

STRENGTHENING MOTHER-TONGUE BASED EDUCATION OF ELEMENTARY TEACHERS IN DEPED COTABATO/MBHTE BARMM THROUGH DEVELOPMENT AND VALIDATION OF INSTRUCTIONAL MATERIALS FOR ELEMENTARY MATHEMATICS

PHILIP LESTER P. BENJAMIN, Ph.D.
Project Team Leader

SANDRA A. NANDING
Component Leader

Funded by:

University of Southern Mindanao

**Extension Program
2023**

UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Cotabato



ABSTRACT

STRENGTHENING MOTHER-TONGUE BASED EDUCATION OF ELEMENTARY TEACHERS IN DEPED COTABATO/MBHTE BARMIM THROUGH DEVELOPMENT AND VALIDATION OF INSTRUCTIONAL MATERIALS FOR ELEMENTARY MATHEMATICS

Project members: *Philip Lester P. Benjamin Ph.D. and Sandra A. Nanding*

Abstract. This extension project aims to strengthen mother-tongue based education in the DepEd Cotabato Division by focusing on instructional materials development and capacity building for elementary teachers. The project is motivated by several key considerations, including the promotion of linguistic and cultural diversity, improvement of student learning outcomes, and addressing the specific needs of students. By using the mother-tongue as the medium of instruction in the early years of education, the project aims to preserve and promote the linguistic and cultural heritage of students in the DepEd Cotabato Division. Research indicates that students who learn in their mother-tongue achieve better academic outcomes, and therefore, this project seeks to enhance student learning outcomes by providing tailored instructional materials that align with their linguistic and cultural background. Additionally, the project aims to build the capacity of teachers to effectively teach in the students' mother-tongue. To achieve its objectives, the project will develop high-quality instructional materials specifically for elementary mathematics. These materials will be designed to engage and educate students effectively. The developed materials will then undergo validation through data analysis and feedback from teachers, students, and parents. This validation process ensures that the materials are aligned with the curriculum and meet the needs of the students. Ultimately, this extension project strives to enhance mother-tongue based education in the DepEd Cotabato Division by providing customized instructional materials and improving the capacity of teachers. By doing so, the project aims to improve student learning outcomes and promote linguistic and cultural diversity in the region.

Keywords: Mother-tongue based education, instructional materials development, elementary teachers, DepEd Cotabato Division, elementary mathematics



NARRATIVE REPORT

A. BASIC INFORMATION

1. Title	Strengthening Mother-tongue based Education of Elementary Teachers in DepEd Cotabato/MBHTE BARMM through Development and Validation of Instructional Materials for Elementary Mathematics	
2. Status	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Completed (by December 2023) For projects to be completed by December 2023, please indicate if: <input checked="" type="checkbox"/> Competing <input type="checkbox"/> Not competing	
3. Project Leader Study Leader (Indicate College/Unit)	Philip Lester P. Benjamin, Ph.D. Sandra A. Nanding College of Science and Mathematics	
Email Address	plbenj@usm.edu.ph	
Contact Number	09338245352	
4. Lead Unit/College	USM Graduate School/ College of Science and Mathematics	
Collaborating Unit/College	DepEd Cotabato/ MBHTE BARMM	
5. Category	<input type="checkbox"/> Program <input checked="" type="checkbox"/> Project <input type="checkbox"/> Study	
6. Classification	<input type="checkbox"/> Research	<input type="checkbox"/> Development <input checked="" type="checkbox"/> Extension
	<input type="checkbox"/> Basic <input type="checkbox"/> Applied	<input checked="" type="checkbox"/> Pilot Testing <input type="checkbox"/> Prototype Development <input type="checkbox"/> Tech. Promotion/Commercialization
7. Thematic Area	<input checked="" type="checkbox"/> Quality Learning, Skills Development, and Literacy <input type="checkbox"/> Social Development, and Strong Institutions <input checked="" type="checkbox"/> Preservation of Culture <input type="checkbox"/> Environmental Protection, Conservation, and Risk Reduction <input type="checkbox"/> Food Security and Poverty Reduction <input type="checkbox"/> Good Health and Well-being <input type="checkbox"/> Innovations in Science, Engineering, and Technology <input type="checkbox"/> Sustainable Entrepreneurship and Management	
8. Project Duration	One Year	
9. Project Location	Nangaan, Kabacan, Cotabato	
10. Total Budget Requested (Php)	60,000	

B. TECHNICAL DESCRIPTION

1. Rationale / Significance

The reason we're extending this project is to make learning easier for kids in the DepEd Cotabato Division. We want to help teachers and students by creating materials and giving training that focus on using their own language. Here are a few important reasons:

1. **Keeping Things Diverse:** We know it's good for kids to learn in their own language because it helps them understand better. Also, it's a way to celebrate and protect the different languages and cultures in DepEd Cotabato Division.
2. **Making Learning Better:** Research says that when students learn in their own language, they do better in school. So, our project wants to make sure students get materials and teaching that fit their language and culture. This way, they can learn better.
3. **Helping Each Student:** We want to look at what each student in DepEd Cotabato Division needs. Our plan is to make materials that work for them and give teachers training that matches what the students are learning.

Overall, our goal with this project is to make learning in the mother tongue better in the DepEd Cotabato/MBHTE BARMM Division. We'll do this by creating materials that match how students speak and by helping teachers teach in a way that suits the students' language. This should make students do better in school and also make sure the different languages and cultures in the area are respected and valued.

Objectives (State the General Objectives and Specific Objectives)

General objective:

To improve mother-tongue based education of elementary school teachers in DepEd Cotabato by developing and validating instructional materials.

Specific objectives:

1. To develop high-quality mother-tongue based instructional materials in elementary mathematics that effectively engage and educate students.
2. To validate mother-tongue based instructional materials developed for elementary mathematics through data analysis and feedback from teachers, students, and parents.

2. Methodology

The methodology for implementing this project will be divided into three main phases: development, implementation, and evaluation.

PRE-IMPLEMENTATION/Development Phase:

- a. Methodology, ethics, MOA, and permission protocols will be finalized.

Ethics:

- Obtain informed consent from participants.
- Ensure confidentiality and anonymity of participants.
- Follow ethical principles and guidelines for research involving human subjects.

Permission protocols:

- Obtain necessary permissions and approvals from relevant authorities such as DepEd Cotabato and the school where the extension project will be implemented.
- Establish a Memorandum of Agreement (MOA) outlining the roles and responsibilities of all parties involved in the project.

- b. Needs assessment

IMPLEMENTATION Phase

- a. Develop and refine existing instructional materials based on the curriculum and the identified needs of the teachers.
- b. Validate the instructional materials through pilot testing with teachers, students, and parents.

3. Accomplishment

In February 2023, we successfully initiated contact with a representative from the local elementary school and presented our extension project to her. Our proposal was well-received, and we provided them with a comprehensive copy of our project plan.

Over the following months, we collected all the necessary documents, including informed consent and permission to proceed. To streamline the process, we utilized an existing memorandum of agreement, ensuring compliance with established protocols.

In March 2023, we completed a thorough needs assessment, which revealed a significant requirement for additional support in mathematics for students belonging to the Maguindanaon tribe. Recognizing the importance of teaching in their mother tongue, we identified this as a key focus area for our project.

As of June 2023, we have made substantial progress in revising our existing learning materials. Our team is meticulously double-checking the content to ensure there are no major issues or discrepancies before the materials are finalized for release. This attention to detail guarantees the quality and effectiveness of the materials in achieving our project goals.

Last month, we went to Nangaan Elementary School to check how well the math materials were working. These materials were translated into the Maguindanaon language. We also had a meeting with the teachers there.

We found a small issue during the test. Some words in the language the students speak were not used anymore, and they were using Filipino words instead. So, we need to make some changes to the materials we are creating.

4. References (in APA format)

5. Problems Met and Recommended Action

Problems Met

Changes in the format/signatories of PRs created delay

Recommended Action

Coordinators should be prompt in submitting PRs and frequent follow up is needed.

6. Budget Utilization

Component	Allocation	Utilized	% Utilized

7. **Attachments:**

- a. Data, supplementary table and/or figures, photo documentation (when applicable)

Approval Sheet

Kabacan, Cotabato
Tel. No. (064) 572-2638
e-mail address: vprde@usm.edu.ph

**OFFICE OF THE VICE PRESIDENT FOR RESEARCH,
DEVELOPMENT AND EXTENSION**

UNIVERSITY RESEARCH DEVELOPMENT & EXTENSION COMMITTEE

APPROVAL SHEET

I. **BASIC INFORMATION** URDEC No.: _____

Project Title: Strengthening mother-tongue based education of elementary teachers in Dep-Ed Cotabato/MBHTE BARM through instructional materials development and validation

Project Leader: Philip Lester Benjamin

Duration/ Period of Conduct: January 2023- December 2023

Implementing Agency/Unit: USM

Location/Research Station: USM

Budget Detail: P60,000.00 (Extension Fund-05)

URDEC No.: _____
☐ Program
☐ Project
☐ Study
☐ Others

II. **ACTION TAKEN:** ☐ Approved ☐ Disapproved Remarks: _____

Date of Implementation: _____

RESEARCH REVIEW COMMITTEE

LYDIA C. PASCUAL ABRIL A. MURRAY EFRENE MAGULAMA
 Director, RDO Director, PICRI Director, USMARC

MARY JOY C. CANOLAS DEBBIE MARIE B. VERZOSA
 Director, ESO Director, RPSO

Approved by: MA. TEODORA N. CABASAN
 VP for RDE

III. **REVIEWED BY:** Date _____ Remarks _____

Statistical Pool _____

III. **FOR ISSUANCE OF:**

☒ Notice to Proceed
☒ Special Order
☐ Research Contract
☐ Policy Guidelines (IPR, PNS, IACUC Permit, others _____)

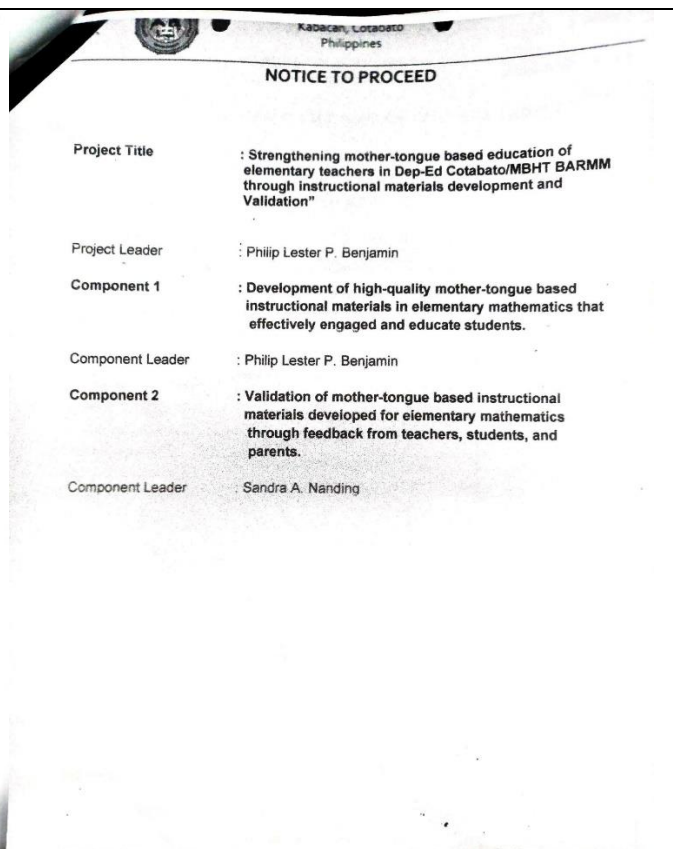
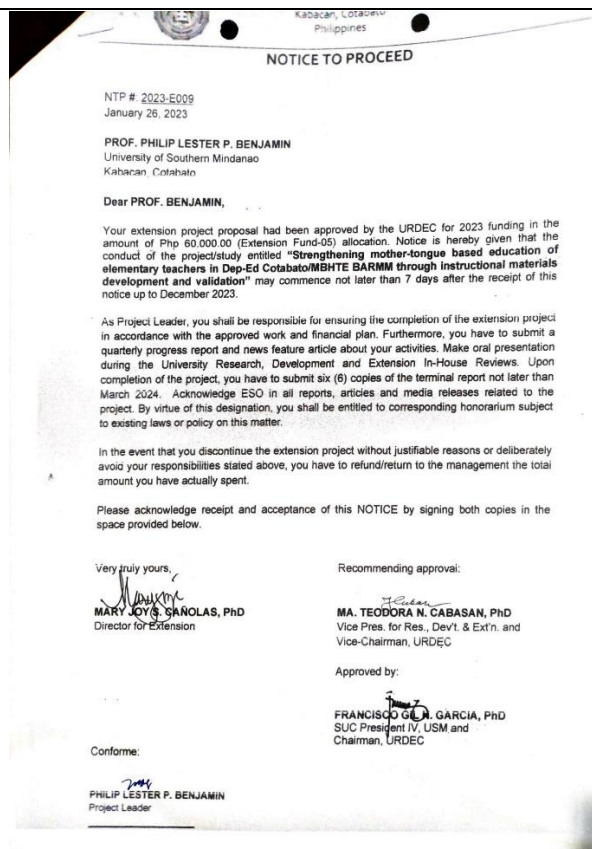
IV. **OUTPUTS:**

☐ Progress Report (Quarterly)
☐ Financial Report
☐ Completion Report
☐ Last Quarter Honorarium released upon submission of terminal/publishable article
☐ Terminal Report/Publishable Article Submitted

Recorded by: _____

USM-RES-F24-REV.1.2020.02.18

Notice to Proceed



Introduction of Extension Project and Team Members



Existing Instructional Materials translated into maguindanaon dialect

Enggay nengka e sawal nu manga niyaba sa baba:

1) $\frac{3}{6} + \frac{1}{6} =$

2) $\frac{1}{2} + \frac{1}{4} =$

3) $\frac{2}{3} + \frac{2}{5} =$

4) $\frac{8}{9} - \frac{2}{9} =$

5) $\frac{5}{6} - \frac{1}{3} =$

Ngalan: _____

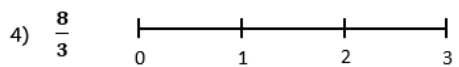
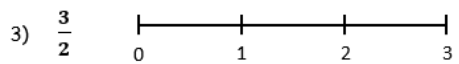
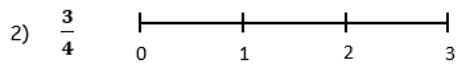
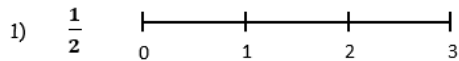
Umol: _____

Eskwela: _____

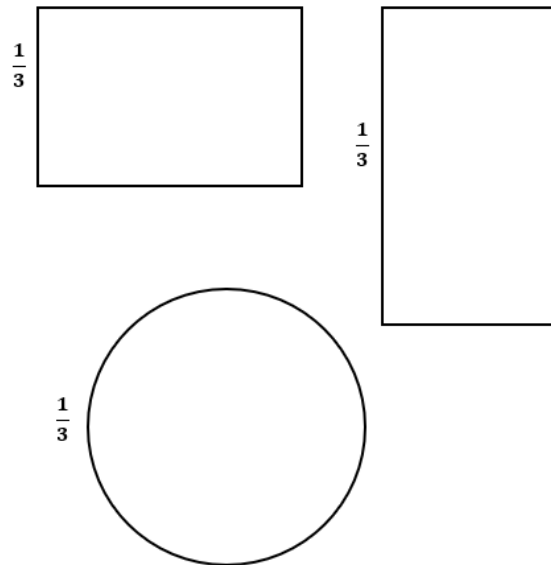
Pangkatán: _____



Tanday ka sa ekis (X) so endaw kano niyaba linya (number line) mailay so nakasulat a fraction:



Gulisi ka endo pakaitem ka e $\frac{1}{3}$ kano niyaba a manga tuladan:



Conduct of Pre-Test



Meeting/Feedback



University of Southern Mindanao
EXTENSION SERVICES OFFICE
Kabacan, North Cotabato



MONITORING/ ACCOMPLISHMENT REPORT

for the C.Y. 2022 – 2023

Project Title: Strengthening Mother-tongue based Education of Elementary Teachers in DepEd Cotabato/MBHTE BARMM through Development and Validation of Instructional Materials for Elementary Mathematics

Proponent/s: All Mathematics and Statistics Faculty

College/Unit: College of Science and Mathematics

Budget Utilization to date: (%)

ACTIVITIES	Accomplishment		% Completion (Cumulative)	Problem/s Encountered	Action/s Taken	Remarks/ Recommendations
	Target	Actual				
Finalization of methodology, Ethics and permission protocols, MOA	10%	10%	10%	None	None	Job well done
Conduct profiling or needs assessment	20%	20%	30%	None	None	Job well done
Development and refining of existing IMs	25%	15%	45%			
Validation of the instructional materials	25%					
Report writing	20%					

b. Workplan



University of Southern Mindanao
EXTENSION SERVICES OFFICE
 Kabacan, North Cotabato



Work Plan

PROJECT TITLE: Strengthening mother-tongue based education of elementary teachers in DepEd Cotabato through instructional materials development and validation.

STARTING DATE: (01-01-23)

COMPLETION DATE: (12-31-23)

Activity No	Major/Sub-Activity	Anticipated Results	Responsible Person	Resources Required	J	F	M	A	M	J	J	A	S	O	N	D	Milestones
1	Finalization of methodology, Ethics and permission protocols, MOA	Finalized methodology, Signed informed consent from participants, signed MOA	Philip Lester Benjamin, Sandra Nanding, Rowel Madio	Bondpaper, printer, gasoline for travels	X	X											10%
2	Conduct profiling or needs assessment	Profile and needs of participants	Philip Lester Benjamin and Sandra Nanding	Bondpapers, internet		X	X										20%
3	Development and refining of existing IMs	Developed and refined IMs	Philip Lester Benjamin, Debbie Marie Verzosa, Leorence Tandog	Bondpapers, printer, internet, gasoline for travels, etc				X	X	X	X						25%
4	Validation of the instructional materials	Validated IMs	Sandra Nanding, Meriam Rubio	Bondpapers, printer, internet, gasoline for travels, etc						X	X	X	X				25%
5	Report writing	Final report	Philip Lester Benjamin, Sandra Nanding	Bondpapers, printer, internet										X	X	X	20%

Strengthening Barangay High Schools: Validating and Implementing Representation Approach-Based Learning Materials for Independent Study of Mathematics in Remote Schools

LEORENCE C. TANDOG

Project Team Leader

LEONARD M. PALETA

Component Leader 1

DEBBIE MARIE B. VERZOSA

Component Leader 2

JUPITER G. PILONGO

Component Leader 4

PHILIP LESTER P. BENJAMIN

Component Leader 5

Funded by:

USM Fund 01

**Extension Program
2025**

**UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Cotabato**



ABSTRACT

STRENGTHENING BARANGAY HIGH SCHOOLS: VALIDATING AND IMPLEMENTING REPRESENTATION APPROACH-BASED LEARNING MATERIALS FOR INDEPENDENT STUDY OF MATHEMATICS IN REMOTE SCHOOLS

Project members: *Leorence C. Tandog, Debbie Marie B. Verzosa, Jonald L. Pimentel, Philip Lester P. Benjamin, Leonard M. Paleta, Anna Jean S. Garcia, Jupiter G. Pilongo, Daryl Mae C. Mamon, Lawton John A. Yabes, Roel S. Valenton, Sandra A. Nanding, Rowel P. Madio*

Abstract. This extension project aims to enhance mathematics education in barangay high schools by implementing validated, representation approach-based self-instructional materials for independent study. Specifically targeting Salvacion High School in DepEd Cotabato, the initiative responds to longstanding challenges in remote education, including teacher shortages, limited instructional resources, and learning disruptions due to environmental and systemic issues. To address these, the project will conduct training for Salvacion High School teachers on action research and instructional material development. The training will build teachers' capacity to collaboratively create, validate, and refine Learning Activity Pages (LAPs) that support self-regulated learning. These materials are designed to promote deep understanding of mathematical concepts and foster skills such as problem-solving, critical thinking, and lifelong learning. The project ultimately seeks to uplift the quality of mathematics instruction in remote schools and contribute to educational equity by empowering both teachers and learners.

Keywords: Action-Based Research, Instructional Development, Self-Learning Modules, Barangay High Schools, Mathematics Education



UNIVERSITY OF SOUTHERN MINDANAO
Kabacan, Philippines



NARRATIVE REPORT

A. BASIC INFORMATION

1. Title	Strengthening Barangay High Schools: Validating and Implementing Representation Approach-Based Learning Materials for Independent Study of Mathematics in Remote Schools	
2. Status	<input checked="" type="checkbox"/> Ongoing <input type="checkbox"/> Completed	
3. Project Leader Study Leader (Indicate College/Unit)	Leorence C. Tandog Debbie Marie B. Verzosa, Philip Lester P. Benjamin, Leonard M. Paleta, Jupiter G. Pilongo College of Science and Mathematics	
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Contact Number	09466115568	
4. Lead Unit/College	College of Science and Mathematics	
Collaborating Unit/College	Graduate School	
5. Category	<input type="checkbox"/> Program <input checked="" type="checkbox"/> Project <input type="checkbox"/> Study	
6. Classification	<input type="checkbox"/> Research	<input type="checkbox"/> Development <input checked="" type="checkbox"/> Extension
	<input type="checkbox"/> Basic <input type="checkbox"/> Applied	<input checked="" type="checkbox"/> Pilot Testing <input type="checkbox"/> Prototype Development <input type="checkbox"/> Tech. Promotion/Commercialization
7. Thematic Area	<input checked="" type="checkbox"/> Quality Learning, Skills Development, and Literacy <input type="checkbox"/> Social Development, and Strong Institutions <input type="checkbox"/> Preservation of Culture <input type="checkbox"/> Environmental Protection, Conservation, and Risk Reduction <input type="checkbox"/> Food Security and Poverty Reduction <input type="checkbox"/> Good Health and Well-being <input type="checkbox"/> Innovations in Science, Engineering, and Technology <input type="checkbox"/> Sustainable Entrepreneurship and Management	
8. Sustainable and Development Goals	<input type="checkbox"/> No Poverty <input type="checkbox"/> Zero Hunger <input type="checkbox"/> Good Health & Well-Being <input checked="" type="checkbox"/> Quality Education	<input type="checkbox"/> Reduced Inequalities <input type="checkbox"/> Sustainable Cities & Communities

EXTENSION PROGRAM OF DEPARTMENT OF MATHEMATICS AND STATISTICS

	<input type="checkbox"/> Gender Equality <input type="checkbox"/> Clean Water & Sanitation <input type="checkbox"/> Affordable and Clean Energy <input type="checkbox"/> Decent Work and Economic Growth <input type="checkbox"/> Industry Innovation & Infrastructure	<input type="checkbox"/> Responsible Consumption & Production <input type="checkbox"/> Climate Action <input type="checkbox"/> Life Below Water <input type="checkbox"/> Life on Land <input type="checkbox"/> Peace, Justice and Strong Institutions <input type="checkbox"/> Partnership for the Goals
9. Project Duration	One Year (Jan – Dec 2025)	
10. Project Location	North Cotabato	
11. Total Budget Requested (Php)	50,000	

B. TECHNICAL DESCRIPTION**1. Rationale / Significance**

Salvacion High School, like many barangay high schools, faces challenges in delivering quality mathematics instruction due to limited resources, teacher shortages, and heavy teaching loads. These issues often lead to students falling behind, especially in mathematics, a subject that requires consistent practice and guidance. To address these concerns, this extension project aims to develop self-learning mathematics materials that students can use independently, reducing their reliance on constant teacher supervision.

The project will also support teachers by easing their workload through ready-to-use instructional modules and enhancing their professional capacity. Teachers will undergo training on Instructional Material (IM) development and action-based research, empowering them to create context-relevant resources and reflect on their teaching practices for continuous improvement. This training will not only improve classroom delivery but also equip teachers with research skills that contribute to their career growth and instructional effectiveness.

By developing self-learning materials and building teacher capacity, the project ensures that Salvacion High School is not left behind in the mathematics area. It promotes educational equity, ensuring that learners in remote schools receive the same opportunities for quality learning as those in more urban or well-resourced schools.

Ultimately, this initiative contributes to the long-term goal of uplifting the quality of mathematics education in barangay high schools, supporting both students and teachers in achieving higher learning outcomes and professional development.

Objectives (State the General Objectives and Specific Objectives)

This project aims to enhance the mathematics education received by students in barangay high schools in DepEd Cotabato with the use of carefully designed and validated self-instructional learning materials.

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Specific objectives:

1. Strengthen math teachers' capability to develop representation-based self-instructional materials.
2. Engage teachers in collaborative work of developing research lessons and Learning Activity Pages (LAPs).
3. Validate, pilot-test, and refine LAPs to efficiently facilitate independent learning of mathematics concepts and skills.
4. Enhance mathematics performance and numerical literacy among barangay high school students through implementation of LAPs

2. Methodology

The project began with a site visit to Salvacion High School, where the team conducted interviews with teachers and school heads to assess the available learning resources and identify the specific needs of students. Additional interviews with teachers helped identify common learning gaps and provided input for the design of Learning Activity Pages (LAPs) intended for self-learning. Graduate students from the PhD and MST Mathematics programs, in collaboration with the Department of Mathematics and Statistics, started developing the materials based on these findings. A planning meeting was held on March 28, 2025, to organize a two-day training-workshop, assign tasks, and finalize the program, which was opened to all high school math teachers and accredited by the PRC for 8 CPD units. A follow-up online meeting via Google Meet was conducted to finalize all preparations. The training-workshop was successfully conducted on May 30–31, 2025, at GS Hall, USM, and focused on instructional material development and action-based research. After the training, the teachers and graduate students continued to work together in refining the materials, which will be pilot-tested in Salvacion High School, with further improvements based on feedback and action-based research results.

3. Results and Discussion

As part of the university's extension initiative, the project aimed to support Salvacion High School and other barangay high schools by improving the quality of mathematics instruction through the development of self-learning materials and the professional development of teachers. One of the key activities under this extension effort was the conduct of a two-day training-workshop titled "*Empowering Educators: Crafting Learning Materials and Implementing Design-Based Action Research*", held on May 30–31, 2025, at GS Hall, University of Southern Mindanao.

The extension activity involved 72 participants, composed of high school mathematics teachers and graduate students from the MST and PhD Mathematics Education programs. Through this training, the project addressed two essential extension goals: (1) providing technical support to schools in developing self-instructional materials that students can use independently, and (2) building the capacity of educators to conduct design-based classroom research that leads to continuous improvement in teaching practices.

Throughout the two-day program, participants attended lectures and workshops facilitated by education experts. Sessions included Action Research, Writing Good Math Problems, the Development of Representation-Based Learning Materials, and Design-Based Research. These sessions were followed by workshops where participants collaboratively designed Learning Activity Pages (LAPs), which serve as outputs of the extension activity. The involvement of graduate students strengthened the academic-community link, providing a venue for mentoring and knowledge sharing.

EXTENSION PROGRAM OF DEPARTMENT OF MATHEMATICS AND STATISTICS

By the end of the training, all groups were able to submit their completed LAPs, which will be further refined and pilot-tested in Salvacion High School. These materials aim to support students in remote schools where teacher supervision is limited, and independent learning is necessary. Each participant received **two certificates** (Participation and Completion), with **8 CPD units accredited by the PRC**, recognizing their active involvement and contribution to the project.

4. Conclusion and Recommendation

This extension project helped improve mathematics education in Salvacion High School by creating self-learning materials and training teachers to develop their own instructional modules and do action-based research. The two-day training-workshop successfully equipped both teachers and graduate students with skills to create Learning Activity Pages (LAPs) that students can use on their own, especially when teacher support is limited. The project also gave teachers a way to reflect on their classroom practices and find ways to improve. The teamwork between the university and high school teachers made the activity more meaningful and practical.

It is recommended to continue supporting the teachers as they try the materials in their classes. More trainings or mentoring can be done to help them use the LAPs well.

5. Accomplishment

- Conducted an ocular visit and needs assessment at Salvacion High School, including interviews with teachers and school heads to evaluate existing learning resources.
- Facilitated a two-day training-workshop on instructional development and action-based research, attended by 72 teachers and graduate students.
- Conducted lectures and workshops on writing math problems, representation-based learning materials, and design-based research.
- Collected initial outputs, including teacher-made instructional materials and sample action research proposals.
- Incorporated findings from the needs assessment and teacher input into the design of LAPs, with several drafts currently under review.

6. References (in APA format)





7. Problems Met and Recommended Action

None

EXTENSION PROGRAM OF DEPARTMENT OF MATHEMATICS AND STATISTICS

8. Attachments:

Attachment A – Supplementary Table/Figure, Photo documentation

Picture 1.	Picture 2.
	
Lecture on instructional design using representation approach by Dr. Verzosa	Participants collaborate actively during the hands-on workshop session
Picture 3.	Picture 4.
	
Workshop participants present their collaborative output to the group	Group photo with participants and training facilitators from USM

Attachment B- Budget Utilization

Component	Allocation	Utilized	% Utilized
Component 1: Building Capacity of Teachers in Instructional Development	1 st Quarter	15,296.40	
Component 2: Building Capacity of Teachers in the Conduct of Action Research			
Component 3: Design and Development of Representation Approach-Based Learning Materials for Independent Learning of Mathematics			
Component 4: Validation and Packaging of Representation Approach-Based Learning Materials for Independent Learning of Mathematics	2 nd Quarter	14,703.60	

EXTENSION PROGRAM OF DEPARTMENT OF MATHEMATICS AND STATISTICS
Attachment C - Workplan

PROJECT TITLE:	Strengthening Barangay High Schools: Validating and Implementing Representation Approach-Based Learning Materials for Independent Study of Mathematics in Remote Schools						
COLLEGE/ DEPARTMENT/ UNIT:	CSM/Math & Stat Dept. in collaboration with GS/MST and PhD Ed Math Programs						
PROPONENT (S):	Leorence Tandog						
Total Duration (in months)	12 months	Planned Start	January 2025	Planned End	December 2025		
Activities	Expected Outputs	Responsible Person	Schedule of Activities				
			1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Milestone (%)
1. Building Capacity of Teachers in Instructional Material Development (one day)	-30 teachers capacitated in IM development -design and sample lay-out of IM	L Paleta (RS) DB Verzosa (RS) L Tandog (RS) J Pilongo (F) R Valenton (F) S Nanding (F) PL Benjamin (M)	Seminar-workshop Initial Planning Brainstorming				10%
2. Development of Representation Approach-Based Learning Materials for Independent Learning of Mathematics (two months)	-20 Learning Mathematics Activity Pages (LMAPS) produced thru lesson study	L Tandog (RS) DB Verzosa (RS) L Paleta J Pilongo (F) R Madio (F) S Nanding (F) PL Benjamin (F) AJ Garcia (F) DM Mamon (F)	Brainstorming Lesson Study Writing Design and Lay-out of LMAPS				50%
3. Validation and Packaging of Representation Approach-Based Learning Materials for Independent Learning of Mathematics (two months)	-20 validated and packaged LMAPS	J Pilongo (RS) L Tandog (RS) DB Verzosa (RS) L Paleta (F) R Valenton (F) S Nanding (F) AJ Garcia (F) DM Mamon (F) L Yabes (F)		Validation & Pilot testing of LMAPS Revision and Packaging of LMAPS			70%
Building Capacity of Teachers on Action Research (One day)	-10 partner teachers capacitated to implement action research using LMAPS	DB Verzosa (RS) L Tandog (RS) J Paleta (F) R Madio (F) R Valenton (M)		Seminar-workshop Initial Planning for action research			80%
Implementation of Representation Approach-Based Learning Materials for Improved Learning of General Mathematics (two months)		PL Benjamin (RS) L Tandog (F) DB Verzosa (F) J Pilongo (F) R Madio (F)			Deploy ment & use of LMAPS by target beneficiaries Pretest & Posttest	Data analysis Report writing & finalization	100%

For Faculty and Staff Researchers

I hereby declare and confirm with my signature that the [Report/ Proposal/ Publication] is exclusively the result of my own autonomous work based on my research and literature published, which is referenced immediately after the information is presented and listed in the reference section. I also declare that no part of the work submitted has been made in an inappropriate way, whether by plagiarizing, infringing on any third person's copyright, or falsifying data. Finally, I declare that no part of the [Report/ Proposal/ Publication] submitted has been used for any other paper in another higher education or research institution.

Printed Name and Signature

Date