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Research productivity of teacher educators in a Philippine state university

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ABSTRACT

Research productivity in higher education institutions (HEIs) is essential for university rankings and quality assurance. However, studies show that Filipino researchers, particularly in HEIs, have low research output. This quantitative study focuses on the research productivity of 100 teacher educators at a Philippine state university, analyzing it in relation to their professional characteristics. The results reveal generally low research productivity, especially in externally funded projects, research utilization, citations, awards, and intellectual property registrations. Significant differences in research productivity were found based on years of service, educational attainment, faculty rank, research teaching experience, and seminar participation. Teacher educators with more years of service, advanced academic degrees, higher academic ranks, research teaching experience, and greater seminar attendance tend to have higher research productivity. To improve research output, institutions should prioritize faculty professional development.

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1. INTRODUCTION

Research productivity has become a global measure of institutional prestige and faculty performance in higher education institutions (HEIs). It serves as a key indicator of educational excellence and significantly influences institutional rankings [1], [2]. Universities worldwide are increasingly evaluated based on the research output of their faculty, which includes published works, conference presentations, research grants, and citations [3]. This global emphasis on research excellence enhances institutional reputations and drives the advancement of knowledge [4], [5]. Consequently, academic institutions are pressuring faculty to boost their research output to improve international ranking positions [6]. These pressures have reshaped academic work, compelling faculty members to focus more on research in an increasingly competitive global environment.

In the Philippines, the research productivity of teacher educators, particularly those in teacher education programs, plays a critical role in institutional evaluations. It is essential for obtaining performance-based bonuses and for ensuring quality assurance at both national and international levels. While research is a central component of the educational framework in the country, many HEIs face challenges in achieving significant levels of research productivity among their faculty members [7]–[10], including teacher educators [11]–[13]. These challenges include excessive teaching loads, lack of mentorship, and limited funding for research activities [14]. Despite these obstacles, faculty members recognize the personal and professional benefits of engaging in research, such as career advancement and knowledge sharing [15].

The theory of planned behavior (TPB) provides a useful framework for understanding faculty research engagement. TPB highlights that attitudes, subjective norms, and perceived behavioral control significantly influence the intention to participate in research. This intention, in turn, strongly predicts actual research behavior [16]. Factors such as time constraints, lack of mentorship, and limited collaboration opportunities reduce motivation for teacher educators to engage in research [17]. Both individual and environmental factors play a key role in shaping research engagement [18]. Additionally, the "Matthew effect" suggests that early research success leads to further opportunities and enhanced productivity [19].

Existing literature identifies various factors influencing research productivity. For example, Tang and Chamberlain [20] found that longer years of service are often associated with decreased research focus, a finding echoed by Caingcoy [21], who reported a negative correlation between years of service and research capability. Conversely, Farooqi *et al.* [22] found weak positive correlations between experience and research output. Research productivity is also influenced by educational attainment, with faculty holding doctoral degrees generally producing more research outputs than those with lower qualifications [12], [23], [24]. Institutional factors, such as faculty size, the presence of senior researchers, supporting staff, and doctoral programs, positively impact research productivity [25]. Academic rank is another significant factor, with professors at higher ranks typically producing more research and engaging in international collaborations [26], [27]. Citation counts, an indicator of research impact, are also affected by academic rank, faculty affiliation, and administrative roles [28]. Moreover, teachers who participate in in-service training programs tend to be more productive in research than those who do not receive such training [13], [29].

Understanding how professional characteristics influence research productivity is essential for enhancing faculty output. These characteristics can shape an educator's ability and motivation to engage in research. By identifying these influences, HEIs can develop targeted strategies such as mentorship and training programs to support faculty in improving their research contributions. This is particularly important in teacher education, where the research output of educators is vital for shaping policy and practice in the field.

While many studies have focused on research productivity factors in HEIs globally, limited exploration has been conducted within the unique educational context of the Philippines. This study aims to fill this gap in the existing literature by specifically examining the professional characteristics that influence the research productivity of teacher educators in the Northern Philippines. The objectives of the study are twofold: first, to assess the level of research productivity among teacher educators based on various criteria; and second, to compare their research productivity when grouped according to professional characteristics.

2. METHOD

2.1. Research design

This study utilized a quantitative research design to evaluate the research productivity of teacher educators. Specifically, it aimed to compare the research productivity of teacher educators based on their professional characteristics. The design was chosen for its ability to quantify the research productivity and professional characteristics, allowing for objective comparisons.

2.2. Sampling procedure and research participants

The study participants were full-time faculty members from the College of Teacher Education at a university in Northern Philippines, distributed across eight campuses. Part-time lecturers were excluded to maintain consistency in evaluating research productivity among faculty with plantilla teaching positions. The sample size was determined using the Lynch formula and selected through stratified random sampling with proportional distribution, as detailed in Table 1.

Table 1. Distribution of participants per campus

Campus	Population size	Sample size
A	55	41
B	13	10
C	10	7
D	15	11
E	16	12
F	11	8
G	10	7
H	5	4
Total	135	100

Furthermore, Table 2 shows the frequency count and percentage distribution of the participants in terms of their professional characteristics. Most of the respondents have 5 or fewer years of service (27%), with a mean

of 12.50 years. Impressively, the majority are doctorate degree holders (54%) specializing in humanities and social sciences (68%). Moreover, most of the respondents are associate professors (37%), with the majority having no experience teaching research (73%), but most having attended 3 or more research-related seminars (43%).

Table 2. Professional characteristics of the participants

Profile	Specific profile	Frequency (n=100)	Percent (%)
Years in the service	5 and below	27	27.00
Mean=12.50 years	6-10	26	26.00
	11-15	14	14.00
	16-20	8	8.00
	21-39	25	25.00
Educational attainment	Bachelor	4	4.00
	Masters	42	42.00
	Doctorate	54	54.00
Field of specialization	Humanities and social sciences	68	68.00
	Natural sciences and mathematics	32	32.00
Faculty rank	Instructor	23	23.00
	Assistant professor	28	28.00
	Associate professor	37	37.00
	Professor	12	12.00
Teaching research experience	With experience	27	27.00
	Without experience	73	73.00
Number of research-related seminars	0	25	25.00
	1-2	32	32.00
	3 or more	43	43.00

2.3. Research instrument

A rubric specifically designed to assess the research productivity of the teacher educators served as the primary data collection tool. This rubric was carefully developed and underwent thorough critiquing and content validation by experts in the field. The rubric evaluated research productivity across several key criteria, reflecting various aspects of research produtivity, including: i) presented research proposal in external agency review/in-house review collectively and individually; ii) completed research within 3 years; iii) published research in refereed journals (Clarivate Analytics, Scopus, ASEAN citation index); iv) presented research paper in international, national, and/or local fora; v) research citation; vi) research utilization for instructional improvement, policy development and recommendation, people services (extension), technology transfer, and programmatic actions; vii) research outputs recorded for intellectual property–utility model, copyright, patent, industrial design, trademark; viii) commissioned research or externally funded research; ix) received award/s such as best research paper, outstanding researcher, best presenter, and other awards related to research; and x) research role/assignment such as peer reviewer, member of research technical working group, editorial board member, research consultant, research adviser, and/or research evaluator.

2.4. Ethical considerations

The research process commenced with formal approval from the University President, followed by letters to Campus Executive Officers and deans, informing them about the study. Participants were provided with detailed information regarding the study's purpose and procedures, and free, prior, and informed consent (FPIC) was obtained to ensure voluntary participation and protect their privacy. These ethical practices, including informed consent and confidentiality, were crucial for enhancing the study's validity and reliability.

2.5. Data analysis

The evaluation of teacher educators' research productivity covered three academic years and used a rubric to categorize performance as high performance (5 points), average performance (3 points), or low performance (0 points). Points were assigned based on the quantity and quality of research outputs, leading to total scores categorized as 68-100 for high performance, 34-67 for average performance, and 0-33 for low performance. Statistical analyses, including independent samples t-tests and analysis of variance (ANOVA), were conducted to identify significant differences in research productivity based on professional characteristics.

3. RESULTS AND DISCUSSION

3.1. Research productivity of the teacher educators

Research productivity is a critical measure of faculty performance, especially in HEIs. While previous studies have assessed various aspects of research output, there is limited comprehensive analysis of research productivity across multiple criteria in the context of Philippine HEIs. Hence, Table 3 shows the

teacher educators' research productivity across ten distinct criteria, providing a more detailed understanding of their research performance.

The overall research productivity of teacher educators is categorized as low ($\bar{x}$=26.76). The lowest productivity scores were noted in commissioned research or externally funded research ($\bar{x}$=3.60). This is followed by research utilization for instructional improvement, policy development and recommendation, people services (extension), technology transfer, and programmatic actions ($\bar{x}$=8.00); research citation ($\bar{x}$=11.20); received award/s such as best research paper, outstanding researcher, best presenter, and other awards related to research ($\bar{x}$=11.80); and research outputs recorded for intellectual property-utility model, copyright, patent, industrial design, trademark ($\bar{x}$=13.60). On the other hand, the criterion with the highest mean (average level) is research role/assignment such as peer reviewer, member of research technical working group, editorial board member, research consultant, research adviser, and/or research evaluator ($\bar{x}$=65.20).

The low research productivity observed in this study is consistent with findings from similar studies that have highlighted limited research output among teachers [7], [13]. Studies have pointed to barriers such as lack of institutional support and inadequate funding as contributing factors [14]. This aligns with the low scores in externally funded research and research utilization found in the current study.

Although this study provides a comprehensive analysis of research productivity, it is limited by its cross-sectional design, which only captures a snapshot of teacher educators' productivity. Moreover, the study does not explore qualitative factors, such as personal motivation or institutional policies, which could further explain the variability in research output. Future research could benefit from longitudinal designs and in-depth qualitative analyses to better understand the dynamics of research productivity in HEIs.

Given the low levels of externally funded research and research utilization, future studies could explore effective strategies for enhancing teacher educators' access to external funding and collaboration opportunities. Additionally, research should examine how institutional policies and professional development programs can be tailored to support teachers in converting their research into practical applications for policy and instructional improvement. Understanding these factors may help improve overall research productivity and impact.

The findings indicate that the overall research productivity of teacher educators in Northern Philippines is low, particularly in areas such as externally funded research and research utilization. Despite some strengths in research roles and proposal presentations, systemic issues such as lack of funding and institutional support appear to be significant barriers. Addressing these issues is essential for enhancing the research capability and output of teacher educators, thereby contributing to the advancement of knowledge and educational practices in HEIs.

Table 3. Research productivity of the teacher educators

Criteria	Mean ($\bar{x}$)	Descriptive value
Presented research proposal in external agency review/in-house review collectively and individually	55.20	Average
Completed research within 3 years	47.60	Average
Published research in refereed journals (Clarivate Analytics, Scopus, ASEAN citation index)	37.80	Average
Presented research paper in international, national, and/or local fora	44.80	Average
Research citation	11.20	Low
Research utilization for instructional improvement, policy development and recommendation, people services (extension), technology transfer, and programmatic actions	8.00	Low
Research outputs recorded for intellectual property-utility model, copyright, patent, industrial design, trademark	13.60	Low
Commissioned research or externally funded research	3.60	Low
Received award/s such as best research paper, outstanding researcher, best presenter, and other awards related to research	11.80	Low
Research role/assignment such as peer reviewer, member of research technical working group, editorial board member, research consultant, research adviser, and/or research evaluator	65.20	Average
Total	26.76	Low

3.2. Comparison of the teacher educators' research productivity when grouped according to professional characteristics

Previous research has examined various factors influencing research productivity. However, there is still limited understanding of how specific professional characteristics affect the research productivity of teacher educators in HEIs. Thus, Table 4 provides data that compares the research productivity of teacher educators based on professional characteristics such as years in service, educational attainment, field of specialization, faculty rank, research teaching experience, and participation in research-related seminars.

The analysis revealed that research productivity significantly varies according to years in service (p=0.014). Post hoc tests showed that teacher educators with 21 or more years of service have higher research output compared to those with ten years or fewer. This could be due to their increased experience and deeper understanding of their field, which they develop over time [30]. However, the study's finding does not align with previous studies, which revealed a negative correlation between years in service and research

productivity [20]–[22]. These earlier studies suggest that as teacher educators stay longer in the service, they tend to exhibit lower research productivity.

Table 4. Comparison of teacher educators' research productivity when grouped according to professional characteristics

Professional characteristics	Specific characteristics	Mean	SD	Computed value	p-value
Years in the service	5 and below	19.63	23.63	F=3.289	0.014*
	6-10	20.00	17.52		
	11-15	30.21	24.86		
	16-20	19.62	6.94		
	21-39	37.76	20.86		
Educational attainment	Masters	17.26	20.11	t=4.280	0.000**
	Doctorate	35.46	21.09		
Field of specialization	Humanities and social sciences	25.29	21.82	t=0.956	0.341^{ns}
	Natural sciences and mathematics	29.88	23.42		
Faculty rank	Instructor	13.65	16.71	F=13.014	0.000**
	Assistant professor	21.50	21.76		
	Associate professor	29.92	18.43		
	Professor	54.42	18.93		
Teaching research experience	With experience	42.00	23.97	t=4.543	0.000**
	Without experience	21.12	18.94		
Number of research-related seminars	None	12.52	13.39	F=10.017	0.000**
	1 to 2 seminars	26.00	20.14		
	3 or more seminars	35.60	23.93		

Legend: **significant at 0.01 significance level; *significant at 0.05 significance level; and ^{ns}not significant.

Additionally, there is a significant difference in research productivity based on educational attainment (p=0.000), with doctorate degree holders producing more research than those with master's degrees. This finding is consistent with previous studies that indicate individuals with doctoral degrees tend to have higher research outputs compared to those with lower educational degrees [12], [23]–[25]. This is attributed to the fact that doctorate holders are typically more skilled in conceptualizing, conducting, and publishing research due to their advanced training [31].

On the other hand, no significant difference in research productivity was found based on field of specialization (p=0.341). This means that teacher educators, regardless of their specialization, produce similar levels of research output. It suggests that specialization may not heavily influence research productivity, allowing for faculty development strategies to be applied across different fields.

Moreover, the study found a significant difference in research productivity based on faculty rank (p=0.000), with professors producing the highest number of research outputs. This finding aligns with previous studies showing that teachers in higher academic ranks tend to have greater research productivity [25]–[28]. This is expected, as research is a key requirement for full-fledged professors in their job descriptions and for promotion, as outlined in Joint Circular No. 03, Series of 2022 [32].

Furthermore, teacher educators with experience teaching research (p=0.000) show higher levels of research productivity. Engaging in research instruction likely deepens their understanding of research methodologies and design, which enhances their own research output [33]. This implies that providing opportunities for educators to teach research courses may foster greater productivity, as it reinforces critical research skills and knowledge.

Lastly, research productivity significantly varies based on participation in research-related seminars (p=0.000). Faculty members who attended at least three seminars produced more research outputs than those who did not attend any. This aligns with previous studies showing that educators who participate in more research-related seminars tend to generate greater research outputs [13], [29]. This can be attributed to the professional development opportunities these seminars offer, fostering collaboration and exposing educators to new research ideas [34].

Although this study provides valuable insights into the influence of professional characteristics on research productivity, it is limited by its quantitative approach. Qualitative data, such as interviews with teacher educators, could offer a deeper understanding of the motivations and barriers influencing their productivity. Additionally, the study only considers teacher educators from a specific geographic region, which may limit the generalizability of the findings to other areas or countries.

Future research could explore the influence of other factors, such as institutional support, access to research funding, and collaboration opportunities, on research productivity. Additionally, studies could investigate how mentoring and faculty development programs contribute to improving research productivity

across different ranks and levels of experience. Exploring the role of intrinsic motivation and personal research interests could also offer insights into how educators can enhance their research output.

Summarily, the study demonstrates that years in service, educational attainment, faculty rank, research teaching experience, and participation in research-related seminars significantly influence the research productivity of teacher educators. The findings highlight the need for targeted professional development initiatives in HEIs, such as promoting advanced education, facilitating research teaching experience, and encouraging attendance at research-related seminars to boost research productivity. Institutional support and policies aimed at enhancing research opportunities for educators across all professional levels are crucial for fostering a more research-active academic environment.

4. CONCLUSION

Teacher educators at the state university in Northern Philippines demonstrate a clear need for professional development to boost their research productivity. They generally show low research output, especially in areas like externally funded research, research utilization, citations, awards, and intellectual property registrations. Research productivity significantly varies depending on professional characteristics such as years of service, educational attainment, faculty rank, research teaching experience, and participation in research-related seminars. Teacher educators with longer service, advanced academic degrees, higher faculty ranks, experience in teaching research, and frequent participation in seminars are more likely to generate greater research output. To address this, institutions should prioritize professional development initiatives, such as mentoring programs, to guide less experienced faculty in conducting research. Additionally, universities should focus on resource mobilization, building partnerships, and providing faculty with the necessary tools, templates, and support to engage with external funding agencies and to strengthen their research capacity.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

DATA AVAILABILITY

The data that support the findings of this study are available on request from the corresponding author, [JTA]. The data, which contain information that could compromise the privacy of research participants, are not publicly available due to certain restrictions.

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