



SELF-EFFICACY OF UPLAND HIGH SCHOOL TEACHERS TOWARDS TEACHING MATHEMATICS AS BASIS FOR IN-SERVICE TRAINING

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ABSTRACT

This descriptive-qualitative study examined the self-efficacy of upland high school teachers in teaching mathematics as a basis for an In-Service Training Program in the secondary schools of the Schools District of Bingawan during the school year 2023–2024. Findings from the in-depth interviews revealed that teachers viewed themselves as efficient and confident, capable of providing feedback and guidance, and focused on producing outputs. Their self-efficacy was manifested through positive results, openness to opportunities, and the use of child-centered activities. The study further found that several factors contributed to their self-efficacy in teaching mathematics, including self-concept, stakeholders’ support, emotional and psychological support, learners’ approaches to learning, and the distance of the school. These findings served as the basis for the proposed In-Service Training Program aimed at strengthening the competence and confidence of teachers assigned to teach mathematics in upland high schools.

Keywords: *Self-Efficacy, Upland High School, Teachers, Teaching Mathematics, In-Service Training*

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INTRODUCTION

Mathematics is a field of study that involves the exploration of abstract concepts such as numbers, quantities, shapes, and patterns. It is a fundamental subject that is used in many areas of science, engineering, finance, and technology. It is divided into several sub-disciplines, including arithmetic, algebra, geometry, trigonometry, calculus, and statistics. Each of these areas of mathematics is concerned with different types of problems and applications.

Mathematics is one subject that pervades life at any age and in any circumstance. Thus, its value goes beyond the classroom and the school. Mathematics, as a school subject, therefore, must be learned comprehensively and with much depth (Department of Education, 2013). Mathematics is a relevant subject in the modern education of the youth.

Mathematics teachers have an essential role in building students' strong understanding of mathematics and equipping them for future academic studies and careers that depend on mathematical competence. To teach effectively, they need not only a solid grasp of mathematical concepts and skills but also the ability to present these in ways that are clear, relevant, and understandable to diverse learners. Providing a quality mathematics curriculum is therefore a challenging and highly demanding task.

Self-efficacy of mathematics teachers is an important factor in teachers' instructional practices and their ability to engage students in learning mathematics.

In the domain of education, the efficacy of teachers plays a pivotal role in shaping the learning experiences and outcomes of students, particularly in challenging subjects such as

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mathematics. In the context of teaching, teacher self-efficacy is crucial as it influences instructional practices, classroom management, and student engagement.

In the context of teaching mathematics, teachers' beliefs in their ability to convey complex mathematical concepts, manage classroom dynamics, and facilitate student learning are shaped by these sources of efficacy information.

Understanding the interplay between these factors is essential in comprehending the self-efficacy of Upland High School teachers and designing effective interventions to bolster their confidence and competence in teaching mathematics.

The researcher observed that the level of self-efficacy of upland high school teachers in teaching mathematics appeared to change before, during, and after the COVID-19 pandemic. During the pandemic, teachers were required to shift to alternative learning modalities such as modular and online learning, which limited direct interaction with students. When face-to-face classes resumed, many teachers encountered challenges in re-adjusting their instructional strategies, addressing students' learning gaps, and managing classroom dynamics. These experiences seemed to influence teachers' confidence in delivering mathematics lessons effectively.

As a teacher who has witnessed the transition from pandemic learning to the return of face-to-face classes, the researcher noticed that some mathematics teachers experienced difficulties in regaining confidence in teaching complex mathematical concepts and engaging students actively in the classroom. Students also demonstrated varying levels of preparedness in mathematics due to interruptions in learning during the pandemic. These observations

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motivated the researcher to investigate the self-efficacy of mathematics teachers in upland high school. Understanding their experiences and the factors influencing their self-efficacy may help identify possible support mechanisms and professional development programs that can strengthen teachers' confidence and effectiveness in teaching mathematics.

MATERIALS AND METHODS

Research Methodology

This chapter presents the research method, research design, participants of the study, data-gathering procedures, research instrument, and data analysis used in the study. The purpose of this study is to determine the self-efficacy of upland high school teachers in teaching mathematics as basis for in-service training in secondary schools in the Schools District of Bingawan during the school year 2023-2024.

Research Method

The research method utilized in this study was qualitative research using in-depth interviews. Qualitative research focuses on understanding individuals' experiences, perspectives, and meanings they attach to a particular phenomenon (Creswell & Poth, 2018). This approach is appropriate for studies that aim to explore participants' personal experiences and perceptions in their natural context.

In-depth interviews were used as the primary data collection method. According to Seidman (2019), in-depth interviews allow researchers to gather detailed descriptions of participants' lived experiences and interpretations of specific events or situations. During the

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interview process, the researcher and the interviewees were seated at a comfortable distance to facilitate open communication and thoughtful reflection on the questions asked. The purpose of this interaction was to obtain meaningful insights and detailed views of the participants regarding the issue being investigated within their social context. Through participants' responses to the interview questions, the researcher was able to capture their experiences, beliefs, and perspectives related to the phenomenon being studied.

Research Design

This study employed a phenomenological research design. Phenomenology is a qualitative approach that aims to understand and describe the lived experiences of individuals regarding a specific phenomenon (Moustakas, 1994; Creswell & Poth, 2018). It seeks to examine how people perceive, interpret, and give meaning to their experiences, as well as how these experiences influence their understanding of a particular situation.

This research approach emphasizes understanding experiences from the participants' own perspectives. It attempts to capture the essence of those experiences by exploring the personal meanings and interpretations attached to them. Because of this, phenomenology is widely used in disciplines such as psychology, sociology, and education to gain a deeper understanding of human experiences.

As explained by Smith (2013), phenomenology is concerned with the study of structures of consciousness as they are experienced from the first-person point of view. A key element of experience is intentionality, which refers to the way consciousness is directed

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toward specific objects or events. Through the content and interpretation of experience, individuals are able to assign meaning to and make sense of the situations they encounter.

Participants of the Study

The participants of this study consisted of nine (9) upland high school mathematics teachers from selected secondary schools in the Municipality of Bingawan, Iloilo.

Specifically, three (3) participants were from Bingawan National High School, three (3) from Jovita Alfaras Rivera National High School, and three (3) from Malitbog Integrated School. These schools are located in upland areas where teachers may encounter unique teaching contexts and challenges in delivering mathematics instruction.

The participants were chosen because they are actively teaching mathematics at the secondary level and have direct experiences related to the phenomenon being explored in this study, particularly their self-efficacy in teaching mathematics. Their experiences and perspectives provided valuable insights into the factors influencing mathematics teaching in upland schools.

Sampling Design

This study employed purposive sampling. Purposive sampling is a non-probability sampling technique in which participants are selected based on specific characteristics of the population and the purpose of the study. It is also commonly referred to as judgmental, selective, or subjective sampling (Creswell & Creswell, 2018).

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Research Instrument

The primary research instrument used in this study was a researcher-made interview schedule. It consisted of three questions specifically designed to address the objectives of the study. In addition, voice and video recorders were used for data collection and documentation, subject to the participants' consent.

Validity of the Research Instrument

Before establishing the validity of the researcher-made interview schedule, the instrument was submitted to the adviser, the Dean of the Graduate School, and a panel of jurors recognized for their expertise in research, testing and assessment, and science. They were asked to review and validate each question for possible revision and improvement.

Validity refers to the extent to which the inferences made by the researcher are appropriate, meaningful, accurate, and useful. In terms of content-related evidence of validity, the content and format of the instrument should align with the definition of the variables and the group of subjects being measured. This process also helps ensure that the questionnaire items are suitable and relevant (Fraenkel & Wallen, 2007).

The comments, corrections, and suggestions provided by the panel of validators regarding the interview schedule were carefully considered using the appropriate Good and Scates form (Appendix A).

Data Gathering Procedures

Permission to conduct the study was secured from the adviser, the Dean of the Graduate School, the Office of the Schools Division Superintendent, the Office of the District

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Supervisors, the School Heads, and the individual participants. After obtaining these approvals, the researcher personally visited the schools, communities, or other locations convenient for the participants to conduct the interviews.

Before the interviews were conducted, the researcher first requested the participants to sign a waiver or consent form related to their participation in the study. Through in-depth interviews, voice and video recorders were used, with permission, to accurately capture the participants' responses. After completing the series of interviews, the researcher organized and consolidated all the data gathered.

Data Analyses

The data gathered in this study were analyzed using a thematic approach.

Thematic analysis is a method used to identify, examine, and interpret patterns or themes within qualitative data. According to Maguire and Delahunt (2017), its purpose is to recognize significant or interesting patterns in the data and use these themes to answer the research questions or provide insights into a particular issue. Through this process, the collected data are organized, summarized, analyzed, and interpreted to derive meaningful understanding.

Following the thematic analysis approach of Braun and Clarke (2006), the researcher first familiarized with the data by carefully reviewing and reading the interview transcripts several times to gain a deeper understanding of the participants' responses. Significant statements and meaningful responses related to the research problem were then identified and coded. These codes were examined and grouped together to form broader themes that

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represented patterns emerging from the data. The identified themes were further reviewed and refined to ensure that they accurately reflected the participants' experiences and perspectives.

Finally, the themes were clearly defined and interpreted, and the findings were presented to explain the participants' experiences regarding their self-efficacy in teaching mathematics.

RESULTS AND DISCUSSIONS

This study focused on evaluating the self-efficacy of upland high school mathematics teachers as a basis for designing an in-service training program for secondary schools in the Schools District of Bingawan during the School Year 2023–2024.

A qualitative method was employed in the study, using in-depth interviews under a phenomenological research design. The participants were nine (9) high school mathematics teachers, including those from integrated schools, assigned in the upland areas of Bingawan, Iloilo.

Data were collected through a researcher-developed interview schedule. With the consent of the participants, voice and video recorders were also utilized to support data collection and documentation.

To ensure the validity of the instrument, the interview schedule was subjected to content validation by a panel of experts. The criteria for content validation proposed by Fraenkel and Wallen (2007) were used in evaluating the interview questions. All comments

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and recommendations provided by the validators were carefully taken into account in refining the instrument. Once the interview schedule was confirmed to be valid, the necessary permits were secured for the conduct of the in-depth interviews.

Approval to conduct the study was obtained from the adviser, the Dean of the Graduate School, the Office of the Schools Division Superintendent, the School Head, and the individual participants. The researcher personally visited the schools, communities, or any locations convenient for the participants in order to conduct the interviews.

After the completion of the interviews, all gathered data were organized and consolidated. The data were then analyzed and interpreted using thematic analysis.

The following are the findings of the study:

Based on the results of the in-depth interviews with the participants, it was found that upland high school teachers perceived their self-efficacy in teaching mathematics as being efficient and confident, providing feedback and guidance, and output-oriented.

It was also found that their self-efficacy was manifested through positive results, openness to opportunities, and the use of child-centered activities.

Moreover, the results revealed that the factors contributing to the self-efficacy of upland high school teachers in teaching mathematics in the classroom include self-concept, stakeholders' support, emotional and psychological support, learners' approaches to learning, and the school's distance from the community.

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Conclusion

In the light of the findings and insights arrived in this study, the following recommendations are forwarded:

Teachers assigned to teach mathematics should be provided with professional development opportunities, such as seminars, workshops, and in-service training programs, to further enhance their teaching strategies, instructional methods, and classroom management skills.

School heads, together with teachers, should strengthen the support systems within the school and the community to help sustain teachers' confidence and effectiveness in teaching mathematics, particularly in upland schools.

Programs that promote emotional and psychological well-being, including mental health programs, should be strengthened and supported by both the school and the Schools Division Office to help teachers cope with the challenges of teaching in remote areas.

Teachers should likewise be encouraged to participate in collaborative learning activities, mentoring programs, and professional learning communities to enhance their self-efficacy and improve their teaching practices.

Moreover, training programs on time management, instructional planning, and innovative teaching strategies should be provided to improve teachers' performance and productivity in the classroom.

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INSTABRIGHT e-GAZETTE

ISSN: 2704-3010

Volume VII, Issue III

February 2026

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Finally, the proposed In-Service Training Program developed from the findings of this study may be submitted to the Schools Division Office for review and possible implementation within the district.

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