



“Ang Magturo ay Di Biro”: A HERMENEUTIC PHENOMENOLOGICAL STUDY ON THE LIVED-EXPERIENCES OF MATH EDUCATORS IN OUT-OF-FIELD TEACHING

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ABSTRACT

Out-of-field teaching is a significant threat to the provision of quality education. In this context, teachers are tasked to teach subjects outside their specialization. Although several studies have been conducted about out-of-field teaching, nothing is known about the lived experiences in the context of math educators that have utilized Gadamer’s hermeneutic framework in gathering and analyzing data. Therefore, the purpose of this qualitative study is to determine the meaning of the lived experiences of math educators in out-of-field teaching experiences. Using a hermeneutic phenomenological design, a sample of 10 math educators was purposively selected following selection criteria from 2 distinct divisions in the Philippines. This approach allowed for a comprehensive exploration and interpretation of the participants’ experiences and meaning-making processes. After a series of rigorous steps, four major themes emerged from the narrative accounts including (a) out-of-field teaching presents content, pedagogical, and technological issues, (b) out-of-field teaching causes mental and emotional disturbances among teachers, (c) out-of-field teaching requires enough learning resources and proper training/mentoring, and (d) out-of-field teaching entails adaptive behaviors among teachers. These identified themes were important in illustrating the phenomenon and offered new perspectives as a basis for educational reforms and policy-making.

KEYWORDS: *Gadamer’s hermeneutic phenomenological framework, out-of-field teaching*

INTRODUCTION

Out-of-field teaching is a significant threat to the provision of quality education. Hobbs (2013) defined this as a phenomenon where educators are tasked to teach subjects for which they have inadequate training and credentials. In this case, teachers are faced with difficulties associated with the pressures and adjustments in meeting the demands of the new subjects they are not used to. Sadly, this practice has already become widespread in the educational system (Ingersoll, 2002), and it remains unresolved. In fact, out-of-field teaching is one of the ubiquitous issues (Abrams, Varier, & Jackson, 2016) that is not new to the education system and is now pervasive on a global scale (Du Plessis, 2015).

In the Philippine context, out-of-field teaching remained a perennial problem. In fact, a literature review conducted by Gumarang & Gumarang (2021) titled "Unraveling Deterioration in the Quality of Philippine Education" revealed three (3) main problems in our educational system. One of these issues is out-of-field teaching. According to Guzman (2015), as cited by Rebuscas & Dizon (2020), this problem is most prevalent in public schools, particularly when schools are unable to find a qualified teacher for a specific subject area, such as when a math teacher is assigned by the principal to teach a Filipino subject. This, according to Kim (2011), is a disparity between professional expertise and teaching topics. In this situation, the teacher faces a significant challenge in adapting to the new subject he or she will teach.

The study conducted by Umoinyang, Akpan, and Ekpo (2011) showed that out-of-field teaching negatively influenced teachers’ performance. This is supported by Sharplin (2014) who added that educators that lack the quality and experiences that are needed in the subjects pose challenges for them. According to Aina and Olanipekun (2015), among these challenges is a lack of confidence that manifests itself in various ways, such as when preparing lesson plans, selecting or creating activities and analogies to aid students’ learning, responding to students’ questions, setting up laboratory experiments, and generating students’ interest and passion for the subject area. In addition, it can result in low regard among educators (Caldis, 2017). According to Cinkir and Kurum (2015), out-of-field teachers are faced with difficulties with dedication, job satisfaction, motivation, subject matter expertise in teaching, and job adaptation. Certain teachers in the Philippines are unqualified to teach the subject, resulting in poor student performance and substandard education. Further, the study of Rio et al., (2021) revealed that teachers perceived their ability to teach out-of-field subjects as unproductive due to excessive time in teaching preparations and their incompetence. It was also revealed there was



inadequate logistical and infrastructure assistance, particularly insufficient resources and poor internet connectivity. All participants also experienced mental and emotional disturbances such as helplessness, guilt, and low self-esteem. The increasing number of cases outside the discipline is indicative of an unjust organization among teachers (Zhou, 2012).

Caldis (2017) emphasized that out-of-field teaching also affects the subject quality, and it has massive results on the student's level of passiveness and learning. According to Bosse and Torner (2015), this phenomenon negatively impacts students' academic performance. Salvador et al., (2022) observed that the phenomenon created gaps in the overall performance of students. Capulso & Sicat (2019) also discovered that it can lead to students' low aptitude on the subject and low morale or lack of motivation. Additionally, Umoinyang, Akpan, and Ekpo's (2011) findings demonstrated that out-of-field teaching resulted to students' low academic performance in public exams, particularly in the subjects of mathematics, the English language, and the sciences.

The most common reason that resulted in out-of-field teaching is the shortage of teachers (Yumang, 2021). Other factors include subject teacher attrition, hiring requirements, and staffing management (Du Plessis, Carroll, & Gillies, 2015). According to Ingersoll (2002), the difficulty in school recruiting brought on by teacher shortages is not the main cause of out-of-field teaching. Instead, a number of components of school administration and structure have a strong connection to out-of-field teaching. No matter what the true reason/s is/are, out-of-field teaching is serious enough to require immediate government intervention (Kim, 2011) because the teaching and learning process in this phenomenon is at stake and detrimental to the education system according to Abella & De Jesus (2021).

Although several studies have been conducted showing the negative outcomes of out-of-field teaching both for learners and students, based on the extensive literature review of the researchers, there has been no research published focusing on the lived experiences of out-of-field teaching in the context of math educators. Aside from this, most of the phenomenological research conducted relating to out-of-field teaching was done using the transcendental design. The researchers believed that it is also worthwhile to explore the meaning of their experiences. Therefore, the researchers opted to utilize Gadamer's hermeneutic, interpretive approach in gathering and analyzing data which is less explored in the literature. Findings from this qualitative study would fill the gap in the literature reviewed.

THEORETICAL FRAMEWORK

This study adopted an original approach from Vygotsky's (1978) social constructivist theory and Gadamer's (1975) hermeneutic philosophy. This integration aimed to provide a broader framework for gaining a comprehensive understanding of the "real-life" experiences of math educators involved in out-of-field teaching. By drawing on these theories, the study seeks to explore deeply the unique context and dynamics surrounding math educators' experiences in teaching outside their field.

Vygotsky's theory emphasized the social and cultural aspects of learning and how individuals construct knowledge through interactions with others and the environment. Social constructivism is a learning theory propounded by Lev Vygotsky in 1978. The theory holds that language and culture act as the lenses through which people see, express, and understand reality. According to Vygotsky, language and culture are essential to how people think about and perceive the world. This is to say that learning concepts are transmitted by means of language, interpreted, and understood by experience and interactions within a cultural setting (Akpan et al., 2020). According to Vygotsky's social constructivist theory, learning is a social activity that involves interaction, discussion, and cooperation with others. It places emphasis on how cultural tools like language shape people's perspective of the world. Exploring the social aspects of math educators' experiences can provide insight into how they interact with students, fellow educators, and the larger educational community to overcome obstacles in the context of out-of-field teaching.

Vygotsky's concept of the Zone of Proximal Development (ZPD) is particularly relevant to the study. The ZPD refers to the gap between a learner's current abilities and their potential for development with the guidance of more knowledgeable others. In the context of math educators teaching outside their field, understanding how they negotiate the ZPD can provide insights into the strategies they employ to bridge the gap between their existing knowledge and the demands of teaching math. Exploring the types of mediational tools and strategies math educators employ in out-of-field teaching can provide insights into their sense-making processes and how they adapt to teaching math in a different field.

Integrating Vygotsky's social constructivist theory into this phenomenological study, helped to explore the lived experiences of math educators in out-of-field teaching through the lens of social interactions, cultural tools, and the negotiation of knowledge and understanding. This approach provided a rich understanding of how math educators navigate the challenges of teaching math outside their expertise and shed light on the social and cognitive processes involved in their experiences.

Gadamer's (1975) hermeneutic philosophy certainly supports the study to look deep into specific details of the lived experiences of those involved in out-of-field teaching to have a fuller understanding. Hermeneutics is concerned with interpretation and



understanding. It emphasizes the process of interpretation and the context in which meaning is derived (Du Plessis, 2013).

Hermeneutics would be useful in analyzing how math educators interpret their experiences of out-of-field teaching and the many variables that affect their understanding. Using these two frameworks together, researchers could explore the meaning of out-of-field teaching which math educators shared about their lived experiences.

CONCEPTUAL FRAMEWORK

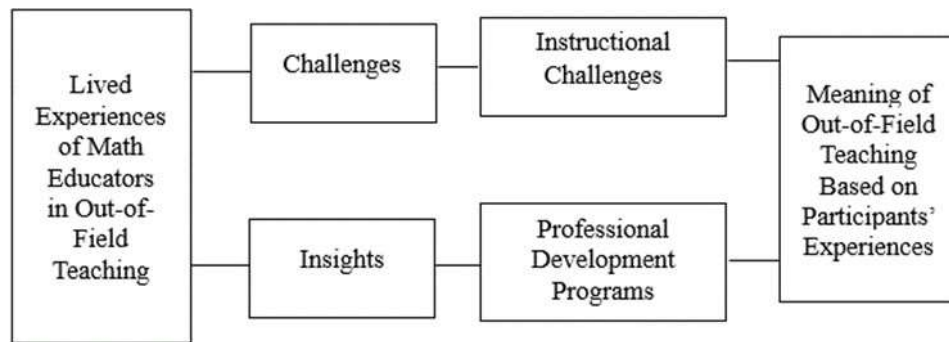


Figure 1. Conceptual Framework

The conceptual framework for this study revolved around the challenges, and insights shared by math educators in out-of-field teaching. These essentials provide a comprehensive understanding of the experiences and needs of these educators.

Challenges of Math Educators in Out-of-Field Teaching. Some of the challenges encountered by mathematics teachers were inadequate instruction, techniques, and strategies for teaching, local and indigenous teaching materials useful for the delivery of the lesson is limited, and unstable internet connection. Because the school lacked instructional resources, the math teachers had to innovate in order to present the lesson and pay for the resources out of their own pockets (Lopez & Roble, 2022).

Insights Shared by Participants in Out-of-Field Teaching. Significant support in the program's success depends on how well school administrators comprehend the realities faced by these teachers. Hence, Du Plessis et al., (2014) asserted that professional development programs that are geared toward the specific necessities of out-of-field teachers are beneficial to develop organized training. Out-of-field teaching has been an issue that raises several suggestions for the teaching profession. Authorities need to ensure an adequate supply of teachers and understand putting out-of-field teachers in the light who do several things. Hence, it is evident that governments, principals, and teacher associations can see that learning to teach out-of-field is not easy but has a cost in terms of teacher effort on top of an already busy workload. If the teacher decides to include the subject in their continuous teaching load, it may take some time and a willing investment to learn to teach the subject (Hobbs, 2020).

By exploring these components within the conceptual framework, the study aimed to provide a comprehensive understanding of out-of-field teaching. This knowledge will certainly inform educational stakeholders and policymakers in developing targeted support and interventions to enhance the experiences and outcomes of math educators in out-of-field teaching.

RESEARCH QUESTIONS

This study aimed to explore the lived experiences of math educators in out-of-field teaching. Specifically, this research would seek to answer the question below.

1. What are the lived experiences of math educators in out-of-field teaching?

METHODOLOGY

Research Design

This study employed a qualitative research design with a hermeneutic phenomenological approach. Hermeneutic phenomenology investigates the meanings of an individual's being in the world, as interpreted by his/her lifeworld, and how these meanings and interpretations influence the individual's decisions (Laverty, 2003). Researchers adhering to this tradition should explicitly acknowledge their preconceptions and consider how their subjectivity contributes to the analysis procedure (Moran, 2002). According to Giorgi (2014), the best criterion for identifying hermeneutic phenomenology is when the research problem necessitates an in-depth understanding of the human experiences shared by a group of people. Since the purpose of this study is to determine the meaning of the lived experiences among math educators in out-of-field teaching experiences, this design seemed most appropriate.

Research Participants

The participants for this hermeneutical research study were selected from two distinct city divisions, namely of El Salvador City



Division and Pagadian City Division. The inclusion of participants from these two divisions aimed to capture diverse perspectives in terms of challenges and insights relevant to out-of-field teaching. This approach allowed for a comprehensive exploration and interpretation of the participants' experiences and meaning-making processes according to Du Plessis (2013). Purposive sampling was used in this study. Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 1990). The researchers purposively opted for distinct educational settings, specifically because of their accessibility and the common experiences of the participants in the phenomenon being studied. This sampling procedure was also decided in the study of Du Plessis (2013) to obtain the most necessary for an in-depth understanding of the out-of-field experience. This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Ingersoll, 2013). The participants were screened based on the following criteria (1) licensed professional teacher majoring in mathematics; (2) regular public senior high school teacher; (3) have experienced teaching non-math subjects at least one school year; (4) have encountered challenges and can share insights related to out-of-field teaching; and (5) and willing to participate in the study data collection. The participants included ten (10) regular SHS teachers following Smith et al., (2009) idea as cited in the study of Kumar, Kumar, & PRABHU (2020) where in the case of interpretive phenomenological analysis a sample size between three and ten would suffice.

DATA COLLECTION

In phenomenological research, the researcher is the data-collection instrument operationalized through the interview (Hellman, 2016). After participants were identified, they were contacted, presented the nature of the research, and asked if they are willing to participate in the study or not. After their confirmation to participate, they were asked to affix their signatures to the informed consent form as proof of their willingness and voluntary commitment to providing and sharing their knowledge as needed in the study. They were asked about their preferences for the time and venue of the interview. Interviews occurred online based on the participants' choice and were of an in-depth, semi-structured fashion to explore the participants' lived experiences with out-of-field teaching. In the online interview, the researcher makes sure to establish rapport questions so that participants will not be intimidated and encouraged to share their thoughts freely. The researcher also read the purpose of the interview and their voices will serve as a bridge to reveal and understand the perspectives of SHS math educators in out-of-field teaching. Participants were also asked for their consent if they are willing to record the conversation or not. The language used is the mother tongue to ensure a smooth flow of conversation. The interview lasted for at least 30mins to 1 hour depending on how much information is shared by the participants. The researcher utilized interview guide questions which are validated by expert professors. The first part is all about their personal information and the second part focused on the participant's lived experiences about out-of-field teaching. There is only one (1) in-depth interview conducted per day to give time for transcription. Consequently, the same questions were asked among participants so that the researcher could solicit information for a better understanding of the essence of the phenomenon. Finally, after the interview, the task of the researcher was to transcribe, organize, and analyze the data.

DATA ANALYSIS

The data collected in this study were analyzed using Gadamer's hermeneutic phenomenological framework as cited by Alsaigh & Coyne (2021). In particular, it went through the following processes.

1. After the identification of the phenomenon, the researchers agreed upon the research questions that will be addressed in the study.
The researchers listed in a journal notebook all their preconceptions or preunderstanding about the phenomenon before the interview. In hermeneutic phenomenological research, these are not bracketed but are used by researchers to acquire a better understanding of the phenomenon of interest and provide the meaning of their lived experiences.
2. The researchers conducted the interview. In this stage, the researchers acted as an active research instrument accepting openly the narratives of the participants and reflecting on every idea presented. The researchers tried to understand how their personal feelings and experiences could influence the research and then incorporate this understanding into the study and this was encouraged by maintaining a reflective notebook throughout the entire process of data collection, analysis, and write-up.
3. The researchers transcribed the narratives of the participants using the following steps.
 - i. The researchers listened attentively to the audio recordings of the narratives expressed by the participants. Listening is done several times to have a general feel of the idea and transcribe them through text. The researchers also reread the transcription several times and make sure that it is truthful. Aside from this, the narratives are also sent back to the participants for member checking.
 - ii. The researchers investigated every section or sentence of the narratives and provide corresponding open codes. Open codes are participants' constructs expressed in their own words or phrase describing what they were saying in the narratives.
 - iii. The researchers identified categories per open code. Categories are researchers construct providing descriptions about the open code. Using NVivo 12(QSR), the researchers organized open codes to form categories. Core categories and subcategories were subsequently manually combined into subthemes.
 - iv. The researcher's group subthemes to form themes.



- v. The researchers present the themes and subthemes that were generated in the study. This is coupled with excerpts of the participants' narratives to better understand the phenomenon. This part of the hermeneutic circle is presented in the result section of this paper.
- vi. The researchers critique the themes and subthemes that were generated in the study and are attached with literature support. The final interpretation made by the researchers per findings is also presented. This part of the hermeneutic circle is presented in the discussion section of this paper.

Trustworthiness of the Study

According to Cohen, Kahn, & Steeves (2000), hermeneutic phenomenological research aims to express the experiences with the phenomenon of interest as close as possible to how they are lived by the participants while noting the interaction and the fusing of horizons among researchers and participants. In this study, the researchers employed the criteria of credibility, dependability, conformability, and transferability by Lincoln & Guba (1985) as cited by Alsaigh & Coyne (2021).

As defined, credibility indicates confidence in the truth of the data and its interpretation. Here, researchers stayed open with the inputs provided and were sensitive while listening to each participant's story to ensure their perspective was clearly noted and represented as clearly as possible. Next, the researchers make sure to provide not only the narratives but as well as the findings of the study with the participants for member checking. This is done to ensure that what was written is an accurate representation of their lived experiences. Moreover, the researchers also invited analysts to review the findings of the study. Lastly, the researchers also look at other related studies and compare whether there are consistencies in the results or not.

The next criterion is about the dependability of the data. Dependability is defined as the stability of data over time and conditions. However, in the case of Gadamer's hermeneutic philosophy, interpretation is not fixed and may change over time. As a result, the final interpretation is not achievable (Alsaigh & Coyne, 2021). The researchers, therefore, are not certain about the stability of data over time.

Conformability is the objectivity of the data. In hermeneutic research, the researchers' preconceived understandings are not bracketed or eliminated from the study, instead, they are considered part of the data. In order to ensure objectivity, the researchers accepted openly the participants' narratives of their experiences with the phenomenon. The researchers, therefore, did not impose their preconceptions and preunderstandings about the topic. The researchers also reoriented themselves from time to time about their role as researchers in the study.

Lastly, transferability concerns the generalizability of the data. This research is hermeneutic phenomenological research whose nature concerns not the generalizability of the findings but the meaning of the challenges and insights of math educators in out-of-field teaching.

Ethical Considerations

Sanjari et al. (2014) asserted that the interaction between researchers and participants can pose ethical challenges for researchers because they are personally involved in various stages of the research. In light of this, the researchers formulated specific ethical guidelines that were adhered to throughout the study.

1. Voluntary participation. The participants are free to choose whether to participate or not in the study without any pressure or coercion. They are also allowed to withdraw from or leave the study anytime they want without negative consequences.
2. Informed consent. After identifying the research participants based on the set criteria, they were contacted and provided with an informed consent form providing relevant information about what the study is all about, the risks and benefits of taking part, and how long the study will be conducted. Moreover, provisions of confidentiality, voluntary participation, termination of participation, and contact numbers are also presented. Participants were asked to affix their signatures as proof of their willingness and voluntary commitment to providing and sharing their knowledge as needed in the study.
3. Risk of harm. Participants were not placed in a precarious position as a result of their participation. They were assured of confidentiality, especially for sensitive discussions. This study also does not offer any physical pain or injury as part of the procedures.
4. Confidentiality. Before the conduct of the study, the researchers asked the participants to agree to keep discussions confidential and to respect each other's privacy. The participants' narratives along with the audio recordings are secured in the computer with a password. All signed consent forms are coded and also locked in the drawer. Names of the participants are also coded. Moreover, the interview was conducted privately so that the discussion cannot be observed or overheard by others.
5. Anonymity. After there was member-checking of transcriptions and findings of the study, the researcher deleted all identifying information about the participants such as personal information and the code names.



RESULTS AND DISCUSSION

Challenges of Math Educators in Out-of-Field Teaching

Two (2) major themes arose from the analysis of the texts of the interviews. Following are the themes illuminated through the rich quotations of the participants' challenges of out-of-field teaching: (1) Out-of-field teaching presents content, pedagogical, and technological issues, and (2) out-of-field teaching causes mental and emotional disturbances among teachers.

Theme 1: Out-of-field teaching presents content, pedagogical, and technological issues. The most common theme identified by the participants was about out-of-field teaching presents content, pedagogical, and technological issues. Participants revealed that they lack content mastery and expertise in the subject matter. As a result, they had difficulty understanding the content and determining the appropriate methods for teaching the subject. Participants also struggled to provide the proper assessments to the students. Moreover, they also revealed that schools' available resources are insufficient in number to cater to the student's learning needs. The following observations and comments capture these themes.

I do not have Content Mastery

"Teaching physics was truly difficult. Even if there are video tutorials and resources online, I am unable to grasp the topics easily. As a result, I find it very difficult to present the lesson in my class."

"I have provided a quiz on the law of supply and demand which I do not even know the answers to."

"If there are questions raised by students which I can't answer, I acknowledged them as "good questions" and set them as an assignment for the whole class to answer."

I do not know the appropriate assessments

"In my practical research subject which I am not familiar with I simply require my students a technical research output as a project about electronics but this alternative activity does not really follow the curriculum."

"I had difficulty teaching the topics of "Komunikasyon at Pananaliksik sa Wika at Kulturang Filipino" subject because this is not my expertise and as a beginning teacher, I needed enough time to study the content. As a result, instead of discussing the main topics what I did was to do role playing almost every day just to survive the daily class."

"Instead of the usual hands-on activities in the internet tools as the main competency, since I do not know how to use them, I simply require my students to memorize the shortcut keys in Excel."

The school does not have enough resources

"My biggest problem encountered especially for Empowerment Technology subject is the lack of resources in the school wherein students need laptops, computers, and internet for their hands-on activities like creating a mini website using the web application tools in the online."

"The challenge in teaching ET-ICT is that students are not able to perform hands-on simulation because of the lack of computers in school. Even the basics in Excel, ppt, and Word are not performed."

"In our computer laboratory, there is a limited number of computers and these units do not have an internet connection."

The findings of the study revealed that out-of-field teaching presents content, pedagogical, and technological issues among teachers. The lack of content mastery over the subject matter seemed to be the dominant issue. Because of this, teachers encountered challenges in content preparation when teaching outside their area of specialization. This result is consistent with the findings of Alcontin and Sinang's (2022) study. Moreover, the teachers who struggled to understand the content also struggled in providing justifiable assessments and constructive feedback to the students. This result agrees with Aina & Olanipekun (2015) and Salvador et al., (2022). As a result, the assessment made is based only on the limited inputs of the teacher. Furthermore, teaching requires enough resources to facilitate the learning process. However, it was shown that the resources are limited in school, particularly computers. The lack of computer supply is a common problem because most of the participants handled computer-related subjects that require hands-on activities but with fewer computer units in school. As a result, it is difficult for teachers to enable students to perform learning competencies associated with computers. According to Udoba (2014), the government's budgetary restrictions placed on the schools are responsible for the shortage of instructional materials.

This shows that the identified content, pedagogical, and technological issues brought about by out-of-field teaching are significant barriers affecting negatively the teachers' performance. As a result, student learning is severely affected. Out-of-field teaching, therefore, is a deprivation of learners' right to quality education. Thus, teachers must find ways to master the content he or she is teaching and deliver quality instruction to the students. Although this is a big challenge for out-of-field teachers, they still have to live up to this expectation. Teachers should ensure that there is pedagogical alignment among the three academic components of the lesson such as instructional process, instructional assessment, and intended outcomes. DepEd should provide the needed resources to be used as tools and references for teaching. This can be achieved by allotting more budget for DepEd in the government context.

Theme 2: Out-of-field teaching causes mental and emotional disturbances among teachers. Most of the participants revealed that out-of-field teaching caused them mental and emotional disturbances. This practice resulted in anxieties that are bothering them



from time to time. It also made them doubt themselves about their capacities. Moreover, participants also struggled to balance their time as a result of out-of-field teaching. The following observations and comments capture these themes.

My anxieties are bothering me

"It seems like you go to war without having any weapon. When I teach subjects outside my specialization, I am very concerned about what to teach and how to teach. I worry if I will be humiliated in class for coming unprepared."

"I was very anxious because the subject is not my forte especially language such as "Pagbasa at Pagsusuri ng Iba't-Ibang Teksto Tungo sa Pananaliksik". I even have problems speaking straight Filipino language."

"I am nervous since I will be teaching physics topics that I still do not have a clear grasp on it."

It made me doubt myself

"I doubted myself if I can live up to the expectations of delivering quality teaching outside specialization. I don't know if I can handle the preparations, gather the resources, and yet I still do not have the skills of dancing for PE subjects."

"Will my students learn from my teachings? Will they be able to appreciate my lesson? Will I'll be able to convey the topics to them where in fact I am not even sure if I am doing the right thing or not?"

"You could not expect me to perform at my best. This is what I told our principal."

I am struggling to balance my time

"It is difficult to balance because in most cases your time is consumed preparing instructional materials for the non-specialized subjects."

"I needed more time to study for the subjects that I did not specialize. As a result, I only have less time to prepare for my major subjects."

"When I was given nonspecialized subjects almost all my free time was consumed studying the lessons. I spent more time studying lessons in the nonspecialized subjects than in the specialized ones."

The findings of the study revealed that out-of-field teaching causes mental and emotional disturbances among teachers. It led them to develop anxieties within themselves. This finding agrees with Rio et al., (2021) wherein participants expressed their anxiousness about having to teach the course without training. It also led them to develop self-doubt. As a result, they always questioned their actions. From lesson preparation to actual lessons to evaluation, everything is fraught with uncertainty. This is attributed to their incompetence with the subject matter. This result can be linked to Rio et al., (2021) findings. In their study, a more serious form of self-doubt called low self-esteem (+Talk, 2015) is perceived by the participants exposed to out-of-field teaching. Moreover, teachers need to balance their time in studying and preparing their lessons. However, in this study, it was also shown that out-of-field teachers encountered time management problems. This is consistent with the findings of Salvador et al., (2022) which found that time management issues were the most prevalent problem confronted by participants who were teaching subjects not aligned with their specialization.

This only means that out-of-field teaching is unhealthy for the teachers. However, this phenomenon may seem unavoidable. What teachers can do is minimize its effect. Therefore, teachers must find ways to mitigate if not totally overcome anxiety problems in order for them to be effective and efficient in their chosen profession. Teachers should discover ways to increase their confidence in their instruction. They need to understand the subject matter and teach it appropriately using the proper instructional strategies to ensure positive results and enhance their confidence in the classroom. Teachers must also learn to use their time effectively. Teachers can also consider maximizing their resources. They can save their lessons such as lesson plans, ppt presentations, and other instructional materials, and have them retrieved once they are going to teach the same topic once again. At least they will just need to update the files instead of making a new one

Insights Shared by Math Educators in Out-of-Field Teaching

Two (2) major themes arose from the analysis of the texts of the interviews. Following are the themes illuminated through the rich quotations of the participants' insights into out-of-field teaching: (1) Out-of-field teaching requires enough learning resources and proper training/mentoring and (2) out-of-field teaching entails adaptive behaviors among teachers.

Theme 1: Out-of-field teaching requires enough learning resources and proper training/mentoring. Several participants mentioned that out-of-field teaching requires the use of enough learning resources and proper training/mentoring for teachers. For the learning resources, lesson exemplars and computers were emphasized. Moreover, the need for training was emphasized which can be done through LAC sessions and INSET. Training/mentoring can be done on a weekly basis. The following observations and comments capture these themes.

Lesson exemplars are essential

"There should be enough resources to be provided to teachers before they will teach subjects outside their specialization so that they will have focus and be able to teach the lesson effectively. An example is a lesson exemplar that contains everything about the lesson."

"It would be better if there are customized manuals that we can just follow."

"I needed a ready-made and comprehensive PowerPoint presentation with comprehensive activities, assessment, and lesson"



plan.”

I needed more computers

“For ET ICT subject, we needed enough supply of tablets or computers in order to do hands-on activities of the students.”

“There should be a 1:1 ratio among computers to the learners to facilitate individual hands-on activities.”

Proper training and mentoring are recommended

“I think it would be better if there are experts who will conduct training for teachers to prepare them for the class for example in the Empowerment Technology subject.”

“Perhaps we can propose to conduct training during INSET or LAC sessions. There must be more knowledgeable others who will explain what are the activities that can be done per week.”

“Training must be relevant to the subjects that you are teaching. Admin should think of professional development plan.”

The findings of the study revealed that out-of-field teaching requires the use of enough learning resources and proper training/mentoring for teachers. For the learning resources, lesson exemplars and computers were crucial resources for teachers. The lesson exemplar provides a road map for the lesson. The participants would have been guided through each phase of the lesson through the detailed descriptions of the procedures. Aside from that, lesson preparation requires a considerable amount of time, particularly for subjects in which they do not specialize; however, the provision of lesson exemplars saves teachers a substantial amount of time, money, and effort. With this, teachers will spend the majority of their time on content comprehension. Meanwhile, most of the participants are handling computer-related subjects with hands-on activities but with limited computer supplies in their schools. This justifies the need for more computers in school in order to guarantee individualized hands-on activities. Associated with the need for computers, is the need for internet connectivity since other subjects require the use of online tools (Rio et al., 2021) in order to perform the main competencies. Moreover, it has been found that out-of-field teachers are needing proper training /mentoring to help them with their difficulties. This result is consistent with the findings of Rio et al., (2021) who emphasized that proper training/mentoring will help develop confidence among teachers. Moreover, according to Salvador et al., (2022), learning from experienced teachers in the fields are big help since they are seasoned with expertise, mastery, and experience. First, they can share their knowledge and teaching skills in a certain subject. Also, they can boost the teacher’s confidence to look at its brighter side as learning is a continuous process. Experienced teachers can help them adjust to the current situation with acceptance. It is a guarantee that they can supervise and may provide constructive feedback as to the presentation of goals in instruction. Although mastery of the lesson is not a given, learning is not dependent on mastery; rather, it is dependent on the ability to analyze and evaluate the content (Alcontin & Sinang, 2022).

This simply shows that the provision of learning resources and the conduct of proper training/mentoring among out-of- field teachers can be a big help for them. Therefore, it is recommended to schedule regular mentoring sessions with these subject experts to guide teachers in their lessons. School administrators should monitor the progress of this program. Meanwhile, DepEd has a crucial part to play in the provision of these learning resources. Given this, the researchers recommend that DepEd should prioritize them and be provided for teachers to equip them even in out-of-field teaching.

Theme 2: Out-of-field teaching entails adaptive behaviors among teachers. Several participants have revealed that out- of-field teaching entails adaptive behaviors among teachers. These adaptive behaviors include being open to learning new things, being flexible and must be knowledgeable. The following observations and comments capture these themes.

It requires flexibility

“A teacher should be flexible. Our goal is to impart knowledge to our students, and we have to do our best in the classroom every time regardless of the subjects given to us.”

“We should be flexible, universal, and knowledgeable.”

It requires openness to learn new things

“They should not dwell only on their expertise.”

“A teacher should be universal. If you’re given a different subject, you need to learn how to teach it. You need to learn what is all about.”

“As a teacher, it doesn’t mean we were not trained, we can no longer teach. That is why we need to study.”

Teachers need to be knowledgeable

“In the case of teaching outside specialization, we need to explore and research.”

“As a teacher, it doesn’t mean we were not trained, we can no longer teach. That is why we need to study.”

“You need to double time in your research.”

The findings of this study have shown that teachers need to have adaptive behaviors in order to survive the challenges of out-of-field teachings. Among the common behaviors include being flexible, open to new learnings, and must be knowledgeable. This result is consistent with the results of Abella & De Jesus (2021). The flexibility of the participants is essential in order for them to be adaptive to the changes brought about by out-of-field teaching. Moreover, teachers also need to be open to new learning and ideas even outside their specialization. Doing so will help them acquire the knowledge needed to understand the subject matter. Being knowledgeable is a very important factor to consider in out- of-field teaching. The main goal of a teacher is to teach the lessons to the students. Without the required knowledge among teachers, this may seem difficult because students’ learning is dependent on the input of their



teachers.

Moreover, out-of-field teaching is unavoidable (Abella & De Jesus, 2021) as in the case of the divisions where the participants work. In fact, out-of-field teaching is one of the universal issues (Abrams, Varier, & Jackson, 2016) that is present anywhere. Whether you teach abroad or just in your locality, this phenomenon exists (Du Plessis, 2015). So, with the right attitudes such as flexibility, openness to learn new things, and being knowledgeable, the impact of the phenomenon on the teachers might be minimized. Therefore teachers, need to have these adaptive behaviors develop within them whenever they choose the teaching profession as their career path.

CONCLUSIONS

This phenomenological study aimed to explore and give meaning to the lived experiences of math teachers who are exposed to out-of-field teaching.

Based on the results of this study, there were two primary themes that highlighted their challenges. It was shown that out-of-field teaching presents content, pedagogical, and technological issues, and out-of-field teaching causes mental and emotional disturbances among teachers. In terms of content, pedagogical, and technological issues, the teachers expressed difficulties due to their lack of content mastery, insufficient resources, and inability to provide the proper assessment. Additionally, the teachers reported experiencing mental and emotional disturbances such as anxiety, self-doubt, and time management problems. Moreover, the insights shared by the participants in out-of-field teaching emphasized the need for support. They expressed the necessity for learning resources to improve their content knowledge and instructional practices. The participants also emphasized the significance of getting the proper training and mentoring to provide them with the abilities and confidence in their out-of-field teaching situation. Lastly, the participants emphasized the adaptive behaviors of teachers in order to survive the challenges and difficulties of out-of-field teaching. These include being flexible, being open to learning new things, and being knowledgeable.

In conclusion, the results of this phenomenological study provided light on the lived experiences of senior high school math teachers who were involved in out-of-field teaching. The findings highlight the importance of providing support, resources, and professional development opportunities to mathematics teachers engaged in out-of-field teaching to enhance their teaching effectiveness and overall well-being.

RECOMMENDATIONS

Based on the results of this study, the following recommendations can be made:

1. School administrators and educational institutions. The school should prioritize providing professional development opportunities specifically designed to address the challenges faced by math educators in out-of-field teaching. This can include content-specific workshops and seminars to enhance their content mastery and training programs focusing on assessment strategies.
2. Subject Coordinator. Establishing mentorship programs can greatly benefit math educators in out-of-field teaching. Experienced subject teachers can provide guidance, and support, and share practical strategies.
3. School Finance Administrator. Allocating budgets for acquiring supplies on appropriate learning resources can significantly support teachers in enhancing their instructional practices in out-of-field teaching.
4. Teachers. A supportive environment in the context of out-of-field teaching is a way to address this problem. Collaborative planning among subject teachers should be done. It will enable math educators to benefit from the expertise of their colleagues. Through cooperation, teachers can develop integrated lesson plans, share teaching strategies, and collectively create a supportive environment.
5. Future Researchers. Further research on the topic of out-of-field teaching in math education is recommended. Researchers can focus on studies exploring the effectiveness of different teaching strategies, the impact of professional development programs, and the extent of the progress of students in the assessment strategies employed. It can provide valuable insights and inform future policies and practices in supporting math educators in their out-of-field teaching.

LIMITATIONS OF THE STUDY

The following limitations of this study were also important to acknowledge:

1. Generalizing the findings to a broader population can be avoided since the findings of this study were based on a specific context and a limited sample of math educators. The challenges and insights identified may not fully represent the diversity of math educators in out-of-field teaching across different educational settings.
2. This study focused primarily on qualitative data gathered through in-depth interviews. Although this method, provides in-depth insights, it may benefit from complementing quantitative data to provide a more comprehensive understanding of the experiences of math educators in out-of-field teaching.
3. The study only explored the perspectives of math educators themselves, without the perceptions from other stakeholders



such as school administrators, co- teachers, and students which could also give significant input to understand the out-of-field teaching context.

4. The data gathered may be affected by the mode and time of the interview since it was conducted online in the evening with internet connectivity issues and the teachers might be exhausted already from work.

Understanding these limitations makes it easier to effectively contextualize and analyze the findings of the study. Future research can overcome these limitations by utilizing a larger scope of participants, mixed-method approaches, and the inclusion of multiple perspectives to gain a broader understanding of the challenges and insights of math educators in out-of-field teaching.

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REFERENCES

1. Abrams, L., Varier, D., & Jackson, L. (2016). Unpacking instructional alignment: The influence of teachers' use of assessment data on instruction. *Perspectives in Education*, 34(4), 15-28. Retrieved from <https://hdl.handle.net/10520/EJC-51df173ad>
2. Abella, C. R. G., & De Jesus, F. S. (2021). Teaching outside specialization from the perspective of science teachers. *Open Access Library Journal*, 8(8), 1-13. Retrieved from <https://www.scirp.org/journal/paperinformation.asp?paperid=111021>
3. Aina, J. K., & Olanipekun, S. (2015). A review of teacher self-efficacy, pedagogical content knowledge (PCK) and out-of-field teaching: Focussing on Nigerian teachers. *International Journal of Elementary Education*, 4(3), 80-85. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4360997
4. Akpan, V. I., Igwe, U. A., Mpamah, I. B. I., & Okoro, C. O. (2020). Social constructivism: implications on teaching and learning. *British Journal of Education*, 8(8), 49-56.
5. Alcontin, J. E., & Sinang, A. J. (2022). PROCESS- ORIENTED STRATEGY AMONG NON-MAJOR SOCIALSTUDIES TEACHER: APHENOMENOLOGY. *European Journal of Social Sciences Studies*, 7(5). Retrieved from <https://oapub.org/soc/index.php/EJSSS/article/view/1300>
6. Alsaigh, R., & Coyne, I. (2021). Doing a hermeneutic phenomenology research underpinned by Gadamer's philosophy: A framework to facilitate data analysis. *International Journal of Qualitative Methods*, 20, 16094069211047820.
7. Bosse, M., & Törner, G. (2015). The practice of out-of-field teaching in mathematics classrooms—a German case study. *Current State of Research on Mathematical Beliefs XX*, 77.
8. Caldis, S. (2017). Teaching out of field: Teachers having to know what they do not know. *Geography Bulletin*, 49(1), 13-17. Retrieved from <https://search.informit.org/doi/abs/10.3316/INFORMIT.708517176318652>
9. Capulso, L. B., & Sicat, A. T. (2019). Nemo Dat Quod Non Habet the Lived Experience of Senior High School Teachers Teaching Practical Research Subjects. *JournalNX*, 6(06), 1-11.
10. Cinkir, S., & Kurum, G. (2015). Discrepancy in Teacher Employment: The Problem of Out-of-Field Teacher Employment. *Educational Planning*, 22(1), 29-47. Retrieved from <https://eric.ed.gov/?id=EJ1208556>
11. Cohen, M. Z., Kahn, D. L., & Steeves, R. H. (2000). *Hermeneutic phenomenological research: A practical guide for nurse researchers*. Sage Publications.
12. Du Plessis, A. (2013). *Understanding the out-of-field teaching experience*.
13. Du Plessis, A. E. (2015). Effective education: Conceptualising the meaning of out-of-field teaching practices for teachers, teacher quality and school leaders. *International Journal of Educational Research*, 72, 89-102. Retrieved from <https://doi.org/10.1016/j.ijer.2015.05.005>
14. Du Plessis, A. E., Gillies, R. M., & Carroll, A. (2014). Out- of-field teaching and professional development: A transnational investigation across Australia and South Africa. *International journal of educational research*, 66, 90-102.
15. Du Plessis, A., Carroll, A., & Gillies, R. M. (2015). Understanding the lived experiences of novice out- of-field teachers in relation to school leadership practices. *Asia-Pacific Journal of Teacher Education*, 43(1), 4-21. Retrieved from <https://doi.org/10.1080/1359866X.2014.937393>.
16. Gadamer, H. (1975). *Truth and method* (2nd ed.) (J.C.B. Mohr, Trans.). New York: The Seabury Press.
17. Giorgi, A. (2014). *An affirmation of the phenomenological psychological descriptive method: A response to Rennie* (2012).
18. Gumarang Jr., B. K. & Gumarang, B. K. (2021). Unraveling Deterioration in the Quality of Philippine Education. *International Journal of Multidisciplinary: Applied Business and Education Research*. 2(10), 914-917. Retrieved from <https://doi.org/10.11594/ijmaber.02.10.08>
19. Hellman, A. N. (2016). *A hermeneutic phenomenological study of the lived experience of adult female sexual assault survivors* (Doctoral dissertation, East Tennessee State University).
20. Hobbs, L. 2013. "Teaching 'Out-of-field' as a Boundary- Crossing Event: Factors Shaping Teacher Identity." *International Journal of Science and Mathematics Education* 11 (2): 271-297. Retrieved from <https://doi.org/10.1007/s10763-012-9333-4>.
21. Hobbs, L. 2020. "Learning to Teach Science Out-of-field: A Spatial-temporal Experience." *Journal of Science Teacher Education* 31 (7): 725-745. doi: <https://doi.org/10.1080/1046560X.2020.1718315>.
22. Ingersoll, R. (2002). *Out-of-field teaching, educational inequality, and the organization of schools: An exploratory analysis*. Retrieved from https://repository.upenn.edu/cpre_researchreports/2_2/
23. Ingersoll, R.M. (2013). *Research Spotlight on Out-of-Field*. Teaching NAE Reviews of the Research on Best Practices in Education.



Retrieved from www.nea.org>Tools and Ideas>Teaching Strategies Articles & Resources

24. Kim, E. G. (2011). *Out-of-field secondary school teachers in Korea: Their realities and implications*. *KEDI Journal of Educational Policy*, 8(1).
25. Kumar, S., Kumar, R. S., & PRABHU, M. G. N. (2020). *Sampling framework for personal interviews in qualitative research*. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 7102-7114.
26. Laverty, S. M. (2003). *Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations*. *International journal of qualitative methods*, 2(3), 21-35.
27. Lopez Jr, H. B., & Roble, D. B. (2022). *Challenges and Adaptive Strategies of Out-of-Field Mathematics Teachers in the Province of Misamis Oriental, Philippines*. *American Journal of Educational Research*, 10(3), 111-115.
28. Moran, D. (2002). *Introduction to phenomenology*. routledge.
29. Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications, inc.
30. Rebucas, E. M., & Dizon, D. M. (2020). *Teaching Outside Science Specialism: Plight of Public-School Science Major Teacher in Montevista District*. *International Journal of Science and Research*, 9(2), 944-949.
31. Rio, I. D., Dela Peña, R. F., Gumban, G. G., Catolin, A. B., & Otayde, E. C. (2021). *Lived experiences of senior high school teachers teaching qualitative research without training*. *Turkish Online Journal of Qualitative Inquiry*, 12(10), 3877-3888. Retrieved from <https://repository.cpu.edu.ph/handle/20.500.12852/2036>
32. Salvador, R., Limon, M., Borromeo, C. M., Parinas, M. A., Manrique, L., de la Cruz, L., & Dalere, J. M. (2022). *Exploring Technical-Vocational Education Teachers' Challenges and Adaptation Strategies in Teaching Courses Outside their Specializations*. *Journal of Technical Education and Training*, 14(2), 34-48. Retrieved from <https://doi.org/10.30880/jtet.2022.14.02.004>
33. Sanjari, M., Bahramnezhad, F., Fomani, F. K., Shoghi, M., & Cheraghi, M. A. (2014). *Ethical challenges of researchers in qualitative studies: The necessity to develop a specific guideline*. *Journal of medical ethics and history of medicine*, 7.
34. Sharplin, E. D. (2014). *Reconceptualising out-of-field teaching: Experiences of rural teachers in Western Australia*. *Educational Research*, 56(1), 97-110. Retrieved from <https://doi.org/10.1080/00131881.2013.874160>
35. +Talk, G. (2015, January 29). *Is it Self-doubt or Low Self- esteem?* Dr Carol. Retrieved from <https://dr-carol.com/2013/03/08/is-it-self-doubt-or-low-self-esteem/>
36. Umoinyang, E. U., Akpan, G. S., & Ekpo, I. G. (2011). *Influence of out-of-field teaching on teachers' job performance*. *Knowledge Review*, 23(2), 28-32.
37. Udoba, H. A. (2014). *Challenges faced by teachers when teaching learners with developmental disability (Master's thesis)*.
38. Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. United States of America: Harvard University Press.
39. Yumang, E. J. R. (2021). *Bittersweet Moments In Teaching Non-specialized Subjects Among Senior High School Teachers*. *European Journal of Humanities and Educational Advancements*, 2(8), 7-10. Retrieved from <https://media.neliti.com/media/publications/383186-none-ea224e83.pdf>
40. Zhou, Y. (2012). *Out-of-Field Teaching: A Cross-National Study on Teacher Labor Market and Teacher Quality*. ProQuest LLC. 789 East Eisenhower Parkway, PO Box 1346, Ann Arbor, MI 48106. Retrieved from <https://eric.ed.gov/?id=ED548401>.