Research Self-Efficacy and Productivity of Select Faculty Members: Inferences for Faculty Development Plan

Jupeth T. Pentang[*] ID
Central Luzon State University, PHILIPPINES

Jaynelle G. Domingo ID
Nueva Ecija University of Science and Technology,
PHILIPPINES

Abstract: Faculty members' beliefs in their ability to conduct research and publish research outputs are expected to impact research productivity directly. Thus, the study described the research self-efficacy and productivity among faculty members, their research self-efficacy influence on productivity, and their challenges in research writing and publication. The study utilized a mixed-method sequential explanatory research design, with 36 and nine faculty member-participants for the quantitative and qualitative study. For the quantitative study, the faculty members' research self-efficacy was ascertained using a validated questionnaire, and their research productivity was determined through a researcher-made survey instrument. Meanwhile, the qualitative study focused on the faculty members' research writing and publication challenges, which were gathered through focus group discussions. Results showed average research self-efficacy and low research productivity among faculty members. Research self-efficacy significantly predicted research productivity regarding refereed and indexed publications, paper presentations, and bibliometrics. Further, themed findings showed that the faculty members encountered challenges such as a lack of research exposure, time constraints, lack of institutional support, and publication pressure. The study may serve as an inference for higher education institutions in designing faculty development plans and in-service training programs to capacitate its members.

Keywords: *Faculty-researcher, higher education, internationalization, publish or perish, research university.*

Introduction

Research productivity is essential to higher education institutions (HEIs). Research productivity refers to outputs produced by faculty members, such as book and research publications, oral and poster paper presentations, bibliometrics, and other scholarly activities (Heng et al., 2020). There are several reasons why research productivity is crucial to HEIs and faculty members. Research productivity is an essential part of the four-fold mandate of every HEI, particularly State Colleges and Universities (SUC), to pursue quality instruction, research, extension, and production. Through research, faculty members contribute new knowledge, advance understanding in their field, and develop innovative solutions to complex problems. Besides, research productivity is necessary for global rankings (i.e., Quacquarelli Symonds, Times Higher Education, World's Universities with Real Impact), SUC leveling, and Accrediting Agency of Chartered Colleges and Universities in the Philippines (AACCUP) accreditation. Further, research productivity is often linked to academic career advancement (promotion and reclassification) and recognition. Research productivity is essential for HEI to assess its faculty members (Ismayilova & Klassen, 2019; Li & Zhang, 2022; Wester et al., 2019). In many HEIs, including SUCs, promotion decisions are influenced by an individual's research productivity and impact. As such, understanding the factors that contribute to research productivity is necessary.

One such factor is self-efficacy, an individual's belief in their ability to effectually perform a duty or achieve a goal (Bandura, 1977, 1986, 1997). In academic research, self-efficacy can be seen as an individual's confidence to conduct research and produce high-quality publications. Li (2023) defined research self-efficacy as "the extent or strength of one's belief in one's ability to complete tasks and reach goals related to the research process – from onset and idea inception to dissemination" (p. 82). Researchers with high levels of research self-efficacy are likelier to propose and complete research and disseminate (present and publish) high-quality work. Collaboration can also benefit from self-efficacy.

[*] **Corresponding author:**
Jupeth T. Pentang, Department of Science Education, College of Education, Central Luzon State University, Science City of Muñoz, Philippines 3210.
✉ jupeth.pentang@clsu2.edu.ph

Faculty members with high research self-efficacy are more likely to collaborate and contribute their unique skills and expertise to the research team (Hemmings & Kay, 2010). The need for HEIs to enhance research self-efficacy among faculty members is vital to meeting the increasing demands for research-driven academic programs, instructional innovations, and extension activities. Besides, faculty members' research self-efficacy is needed to comply with the requirements for appraisals (i.e., accreditation) and promotion ("publish or perish" pressure). Studying research self-efficacy is vital for understanding how faculty members can improve their research productivity. Research self-efficacy and productivity are needed for faculty members to perform against quality standards.

For this reason, the study was conducted on the faculty members of one State University in Region 4B, Philippines. In this University, faculty members are expected to engage in research activities as part of their four-fold functions (Instruction-Research-Extension-Production). These faculty members are meant to conduct and publish research, resulting in well-informed strategic planning and research-driven decision-making. However, not all faculty members may feel equally confident conducting research, resulting in low productivity. Based on the initial survey, only four out of 36 (11.11%) core faculty members were active in research writing and publication. This data implies the need to capacitate the faculty members in terms of research to address the requirement for quality assurance (global rankings, ISO Audit, SUC Leveling, CHED RQAT Monitoring, AACCUP Accreditation), encouragement from the management (internal funding, incentive schemes), and the challenges brought by the new guidelines for promotion (Department of Budget and Management & Commission on Higher Education [DBM & CHED, 2022]). As of this writing, just three faculty members have refereed publications in CHED-recognized and ASEAN Citation Index (ACI) journals. Only one has publications in Scopus and Web of Science-indexed journals. Refereed and indexed publications are particular to the abovementioned requirements and challenges. This emphasized the need to explore research self-efficacy and productivity, which will be a basis for capacitating faculty members through faculty development and in-service training programs.

On the other hand, a dearth of studies explored the research self-efficacy and productivity of faculty members in Philippine HEIs, particularly SUCs in Region IV-B. In addition, several studies indicate that research self-efficacy is a crucial factor influencing the research productivity of faculty members. Those who have greater confidence in their research abilities tend to be more engaged in research activities and achieve higher levels of productivity (Hemmings & Kay, 2010; Lejmiri et al., 2018; Li & Zhang, 2022; Livinţi et al., 2021; Pasupathy & Siwatu, 2014; Quimbo & Sulabo, 2014; Wester et al., 2020), but none of them explored on the possible challenges that could expound on their research productivity. Hence, this study described faculty members' research self-efficacy and productivity and explored their research writing and publication challenges. Findings may influence faculty development and in-service training programs and policies promoting research productivity in the concerned institution. Additionally, the study will substantiate the existing literature on research self-efficacy and research productivity and provide insights concerning research self-efficacy as a factor influencing research productivity among faculty members. Results will be helpful not only for SUCs but also for private HEIs.

Theoretical and Conceptual Framework

The study was grounded in the Self-Efficacy Theory proposed by Albert Bandura. Self-efficacy is an individual's belief in their ability to perform the courses of action vital to producing given attainments (Bandura, 1977, 1986, 1997). Self-efficacy beliefs influence an individual's performance and ability to succeed. Since self-efficacy refers to a person's belief in their ability to accomplish tasks in a specific context, research self-efficacy relates to their belief in their ability to engage in different research process components successfully. Faculty members are willing to put more effort into research activities when they have high research self-efficacy in their capacity to do research (Li, 2023; Pasupathy & Siwatu, 2014). This study explored the influence of research self-efficacy on research productivity among faculty members. Specifically, the study investigates the relationship between faculty members' research self-efficacy and their research productivity.

Previous research has suggested that research self-efficacy positively affects the research productivity of faculty members (Hemmings & Kay, 2010; Lejmiri et al., 2018; Li & Zhang, 2022; Livinţi et al., 2021; Pasupathy & Siwatu, 2014; Quimbo & Sulabo, 2014; Wester et al., 2020) and even graduate students (Adekunle & Madukoma, 2022). Despite these findings, several limitations in the existing literature need to be addressed. Firstly, many of these studies predominantly focus on self-reported measures of research productivity, which may be subject to subjectivity and may not accurately reflect actual research output. Secondly, there is a lack of studies that examine the impact of research self-efficacy on productivity, leaving questions about the influence of self-efficacy on research outcomes unanswered. Additionally, most studies do not sufficiently consider the contextual factors, such as institutional support and access to resources, which can significantly influence research productivity.

Given these limitations, the current study proposed a conceptual model that outlines the hypothesized relationship between research self-efficacy and research productivity (Figure 1). This model addresses the gaps by incorporating more variables, including research writing and publication challenges. It is assumed that the poor research productivity among faculty members can be explained by the challenges they encounter in research writing and publication. By including these variables, the model seeks to provide a deeper understanding of how research self-efficacy and challenges

affect research productivity. This approach contributes to the theoretical development in this area and offers practical insights for institutions aiming to enhance faculty research output.

Research productivity considered four areas – refereed publications, indexed publications, paper presentations, and bibliometrics. For common understanding, these areas were defined operationally. Refereed publications refer to published research and have undergone a rigorous peer-review process. Indexed publications refer to published research in reputable databases such as Scopus, Web of Science, and ASEAN Citation Index (as per DBM & CHED, 2022). Similar areas were considered by Ambong et al. (2022) and Rogayan and Corpuz (2022) in evaluating the research productivity of SUCs in the Philippines. Paper presentations refer to research presented (orally) at conferences within or outside the country. Bibliometrics refers to citations (excluding self-citations) and h-index. Like Kpolovie and Dorgu (2019), the study utilized Google Scholar to analyze the faculty members' bibliometrics.
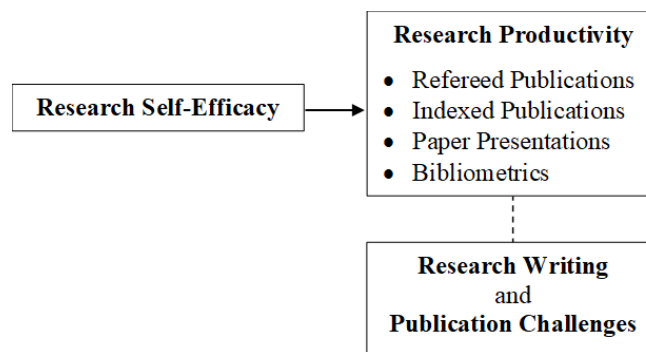

Figure 1. Research Paradigm Showing the Variables of the Study

Findings present important policy implications. Specifically, results could have essential inferences for how institutions support faculty members in their research endeavors. Additionally, the study could contribute to the broader literature on self-efficacy and its impact on performance in academic contexts.

Research Questions

Generally, the study explored the research self-efficacy and productivity among faculty members of one SUC in Region 4B, Philippines. Specifically, the following questions were answered:

1. What is the faculty member's level of research self-efficacy?

2. What is the research productivity trend among faculty members regarding refereed publications, indexed publications, paper presentations, and bibliometrics?

3. Does the faculty members' research self-efficacy significantly predict their productivity?

4. What challenges do faculty members face in writing and publishing their research?

Methodology

Research Design

The study employed a mixed-method sequential explanatory research design, where the quantitative phase comes first, followed by the qualitative phase. Results from both phases were combined to better understand the research problem (Creswell & Plano Clark, 2017). This study's quantitative phase described faculty members' research self-efficacy and productivity, while the qualitative phase determined the challenges they encountered in writing and publishing their research. Results obtained from the qualitative phase (faculty members' challenges in writing and publishing their research) were used to explain (triangulate) the findings from the quantitative phase (faculty members' research self-efficacy and productivity).

Participants and Sampling Procedures

The study participants were temporary and permanent teacher education faculty members of one SUC in Region 4B, Philippines, considering the A, B, and C campuses. The study excluded contract of service, on-call, and part-time instructors since they do not belong to the core faculty members of the college, and they were not required to conduct and publish research.

The participants of the quantitative phase comprised 36 (34 permanent, two temporary) faculty members (32 females, four males) chosen purposively, with ages ranging from 25 to 63 years old. Purposive non-random sampling was used since the research output will be the basis for the faculty development plan of the college and in-service training programs for the faculty members. For the qualitative phase, the participants were also chosen purposively. They

comprised nine faculty members (six females, three males), three from each campus, and academic rank (Table 1). They were selected based on the criteria that they have no or the least publication among the faculty members when categorized according to campus and academic rank.

Table 1. Participants of the Qualitative Study

Campus	Academic Rank			Total
	Instructor	Assistant Professor	Associate Professor	
A Campus	1 (male)	1 (female)	1 (female)	3
B Campus	1 (female)	1 (male)	1 (female)	3
C Campus	1 (male)	1 (female)	1 (female)	3
Total	3	3	3	**9**

Instrument

Faculty Members' Research Self-Efficacy: With permission from the developers, the study modified Li and Zhang's (2022) 15-item questionnaire on teacher research self-efficacy. The instrument was validated and published by the authors, and the same instrument was utilized by Li (2023) in his dissertation. The instrument focused on the research process – from conceptualizing the study to disseminating results. The faculty members chose the degree level of agreeing with each item on a five-point rating scale. The scale had two positive, two negative, and one neutral (uncertain) response: 1 (Strongly Disagree), 2 (Disagree), 3 (Uncertain/Neither Disagree Nor Agree), 4 (Agree), and 5 (Strongly Agree).

Faculty Members' Research Productivity: A researcher-made survey instrument asked the participants about their research productivity regarding refereed publications, indexed publications, paper presentations, and bibliometrics. A one-item open-ended statement was used per criterion for productivity. The instrument was submitted to the Office of the Vice President for Research, Development, and Extension (OVP RDE) through the Office of the Director for Research and Development (ODRD) for their comments and suggestions to ensure that it will be relevant in addressing the research problem (Pentang, 2023).

Faculty Members' Research Writing and Publication Challenges: The researchers prepared a focus group discussion (FGD) schedule to guide in asking the selected participants regarding their research writing and publication challenges. The OVP RDE reviewed the same instrument through the ODRD. The FGD included questions for background information (i.e., What is your current position and field of expertise? How was your involvement in research and academic writing?), research writing challenges (i.e., What challenges do you face when writing research papers?), and publication challenges (i.e., What challenges do you face when trying to publish your research?).

Data Gathering Procedures

Before the implementation of the study, the protocol was reviewed and approved by the RDE Unit of the research locale. At the same time, informed consent was secured from the participants before gathering the data. Quantitative and qualitative data were gathered face-to-face with frequent brownouts and a poor internet connection in the research locale.

Quantitative Phase: A survey was conducted in December 2023 during the in-service training conducted by the college, with the Dean's approval. The survey described the faculty members' research self-efficacy and their research productivity. The faculty members' research productivity regarding refereed publications, indexed publications, paper presentations, and bibliometrics was based on their research profile. The research productivity of the participants was based on their performance from July 2019 to December 2023. The participants' research productivity only considered their research activities and performance for the last four years based on the university's research and faculty manual approved by the Board of Regents, IPCR and OPCR matrices, and the new guidelines for promotion set by the Department of Budget and Management and Commission on Higher Education.

Qualitative Phase: A face-to-face FGD was conducted, where nine participants responded in English or Filipino. The FGD, which took two hours, determined the faculty members' challenges in writing and publishing their research.

Data Analysis

Quantitative Phase: Data gathered from the survey were encoded in Microsoft Excel. Data screening was then conducted to address missing data and outliers, among other assumption violations. Descriptive statistics such as arithmetic mean (*M*) and standard deviation (*SD*) were used to describe the research self-efficacy of the participants. Table 2 presents the verbal description of the faculty members' research self-efficacy. Meanwhile, frequency count and percentage were used to describe their research productivity (refereed and indexed publications, paper presentations, and bibliometrics). Inferential statistics using simple linear regression analysis was conducted to determine if the faculty members' research

self-efficacy significantly predicted their research productivity (Fox & Weisberg, 2019; Jamovi Project, 2021; R Core Team, 2021).

Table 2. Research Self-Efficacy Scale and Verbal Description

Research Self-Efficacy Scale	Verbal Description
1.00-1.49	Very Low Research Self-Efficacy
1.50-2.49	Low Research Self-Efficacy
2.50-3.49	Average Research Self-Efficacy
3.50-4.49	High Research Self-Efficacy
4.50-5.00	Very High Research Self-Efficacy

Qualitative Phase: Transcribed data from the FGD were encoded verbatim. Thematic analysis was then conducted to identify patterns and themes regarding the faculty members' research writing and publication challenges. The thematic analysis phases were based on Braun and Clarke (2006), which included data familiarization, generating initial code, searching for themes across the data, reviewing themes, and producing the report. The researchers manually performed the analysis with the guidance of three external experts in qualitative research. The themes found were consulted with the nine FGD participants to determine if they reflected their responses to the questions. These participants agreed with the qualitative results reported in the next chapter.

Results

Faculty Members' Research Self-Efficacy

Generally, the faculty members have an average (M = 3.22, SD = 0.54) research self-efficacy level (Table 3), indicating moderate confidence in their ability to do research activities. The standard deviation suggests variability in self-efficacy levels, indicating faculty members may have low to high confidence in conducting research. Specifically, the faculty members have high research self-efficacy in writing a proposal to obtain permission from the institution to conduct a study (M = 3.97, SD = 0.17), identifying a research problem that can be researched scientifically (M = 3.80, SD = 0.40), and drawing conclusions based on the findings of a research study (M = 3.63, SD = 0.48). However, the faculty members have low research self-efficacy levels in analyzing data to provide answers to existing research questions (M = 2.31, SD = 0.57) and sharing research findings (M = 2.31, SD = 0.62).

Table 3. Faculty Members' Research Self-Efficacy Level

Indicators	M	SD	VD
1. Identify a research problem that can be researched scientifically.	3.80	0.40	HRS
2. Search an electronic database for literature about a particular research topic.	3.54	0.60	HRS
3. Write a literature review about a particular research topic.	3.34	0.47	ARS
4. Write research questions for a study I am designing.	3.43	0.65	ARS
5. Select an appropriate research design that will answer specific research questions.	3.49	0.50	ARS
6. Write a proposal to obtain permission from the institution to conduct my study.	3.97	0.17	HRS
7. Collect data using techniques that are suitable for answering research questions.	3.29	0.45	ARS
8. Use data management and analysis software (e.g., SPSS, jamovi, NVivo).	2.63	0.72	ARS
9. Analyze data to provide answers to existing research questions.	2.31	0.57	LRS
10. Interpret the results of data analysis.	2.60	0.64	ARS
11. Draw conclusions based on the findings of a research study.	3.63	0.48	HRS
12. Write a research report documenting the findings of a research study.	3.46	0.69	ARS
13. Share research findings (e.g., oral presentation, refereed/indexed publications).	2.31	0.62	LRS
14. Apply for ethics approval.	3.40	0.49	ARS
15. Follow academic integrity rules (e.g., avoiding plagiarism, fabrication).	3.11	0.62	ARS
Overall Mean	**3.22**	**0.54**	**ARS**

Note: 1.00-1.49 = Very Low Research Self-Efficacy (VLRS)   VD = Verbal Description
1.50-2.49 = Low Research Self-Efficacy (LRS)
2.50-3.49 = Average Research Self-Efficacy (ARS)
3.50-4.49 = High Research Self-Efficacy (HRS)
4.50-5.00 = Very High Research Self-Efficacy (VHRS)

Faculty Members' Research Productivity

The faculty members' research productivity was determined based on the number of publications, presentations, and bibliometrics from July 2019 to December 2023 (Table 4). Of 38 publications, 28 (73.68%) were non-refereed, and 31 (81.58%) were not indexed. Regarding paper presentation, 28 (73.68%) out of 38 were presented locally. The rest were disseminated nationally (33.33%) and internationally (8.33%) fora. Finally, the bibliometrics of the faculty members

were measured based on citation and h-index. The majority had one to five citations (56.60%) and zero h-index (55.56%).

Table 4. Faculty Members' Research Productivity

Indicators	Frequency	Percentage (%)
Refereed Publication ($n = 38^a$)		
Non-refereed Publication	**28**	**73.68**
Refereed Publication	10	26.32
Indexed Publication ($n = 38^a$)		
Not Indexed Publication	**31**	**81.58**
Indexed Publication	7	18.42
Paper Presentation ($n = 24$)		
Local	**14**	**58.33**
National	8	33.33
International	2	8.33
Bibliometrics		
Citations ($n = 53^b$)		
0	20	37.74
1-5	**30**	**56.60**
6-10	3	5.66
h-index ($n = 36$)		
0	**20**	**55.56**
1	13	36.11
2	3	8.33

Note: n = research papers published/presented/cited from January 2019 to December 2023
[a]These include publications where the faculty member is the primary or corresponding author.
[b]These do not include self-citations and citations that were duplicated.

Faculty Members' Research Self-Efficacy as Predictor of Their Research Productivity

Tables 5a, 5b, 5c, and 5d present the simple linear regression analysis results to determine if the faculty member's research self-efficacy (x) significantly predicts their research productivity in terms of refereed publications (y_1), indexed publications (y_2), paper presentations (y_3), and bibliometrics(y_4). Preliminary checks were conducted to ensure no assumptions were violated.

Refereed Publication: A linear relationship was found between research self-efficacy level and productivity in refereed publications ($R = .745$). Research self-efficacy explains 55.5 ($R^2 = .555$) percent of the variation in productivity in refereed publications. Further, a highly significant regression equation was found, $F_{(1,34)} = 42.4$, p < .001. Research self-efficacy is a strong positive predictor of performance, $B = 2.62$, $t = 6.51$, $p < .001$, indicating that higher research self-efficacy significantly contributes to increased productivity in refereed publication among faculty members. The equation "$y_1 = 2.62x - 7.15$" represents the regression equation derived from the analysis. The predicted productivity in refereed publications is expected to increase by 2.62 units for every one-unit increase in research self-efficacy. The finding highlights the importance of research self-efficacy in promoting faculty productivity in refereed publications. Higher levels of research self-efficacy significantly contribute to increased productivity, indicating that faculty members confident in their research abilities are more likely to produce high-quality publications.

Table 5a. Regression Analysis for Research Self-Efficacy Predicting Research Productivity in Refereed Publication

Predictor	Estimate	SE	95% Confidence Interval		t	p
			Lower	Upper		
Intercept	-7.15	1.318	-9.83	-4.47	-5.43	< .001
Research Self-Efficacy Level	2.62	0.403	1.81	3.44	6.51	< .001

Note: $R = .745$, $R^2 = .555$, *Adjusted R^2 = .542*, $F_{(1,34)} = 42.4$, $p < .001$

Indexed Publication: The analysis found a linear relationship between research self-efficacy and productivity in indexed publications ($R = .747$). Research self-efficacy explains 55.8 ($R^2 = .558$) percent of the variation in productivity in indexed publications. Further, a highly significant regression equation was found, $F_{(1,34)} = 42.9$, $p < .001$. Research self-efficacy is a strong positive predictor of performance, $B = 2.36$, $t = 6.55$, $p < .001$, indicating that higher levels of research self-efficacy significantly contribute to increased research productivity in indexed publication among the faculty members. The equation "$y_2 = 2.36x - 6.39$" represents the regression equation derived from the analysis. The predicted productivity in indexed publications is expected to increase by 2.36 units for every one-unit increase in research self-efficacy. The result indicates that higher levels of research self-efficacy among faculty members significantly contribute to increased

productivity in publishing in indexed journals. Improving research self-efficacy can improve their ability to publish high-quality research in reputable journals, increasing their work's visibility, impact, and recognition within the academic community.

Table 5b. Regression Analysis for Research Self-Efficacy Predicting Research Productivity in Indexed Publication

Predictor	Estimate	SE	95% Confidence Interval		t	p
			Lower	Upper		
Intercept	-6.39	1.176	-8.78	-4.00	-5.43	< .001
Research Self-Efficacy Level	2.36	0.360	1.62	3.09	6.55	< .001

Note: $R = .747$, $R^2 = .558$, *Adjusted* $R^2 = .545$, $F_{(1,34)} = 42.9$, $p < .001$

Paper Presentation: The analysis found a linear relationship between research self-efficacy and productivity in paper presentations ($R = .640$). Research self-efficacy explains 40.9 ($R^2 = .409$) percent of the variation in productivity in paper presentations. Further, a highly significant regression equation was found, $F_{(1,34)} = 23.5$, $p < .001$. Research self-efficacy is a moderate positive predictor of performance, $B = 2.11$, $t = 4.85$, $p < .001$, indicating that higher research self-efficacy significantly contributes to increased productivity in paper presentations among faculty members. The equation "$y_3 = 2.11x - 5.89$" represents the regression equation derived from the analysis. The predicted productivity in paper presentation is expected to increase by 2.11 units for every one-unit increase in research self-efficacy. The finding emphasizes that higher levels of research self-efficacy among faculty members significantly contribute to increased productivity in presenting research papers. Research self-efficacy can be improved by improving their ability to communicate their research findings through presentations effectively.

Table 5c. Regression Analysis for Research Self-Efficacy Predicting Research Productivity in Paper Presentation

Predictor	Estimate	SE	95% Confidence Interval		t	p
			Lower	Upper		
Intercept	-5.89	1.425	-8.78	-2.99	-4.13	< .001
Research Self-Efficacy Level	2.11	0.436	1.23	3.00	4.85	< .001

Note: $R = .640$, $R^2 = .409$, *Adjusted* $R^2 = .392$, $F_{(1,34)} = 23.5$, $p < .001$

Bibliometrics: The analysis found a linear relationship between research self-efficacy and productivity in bibliometrics ($R = .452$). Research self-efficacy explains 20.5 ($R^2 = .205$) percent of the variation in productivity in bibliometrics. Further, a highly significant regression equation was found, $F_{(1,34)} = 8.75$, $p < .01$. Research self-efficacy is a moderate positive predictor of performance, $B = 0.95$, $t = 2.96$, $p < .001$, indicating that higher research self-efficacy significantly contributes to increased productivity in bibliometrics among faculty members. The equation "$y_4 = 0.95x - 2.37$" represents the regression equation derived from the analysis. The predicted bibliometrics productivity is expected to increase by 0.95 units for every one-unit increase in research self-efficacy. The result implies that higher levels of research self-efficacy among faculty members contribute to increased productivity in bibliometric measures. Through bibliometric indicators, increasing research self-efficacy can improve their ability to generate citations and establish an academic presence.

Table 5d. Regression Analysis for Research Self-Efficacy Predicting Research Productivity in Bibliometrics

Predictor	Estimate	SE	95% Confidence Interval		t	p
			Lower	Upper		
Intercept	-2.37	1.045	-4.50	-0.25	-2.27	.030
Research Self-Efficacy Level	0.95	0.319	0.30	1.59	2.96	.006

Note: $R = .452$, $R^2 = .205$, *Adjusted* $R^2 = .181$, $F_{(1,34)} = 8.75$, $p < .006$

Faculty Members' Challenges in Research Writing and Publication

The analysis of the FGD data revealed several challenges the faculty members face in research writing and publication. These challenges were categorized into four major themes – lack of research exposure, time constraints, institutional support, and publication pressure.

Lack of Research Exposure: The faculty members were challenged because they needed more research exposure. Eight mentioned a lack of research training, limited exposure to research practices, and the absence of mentorship opportunities. An Associate Professor from C Campus mentioned that they needed adequate training, "*Hoping that if there is a workshop, it must be done for only 1 or 2 days but rather a series of sessions for me to learn.*". Meanwhile, an Instructor of A Campus stated, "*I am new to teaching and have no idea, even for research and publication.*", which showed limited research knowledge. These findings present challenges to research writing and publication. Lack of research exposure hindered the faculty members in developing their research self-efficacy, contributing to low research productivity.

Table 6a. Challenges in Research Writing and Publication: Lack of Research Exposure

Theme	Code	Quote
	Lack of adequate training	*Naka-attend na ako ng training pero bago pa yon magka-pandemic. Hindi na ako nakapagtraining during the pandemic til now.* [I had attended a training, but it was before the pandemic. I have not been able to attend any training since the pandemic until now.] - Assistant Professor, B Campus *May training naman online na free, pero di yon sapat para matuto ako. Minsan di rin ako interesado sa topic o di naman ay wala sa oras.* [I attended free online training, but that is not enough to learn. Sometimes, I am not interested in the topic, or I do not have time.] - Instructor, B Campus *Maraming webinar pero iba pa din pag may face-to-face workshop. Sana nga pag may workshop ay hindi lang good for 1 or 2 days, kung hindi ay series sya para matuto talaga ako.* [There are lots of webinars, but face-to-face workshops are still different. Hoping that if there is a workshop, it must be done for only 1 or 2 days but rather a series of sessions for me to learn.] - Associate Professor, C Campus
Lack of Research Exposure	Limited exposure to research practices	*Hindi na ako updated sa mga research trends. Kung ano naiuturo sa akin noon, yon pa din pina-practice ko. Walang bago.* [I am no longer updated with the research trends. What was taught to me before is what I am practicing. No changes.] - Associate Professor, A Campus *Bago pa lang ako sa pagtuturo kaya pati research at publication ay wala pa ako idea.* [I am new to teaching and have yet to learn, even for research and publication.] - Instructor, A Campus *Hindi sapat ang aking karanasan dito sa college para matuto sa mga research skills. Kung isama sana ako na mag-coauthor or collaborate para doon ako una matuto sa mga research practices ng aming college ng aking mga kasamahan na may publication na.* [My research experience during college needs to be improved to learn the skills. If I could be included as a coauthor or collaborator, I would first learn the research practices of our college from my colleagues who already have publications.] - Instructor, C Campus
	Absence of mentorship	*Honestly, parang walang willing magmentor sa akin. Gusto ko matuto pero walang magtuturo sa akin. Naiitindihan ko naman na may ibang gawain ang aking mga kasama.* [Honestly, no one is willing to mentor me. I want to learn, but I need someone to teach me. I understand that my colleagues have other tasks.] - Assistant Professor, A Campus *Bago pa lang ako dito sa University ay wala ako naabutan na research mentoring. Sariling sikap nalang ang mga faculty pagdating sa research at publication. Kailangan talaga ang mentor especially sa mga bago at wala pa experience sa research.* [I am new here at the University and have not encountered any research mentoring. The faculty has to rely on their efforts regarding research and publication. Having a mentor is necessary, especially for those who are new and have no experience in research.] - Associate Professor, B Campus

Time Constraints: Time constraints emerged as a critical challenge due to weighty workloads, administrative functions, and other institutional designations. Concerning several administrative functions, an Assistant Professor from B Campus claimed, "*My duties and responsibilities have piled up. Besides being the director of one office in the entire university, I also have a designation in the college.*". Adding to this heavy load limiting the faculty members' time to do research, Instructors from A and C Campus sentiment that "*My teaching load is already overloaded, and I have quasi-teaching tasks. That is why I do not have any time left for research.*" and "*I do not have time to research because I have much preparation to do and need to focus on my teaching.*", respectively. The faculty members found it challenging to allocate time for research activities due to several tasks or functions they must perform at the University and College levels.

Table 6b. Challenges in Research Writing and Publication: Time Constraints

Theme	Code	Quote
Time Constraint	Weighty workload	*Overloaded na ang teaching load ko, may quasi-teaching tasks pa. Kaya wala na time para magresearch.* [My teaching load is already overloaded, and I have quasi-teaching tasks. That is why I do not have any time left for research.] - Instructor, A Campus *Wala ng oras na manaliksik kasi marami akong preparation at kailangan kong pagtuonan ang aking pagtuturo.* [I do not have time to research because I have much preparation to do and need to focus on my teaching.] - Instructor, C Campus *Ubos na oras ko sa pagtuturo pa lang. Idagdag mo pa ang mga walang katapusang meetings at travels dahil sa dami rin ng responsibility na inatang sa akin. Makakapagresearch at publish pa kaya ako.* [My time is entirely consumed by teaching alone. Add to that the endless meetings and travels due to the numerous responsibilities assigned to me. I wonder if I can ever do research and publish.] - Associate Professor, B Campus *Maraming gawain maliban sa pagtutuoro. May AACCUP accreditation at monitoring pa ang ISO at CHED, kaya doon nalalaan ang ibang oras ko.* [There are many tasks besides teaching. I also have to deal with AACCUP accreditation and monitoring from ISO and CHED, which takes up much of my time.] - Instructor, B Campus
	Admin functions	*Administrative functions such as holding a university position limit me in doing research. Malawak na ang saklaw ng responsibilidad ko, wala ng panahon para magresearch kaya wala rin akong publication.* [Administrative functions, such as holding a university position, limit me in doing research. The scope of my responsibilities is extensive, leaving me no time for research, and consequently, I have no publications.] - Associate Professor, A Campus *Nagpatong-patong ang duties and responsibilities ko. Maliban na director ako ng isang opisina sa buong university, may designation pa ako sa college.* [My duties and responsibilities have piled up. Besides being the director of one office in the entire university, I also have a designation in the college.] - Assistant Professor, B Campus *May time naman siguro na magsulat pero kinakain na ng admin function ko ang oras para sana magresearch. Dual tasking din minsan kase hindi lang isang campus ang sakop ko.* [I might have some time to write, but my administrative functions consume the time I could have used for research. Sometimes, I also have to multitask because I oversee more than one campus.] - Assistant Professor, A Campus

Table 6b. Continued

Theme	Code	Quote
	Other institutional designations/ commitments	*May mga biglaang event or activity sa school kaya yong time na nakalaan for research ay wala na. Kadalasan, gagamitin ko ang nakalaan na araw at oras para sa research na mabawi ko yong di ko nagawa na ibang tasks dahil sa biglaang activities. Hindi rin ako makahindi sa mga boss.* [There are sudden events or activities in the school that take up the time allocated for research. Often, I use the scheduled days and hours for research to catch up on tasks I could not do due to these sudden activities. I also find it hard to say no to my supervisors.] - Instructor, C Campus *May mga other tasks na iniwan ng nagretire or nagleave na kasamahan. Sa akin na pinasa yong iba. Hati na ang oras ko sa dapat kung gawin na research. Ang mga papers na nilalakad ko for publication ay di ko na rin naharap.* [Some of my colleagues who retired or took leave left behind tasks that were passed on to me. My time for research is now divided into what I should be doing. The papers I was supposed to publish have also been neglected.] - Associate Professor, C Campus

Institutional Support: The faculty members emphasized the importance of institutional support for research writing and publication. They emphasized that the lack of financial resources and too much workload hindered their research progress, which is common among faculty members. To support them in their endeavors, Assistant Professors from the three campuses requested, "*The RDE may increase the funding for internal research studies. Perhaps incentives could also be raised and streamline the process for easier claiming. The university would also benefit from our research and publications.*". Correspondingly, all participants from the Main Campus wished "*If there was a reduced workload, we could conduct research and publish papers. Both teaching and non-teaching functions have become overloaded.*". These participants believed they could work on their papers with sufficient financial resources and a light workload.

Table 6c. Challenges in Research Writing and Publication: Lack of Institutional Support

Theme	Code	Quote
Lack of Institutional Support	Financial Resources	*Sana bigyan kami ng pundo kahit mga baguhan pa lang kami, yong pwede naming gamitin para matuto magsulat, magresearch, at makapublish. Yong funding kasi ng university ay maliit lang at para lang sa approved ng RDE. Paano naman kami na nagsisimula pa lamang?* [I hope we can be provided with funding, even for newcomers like us, that we can use to learn how to write, conduct research, and publish. The university's funding is limited and mainly allocated to those approved by RDE. However, what about us who are just starting?] - Instructors, All Campuses *Taasan din sana ng RDE ang funding nila for internal research studies. Pati ang incentives baka pwedeng taasan at hindi maproseso sa pagclaim. University rin ang makikinabang kung may research at publication kami.* [The RDE may increase the funding for internal research studies. Incentives could also be raised and streamline the process for easier claiming. The university would also benefit from our research and publications.] - Assistant Professors, All Campuses *Kung tutulungan kami ng University para makakuha ng external funding ay mas maganda. Di na rin kaya ng college at ng bulsa naming maglabas ng pera para lang magresearch at magpublish.* [It would be great if the university could assist us in obtaining external funding. It is becoming difficult for the college and for us personally to allocate funds for research and publication.] - Associate Professors, All Campuses

Table 6c. Continued

Theme	Code	Quote
	Overload	*Kung may deloading sana, kaya naming makapagresearch at publish ng papers. Overloaded na kasi both sa teaching at non-teaching functions.* [If there was a reduced workload, we could conduct research and publish papers. Both teaching and non-teaching functions have become overloaded.] - All Participants, Main Campus *Babaan nila ang teaching load ko at i-limit lang sa isang admin function ang hawak ko para matapos ko ang research na nasimulan ko.* [If they could reduce my teaching load and limit my administrative function to one, I could finish my research.] - Instructor, B Campus *Bigyan nila kami ng mas mababang workload, kasi mataas na rin ang hawak naming na posisyon.* [They could give us a lower workload, as we already hold high designations.] - Associate Professors, B & C Campuses

Publication Pressure: All faculty members were pressured to publish in peer-reviewed, high-impact journals to meet institutional requirements and secure career advancement. The nine participants agreed, "*It is challenging to conduct research and publish nowadays. The new CHED-DBM guidelines seem somewhat anti-faculty. They are pushing us to conduct research, but the evaluation criteria for reclassification do not seem to align with that.*". The perceived high standards and rigorous peer review processes of prestigious journals often led to discouragement and fear of rejection. Instructors from the three campuses said, "*We have no experience in publication yet. Our paper might just get rejected or declined if we send it for publication.*". This pressure, combined with limited access to publication opportunities, created a sense of frustration and reduced motivation, resulting in poor research engagement and productivity.

Table 6d. Challenges in Research Writing and Publication: Publication Pressure

Theme	Code	Quote
Publication Pressure	Discouragement	*Challenging magresearch at magpublish ngayon. Parang anti-faculty ang bagong CHED-DBM guidelines. Pinu-push kaming magresearch pero bakit ganun ang criteria for evaluation para sa reclass.* [It is challenging to conduct research and publish nowadays. The new CHED-DBM guidelines seem somewhat anti-faculty. They are pushing us to conduct research, but the evaluation criteria for reclassification do not seem to align with that.] - All participants *Mag-apply nalang ako sa ibang work pag hindi ko ma-meet ang standards for publication. Magresearch nga challenging, makapublish pa kaya sa refereed and indexed journal?* [I might apply for other work if I cannot meet the standards for publication. To do research is challenging enough; can I even publish in a refereed and indexed journal?] - Temporary Instructor, B Campus *Paano kaming nagsisimula pa lamang sa publication. Pag may research o publication kami, sinasabihan kami na predatory pero di kami tinuturuan o tinutulungan.* [For us who are beginners in publication, whenever we have research or publications, they are often labeled as predatory, yet we are not taught or assisted.] - Instructors, All Campuses *Dati basta may publication lang kami, then naging refereed dapat. Ngayon mas challenging kasi indexed na dapat sa Scopus, Web of Science, or ACI bago ma-promote as Full Professor. Pag di kayanin, mag-early retirement o hindi na lang kami magpa-reclass.* [Before having any publication sufficed, it had to be refereed. Now, it is more challenging since it needs to be indexed in Scopus, Web of Science, or ACI before being promoted to Full Professor. If we cannot meet that, either we retire early or will not apply for reclassification.] - Associate Professors, All Campuses

Table 6d. Continued

Theme	Code	Quote
	Fear of Rejection/ Illegitimate Publication	*Wala pa kaming experience sa publication. Baka mareject o madecline lang ang aming paper pag magsesend kami for publication.* [We have no experience in publication yet. Our paper might just get rejected or declined if we send it for publication.] - Instructors, All Campuses *Hindi namin alam saang journal or publisher magsubmit at marami na ngayon ang predatory journals.* [We do not know which journal or publisher to submit to; now, many predatory journals exist.] - Assistant Professor, A & B Campus *Magsa-submit din sana kami sa journal ng University kaso sobrang higpit ng peer-review policy.* [We also want to submit to the journal of the University, but their peer-review policy is rigorous.] - Associate Professors, All Campuses

Discussion

Faculty Members' Research Self-Efficacy

A moderate level of research self-efficacy implies that the faculty members were confident in performing research-related tasks. Still, they need training and mentoring to enhance their research confidence. Results indicate that the faculty members strongly believe in their ability to effectively request approval, identify potential research questions, and make conclusions, which are essential in the research process. Their confidence in their abilities in these areas speaks well for their research engagement. Nevertheless, they need a stronger belief in their ability to analyze data to address the research problem. Besides, they need to improve in communicating their research findings through presentations or publications. While the faculty members have confidence in some research tasks, like identifying questions and conclusions, they need more confidence in data analysis and research dissemination, likely due to limited exposure to research practices and mentorship and the lack of training and funding opportunities.

The overall findings on the faculty members' research self-efficacy oppose the findings of Alcazaren and Robiños (2022) that faculty members from a Philippine private HEI have above-average confidence in their research skills. Similarly, the results differed from Ismayilova and Klassen (2019) and Pasupathy and Siwatu (2014), where faculty members from institutions abroad have high self-efficacy in conducting research tasks. Still, it can be related to Velasco (2023), where faculty members from a local HEI disagreed that research is a part of their crucial function. Even now, many faculty see research as a requirement for institutional and personal appraisals but do not see its impact on the academic and non-academic communities.

Faculty Members' Research Productivity

The faculty members needed to maintain high research productivity regarding publication quality. The high percentage of non-refereed publications suggests that their work did not undergo rigorous peer review, potentially indicating lower standards of academic rigor or limited opportunities for publication in reputable journals. This agrees with Ambong et al. (2022), where tenured faculty members have a low percentage of refereed publications. However, it differs from Rogayan and Corpuz (2022), who showed that faculty members have relatively high refereed publications. The concerns of non-refereed publications can be linked to the rising number of predatory and cloned journals in the Philippines, which have expanded their advertisements through social media and numerous emails that caught the interest of the faculty members.

Additionally, the high percentage of not indexed publications indicates that many of their work may have yet to be included in widely recognized databases such as Scopus, Web of Science, and ASEAN Citation Index, limiting its discoverability and impact within the academic community. This supports the results of Ambong et al. (2022) and Rogayan and Corpuz (2022), showing that faculty members from Philippine SUCs have low publications in Scopus and Web of Science-indexed journals. This may be due to the rigorous peer review process, lengthy editorial appraisal, and pricy publication charges. Besides, the faculty members may not know enough about indexed journals and reputable indexing bodies. Nevertheless, these poor records concerning the faculty member's refereed and indexed publications are anticipated to decrease as the institution provides several opportunities, such as training-workshops for research writing and publication and the provision of internal funding and incentives.

The faculty members could share their results at various local academic exchanges. Presenting papers locally means they had the opportunity to share their findings within the institution through the University's Research and Extension Forum conducted annually or with the academic and research community within the locality or region. This allows for broader dissemination of their research and exchanging ideas with scholars from universities or research communities within the country or abroad. While the faculty members had opportunities to present their research locally, the relatively low number of national and international presentations suggests limited exposure to a broader audience. This may be implicated by the unavailability of funds to support the registration and transportation of faculty members concerning their attendance at conferences in other places in the Philippines and abroad. Even online research fora requires fees for presenters, which limits the participation of the faculty members.

Moreover, findings suggest that a few other researchers have referenced their research and that their publications did not meet the criteria for establishing an h-index. Various factors, such as the visibility of the research, the specific field of study, the publication venues, and the level of engagement in academic networks, can influence a low citation count. On another note, poor citations result from non-peer-reviewed and non-indexed publications, as reflected above. It may also be indicated by the faculty's limited number of publications. Besides, a zero h-index indicates that the faculty members need to publish more papers or receive substantial citations. Still, it needs to reflect the quality of the research output. Correspondingly, Kpolovie and Dorgu (2019) and Nafukho et al. (2019) found the same results where faculty members' research productivity in terms of h-index was low.

These dismal results were similar to Lejmiri et al. (2018). While all areas considered need improvement, the findings also highlight development opportunities. The University should prioritize supporting faculty members in enhancing the quality of their research, increasing the visibility and discoverability of their publications, and facilitating their participation in national and international academic events. By doing so, the concerned institution can foster a culture of research excellence and productivity, eventually contributing to the advancement of knowledge and the academic success of its faculty members.

Faculty Members' Research Self-Efficacy as Predictor of Their Research Productivity

The findings highlight a fundamental link between faculty members' research self-efficacy and their productivity across different dimensions of academic research. Specifically, higher confidence levels in their research abilities significantly contribute to increased productivity in producing refereed publications, publishing in indexed journals, presenting research papers, and achieving favorable bibliometric measures. Faculty members who have confidence in their research abilities are more likely to produce high-quality work that meets the standards of refereed and indexed journals. This self-belief boosts them to submit their research outputs to reputable journals despite potential challenges, leading to more publications. These results underline the need to nurture faculty members' belief in their capacity to conduct meaningful research. Institutions can capitalize on these findings by implementing targeted strategies to enhance research self-efficacy, such as mentorship, professional development opportunities, and resources tailored to bolster research skills and confidence.

Moreover, the implications extend beyond individual faculty members to the broader academic community and institutional reputation. Institutions can foster a culture of scholarly excellence, innovation, and impact by investing in initiatives to improve research self-efficacy. For example, providing targeted workshops and mentorship programs can significantly improve faculty members' confidence and skills in conducting research. This enhanced research self-efficacy has resulted in increased productivity, as evidenced by a higher number of publications and successful grant applications. Furthermore, faculty members with higher research self-efficacy often engage in more interdisciplinary collaborations, which can lead to groundbreaking discoveries and innovations. By recognizing and addressing the critical role of research self-efficacy, institutions can boost individual faculty achievements and position themselves as leading centers of academic excellence, contributing significantly to advancing research and scholarship across various disciplines.

Research self-efficacy predicts the faculty member's research productivity, which is consistent with Hemmings and Kay (2010), Lejmiri et al. (2018), Li and Zhang (2022), Pasupathy and Siwatu (2014), Quimbo and Sulabo (2014), and Wester et al. (2020). Faculty members' confidence in their abilities to complete research-related tasks can impact their research output. It can significantly influence their success in research activities when they have a strong self-efficacy in performing research. This agrees with Livinți et al. (2021), who asserted that research self-efficacy is one of the best predictors of success in research activities and adapts the social cognitive notion of self-efficacy to academic and scientific research. Figure 3 presents the path showing research self-efficacy as a predictor of productivity in refereed and indexed publications, paper presentations, and bibliometrics.
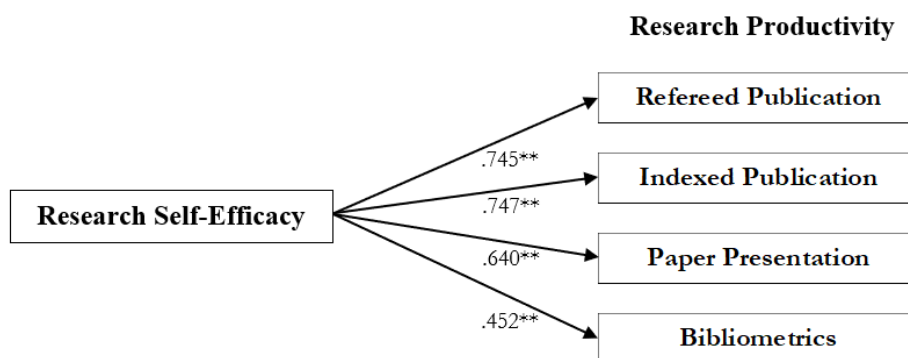
Figure 3. Path Showing Research Self-Efficacy as a Predictor of Research Productivity (**highly significant)

Faculty Members' Challenges in Research Writing and Publication

The themed research results underscore faculty members' challenges in pursuing research writing and publication. It is important to note that institutions that lack a research culture may not provide sufficient mentorship opportunities. Experienced researchers guide budding faculty researchers, offer feedback, and encourage scholarly pursuits. A central problem identified is the lack of research exposure, characterized by inadequate training in research methodologies, academic writing, and publication processes. Faculty members may feel ill-equipped to conduct rigorous research without proper training, leading to low self-efficacy, which aligns with the earlier findings. This hinders the faculty members' ability to develop the requisite skills and confidence necessary for effective scholarly engagement, thereby impeding research productivity and self-efficacy. Additionally, time constraints emerge as an unescapable issue, deepened by the demanding nature of academic roles and administrative responsibilities. The competing demands of instruction and institutional duties leave faculty members with little time to dedicate to research activities, discouraging their capacity to conduct research, write manuscripts, and disseminate scholarly findings effectively. Accordingly, the pressure to fulfill teaching and administrative roles can be overwhelming, discouraging faculty members from pursuing research, which results in lower research output and less scholarly engagement.

Furthermore, institutional support is crucial in alleviating faculty members' challenges. Inadequate financial resources and excessive workloads deepen the difficulties, limiting access to essential research materials and diverting attention away from scholarly pursuits. The pressure to publish in high-impact journals to meet institutional expectations adds another layer of complexity, contributing to heightened anxiety and reduced motivation among faculty members. To address these challenges effectively, institutions must prioritize comprehensive support mechanisms, including targeted research training, mentorship programs, workload management strategies, and a reevaluation of publication criteria. By fostering a supportive environment conducive to scholarly engagement, the academic institution can empower faculty members to overcome barriers and contribute meaningfully to advancing knowledge and scholarship.

The reported themes conform with Janer et al. (2022), Vecaldo et al. (2019), and Wa-Mbaleka (2015), where faculty members from Philippine HEIs who have no to low research publications experienced a lack of training in research and publication, inadequate funding, and a lack of institutional support. Similar to the qualitative findings above, Tayaban and O'Leary (2022) revealed that a "lack of internet, university bureaucracy, limited time, lack of training, clashing incentives, and lack of knowledge about professional opportunities" (p. 407) hinder faculty members from a rural university in the Philippines in publishing their research outputs. The challenges listed could explain the poor research productivity among the faculty members, which may also have impacted their average research self-efficacy. Still, further studies are needed to confirm these results.

Conclusion

While faculty members exhibit a moderate confidence level in their research abilities, there is variability among individuals, indicating the need for targeted support. The faculty members demonstrate strong self-efficacy in specific research tasks, such as writing proposals and drawing conclusions. However, they exhibit lower self-efficacy in analyzing data and sharing research findings. These findings highlight areas where faculty members feel confident and identify tasks needing additional support, thereby informing tailored interventions for improving overall research efficacy. These underscore the importance of differentiating support strategies based on individual self-efficacy levels in various research tasks.

Faculty members have yet to achieve a high level of research productivity regarding publication quality, presentation opportunities, and bibliometric indicators. The majority of their publications were non-refereed and not indexed, indicating a need for greater academic rigor and visibility within reputable databases. Additionally, the limited number of national and international presentations suggests a need for more exposure to a broader audience. The low citation counts and zero h-index further emphasize the need for increased recognition and impact of their research. This research

provides empirical evidence on the lacking aspects of research productivity, thus identifying critical areas for improvement to enhance faculty members' academic impact and visibility. These findings highlight the critical metrics to assess and improve to enhance faculty members' academic presence and influence.

Faculty members' research productivity significantly predicts their research self-efficacy. Faculty members more confident in their research abilities are more likely to succeed in their research endeavors. Self-efficacy is critical in academic and scientific research. Research self-efficacy is depicted as a predictor of productivity in refereed and indexed publications, paper presentations, and bibliometrics, emphasizing the importance of self-efficacy in determining research outcomes. This study contributes new insights by establishing a direct link between research self-efficacy and productivity, suggesting that boosting self-efficacy could be a strategic approach to enhancing research output and quality among faculty members. This insight emphasizes the need to incorporate self-efficacy-building strategies in faculty development programs to increase research productivity potentially.

There are common barriers faced by faculty members when it comes to research productivity and publication. The lack of research training, limited institutional support, inadequate funding, administrative hurdles, and limited professional opportunities contribute to the low research output observed among faculty members. These challenges call for proactive measures to address the issues and provide comprehensive support to enhance research productivity. Though these concerns hinder faculty research productivity, they still provide a foundation for developing targeted policies and support mechanisms to overcome these challenges and foster a more productive research environment by developing a relevant and responsive faculty development plan. These insights may inform future studies and researchers, including initiatives to address these challenges.

Recommendations

To address the concerns found, it is recommended that HEIs implement training and mentoring programs focused on enhancing skills in data analysis and research dissemination. These programs can provide faculty members with the necessary knowledge and guidance to strengthen their research confidence in these areas, leading to improved research productivity and impact. Additionally, HEIs may prioritize initiatives that enhance research quality, increase publication visibility, and provide opportunities for faculty members to disseminate their research outputs. Encouraging collaborations, establishing internal funding and incentives, and fostering a research-supportive culture will contribute to elevating research productivity and the academic standing of the faculty members. Moreover, HEIs should proactively enhance faculty members' research self-efficacy. Faculty development plans must consider training and mentoring programs to assist faculty members gain confidence in conducting research tasks. These initiatives can concentrate on improving research writing skills and familiarity with publication processes.

To resolve the challenges mentioned, it is recommended that HEIs allocate sufficient resources to support research activities, such as funding opportunities for research projects, access to relevant literature and databases, and assistance in steering bureaucratic processes. Collaboration between institutions, government agencies, and industry partners can also contribute to developing a supportive ecosystem that encourages research engagement and dissemination. On the other hand, supervisors should provide targeted support to strengthen faculty members' self-efficacy, particularly in data analysis and dissemination of research findings, given the variability in self-efficacy levels observed. Graduate students can assist by actively engaging in research tasks that complement faculty strengths and seeking collaboration opportunities on projects requiring data analysis and presentation skills. By investing in these recommendations, HEIs can empower faculty members through their faculty development plan and ultimately contribute to advancing knowledge and developing the academic community.

Limitation

This study focused on one institution in Region 4B, Philippines, with a small sample; thus, findings may differ from other HEIs and faculty members. Besides, it did not consider variables influencing the faculty members' research self-efficacy, productivity, and challenges. Exploring supplementary variables influencing research productivity and self-efficacy among faculty members is recommended for future research, including work-life balance, teaching and quasi-teaching load, and administrative functions. Moreover, longitudinal studies following faculty members' progress in response to support programs may be conducted.

Ethics Statements

The study considered the ethical measures of conflict of interest, privacy confidentiality and data protection, vulnerability management, risks and benefits, informed consent, and terms of reference.

Acknowledgments

Conflict of Interest

The authors declare no conflict of interest.

Funding

The researchers personally funded the study.

Authorship Contribution Statement

Pentang: Concept and design, data acquisition and analysis, writing/editing the manuscript. Domingo: Data analysis and translation, writing/reviewing/editing the manuscript.

References

Adekunle, A. P., & Madukoma, E. (2022). Research self-efficacy and research productivity of doctoral students in universities in Ogun State, Nigeria. *Library Philosophy and Practice,* Article 7097. https://digitalcommons.unl.edu/libphilprac/7097/

Alcazaren, H. K. G., & Robiños, J. R. O. (2022). A comparison of demographic and research characteristics of faculty in a Philippine private university: Assessing self-efficacy, attitude, and interest. *Philippine Social Science Journal, 5*(3), 96-105. https://bit.ly/45yYDPc

Ambong, R. M. A., Dagos, R. A. T., Lumbo, S. G., Roldan, A. E., & Ferrer, V. C. (2022). Socio-demographic determinants of faculty research productivity in a Level-III Philippine State College. *Journal of Social Sciences: Transformations and Transitions, 2*(5), Article 22.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* Worth.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research.* Sage publications.

Department of Budget and Management & Commission on Higher Education. (2022). *Joint circular no. 3: Guidelines on the reclassification of faculty positions in state universities and colleges.* https://bit.ly/3VCJjwm

Fox, J., & Weisberg, S. (2019). *CAR: Companion to applied regression* [R package]. https://cran.r-project.org/package=car

Hemmings, B., & Kay, R. (2010). Research self-efficacy, publication output, and early career development. *International Journal of Educational Management, 24*(7), 562-574. https://doi.org/10.1108/09513541011079978

Heng, K., Hamid, M. O., & Khan, A. (2020). Factors influencing academics' research engagement and productivity: A developing countries perspective. *Issues in Educational Research, 30*(3), 965-987. http://www.iier.org.au/iier30/heng-abs.html

Ismayilova, K., & Klassen, R. M. (2019). Research and teaching self-efficacy of university faculty: Relations with job satisfaction. *International Journal of Educational Research, 98*, 55-66. https://doi.org/10.1016/j.ijer.2019.08.012

Jamovi Project. (2021). *Jamovi* (Version 2.2) [Computer Software]. https://www.jamovi.org.

Janer, S. S., Deri, R. A., & Carretero, G. A. (2022). Determining the research capability of the higher education institutions in one province in the Philippines. *International Journal of Current Science Research and Review, 5*(10), 4004-4011. https://doi.org/10.47191/ijcsrr/V5-i10-24

Kpolovie, P. J., & Dorgu, I. E. (2019). Comparison of faculty's research productivity (H-index and citation index) in Africa. *European Journal of Computer Science and Information Technology, 7*(6), 57-100. https://bit.ly/4ccEtxq

Lejmiri, S., Nazari, F., & Bigdeli, Z. (2018). رابطه‌ي خودكارآمدي پژوهشي و بهره‌وري پژوهشي اعضاي هيأت علمي دانشگاه آزاد اسلامي واحد اهواز [Relationship between research self-efficacy and research productivity among the faculty members of Ahwaz Azad University]. *Journal of Knowledge Studies, 11*(43), 91-103. https://sanad.iau.ir/en/Article/1040571

Li, Y. (2023). *Teachers' motivation, self-efficacy, and research engagement: A study of university EFL teachers at the time of curriculum reform in China* [Doctoral dissertation, The University of Auckland]. University of Auckland–Libraries and Learning Services. https://hdl.handle.net/2292/63473

Li, Y., & Zhang, L. J. (2022). Influence of mentorship and the working environment on English as a foreign language teachers' research productivity: The mediation role of research motivation and self-efficacy. *Frontiers in Psychology, 13*, Article 906932. https://doi.org/10.3389/fpsyg.2022.906932

Livinţi, R., Gunnesch-Luca, G., & Iliescu, D. (2021). Research self-efficacy: A meta-analysis. *Educational Psychologist, 56*(3), 215-242. https://doi.org/10.1080/00461520.2021.1886103

Nafukho, F. M., Wekullo, C. S., & Muyia, M. H. (2019). Examining research productivity of faculty in selected leading public universities in Kenya. *International Journal of Educational Development, 66*, 44-51. https://doi.org/10.1016/j.ijedudev.2019.01.005

Pasupathy, R., & Siwatu, K. O. (2014). An investigation of research self-efficacy beliefs and research productivity among faculty members at an emerging research university in the USA. *Higher Education Research and Development, 33*(4), 728-741. https://doi.org/10.1080/07294360.2013.863843

Pentang, J. T. (2023). *Quantitative research instrumentation for educators*. Lecture Series on Research Process and Publication. https://doi.org/10.13140/RG.2.2.21153.28004

Quimbo, M. A. T., & Sulabo, E. C. (2014). Research productivity and its policy implications in higher education institutions. *Studies in Higher Education, 39*(10), 1955-1971. https://doi.org/10.1080/03075079.2013.818639

R Core Team. (2021). *R: A language and environment for statistical computing* (Version 4.0) [Computer software]. https://cran.r-project.org.

Rogayan, D. V. Jr., & Corpuz, L. N. (2022). Evaluating the research productivity of a State University in Central Luzon, Philippines: Basis for policy recommendations. *International Journal of Evaluation and Research in Education, 11*(1), 128-135. http://doi.org/10.11591/ijere.v11i1.22099

Tayaban, D., & O'Leary, R. (2022). Striving to publish in international journals: A case study of a small university in rural Philippines. *Journal of Public Affairs Education, 28*(4), 407-421. https://doi.org/10.1080/15236803.2022.2093602

Vecaldo, R., Asuncion, J. E., & Ulla, M. (2019). From writing to presenting and publishing research articles: Experiences of Philippine education faculty-researchers. *Eurasian Journal of Educational Research, 19*(81), 147-164. https://dergipark.org.tr/en/pub/ejer/issue/45577/582572

Velasco, M. S. (2023). Faculty primary functions in a private higher education institution: Basis for performance evaluation. *British Journal of Teacher Education and Pedagogy, 2*(2), 17-25. https://doi.org/10.32996/bjtep.2023.2.2.2

Wa-Mbaleka, S. (2015). Factors leading to limited faculty publications in Philippine higher education institutions. *International Forum Journal, 18*(2), 121-141. https://journals.aiias.edu/info/article/view/116

Wester, K. L., Gonzalez, L., Borders, L. D., & Ackerman, T. (2019). Initial development of the faculty research self-efficacy scale (FaRSES): Evidence of reliability and validity. *Journal of the Professoriate, 10*(2), 78-99. https://bit.ly/3TieEmO

Wester, K. L., Vaishnav, S., Morris, C. W., Austin, J. L., Haugen, J. S., Delgado, H., & Umstead, L. K. (2020). The interaction of imposter phenomenon and research self-efficacy on counselor educator scholarly productivity. *Counselor Education and Supervision, 59*(4), 316-325. https://doi.org/10.1002/ceas.12191