International Journal for Multidisciplinary Research (IJFMR)
E-ISSN : 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Research Competence of Out-of-Field Teachers in Teaching Practical Research: Input to Capability Building Series

Orville J. Evardo Jr.[1], Ivy Lyt S. Abina[2]

[1]Science, Technology, Engineering, and Mathematics Chairperson, Senior High School, Ateneo de Davao University
[2]Assistant Professor I, College of Education, University of Southeastern Philippines

Abstract
Research is a high-level course for the 21st century learners thus requiring highly qualified teachers that are proficient both in research and teaching. This study utilizes convergent parallel design, a mixed method approach to describe the research competence and to design a Capability Building Series Program. The respondents of this study are the out-of-field research teachers from selected private Senior High Schools. There are 40 respondents for the quantitative phase while 14 participants in the qualitative phase. Data were gathered through survey questionnaire, interviews, and focus group discussion. Mean and standard deviation were used to describe the respondents' self-assessed research competence while thematic analysis was used in the analysis of the interview and focus group transcripts. Results of the study showed that while out-of-field research teachers have high self-assessed research competence, there are areas that needs enhancement such as critical evaluation of the state of research, selection and application of methods, theoretical and methodological reflection on research findings, writing an academic publication, and knowledge on the communication standards in the discipline. Based on the results of the study, a Capability Building Series was proposed. It was recommended that out-of-field research teachers continue to engage in professional development activities to improve the teaching-learning experience in the subject.

Keywords: Research Competence, Out-of-Field Teaching, Professional Development

1. Introduction

The Philippines is at the early stage of its goal of educational reform which is highly driven by knowledge creation through research. Hence, research is placed at the heart of preparing future generations to be globally competitive. To highlight the significance of research in the country's development, the Department of Education, added Research subjects to its Senior High School curriculum with the intent of enhancing students' critical thinking and problem-solving abilities. As a high-level course for 21st-century students, research necessitates highly qualified teachers who are proficient in both teaching and research methods (Anub, 2020).

Countries around the world strive for high-quality education that fulfills the needs and issues associated with industrial-innovative development, thus focusing, and investing in teacher research competency

(Amirova et al., 2020). The need to enhance the research competence of teachers is emphasized by the several international studies which found out that teachers did not reach the desired level of attitude and research competence and that they have difficulties in research conceptualization (Çelebi, 2021; Toquero, 2021). Efforts worldwide has been made to enhance the research competence of teachers to meet the growing global need of producing innovative knowledge. This is manifested in the study of Leonard and Wibawa (2020), which presents a modified training model to enhance the research competence of teachers. The authors encourage training developers to consider the modified training model to increase teachers' competence in research.

In the Philippines, studies on policy changes (Ancho, 2019) and capability-building programs (Salde and Mamaoag, 2021; Basilio and Bueno, 2019) have been proposed to enhance the research skills of teachers in response to the call of the Department of Education for a more robust research orientation among teachers and build a research culture in the basic education. The relationship between facilities and resource satisfaction to research competence was also explored by Anub (2020). However, there is no study that explored the effect of the out-of-field teaching phenomenon on the research competence of teachers in basic education. Thus, there is a need to explore the research competence of out-of-field teachers to further design an enhancement program that is suited and appropriate to out-of-field teachers.

Practical Research 2 explores various statistical functions wherein mathematics-and-statistics-related professionals are more knowledgeable. DepEd Secretary Leonor Briones emphasized the urgency of hiring more mathematics and related teachers to address the shortage in many schools (Alcober, 2016). This scarcity of teachers leads academic institutions to allow non-related faculty to teach Practical Research 2 (Quantitative Research). This phenomenon is referred to as “out-of-field” teaching. In this study, out-of-field SHS research teachers refer to non-mathematics-statistics majors who teach Practical Research 2. The ideal situation would have been that Practical Research 2 should be taught by mathematics or statistics-related professionals.

Out-of-field teachers have been shown in studies to have a negative impact on student learning, resulting in lower achievement levels (Hobbs, 2015; Coetzer and Coetzee, 2015). Teachers may experience stress, low self-efficacy, and disappointment as a result of teaching out-of-field and the resulting compromise in teaching competency (Pillay et al., 2005; Schueler et al., 2016). Out-of-field teaching is a global issue because even developed countries like the United States, Australia, and South Africa allow teachers to teach subjects that are not in their field of specialization (McConney and Price, 2009). In the Philippines, studies found out that out-of-field teachers had difficulty, trouble, self-doubt, and a lack of confidence in their profession's teaching and learning process (Bugwak, 2021; Boco and Abadiano, 2020).

With the pressing need to address the problems on teachers’ research competence and issues brought up by out-of-field teaching, the researcher is motivated to conduct this study with the goal of developing a capability building series program to improve their research competence. Hence, this study was proposed. The purpose of this study was to determine the research competence, investigate the lived experiences of out-of-field SHS research teachers, and propose a capability building series program which can be of great benefit to its targeted beneficiaries. The results from this study will serve as a benchmark for a capability building series that will be proposed to help the out-of-field research teachers alleviate the issues and challenges brought up by out-of-field teaching. Through capability building series, the knowledge and skills of out-of-field research teachers will be enriched, thus, producing better research outputs and improve teaching-learning experience.

Objectives

This study aimed to explore the experiences of out-of-field SHS research teachers teaching Practical Research 2: Quantitative Research subject. Specifically, it will aim to seek answers to the following questions:

1. What is the level of self-assessed competence of the out-of-field SHS research teachers teaching Practical Research 2 in terms of: a) skills in reviewing the state of research; b) methodological skills; c) skills in reflecting on research findings; d) communication skills; e) content knowledge; and f) overall research competence?
2. What is the competence of the out-of-field SHS research teachers teaching Practical Research 2 in terms of: a) skills in reviewing the state of research; b) methodological skills; c) skills in reflecting on research findings; d) communication skills; and e) content knowledge?
3. What enhancement program/s can be proposed to help the out-of-field SHS teachers teaching Practical Research 2?

2. Methodology

The study used a convergent parallel design, a mixed-methods approach, to get a thorough understanding of the topic. A convergent parallel design means that the researcher conducts both quantitative and qualitative portions of the research at the same time, weighs the techniques equally, analyzes the two separately, and interprets the results together (Creswell & Clark, 2017). Because the data is collected and evaluated independently but at the same time, this approach is sometimes referred to as concurrent triangulation design (Edmonds and Kennedy, 2017). The study employed purposive sampling method in selecting the research respondents. Purposive sampling is commonly employed to identify and select information-rich samples associated with the topic of interest (Palinkas et al., 2013). The respondents and participants of the study were the out-of-field research teachers from selected private senior high schools within Davao City who have been assigned to teach Practical Research 2 in their respective schools for one to four years now. There is a total of 40 respondents who participated in the study for the quantitative phase and 14 participants of which six were invited for key informant interview and eight for the focus group discussion. The selection of respondents was based on the following inclusion criteria: (1) must not be a mathematics-statistics major; (2) have taught Practical Research 2 for no more than 4 years.

The study used two (2) instruments to collect data. Quantitative data were gathered using the R-Comp questionnaire adapted from Böttcher and Thiel (2017). Pilot testing of the R-Comp questionnaire was administered to 37 senior high school teachers for the purpose of establishing the reliability of the questionnaire. Table 1 shows the Cronbach's alpha for each of the five dimensions of the R-Comp questionnaire.

Table 1.

Dimension	Cronbach's alpha	N of items
Skills in reviewing the state of research	0.801	4
Methodological Skills	0.917	8
Skills in reflecting on research findings	0.916	6
Communication Skills	0.890	5
Content Knowledge	0.941	9
Overall	0.968	32

To complement the quantitative data gathered, a key informant interview guide was used to collect the qualitative data. The key informant interview guide was subjected to validity to ensure that it measures what it purports to measure (Middleton, 2022). It obtained a validity rating of 4.57 or excellent. Mean and standard deviation were used to determine the self-assessed competence of the study respondents. Thematic analysis was used to analyze the qualitative data. The researcher followed steps as suggested by Braun and Clarke in 2006, which are: (1) familiarization of data, (2) initial coding, (3) collating codes with supporting data, (4) searching for themes, (5) reviewing themes, and (6) writing of narrative.

3. Results and Discussion

Level of Self-Assessed Research Competence of the Out-of-Field SHS Research Teachers

Table 2 presents the respondent's level of self-assessed research competence in terms of the five dimensions of research competence which are skills in reviewing the state of research, methodological skills, skills in reflecting on research findings, communication skills, and content knowledge. It is depicted from the table that the teacher respondents expressed "high" overall research competence with a mean score of 3.79 (SD=.742).

Table 2. Self-Assessed Research Competence of Out-of-Field SHS Research Teachers

	Mean	SD	Description
Skills in reviewing the state of research			
A. Systematically reviewing the state of research	4.06	0.53	High
B. Critically evaluating the state of research	3.80	0.70	High
Sub Mean	**3.93**	**0.63**	**High**
Methodological Skills			
A. Systematic planning and Preparation of the research process	3.85	0.76	High
B. Selection and application of methods	3.55	0.78	High
Sub Mean	**3.70**	**0.79**	**High**
Skills in reflecting on research findings			
A. Theoretically and methodologically reflecting on results	4.06	0.60	High
B. Reflecting on scientific and practical reach	4.10	0.54	High
C. Reflecting on ethical implications	4.20	0.53	High
Sub Mean	**4.12**	**0.56**	**High**
Communication Skills			
A. Writing academic publications	3.72	0.82	High
B. Presentation of Research Findings	3.73	0.79	High
Sub Mean	**3.72**	**0.81**	**High**
Content Knowledge			
A. Knowledge of central theories and current findings	3.73	0.65	High
B. Knowledge on central research methods	3.72	0.80	High

C. Knowledge of communication standards in academic research	3.48	0.74	High
Sub Mean	**3.64**	**0.74**	**High**
Overall Mean	**3.79**	**0.74**	**High**

Table 2 shows that although respondents rated their research competence as "high", there are still areas that needs to be enhanced which are the following: critically evaluating the state of research (M=3.80, SD=0.696), selection and application of methods (M=3.55, SD=0.781), theoretically and methodologically reflecting on results (M=4.06, SD=0.599), writing academic publications (M=3.72, SD=0.818), and knowledge of communication standards in academic research (M=3.48, SD=0.741). These are the sub-dimensions which received the lowest mean in each of the five dimensions of research competency. Also shown in table 2 are the standard deviations of each item which describes the close proximity of the scores to the mean.

It can be noted from table 2 that out of the five (5) dimensions of research competence, the "skills in reflecting on research findings" got the highest mean score (M=4.12, SD=.561). This was followed by "skills in reviewing the state of research" (M=3.93, SD=.634) and "communication skills" (M=3.72, SD=.807). "Methodological skills" ranked fourth with a mean score of 3.70 (SD=.785). Lastly, the respondents' content knowledge (M=3.64, SD=.740) got the lowest mean score. Even though this dimension was ranked last, its descriptive equivalent suggests that the out-of-field research teachers still have "high" competence on the sub-concepts under it. The results of this study agree with those of Anub (2020), who found out that teachers are competent in preparing the results and discussion section, particularly in interpreting and analyzing research data. Moreover, the finding of this study is parallel to those of Arrieta and Marasigan (2021) in which they reported that research teachers need to enhance their content knowledge and gain more experience in writing to become creative and confident research teachers.

Research Competence of Out-of-Field SHS Research Teachers

Research competence refers to the capacity of educators to recognize an issue, collect informational resources that can help solve the problem, evaluate these resources for quality and relevance, and come up with a viable solution to the problem. On the other hand, out-of-field research teachers refers to teachers who are teaching Practical Research 2: Quantitative Research, who are non-mathematics-statistics majors. Table 3 shows the themes that emerged from the research competence of the out-of-field research teachers on the five dimensions of research competence. Table 3 also reflect the core ideas to establish the themes that were generated.

Table 3. Themes on Research Competence of Out-of-Field SHS Research Teachers.

Dimension	Themes	Core Ideas
Skills in reviewing the state of research	Systematized and analytical review of prior research and publications	• Selective review by research interest • Structured review on the salient parts of a study • Meticulous evaluation on the quality and reliability of literature
Methodological skills	Logical planning and organized preparation of the research process	• Structured planning by gathering enough sources and literature • Selecting ang applying research methods by asking help from experts and peers • Planning and preparation of research process by determining the research and financial capability
Skills in reflecting on research finding	Ensuring relevance of research and adherence to ethical consideration	• Connectedness of the theory to the study and results • Generatability of output and gap • Ethical consideration
Communication Skills	Being resourceful and prepared in technical writing and research presentations	• Assistance in technical writing through the use of print and online materials; and applications. • Familiarization of audience • Outlining of crucial details
Content Knowledge	Keeping up to date with the latest research trends	• Reading articles and attending seminars • Establishing networks and connections • Social media utilization

Systematized and analytical review of prior research and publications. Gerlach (2021) defined state of research as a systematic overview of prior findings on a certain topic, question, or research object. Skills in reviewing the state of research refers to the ability of the researcher to provide an overview on the following: models and factors, data basis, methodology, results of the analyses and interpretation, and outstanding issues based on previous studies conducted about the research topic. Under this theme are three (3) supporting core ideas which are (1) selective review by research interest; (2) structured review on the salient parts of a study; and (3) meticulous evaluation on the quality and reliability of literature.

Participants have revealed that when it comes to reviewing previous research, they are most likely to review studies that are aligned with their interest. Participants have stated that research interest play a crucial component in developing research because it serves as the starting point of their inquiry. Lent et al. (1994) as cited by Lambie et al. (2013) suggested that interest in research is a function of personal characteristics, environmental influences, research self-efficacy, and research outcome expectations. Personal characteristics such as investigative, creative, and social interests, as well as gender and age, have direct and indirect effects on research interest through research self-efficacy, research outcome

expectations, and environmental influences. The research training environment and the amount of years teachers have been in the program are two examples of environmental influences. Participants have added that after they found a specific topic to be of their interest, the focus of their review is on the salient parts of the research. The determination of the important parts of the study is subjective, therefore it differs from participant to participant. Commonly, the following are the important parts according to the participants: research gap and methodology as reflected in the abstract, related literature, and findings. Participants have emphasized that the quality and reliability of literature is vital in research. Participants have described that each part of a research paper is like a mechanical piece and each piece work together in harmony for the device to function properly. Following the same analogy, if one piece of a device is broken, the entire device will not function effectively; hence, the quality and reliability of the literature should be a top priority because it is the cornerstone of any study. One of the top considerations of the participants is the recency of the literature. Participants emphasized that literatures should be as recent as possible, and that older literatures (usually more than five (5) years from the current year) should not be used or discouraged, with the exception of general knowledge.

Logical planning and organized preparation of the research process. Methodological skills refer to the researcher's ability to design and employ a research process, decide data/sources/materials needed, and evaluate and apply appropriate research methods. It is also the ability of a researcher that will allow him/her to perform appropriate independent study that will lead to the completion of a research project.

In terms of methodological skills, participants have identified themselves as beginners in research. Participants have revealed that gathering enough sources and literature is important as a research novice. This is done to ensure that the study is properly supported by enough literature. Gathered literature will also serve as a template study in which participants will get inspiration from. This template study will serve as the guide for participants in which they imitate the author's writing style while contextualizing it to fit their present research. This technique is beneficial to the participants, especially because they have said that the majority of them are beginners in terms of research. Participants, as beginners in research, will make use of the outputs of experts as model and learn through it by replication. This concept is supported by Bandura's social-cognitive learning theory in which it emphasizes the importance of learning through modelling (Mcleod, 2016). The importance of asking help from knowledgeable others is also emphasized by the participants. The majority of the participants characterized themselves as research beginners, so expert help and recommendations are extremely beneficial to them. Bandura's social-cognitive learning theory highlights vicarious learning in which one can minimize the risk of doing the same mistake by observing, feeling, and taking important notes from experts or those who have appropriate experiences specific to the field of interest.

As seen from the responses of the participants, peer or group mentoring served as a great tool to combat the challenges faced by teaching out-of-field. A group mentoring session is a gathering of three or more people who are linked by social interactions who have come together for the aim of purposefully challenging and supporting one another in order to improve personal growth and professional skills/development (Kroll, 2016). Results of this study is parallel with the findings of Kiviniemi et al. (2020) that peer mentoring develops the teacher's professional growth, attaching to the professional community, and developing the teacher profession.

This study also found out that participants are more willing to pursue studies that are within the scope of their capability as a researcher. Based on the responses of the participants, capability can be divided into

two (2) aspects: (1) research capability and (2) financial capability. Matus et al. (2018) defines research capability as the ability to engage in, perform or carry out quality research. Participants reported that they are not yet skilled at using advanced research methods and are consequently bound by what they know about research as beginners. Participants have expressed that in doing research, they are most likely to stay in their comfort zone and will be less likely to venture to more advanced methods in research. One of the reasons is the lack of content knowledge which is consistent with the findings of Cassell (2018). Financial capability is also one of the major constraints of a researcher in conducting research. In the study of Ulla (2018) he pointed out that one of the primary challenges of researchers is the lack of financial support. Study participants have shared that their research output is limited by their financial capability and that pursuing more advanced methods in research is heavily dependent from their financial capacity. Should there be enough finances, they would have created more sophisticated research.

Ensuring relevance of research and adherence to ethical considerations. Skills on reflecting on research findings refer to the researcher's ability to relate and reflect the research findings to the study's theoretical framing, methodology, scientific and practical application, and ethical implications. A theoretical framework is made up of theories presented by experts in the topic in which you want to conduct research, which you use as a coat hanger for your data analysis and findings interpretation (Kivunja, 2018). Participants of this study has acknowledged that the theory(ies) used should have a solid connection to the study because it serves as the backbone of the research. Another participant shared that when writing the interpretation of the results, one should view it in the lens of the theory that he/she anchored his/her study. The participant also stressed that drawing the connection of the theory and interpretation of results is one of the difficulties that a researcher might encounter. The participant continued by sharing that in order to build a solid connection between the theory and the result, one should look for consistencies and inconsistencies from various literatures. Moreover, Participants have stressed that conducting research should lean towards generation of new ideas, useful outputs, innovative applications, as well as producing a research gap. They acknowledged that the goal and essence of research is to contribute to the existing body of knowledge in the discipline. The importance of generating outputs is captured from the responses of the participants. The outputs generated by research should be applicable to the reality of the participants. Conducting research is not just to produce something but the product should be useful to the lives of the targeted participants. Another important reflection in conducting research is the ethical implications of a study. According to Chetty (2020) a researcher must adhere to the research's goals of transmitting authentic knowledge, truth, and error prevention. Thus, academic honesty plays an important role in research. Aside from academic honesty, participants explained that confidentiality in research should be strictly observed. Confidentiality is defined as a situation in which a researcher is aware of a research subject's identity but takes precautions to prevent that identity from being revealed to others.

Being resourceful and prepared in technical writing and research presentations. Communication skills refers to the ability of the researchers to convey the results of the research process to scientific audience, lay audience, or both in either written or verbal means. In writing an academic work such as research, participants conveyed that they use available resources at hand or online to assist or guide them with the proper writing technique, grammar, and among others. Writing a paper can be a demanding task especially for a beginning researcher. In terms of the technicality of writing a paper, books and online resources are among the most convenient and readily accessible tools that the participants utilize. Another useful tool

shared by the participants when it comes to preparing a paper is the use of applications like Grammarly. Writing and grammar correction applications are increasingly accessible nowadays. These applications do more than just correct grammatical and spelling errors; they also improve the clarity, conciseness, tone of your work, avoid plagiarism, and many more. Additionally, Study participants noted that when preparing for an oral research presentation, a researcher should be familiar with or know the profile the audience. Familiarity of audience will help a researcher adjust the content of his/her study in such a way that the audience can easily follow the content being conveyed to them. Presenters in research presentations are frequently given a strict time limit. This tight schedule might be taxing at times because a researcher must provide so much data in such a short amount of time. Participants conveyed that highlighting relevant details is a vital skill for a researcher to have. Preparing a precise and concise study outline will aid the researcher in conveying the study's findings in such a short amount of time.

Keeping up to date with the latest research trends. Content knowledge refers to the capacity of the researchers to stay up-to-date and connected to the central theories, new research methods, current findings and development, and knowledge of the communication standards in their respective discipline. Participants keep up to date on the latest advancements in their respective discipline through reading articles. Reading articles, whether in print or online, enhances participants' content knowledge of their discipline. The research participants must always keep themselves up to date because the teacher's familiarity with the discipline's content knowledge has an impact on their students' learning. On the other hand, while reading print or online articles is accessible and easy to obtain, participants expressed that they would go all the way to attend seminars if given an opportunity even if it entails personal expense. Seminars are preferred by participants since they provide a lot more information than reading articles. Attending seminars also allow participants to engage with experts specialized for a specific discipline. Additionally, participants stressed that in order to stay current, one must build networks and connections. Keeping in touch with experts is beneficial because experts may bring a fresh viewpoint, generate better ideas, and have the necessary wisdom. Participants noted that even casual encounters with experts can sometimes lead to a learning opportunity.

Social media is proven to be a great tool for keeping participants informed about current trends and advancements in their field of expertise. Smartphones and other devices are readily available and may deliver a wealth of information with a single click. With so much information being presented, participants emphasized that a researcher's ability to sort through helpful and legitimate material from social media is a must-have skill. Rowlands et al. (2011) discovered that social media has found widespread use at all stages of the research lifecycle, from identifying research possibilities to communicating findings at the conclusion. Journals, conference proceedings, and edited books are still the most common ways to disseminate research, with institutional archives also being highly regarded, but social media has emerged as a significant supplement for spreading and discovering research.

Proposed Capability Building Series Program

Based on the results of the data gathered by the researcher, a proposed capability building series program to enhance the research competence and address the issues experienced by the out-of-field research teachers in teaching Practical Research 2 (Quantitative Research) was developed for possible implementation. Since the data suggested that respondents' self-assessed research competence is "high", the researcher decided to concentrate on the sub-dimensions with the lowest mean in each dimension.

According to Santo et al. (2009), training for the enhancement of research capability among individuals provided the ground for implementing innovation, and once this innovation was recognized, it might produce creativity and be put to good application and purpose. The majority of the respondents believed that engaging in professional development activities such as capability-building program will help them to enhance their research competence focusing on identifying research gaps and evaluating a paper's methodology quality, selection and application of research methods, theoretical and methodological reflection on research findings, writing of academic publication, and knowledge on communication standards in academic research may be designed based on the results of the study.

Table 4. Proposed Capability Building Series Program Action Plan

Goals/ Objectives	Strategies/ Activities	Mapped to Dimensions	Time Frame	Persons Involved	Expected Output
1. To enhance skills in systematically and critically reviewing the state of research.	Seminar-workshop on Identification of Research Gap	• Dimension 1 (Skills in Reviewing the State of Research)	July (1st week)	• Resource Speaker • Participants	Enhanced skills in systematically and critically reviewing the state of research
	Seminar Workshop on Evaluation of Methodological Quality of Researched Findings		July (2nd Week)	• Resource Speaker • Participants	
2. To improve skills in selecting and applying research methods.	Seminar-Workshop on Basic Quantitative Methods	• Dimension 2 (Methodological Skills)	July (3rd and 4th Week)	• Resource Speaker • Participants	Improved skills in selecting and applying research methods
	Seminar Workshop on Advanced Quantitative Methods		August (1st Week)	• Resource Speaker • Participants	
3. To intensify skills in theoretically and methodologically reflecting on research findings	Seminar-Workshop on Theoretical Relation and Reflection of Research Results	• Dimension 3 (Skills in Reflecting on Research Results)	August (2nd Week)	• Resource Speaker • Participants	Intensified skills in theoretically and methodologically reflecting on research findings
	Seminar-Workshop on Methodological		August (3rd Week)	• Resource Speaker • Participants	

	Limitations of Research Results				
4. To improve abilities and practices in writing an academic publication	Seminar-Writeshop on Research Proposal Writing	• Dimension 4 (Communication Skills)	August (4th Week)	• Resource Speaker • Research Adviser • Peer Mentor • Evaluator • Participants	Improved abilities and practices in writing an academic publication
	Seminar-Writeshop on Writing an Academic Publication		Seminar: September (1st Week) Writeshop: September – March	• Resource Speaker • Research Adviser • Peer Mentor • Evaluator • Validator • Participants	
5. To increase knowledge of communication standards in academic research	Seminar-Workshop on Research Communication Standards	• Dimension 5 (Content Knowledge)	April (3rd Week)	• Resource Speaker • Participants	Increased knowledge of communication standards in academic research
	Seminar on Legitimate Research Publication Sites	• Dimension 5 (Content Knowledge)	April (4th Week)	• Resource Speaker • Participants	

4. Conclusions

Based on the results, hereunder were the conclusions drawn by the researcher:

1) Out-of-field research teachers are highly competent in terms of research but needs enhancement on some areas through sustainable enhancement programs.

2) Consultation with experts and peers proves to be important in improving the research competence of out-of-field research teachers.

3) Teachers learn to adapt, be resilient, and find solutions to problems related to out-of-field teaching.

4) Pursuing professional engagement encourages out-of-field teachers. Attendance to professional development activities creates an environment of improved teaching-learning process, keeping them up to date on current instructional methodologies and inspire them to become better instructors in the modern world.

5. Recommendations

The researcher would like to recommend the following based from the results:

1) Out-of-field SHS research teachers may continue to seek and engage in professional growth opportunities such as capability building series and peer mentoring sessions.
2) Educational leaders who oversee assigning teachers to fill positions in the school should create a comprehensive teacher placement matrix and put it at the top priority in order to decrease the incidence of out-of-field teaching.
3) Since this study was conducted exclusively for research teachers in private schools, more research might be done to look at the similar issue among research teachers in public schools.
4) Future study on the research competence and experiences of out-of-field research teachers in Region XI and other regions may be conducted, with the goal of expanding the research base and gathering more information and insights from other out-of-field research teachers.

6. Acknowledgement

The researcher expresses his heartfelt gratitude for all of the help and support he received from the following individuals, without whom this humble endeavor would not have achieved recognition and fulfillment, and whom God used to demonstrate His divine plan for the study's success:
Dr. IVY LYT S. ABINA, his thesis adviser, who despite of her busy schedule rendered her time, patience, and consideration to the researcher. The researcher wishes to express his gratitude to her for generously sharing her views, insights, knowledge, and compassionate direction on this research;
Dr. ROAR CALLAMAN, Dr. MILDIN RETUTAS, and Dr. ROSELLO LYNDON ROBLE, for their inspiring comments and valuable suggestions which greatly helped in the completion of this research;
The family of the researcher, especially Mama Rose and Papa Bilik whose love and guidance are with the researcher in whatever he pursues;
To Prospero and our furbabies: Mustard, Cocoa, and Snowball, for their unconditional support, inspiration, and profound belief in the researcher’s abilities;
To those who were not mentioned but, in some ways, helped the researcher, thank you very much;
Eternal gratitude to the Lord, the source of blessings and wisdom, for giving him the courage, the strength and perseverance, and for His heavenly guidance in the accomplishment of this work.

7. Authors' Biography

The author is a senior high school teacher and the Science, Technology, Engineering, and Mathematics (STEM) Chairperson of the Ateneo de Davao University. He obtained his master’s degree, Master of Arts in Teaching Mathematics, at the University of Southeastern Philippines. He earned his bachelor’s degree, Bachelor of Secondary Education major in Mathematics, at the University of Southeastern Philippines as Cum Laude. At present, he is currently finishing his doctorate degree, Doctor of Philosophy in Science Education major in Mathematics at Bukidnon State University.

References

1. Alcober, N. T. (2016, September 16). *DepEd to hire more Math, Science teachers*. The Manila Times. https://www.manilatimes.net/2016/09/16/news/national/deped-to-hire-more-math-science-teachers/286207

2. Amirova, A., Iskakovna, J. M., Zakaryanovna, T. G., Nurmakhanovna, Z. T., & Elmira, U. (2020). Creative and research competence as a factor of professional training of future teachers: Perspective of learning technology. *World Journal on Educational Technology: Current Issues, 12*(4), 278–289. https://doi.org/10.18844/wjet.v12i4.5181
3. Ancho, I. (2019). Exploring Teachers' Research Competency: Inputs to Policy Enhancement. *ETERNAL (English, Teaching, Learning, and Research Journal), 5*(2), 203. https://doi.org/10.24252/eternal.v52.2019.a2
4. Anub, C. (2020). Senior High School Teachers' Research Competence and Satisfaction with Facilities and Resources. *International Journal of English Language Studies*, 8–24. https://doi.org/10.32996/ijels.2020.2.3.1
5. Arrieta, G. S., & Marasigan, A. C. (2021). Revitalizing Research in the Junior High School Program: Inputs for Curriculum Development and Faculty Development Program. *ETERNAL (English, Teaching, Learning, and Research Journal), 7*(1), 35. https://doi.org/10.24252/eternal.v71.2021.a3
6. Basilio, M., & Bueno, D. (2019). Research Skills and Attitudes of Master Teachers in a Division towards Capability Training. *Philippines Int'l Conference on Economics, Education, Humanities & Social Sciences*. https://doi.org/10.17758/erpub3.uh0119421
7. Boco, Jr., N., & Abadiano, M. (2020). The Existence Of Out Of Field Science Teachers: A Case In Samar National School, Catbalogan City, Samar Philippines. *Journal Of Critical Reviews, 7*(12). http://www.jcreview.com/fulltext/197-1596857371.pdf
8. Böttcher, F., & Thiel, F. (2017). Evaluating research-oriented teaching: a new instrument to assess university students' research competences. *Higher Education, 75*(1), 91–110. https://doi.org/10.1007/s10734-017-0128-y
9. Bugwak, E. R. (2021). Travails of Out-of-Field Teachers: A Qualitative Inquiry. *Journal of World Englishes and Educational Practices, 3*(2). https://doi.org/10.32996/jweep.2021.3.2.4
10. Cassell, C. (2018). "Pushed Beyond My Comfort Zone:" MBA Student Experiences of Conducting Qualitative Research. *Academy of Management Learning & Education, 17*(2), 119–136. https://doi.org/10.5465/amle.2015.0016
11. Çelebi, M. (2021). Investigation of the Attitudes and Competencies of Teachers in Project Schools Towards Scientific Research in a Developing Country. *Journal of Teacher Education and Educators, 10*(1), 99–125. https://files.eric.ed.gov/fulltext/EJ1310240.pdf
12. Coetzer, L., & Coetzee, E. (2015). Out-of-field teaching as a major cause for teachers' stress and tension related experiences in the rural areas of South Africa. *In Proceedings of MAC-ETeL 2015: Multidisciplinary Academic Conference on Education, teaching and E-learning*. Prague.
13. Creswell, J. W., & Clark, V. P. L. (2017). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications, Inc.
14. Edmonds, W. A., & Kennedy, T. (2017). Convergent-Parallel Approach. *An Applied Guide to Research Designs: Quantitative, Qualitative, and Mixed Methods*, 181–188. https://doi.org/10.4135/9781071802779.n15
15. Gerlach, S. (2021, March 17). *How do I define the state of research for my dissertation?* Aristolo Blog. https://blog.aristolo.com/en/how-do-i-define-the-state-of-research-for-my-dissertation/

16. Hobbs, L. (2015, April 12). *Too many teachers teaching outside their area of expertise*. The Conversation. https://theconversation.com/too-many-teachers-teaching-outside-their-area-of-expertise-39688
17. Kiviniemi, U., Tynjälä, P., Heikkinen, H. L. T., & Martin, A. (2020). Running a hybrid: mingling in-service and pre-service teachers in peer-mentoring groups. *European Journal of Teacher Education, 44*(4), 555–571. https://doi.org/10.1080/02619768.2020.1766442
18. Kivunja, C. (2018). Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field. *International Journal of Higher Education, 7*(6), 44. https://doi.org/10.5430/ijhe.v7n6p44
19. Kroll, J. (2016). What Is Meant By The TermGroupMentoring? *Mentoring & Tutoring: Partnership in Learning, 24*(1), 44–58. https://doi.org/10.1080/13611267.2016.1165488
20. Lambie, G. W., Hayes, B. G., Griffith, C., Limberg, D., & Mullen, P. R. (2013). An Exploratory Investigation of the Research Self-Efficacy, Interest in Research, and Research Knowledge of Ph.D. in Education Students. *Innovative Higher Education, 39*(2), 139–153. https://doi.org/10.1007/s10755-013-9264-1
21. Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a Unifying Social Cognitive Theory of Career and Academic Interest, Choice, and Performance. *Journal of Vocational Behavior, 45*(1), 79–122. https://doi.org/10.1006/jvbe.1994.1027
22. Leonard, L., & Wibawa, B. (2020). Development of Teacher Research Competency Training System in Indonesia: A Need Analysis. *Universal Journal of Educational Research, 8*(5), 2064–2070. https://doi.org/10.13189/ujer.2020.080544
23. Matus, J., Walker, A., & Mickan, S. (2018). Research capacity building frameworks for allied health professionals – a systematic review. *BMC Health Services Research, 18*(1). https://doi.org/10.1186/s12913-018-3518-7
24. McConney, A., & Price, A. (2009). Teaching Out-of-Field in Western Australia. *Australian Journal of Teacher Education, 34*(6). https://doi.org/10.14221/ajte.2009v34n6.6
25. Mcleod, S. (2016, February 5). *Social Learning Theory*. SimplyPsychology. https://www.simplypsychology.org/bandura.html
26. Middleton, F. (2022, May 3). *Reliability vs. validity: What's the difference?* Scribbr. https://www.scribbr.com/methodology/reliability-vs-validity/#:%7E:text=Validity%20refers%20to%20how%20accurately,the%20physical%20or%20social%20world.
27. Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2013). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y
28. Pillay, H., Goddard, R., & Wilss, L. (2005). Well-Being, Burnout and Competence : Implications for Teachers. *Australian Journal of Teacher Education, 30*(2). https://doi.org/10.14221/ajte.2005v30n2.3
29. Rowlands, I., Nicholas, D., Russel, B., Canty, N., & Watkinson, A. (2011). Social media use in the research workflow. *Learned Publishing, 24*(3), 183–195. https://doi.org/10.1087/20110306

30. Salde, K., & Mamaoag, N. (2021). Research Capability of Senior High School Teachers in Bayugan City Division: Basis for Capability-Building Program. *Asian Journal of Research in Education and Social Sciences, 3*(2), 144–152. https://myjms.mohe.gov.my/index.php/ajress/article/view/14086
31. Schueler, S., Roesken-Winter, B, Weißenrieder, J., Lambert, A. & Romer, M. (2016). Characteristics of out-of-field teaching: Teacher beliefs and competencies. In K. Krainer, & N. Vondrova (Eds.), Proceedings of the Ninth Congress of the European Society for Research in Mathematics Education, Feb 2015, pp. 3254–3261. Prague: Czech Republic
32. Toquero, C. M. D. (2021). "Real-world:" preservice teachers' research competence and research difficulties in action research. *Journal of Applied Research in Higher Education, 13*(1), 126–148. https://doi.org/10.1108/jarhe-03-2019-0060
33. Ulla, M. (2018). Benefits and challenges of doing research: Experiences from Philippine public school teachers. *Issues in Educational Research, 28*(3). https://search.informit.org/doi/10.3316/informit.864413560180216