

# Impact Assessment and Clients' Feedback towards MATHEMATICS Project Implementation



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## **Abstract**

The Western Philippines University - College of Education's Project MATHEMATICS (Mathematics Enhanced Mentoring, Assistance, and Training to In-need and Challenged Students) was implemented as part of the Adopt-a-School Program to address the mathematical needs of Laura Vicuña Center - Palawan youths. To evaluate the extent of the project implementation, the study assessed its impact through the feedback gathered from the clients served. It specifically described the quality of project implementation, determined the attainment of project objectives, and enumerated client feedback. A concurrent triangulation mixed-method research design was used with 32 clientele samples selected purposively. The study utilized a survey, problem set test, and focus-grouped interview to obtain data pertinent to the study's objectives. The findings revealed an aspirational quality of the implemented project, improved mathematical performance, and the client's desire for ongoing mentoring. The implications and limitations of the study are discussed, along with recommendations for future extension projects, monitoring and evaluation, and re-planning activities.

**Keywords:**

client feedback, extension services, impact assessment, mathematics education, project implementation

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## 1. Introduction

Mathematics is undeniably relevant to every field nowadays. Students who may face difficulties and cannot overcome their struggles with math may hardly understand, appreciate and apply its concept to daily-life situations. Additionally, he/she who was unable to acquire the necessary mathematical knowledge and problem-solving skills may not be likely to succeed in his/her studies, careers, and life-undertakings (Domingo et al., 2021; Ibanez & Pentang, 2021; Pentang et al., 2021).

The 2018 Programme for International Student Assessment and the 2003 Trends in International Mathematics and Science Study revealed the underperformance of young Filipino learners in Mathematics. These results are parallel with local studies, which found that students' mathematical ability needs urgent attention (Balanlay, 2021; Ceria, 2021; Lazo & De Guzman, 2021; Pentang et al., 2020; Ramos et al., 2015). Therefore, it is vital to mentor, assist and tutor students, especially the in-need and challenged individuals, to improve their performance (Chiew et al., 2021; Kendricks et al., 2013; Nguyen, 2013).

In pursuit of its commitment to sustainable development, the Western Philippines University - College of Education (WPU-CED) extends services for the empowerment of individuals and communities based on relevant research outputs. In light of the results of Pentang et al. (2020), WPU-CED established the project MATHEMATICS (Mathematics Enhanced Mentoring, Assistance, and Training to In-need and Challenged Students) under the Adopt-a-School Program to meet the mathematical needs of Laura Vicuña Center - Palawan (LVC-P). The College considers mentoring and other interventions to address the mathematical challenges faced by the LVC-P youths. Lerner (2007) maintained that the essential developmental asset associated with positive youth development is adult mentors in the community. Additionally, mentors serve as role models and sources of support for youths (Anastasia et al., 2012).

Project MATHEMATICS was made possible through the strong linkage between WPU-CED and LVC-P. Ngaka and Zwane (2018) emphasized that partnerships are essential in extension services. Besides, partnerships can help to strengthen, support, and even transform individual partners, resulting in higher program quality, more efficient resource use, and better alignment of goals and curricula (Harvard Family Research Project, 2010). As

a result, several sessions of mentoring and tutorials among LVC-P youths were successfully conducted with all support from the University Extension Services Office and the partner institution.

A total of 65 LVC-P youths benefitted from the project through a series of mentoring and tutorial sessions from 2019 to 2020. The University funded the project with the supervision of Dr. Eulenia C. Pizaña (former University Extension Services Director), Dr. David R. Perez (College Dean), and Asst. Prof. Aylene D. Pizaña (College Extension Coordinator). The project was managed by Ms. Susana P. Egger (Campus Extension Coordinator) and Jupeth T. Pentang (Project Leader and Training Coordinator). All CED faculty and staff were involved in the project planning and implementation. The project is extended this year; however, further sessions were not yet implemented due to the risk posed by the COVID-19 pandemic. Linkages are being established to support the project and its target clients.

To evaluate the project strengths and weaknesses, this study assessed its impact through the client feedback. The goal of impact evaluation is to provide information about the effects of intervention while also ensuring that the project stays on track (Landau, 2018; Peersman, 2015; Verma, 2021), whereas client feedback identifies areas that require additional attention as well as specifics on what they need for a tremendous success (Levine, 2021; Verma 2021). Accordingly, impact assessment and client feedback are relevant for evaluating the extent of the project implementation and re-planning future extension projects and initiatives to be carried out. Furthermore, project evaluations are a vital tool for a team to learn from and improve their performance the next time (Bos et al., 2013). Specifically, this paper aimed to:

1. describe the quality of project implementation in terms of aspirations, appropriateness, and acceptability;
2. determine the attainment of project objectives in terms of the client's performance in numbers, measurement, geometry, algebra, and probability; and
3. enumerate the client's feedback regarding their experiences and on how the project be improved.

## **2. Methodology**

### ***2.1. Research Design***

The study employed a concurrent triangulation mixed-method research design. The design entails a single analysis that collects both quantitative and qualitative data simultaneously, which aims to validate the results generated by each method using evidence caused by the other (Andrew & Halcomb, 2009). The quantitative phase described the quality of the project implemented and determined the attainment of project objectives in terms of the client's performance. The qualitative phase enumerated the client's feedback regarding their experiences and on how the project be improved.

### ***2.2. Respondents***

The quantitative and qualitative study respondents include grades 7 to 10 LVC-P youths who were mentored and tutored on several math concepts for four sessions in 2019 and eight sessions in 2020. Respondents were chosen purposively using total population sampling since the population size is relatively small and shares distinctive characteristics (Laerd Dissertation, n.d.). The study drew 32 respondents who were then available and willingly participated in the survey in December 2020. The LVC-P management approved consent letters.

### ***2.3. Data Gathering and Analysis***

To address the questions posed, a survey, problem set test, and focus group interview were utilized.

**Survey.** A survey was utilized to identify the quality of the project implemented following the recommendations of Preston (2009). The level of quality emphasizes the relevance, timeliness, and efficacy, which are rated as aspirational (or excellent) quality, appropriate (or average), and acceptable (or week) (Bos et al., 2013; Harrin, 2016). Aspirational quality indicates that clients' needs and aspirations were met excellently and exceeded clients' expectations (91% to 100% completion or over). Appropriate quality denotes average achievement of the project objectives (76% to 90% completion), while acceptable quality signifies minimal or simply compliant (51% to 75% completion). This range was based on the initial assessment and pilot testing of the instruments used. Since the

study involves youths, the survey and its content were elaborated on to the respondents to ensure that pertinent data will be gathered. Frequency counts and percentages were used.

**Problem Set Test.** A problem set test modified from SEI-DOST and MATHTED (2011) containing elementary concepts in numbers, measurement, geometry, algebra, and statistics similar to Pentang et al. (2020) was administered to the respondents to determine the attainment of the project objectives in terms of the client's performance. Arithmetic Mean was used to determine the level of mathematical performance of the LVC-P learners along with descriptions such as excellent (0.81-1.00), very satisfactory (0.61-0.80), satisfactory (0.41-0.60), unsatisfactory (0.21-0.40), or poor performance (0.00-0.20).

**Focused Group Interview.** Through focused group interviews applying Krueger and Casey (2015), the LVC-P clients could enumerate their experiences throughout the project. Their suggestions and recommendations on improving the project and its components, such as schedules, lectures, speakers, and materials, were also recorded. Feedback from the clients was themed accordingly. Finally, triangulation was conducted to establish the validity of the results reported.

**Limitations.** Video documentation and voice recording were not permitted due to the age of the respondents. Only half of the total population were able to participate since 50% were allowed to stay in the center while the other group was sent home with the restrictions brought by the COVID-19 pandemic. With such, a comparison of means was not conducted using inferential statistics between before and after performances. The study did not cover the LVC-P management and staff.

### **3. Findings and Discussion**

#### ***3.1. Quality of Project Implementation***

The quality of the project implemented was defined to the extent of its relevance to the clients' needs. Table 1 presents the quality of project implementation rendered by WPU-CED to LVC-P. Of the 32 respondents, twenty-six (or 81%) rated aspirational (or high) quality, while five (or 16%) and one (or 3%) evaluated appropriate (or average) and acceptable (or little) quality, respectively. The data shows that most respondents have high regard for the project implemented, which expresses their acceptance and contentment of the mentoring, tutorial, and assistance rendered by the Extension Team. Bos et al. (2013) and Harrin (2016) mentioned that achieving the aspirational level of quality implies the project

exceeded both objectives and clients' expectations. Indeed, satisfying client needs and striving to exceed client expectations are at the heart of quality service (International Organization for Standardization, 2015).

**Table 1**

***Quality of Project Implementation***

<b>LEVEL OF QUALITY</b>	<b>FREQUENCY (n=32)</b>	<b>PERCENTAGE</b>
Aspirational	26	81
Appropriate	5	16
Acceptable	1	3

WPU-CED extensionists are committed to providing aspirational or high-quality extension services. This was revealed in the study conducted by Pizaña et al. (2021) on the lived experiences of extension project implementers, ensuring that activities and community connections are not hampered by the challenges posed by the COVID-19 pandemic. The project implemented certainly achieved aspirational (or high) quality with the commitment and dedication of WPU-CED extensionists, who took responsibility and accountability for the mentoring and tutorial services provided (Bos et al., 2013; Harrin, 2016; Miller, n.d.; Pizaña et al., 2021).

However, 19 percent have appropriate (or average) and acceptable (or little) quality assessments of the project implemented. Data speaks that minimum expectations were met (Bos et al., 2013; Harrin, 2016). This suggests re-planning of extension activities to achieve the aspirational level of quality. Since much more has to be done, the results may indicate a desire to extend the services provided for the MATHEMATICS project to achieve excellence fully.

***3.2. Attainment of Project Objectives***

Attainment of the project objectives was ascertained through the client's performance. In Pentang et al. (2020), unsatisfactory performance was recorded among LVC-P youths (Mean = 0.25). However, this inquiry revealed a very satisfactory performance (Mean = 0.71). Table 2 displays the level of performance of the LVC-P clients before and after the project was implemented. Data shows improved mean performance in numbers (from 0.33 to

0.81), measurement (from 0.26 to 0.74), geometry (from 0.17 to 0.65), algebra (from 0.16 to 71), and statistics (from 0.34 to 0.62).

**Table 2**

*Attainment of Project Objectives*

CONTENT AREA	MEAN	
	Before Project Implementation (Pentang et al., 2020)	After Project Implementation (Current Study)
Numbers	0.33	0.81
Measurement	0.26	0.74
Geometry	0.17	0.65
Algebra	0.16	0.71
Statistics	0.34	0.62
<b>GRAND MEAN</b>	<b>0.25</b>	<b>0.71</b>

MATHEMATICS project of WPU-CED aimed to deliver mentoring and tutorial extension services to aid clients in learning and doing mathematics. Accordingly, the project objectives were attained based on the enhanced performance of the clients considered. This indicates that the services rendered were able to address the clients' mathematical needs and related learning concerns, especially in dealing with their self-learning modules. Besides, this signifies that the clients could apply the fundamental knowledge specific to the mathematical content areas discussed to them. Results may further imply that the LVC-P youths are now confident with their mathematical abilities due to the effective delivery and implementation of the project.

Nevertheless, achieving an excellent performance challenges the MATHEMATICS project implementers to improve its services. Also, the result needing further implementation may direct WPU-CED to consider continuing its mentoring and tutorial extension services.

### **3.3. Clients Feedback**

The following themes were derived from the client's feedback vis-à-vis their experiences and how they improved. Bos et al. (2013) highlighted that listening is critical, as is understanding the project from another person's perspective.

**Theme 1: Friendly Learning Experience.** The clients mentioned that they enjoyed learning mathematics in the friendly environment provided by WPU-CED and LVC-P.

Clients 1, 6, 10, and 31 noted, "...the mentor/tutor teaches us well even if he is funny. We felt no pressures and fears with him and mathematics...". Besides, clients 11, 13, 15, and 29 admitted, "...we do not like mathematics before, but with the mentor's friendly approach, we become comfortable learning and doing mathematics even though it is difficult...". Furthermore, clients 19, 23, 24, 31, and 32 said, "...we are confident even if we fail in our activities since our tutor always makes way for us to learn. Sir (our tutor) makes ways for us to know, understand and appreciate mathematics, especially that we learn on our own...we may have uneasiness; however, we do not feel it as hard as the way it is before we were tutored". These adhere to Harris et al. (2004), stating that a learning-friendly environment welcomes, nurtures, and educates all students regardless of their background.

**Theme 2: Extension of Project Implementation.** Clients voiced their interest in extending the MATHEMATICS project. Clients 2, 3, 5, and 28 stated, "...if it is possible, we hope that the project will be extended next month or the following year. The sessions are timely and relevant as we learn concepts provided in our modules...". Additionally, clients 10, 16, 17, 23, 25, and 30 agreed, "...the project helps a lot, it is useful as we independently learn what we have in our modules, we want to request the extension of the tutorial sessions...". Moreover, clients 13, 18, and 29 clarified, "...the project being implemented is a great opportunity for us to learn from a mentor outside LVC-P, that the mentor acknowledges our mathematical needs and concerns, and tries to address them...". Pentang et al. (2020) and Pizaña et al. (2021) support this claim, where the WPU-CED Extension Projects and project implementers pursue to deliver sustainable and relevant extension services.

**Theme 3: Source of Encouragement.** Clients of LVC-P expressed that they are encouraged and motivated to complete their studies and pursue their dreams in addition to learning mathematics. Clients 4, 7, 8, 9, 20, 26, and 27 said, "...we are encouraged by the words of our teacher-mentor to complete our studies despite any difficulty...we are being told to focus even if we encounter several challenges". Also, clients 5, 7, 12, 18, 21, 22, and 32 added, "...we are encouraged to be a math teacher with the inspiration from our mentor...we want to teach and help needy individuals too...". More importantly, most clients cited that having a mentor who is willing to help them learn basic and advanced concepts is a source of hope and positivity. "We are learning mathematics in a fun and easy way...more

*than our mentor's quotes and jokes, we are indeed encouraged to make it as a way of life to keep learning despite any hindrance, and we are greatly motivated to love math and apply it to our daily life...".* Encouragement indeed helps in advancing education (Alcott, 2017), and motivation is an essential predictor of learning (Mahler et al., 2018).

**Theme 4: Dedication and Commitment.** Several clients emphasized the utmost dedication and commitment of their teacher-mentor. Clients 1, 6, 10, and 11 acknowledged, *"...we admire the dedication of our teacher-mentor to clarify our queries even if we ask the same questions repetitively...some do not, especially math teachers..."*. In agreement, clients 8, 26, and 29 mentioned, *"...when we request solutions and explanations for several problems, the tutor and his fellow teachers offer ample ways to facilitate us...they even provided us with materials aside from the module provided by the center..."*. More so, clients 15, 19, 27, and 31 averred, *"despite the distance, weather disturbances, and COVID-19 pandemic, we are moved by the commitment of sir (our mentor) to teach and assist us with our modules... he's a genius in mind and great in heart for all of us"*. Undeniably, teachers who are committed to their students recognize and make an effort to fulfill their responsibilities (Maiyani, 2017).

**Theme 5: Additional Materials and Mentors.** The clients asked for additional materials and mentors to help them. Clients 3, 14, 17, 27, 29, and 30 suggested, *"...video tutorials will help us learn our lessons, we cannot always access online materials..."*. Clients 5, 11, 15, and 23 also mentioned, *"...other learning materials such as books and other reading resources will help us understand the lessons included in our module...we hope to have other mentors too so that Sir (our mentor) will not be exhausted to accommodate all of us in one session..."*. Further, clients 8, 9, 10, 24, and 31 emphasized, *"...mentoring and tutorial sessions are helpful, however, when it is no longer possible due to restrictions caused by pandemic, video and reading materials will be helpful...may we also request more mentors especially in other subject areas that challenge us like Science and Reading..."*. Accordingly, supplementary learning materials foster motivation, which is one of the most critical factors influencing learning (Karki, 2018). In addition, mentors play an essential role in guiding and supporting young people in need (Jucovy & Garringer, 2008).

## 4. Conclusion

The majority of the LVC-P clients rated the MATHEMATICS project as excellent. The high-quality impact of the project implemented manifests that the WPU-CED was able to address the mathematical needs and module concerns of LVC-P clients. Thus, the College may sustain its programs and projects to mentor and tutor youths who need help and are willing to receive assistance and to provide comprehensive services, particularly during the COVID-19 pandemic. Still, further monitoring and evaluation, and re-planning efforts must be undertaken by the College Extension Unit to achieve a full aspirational quality.

LVC-P clients had a very satisfactory mathematical performance compared to the unsatisfactory performance recorded before implementing the project. This improved performance establishes the attainment of the project objectives to enhance mathematical knowledge, understanding, and appreciation among youths. With this impact, the WPU-CED is challenged to pursue its goals to impart an excellent performance among its clients through intensified mentoring and tutorial sessions supplemented by materials to facilitate the effective transfer of learning.

Feedback from LVC-P clients has shown the positive impact of the project concerning their experiences. Nevertheless, the WPU-CED may consider the production and distribution of learning materials and the invitation of more mentors/tutors to meet the clients' requests. Re-planning must consider outsourcing of funds for the provision of Information, Education, and Communication (IEC) materials as well as support the mentors/tutors or resource speakers invited. Moreover, the WPU-CED Research, Development, and Extension Unit are highly encouraged to develop IEC materials. Further, other faculty and student may also serve as mentors/tutors to aid in delivering quality and relevant extension services.

LCV-P management and staff were not included, and only half of the participants took part in the study. With such constraints, additional studies and impact assessments may be conducted to extend and confirm the findings reported.

## 5. Acknowledgement

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