote conceptual understanding rather than rote memorization. Furthermore, the Zone of Proximal Development (ZPD) explains that learners can accomplish more complex tasks when provided with appropriate guidance and support (Vygotsky, 1978; Alghamdy, 2024). Through guided examples, scaffolded activities, and structured practice, the LAS assists Grade 2 learners in progressing from their current level of understanding toward mastery of multiplication word problems (Lasmawan & Budiarta, 2020).

1.5 Research Gaps and Rationale for Developing Learning Activity Sheets in Mathematics 2

Existing literature demonstrates the effectiveness of Learning Activity Sheets in improving mathematics achievement and learner engagement (Cajayon & Benavides, 2022; Lapinid, 2021; Lacea & Buscano, 2023). Studies also support the use of contextualized instructional materials in addressing learning gaps among elementary learners (Arellano & Profugo, 2023). Despite these findings, limited studies have focused specifically on the systematic development and expert evaluation of Learning Activity Sheets for Grade 2 Mathematics, particularly in solving multiplication word problems. Many previous studies concentrated on measuring learner performance after implementation without thoroughly examining the quality of the instructional materials in terms of content, format, presentation and organization, and accuracy of information. Additionally, few studies have utilized established instructional design frameworks and evaluation standards simultaneously in developing Mathematics 2 instructional materials. This gap highlights the need for research that develops and evaluates contextualized Learning Activity Sheets using a systematic instructional design process and recognized evaluation criteria. Hence, this study seeks to address these gaps by developing and evaluating LAS specifically designed to improve Grade 2 learners' multiplication word-problem-solving skills.

1.6 Alignment with Relevant Sustainable Development Goals (SDGs)

This study supports Sustainable Development Goal 4 (Quality Education) by promoting inclusive, equitable, and quality learning through the development of contextualized instructional materials that address identified learning gaps among Grade 2 learners. By improving access to effective learning resources, the study contributes to enhancing foundational numeracy skills and learning outcomes. The study also aligns with Sustainable Development Goal 10 (Reduced Inequalities) by providing instructional support for learners experiencing difficulties in mathematics. Contextualized

Learning Activity Sheets help ensure that learners with varying abilities and learning needs receive opportunities to achieve essential competencies and participate meaningfully in the learning process. These alignments are consistent with national educational priorities that emphasize learner-centered instruction, inclusive education, and evidence-based teaching practices (PNU, 2018).

1.7 Importance of the Study to Multidisciplinary Sustainability

The study contributes primarily to educational sustainability by developing quality instructional materials that strengthen foundational numeracy skills among young learners. Improved mathematics achievement supports lifelong learning and prepares learners for future academic and professional opportunities. The study also promotes social sustainability by supporting equitable access to quality educational resources, particularly for learners who experience difficulties in mathematics. Through contextualized and learner-responsive instructional materials, the research helps reduce learning disparities and supports inclusive educational practices. In addition, the study contributes to institutional sustainability by providing teachers, schools, and educational stakeholders with validated instructional resources that can enhance classroom instruction and curriculum implementation. The findings may also support future instructional material development, research initiatives, and continuous improvement efforts within the educational system. Collectively, the development and evaluation of Learning Activity Sheets contribute to strengthening mathematics education, improving learner outcomes, and supporting sustainable educational development at the local, national, and global levels.

2. Material and methods

2.1 Research Design

The study employed a quantitative research design to evaluate the developed Learning Activity Sheets and determine their quality based on expert assessments. The development process was guided by the ADDIE instructional design model, which consists of Analysis, Design, Development, Implementation, and Evaluation phases. During the analysis phase, the least mastered competency in Mathematics 2 was identified through the Rapid Mathematics Assessment. The design and development phases focused on creating learning objectives, activities, assessment tasks, and instructional components aligned with curriculum standards. The implementation phase involved pilot testing the LAS, while the evaluation phase consisted of expert validation using a researcher-developed evaluation instrument. Reliability of the evaluation tool was established through Cronbach's alpha analysis, and revisions were incorporated based on evaluators' feedback to ensure instructional quality and effectiveness.

2.2 Locale of the Study

The study was conducted in Kasibu West District, Division of Nueva Vizcaya. The district supervises twenty-two elementary schools, two integrated schools, and three secondary schools serving learners from diverse socio-economic and geographical backgrounds. Mathematics instruction in the district focuses on developing foundational numeracy skills, including number sense, basic operations, and problem-solving. The district actively supports instructional innovation through programs such as the Early Language, Literacy, and Numeracy (ELLN) program and has been recognized for its implementation of literacy and numeracy initiatives during School Year 2024–2025. This educational environment provided an appropriate setting for the development and evaluation of contextualized Learning Activity Sheets in Mathematics 2.

2.3 Respondents of the Study

The respondents of the study consisted of twenty-four Grade 2 Mathematics teachers and five members of the District Quality Assurance (QA) Team from Kasibu West District, Nueva Vizcaya, for a total of twenty-nine respondents. The Grade 2 teachers were selected from elementary schools within the district and had at least five years of teaching experience in Mathematics. Their classroom experience and familiarity with the Most Essential Learning Competencies (MELCs) enabled them to provide informed evaluations of the developed Learning Activity Sheets. The District QA Team members were composed primarily of school heads and educational leaders who had attended seminars and trainings related to instructional material evaluation. Their expertise in applying the Department of Education Learning Resources Management and Development System (LRMDS) standards qualified them to assess the quality, accuracy, organization, and instructional suitability of the developed Learning Activity Sheets. The combined perspectives of classroom teachers and quality assurance experts provided comprehensive validation of the instructional materials.

2.4 Sample and Sampling Procedure

Purposive sampling was employed in selecting the respondents. The Grade 2 Mathematics teachers were chosen based on their teaching experience, familiarity with the Most Essential Learning Competencies (MELCs), and involvement in evaluating instructional materials. Similarly, members of the QA Team were selected because of their expertise in instructional material evaluation and participation in relevant seminars and trainings. These qualifications enabled the respondents to provide informed assessments regarding the content, format, presentation and organization, and accuracy and recency of information of the developed Learning Activity Sheets.

2.5 Research Instrument

The primary research instrument was an Evaluation Rating Sheet for Print Resources patterned after the Department of Education guidelines and processes for LRMDs Assessment and Evaluation. The instrument consisted of three sections: the evaluation checklist, comments and recommendations, and overall recommendations regarding the developed Learning Activity Sheets. The evaluation checklist assessed the LAS in terms of content, format, presentation and organization, and accuracy and recency of information. Specific components evaluated included the title, background information, learning competencies, directions, activities, guide questions, rubric, reflection, references, and answer key. Content focused on alignment with learners' developmental levels and MELCs, as well as the promotion of higher-order thinking skills. Format examined the visual and physical characteristics of the LAS, including readability, illustrations, design, and layout. Presentation and organization assessed clarity, logical sequencing, learner engagement, and contextualization. Accuracy and recency of information evaluated the correctness of concepts, computations, grammar, and factual content. Each indicator was rated using a four-point Likert scale, where 4 represented the highest level of acceptability and 1 represented the lowest. Mean ratings were interpreted as follows: 3.50–4.00 (Very Satisfactory), 2.50–3.49 (Satisfactory), 1.50–2.49 (Poor), and 1.00–1.49 (Very Poor).

2.6 Data Gathering Procedure

The study followed the Research Management Guidelines stipulated in DepEd Order No. 16, s. 2017. Prior to data collection, approval was secured from the Schools Division Superintendent and district authorities. Results of the Rapid Mathematics Assessment for School Year 2024–2025 were obtained and analyzed to identify the least mastered competency among Grade 2 learners. Based on the assessment results, the researcher developed Learning Activity Sheets aligned with the Grade 2 Mathematics MELCs and relevant curriculum standards. The developed materials included the title, background information, learning competency, instructions, activities, guide questions, scoring rubric, reflection, references, and answer key. These materials underwent initial review by colleagues, the school head, and the thesis adviser before expert evaluation. The finalized Learning Activity Sheets and evaluation instruments were personally distributed to the selected Grade 2 Mathematics teachers and QA Team members. Respondents assessed the materials and provided ratings and recommendations regarding their quality and suitability. Throughout the study, confidentiality, privacy, and ethical standards were strictly observed in accordance with DepEd Order No. 16, s. 2017. The researcher declared that no conflict of interest influenced any stage of the research process.

2.7 Data Analysis Techniques

The collected data were analyzed using Microsoft Excel and Jamovi statistical software. Mean was used to determine the respondents' ratings of the developed Learning Activity Sheets in terms of content, format, presentation and organization, and accuracy and recency of information. An independent t-test was employed to determine whether a significant difference existed between the evaluations of the Grade 2 teachers and the QA Team. All statistical tests were interpreted using a 0.05 level of significance.

3. Results and Discussion

3.1 Development of Learning Activity Sheets in Mathematics 2

3.1.1 Needs Analysis and Identification of the Least Mastered Competency

The development of the Learning Activity Sheets was guided by the ADDIE instructional design model and focused on the least mastered competency in Mathematics 2: solving routine and non-routine word problems involving multiplication of whole numbers, including money. Analysis of the Rapid Mathematics Assessment (RMA) and pretest results revealed that a considerable number of Grade 2 learners had not yet achieved the desired level of mathematical proficiency. Learners obtained a mean percentage score of 72.76% in the RMA and 68.16% in solving multiplication word problems, both interpreted as near mastery. Classroom observations further showed difficulties in understanding word problems, identifying the correct operation, and applying multiplication concepts to real-life situations. These findings indicate that although learners possess foundational knowledge of multiplication, many still struggle to apply mathematical concepts in problem-solving contexts. The results support the need for targeted instructional interventions that strengthen comprehension, reasoning, and application skills. Since multiplication word problems are essential in developing numeracy and real-life mathematical understanding, addressing these learning gaps is necessary to improve learners' confidence and performance in mathematics.

3.1.2 Design and Development of the Learning Activity Sheets

The Learning Activity Sheets were designed to gradually develop learners' ability to solve multiplication word problems through structured and contextualized activities. The materials began with simple multiplication concepts and progressed toward more complex routine and non-routine problem-solving tasks. The LAS incorporated background information, guided activities, exercises, reflection tasks, and assessment components aligned with the Most Essential Learning Competencies and DepEd learning resource standards. The activities were contextualized using familiar situations to

increase relevance and learner engagement. The developed LAS reflected the principles of learner-centered instruction and independent learning. The structured progression of activities enabled learners to build conceptual understanding while gradually developing problem-solving skills. Alignment with DepEd Order No. 18, s. 2020 and curriculum standards ensured the instructional validity of the materials. The use of contextualized examples, clear instructions, and age-appropriate design further enhanced the suitability of the LAS for Grade 2 learners. The positive feedback from evaluators suggests that the materials were relevant, organized, and responsive to learners' needs.

3.2 Evaluation of the Developed Learning Activity Sheets

3.2.1 Content Quality of the Learning Activity Sheets

The developed Learning Activity Sheets received an overall mean rating of 3.94, interpreted as Very Satisfactory, in terms of content. Both the Grade 2 teachers and QA Team agreed that the materials were developmentally appropriate, aligned with the intended learning competencies, and capable of promoting meaningful learning. The evaluators likewise recognized the inclusion of activities that fostered problem-solving, critical thinking, creativity, and learner engagement. The materials were also perceived as inclusive and free from cultural, social, and gender biases. The high content rating indicates that the LAS successfully addressed the targeted Mathematics 2 competency while supporting higher-order thinking skills and learner participation. This finding supports the observations of Cajayon and Benavides (2022), who emphasized that well-designed Learning Activity Sheets enhance learning when aligned with learners' cognitive levels and curriculum competencies. The positive evaluation further suggests that the materials can serve as effective instructional resources for addressing mathematics learning gaps. The inclusion of contextualized and meaningful activities also supports learner engagement and independent learning, consistent with the findings of Ambayon (2020) and Marwedel (2021). Overall, the content quality demonstrates that the developed LAS meets established standards for instructional materials and has the potential to strengthen foundational numeracy skills among Grade 2 learners.

3.2.2 Format Quality of the Learning Activity Sheets

The developed Learning Activity Sheets obtained an overall mean rating of 3.94, interpreted as Very Satisfactory, for format. Both the Grade 2 teachers and the QA Team positively evaluated the readability, visual presentation, illustrations, layout, paper quality, and overall physical design of the materials. The evaluators agreed that the LAS used appropriate font sizes, spacing, and visual elements suitable for Grade 2 learners. The illustrations were considered clear, recognizable, and supportive of the learning activities, while the overall design was viewed as organized, attractive, and easy to use. The results indicate that the LAS successfully met the standards for instructional material design and accessibility. The high ratings suggest that the format enhanced learners' ability to engage with the content and follow instructions independently. This finding supports Gargrish (2020), who emphasized that readability and accessibility are essential characteristics of effective instructional materials. Similarly, Cajayon and Benavides (2022) and Clarindo et al. (2020) highlighted the importance of meaningful visual representations in promoting learner engagement and understanding. The positive evaluation also aligns with DepEd quality standards requiring instructional resources to be clear, accessible, and learner-friendly. Consequently, the LAS format contributes to creating a supportive learning environment that encourages active participation and independent learning.

3.2.3 Presentation and Organization of the Learning Activity Sheets

The Learning Activity Sheets received an overall mean rating of 3.91, interpreted as Very Satisfactory, for presentation and organization. Both respondent groups agreed that the materials were logically sequenced, clearly organized, and easy to follow. The activities progressed from simple to more complex tasks, allowing learners to gradually develop understanding and problem-solving skills. The evaluators also noted that the instructions, sentence structures, and vocabulary were generally appropriate for Grade 2 learners and supported independent completion of activities. The findings demonstrate that the LAS effectively organized content in a manner that facilitates comprehension and learner engagement. The logical progression of activities enabled learners to build knowledge systematically while reducing confusion and cognitive overload. This result is consistent with Cevikbas (2021), who emphasized that well-organized educational materials enhance accessibility and support learner achievement. Likewise, Fitria (2023) and Gargrish (2020) noted that clear instructions and organized presentation are essential for independent learning. The positive evaluation further supports the findings of Cajayon and Benavides (2022), who reported that instructional materials aligned with learners' cognitive levels improve engagement and understanding. Overall, the organization and presentation of the LAS contributed to their effectiveness as instructional resources for Mathematics 2.

3.2.4 Accuracy and Recency of Information in the Learning Activity Sheets

The developed Learning Activity Sheets obtained a perfect overall mean rating of 4.00, interpreted as Very Satisfactory, for accuracy and recency of information. Both the Grade 2 teachers and the QA Team agreed that the materials contained accurate mathematical concepts, correct computations, appropriate language usage, and information aligned with current curriculum standards. The evaluators found the materials to be free from significant conceptual, grammatical, computational, and typographical errors. The exceptionally high rating indicates strong confidence in the reliability and credibility of the developed LAS. Accurate and updated instructional materials are essential in preventing misconceptions

and promoting meaningful learning. This finding supports Cevikbas (2021) and Cox (2019), who emphasized that instructional materials must provide valid, reliable, and current information to support effective teaching and learning. The results also reflect compliance with the quality assurance requirements of the Learning Resources Management and Development System and DepEd standards for instructional materials. Consistent with the findings of Cajayon and Benavides (2022), Lapinid (2021), and Lacea and Buscano (2023), the use of accurate and validated learning materials contributes positively to learners' understanding and achievement. The high evaluation suggests that the developed LAS can serve as a dependable instructional resource for strengthening foundational numeracy skills among Grade 2 learners.

3.3 Difference in the Evaluation of Grade 2 Teachers and QA Team

3.3.1 Difference in Evaluation of Content Quality

The QA Team and Grade 2 teachers both provided very high ratings for the content of the developed Learning Activity Sheets. The QA Team obtained a mean rating of 3.91, while the teachers obtained a mean rating of 4.00. Statistical analysis revealed a p-value of 0.94, which is greater than the 0.05 level of significance, indicating no significant difference between the evaluations of the two groups. The result suggests that both groups shared a common perception regarding the relevance, appropriateness, and alignment of the LAS content with the intended Mathematics 2 competencies. The agreement between classroom practitioners and instructional material evaluators strengthens the validity of the developed materials. This finding supports Dubley (2019), who emphasized that effective instructional resources should provide meaningful and curriculum-aligned content. Similarly, Cajayon and Benavides (2022) highlighted that Learning Activity Sheets become more effective when they are aligned with learners' cognitive development and curriculum standards.

3.3.2 Difference in Evaluation of Format Quality

The developed LAS received very satisfactory ratings for format from both respondent groups. The QA Team recorded a mean of 3.92, while the teachers recorded a mean of 3.96. The statistical analysis yielded a p-value of 0.19, which exceeded the 0.05 significance level, indicating no significant difference between the two evaluations. The findings indicate that both groups agreed on the quality of the visual design, readability, layout, and accessibility of the materials. The consistency of the evaluations suggests that the LAS met established standards for instructional material formatting and usability. This supports the views of Fitria (2023) and Gargrish (2020), who emphasized that instructional materials should be visually organized, accessible, and easy to navigate. The agreement between teachers and evaluators further indicates that the LAS successfully balanced technical design requirements with practical classroom usability.

3.3.3 Difference in Evaluation of Presentation and Organization

For presentation and organization, the QA Team obtained a mean rating of 3.84, while the teachers obtained a mean rating of 3.98. Despite the slight variation, the p-value of 0.13 indicated that the difference was not statistically significant. Therefore, both groups shared similar perceptions regarding the organization and presentation of the learning materials. The result suggests that the LAS effectively provided a logical sequence of activities, clear instructions, and an organized learning progression appropriate for Grade 2 learners. The positive evaluation indicates that the materials support learner independence and comprehension. This finding aligns with Ambayon (2020), who emphasized that Learning Activity Sheets encourage self-directed learning through structured activities. Likewise, Clarindo et al. (2020) noted that organized instructional materials help learners build understanding progressively and engage more effectively with learning tasks.

3.3.4 Difference in Evaluation of Accuracy and Recency of Information

The QA Team and teachers both provided very satisfactory ratings regarding the accuracy and recency of information contained in the LAS. Mean ratings of 3.97 and 3.93, respectively, were obtained. The p-value of 0.39 indicated that there was no significant difference between the evaluations of the two groups. The findings demonstrate a shared confidence in the correctness, reliability, and currency of the mathematical concepts, computations, and information presented in the LAS. Accurate instructional materials are essential in preventing misconceptions and promoting meaningful learning. This result supports Chabay (2019) and Cox (2019), who emphasized that instructional resources should contain accurate and current information to support effective instruction. The positive evaluation further suggests that the LAS adhered to curriculum standards and quality assurance requirements.

3.3.5 Overall Difference in the Evaluation of the Learning Activity Sheets

The overall evaluation showed that both groups rated the developed Learning Activity Sheets very positively. The QA Team obtained an overall mean rating of 3.91, while the teachers obtained an overall mean rating of 3.96. Statistical analysis yielded a p-value of 0.12, which is greater than the 0.05 level of significance. Consequently, the null hypothesis was accepted, indicating that no significant difference existed between the evaluations of the two groups across all criteria. The absence of significant differences indicates strong agreement between instructional material evaluators and classroom teachers regarding the quality of the developed LAS. This consensus suggests that the materials are both technically sound and practically applicable in classroom instruction. The result highlights the effectiveness of the systematic development and evaluation process used in producing the LAS. Consistent with Marwedel (2021), well-structured Learning Activity Sheets can serve as effective instructional interventions that support learner independence, mastery of competencies, and

problem-solving skills. Furthermore, Cevikbas (2021), Pepin (2021), and Rezat (2021) emphasized that high-quality instructional materials contribute significantly to learner engagement and academic achievement. Overall, the findings indicate that the developed Learning Activity Sheets meet established quality standards and can serve as effective instructional resources for improving Grade 2 learners' mathematical understanding and problem-solving abilities.

4. Conclusion and Recommendations

The study successfully developed Learning Activity Sheets (LAS) in Mathematics 2 using the ADDIE instructional design model to address Grade 2 learners' difficulties in solving routine and non-routine word problems involving multiplication, including money. The developed LAS obtained a Very Satisfactory evaluation from both the QA Team and Grade 2 teachers in terms of content, format, presentation and organization, and accuracy and recency of information, indicating that the materials met the required quality standards for instructional resources. Furthermore, the absence of a significant difference between the evaluations of the two groups demonstrated strong agreement regarding the quality, suitability, organization, and accuracy of the developed learning materials, confirming their acceptability as supplementary instructional resources for Mathematics 2.

Teachers may utilize and develop well-structured Learning Activity Sheets to strengthen learners' mathematical understanding and provide guided practice in solving word problems. School administrators and curriculum developers may support the development, validation, and distribution of similar instructional materials that address least mastered competencies in mathematics. Future researchers may conduct studies involving larger groups of learners, explore the use of Learning Activity Sheets in other mathematical topics, evaluate their effectiveness through experimental research, and consider involving the teacher-participants of this study as instructional material evaluators in related research.

The study was limited to the development and evaluation of Learning Activity Sheets for Grade 2 Mathematics learners in Kasibu West District, Division of Nueva Vizcaya, during School Year 2025–2026. The evaluation was based solely on the assessments of twenty-four Grade 2 teachers and five QA Team members and focused on content, format, presentation and organization, and accuracy and recency of information. The study did not experimentally measure the effect of the developed Learning Activity Sheets on learners' mathematical achievement or learning outcomes.

Compliance with ethical standards

The authors declare no conflict of interest. This study received no external funding and was conducted with the cooperation of the Schools Division Office, Kasibu West District, Grade 2 teachers, and members of the District QA Team. Participation was voluntary, informed consent was obtained from all participants, and data were collected through non-invasive evaluation procedures using instructional material assessment instruments. All information gathered was treated with strict confidentiality, and no identifying personal information was disclosed in the reporting of the results.

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