Research Capability and Productivity: Basis for Responsive Research Development Plan

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ABSTRACT

This study aimed to determine the research capability and productivity of the faculty as the basis for a responsive research development plan. A descriptive-correlation method of research was adopted using the Pearson Product Moment Correlation in determining the relationship between faculty's research capability and research productivity. The data were gathered through validated semi-structured survey instruments and unstructured interviews. Frequency distribution, percentage technique, weighted mean, and Pearson Correlation Coefficient were used in the interpretation of data. Faculty respondents' mean productivity was higher on publication (4.05) as author (3.27), with journals as publication outlets (2.69), and indexed in journals (2.07). They are moderately capable in terms of conceptual skills (4.31); computational skills (3.29) and technical skills (2.89). A significant relationship exists between research capability and productivity in conceptual (.039) and technical skills (.012) Findings also revealed that the research capability of the faculty that showed significant relationship with research productivity was along conceptual skills (r=.693; p=0.039) and technical skills (r=.786; p=.012) at a 5% level of significance. A Responsive Research Development Plan" was designed for faculty members to enhance their research capabilities, focusing on developing research skills and integrating technology in research and publication. It is recommended that a research capability training program be designed to enhance teachers' skills in writing publishable research.

Keywords: Research capability, research productivity, conceptual, computational, technical skills.

INTRODUCTION

In today's multicultural world, the essentiality of research in an academic institution is critical and important through extending knowledge and wisdom to develop one's critical thinking skills. The application of skills in pursuit of research stimulates critical thinking for those who are in the field of research, and that includes teachers and students as well. The globalized and highly competitive world of today effectively demands the younger generations to think critically and creatively to respond to the new challenges of the future (Clark et al., 2022).

As the Philippines enters another era of rapid change, a Harmonized National Research Development Agenda (HNRDA) was crafted, which is aligned with Ambisyon Natin 2040, which is the foundation for more inclusive growth, a high-trust and resilient society, and a globally competitive knowledge economy. As such, there is a need to enable Higher Education Institutions (HEIs) to optionally participate in national transformation through the production and transfer of knowledge that is fundamental to the country's engagement in the knowledge-based economy (CMO 52 s. 2016). Based on the findings of Sanyal et al. (2019), universities in the developing world have retained strong teaching functions but weak research functions, and the Philippines was not exempted from this. As cited by Agatep and Villalobos (2020) in their study of the typology of Higher Education Institutions (HEIs) in the Philippines, only "15 out of 233" HEIs in the sample meet the requirements for the graduate-capable HEI category, and only 2 HEIs met the criteria for doctoral/research university categories.

Because of this, the Commission on Higher Education (CHED) has been pushing for stronger research orientation among HEIs, as gleaned from the crafted National Higher Education Research Agenda (NHERA),

in response to the increasing demand for quality research to cope with industry trends. Based on the report of World Intellectual Property Rights (WIPO) (2023), the result of the Global Innovation Index (GII) (2023), put Philippines on the 56th place among 132 countries. Across the seven areas of GII, the Philippines ranked 88th in terms of human capital and research, thus, WIPO commented that there is a need for further improvement in this area. In response to this CHED identified that one of the concerns that needs to be addressed, as stated in the CMO, is to build up, retrain, and retain a sustainable stream of new generation of researchers. In view of this, understanding research needs should be established to further improve capacity and practices over the production of theoretical knowledge.

In the conducted survey by the CHED, as mentioned by Wong (2019), the status of research capability among the college instructors in selected areas in Luzon, Philippines, revealed that research was given poor priority and limited funding among other activities. The finding further revealed that 92.95% of the faculty members in the country joined research and development activities, but only 22.81% were involved in the conduct of research, while others just joined for attendance and certificate purposes but not necessarily for the passion of conducting research and publication.

As an educational institution with a vision of cultivating a culture of excellence in education, a one private Higher Education Institution (HEI), provides services to its clients by responding to the mandate of the Commission on Higher Education (CHED) and the Department of Education (DepEd), to deliver a continuing intellectual growth for the advancement of learning and research and the development of responsible and effective leadership. This commitment was pointed out to serve the people of Camarines Norte, Bicol Region, and the country as well by providing quality and accessible education through industry demand-driven and relevant curriculum and instructional program; responsive and focused research; and outcome-based oriented extension program. It is for this reason that this one private HEI is the chosen locale of this study, aside from the fact that it offers basic education, tertiary education, and advanced education.

This is one of the reasons that this study was conceived. The researcher wants to determine which aspect of the research management learning process does the faculty needs to enhance, so that a responsive research development plan can be initiated in accordance with the result of this study. Knowing their weaknesses could be an opportunity to systematically strengthen their research capability so that they can fully utilize and disseminate it through publication and presentation to different scientific gatherings.

Statement of the Problem

This study was conducted to determine the research capability and productivity of the faculty as the basis for a Responsive Research Development Plan.

Specifically, this study answered the following:

What is the profile of the faculty members in terms of:

1.1 age;
1.2 educational attainment;
1.3 number of years of teaching;
1.4 number of research conducted;
1.5 participation in research-related activities; and
1.6 incentives received?

What is the research productivity profile of the faculty members in the context of:

2.1 publication;
2.2 authorship;
2.3 publication outlet; and
2.4 journal indexing?

What are the research capability skills of the faculty members in terms of:

3.1 conceptual skills;
3.2 computational skills; and
3.3 technical skills?

Is there a significant relationship between the research productivity profile and the research capability skills of the respondents?

Based on the findings of the study, what appropriate research responsive development plan may be proposed for the faculty members?

Hypothesis

There is no significant relationship between the research capability and research productivity of the respondents.

LITERATURE REVIEWED

In any academic area, research is the cornerstone of knowledge development and advancement (Independent Expert Group on the Universities and the 2030 Agenda, 2022). Faculty members, through their research projects, significantly influence the intellectual environment of the university.

The study of Kapur, (2018) in India, mentioned that research is an imperative aspect that is primarily implemented in higher educational institutions, particularly when individuals are working on a master's or Doctoral thesis/dissertation. Relative to this, the individuals who are conducting research need to possess efficient knowledge and information regarding various aspects involved, such as collection of data, organizing the data, analyzing it, and obtaining the research findings. Similarly, he emphasized that the main procedures that are required to be taken into consideration in research include formulating the research problem, setting objectives, collecting data, testing the hypothesis, conducting an analysis of data, and interpreting the findings. Since research has systematic steps and procedures, a researcher should have adequate knowledge of the above-mentioned procedures to carry out their research in a productive and systematic manner.

Upon the conception of education in the 21st century, it has emphasized that an individual has to have the ability to think scientifically, thus raising individuals who can recognize the problems and have the ability to solve them and who can use research techniques and have a positive attitude towards scientific research has come to the forefront, thereby making many countries revise their science programs in order to equip individuals with 21st-century skills such as cooperation, critical thinking, and creativity, Hoejholt (2021).

Viewed from this, Jordan (2018), mentioned that teachers can have a major influence on the way students learn and develop. Classroom teachers who have an impact on students' lives are those who have a genuine interest in students, know their subject matter, and possess detailed information about instructional processes and the way students learn and develop, which is supportive of the description of education. As cited by DeFuniak et al. (2021), that it is vital to unlock the potential of a person for social change and long-term human growth, and should be recognized as a process by which human beings and societies can reach their fullest potential.

Furthermore, Aldulaimi et al. (2022) implied that in the United Arab Emirates (UAE), a positive result in both educational services and leadership was achieved. However, some challenges to improve in some indicators have been identified, such as those related to research, development, scientific publishing, and knowledge management. Overall, they concluded that a link between educators' innovation capabilities and human development toward educational technology does exist. They asserted that positive teachers' innovation capabilities and strategies toward the educational sector are important factors. Finally, they highlight the importance of the adoption of education leadership technology and innovative capabilities to achieve sustainable development in the UAE.

The education of the 21st century is seeing a gradual shift in learning activities from a traditional-centered approach to a more constructivist-oriented toward students (Sailin & Mahmor, 2018). During this time, research capabilities have attracted interest among academicians and researchers.

Research capability refers to an ability to conduct good-quality research in a professional field Caingcoy (2020), thus, the level of education of people involved in such intellectual work, as well as their skills and professional qualifications, play a critical role since research is an important tool for national and global progress Tamban and Maningas (2020) and this capacity is influenced by the educational system (Miethlich et al., 2020).

In the context of research productivity, many researchers, particularly those in academics in developed or newly industrialized countries like Korea, define research productivity by equating it with the "quantity" of published works accumulated by academics or referred to as "publication counts" (Akbaritabar et al., 2018). In other words, research productivity is measured by the number of publications of books, book chapters, journal articles (usually articles published in "peer-reviewed" journals), papers in conference proceedings, awarded research grants, and patents (Heng et al., 2020). A number of other studies considered research productivity by using bibliometric methods, such as citation counts, citation rates, h-index, and others, to determine the scholarly impact of a scientific article, author, or publication. In a broader sense, it may include translation of books or articles from a foreign to a local/native language, reports written for consultancy work, research involvement (from initiating a research project to conducting, publishing, and sharing research results), research-related presentations, and creative works.

In the study conducted by Heng et al. (2020), engagement in research and research productivity are influenced by personal as well as environmental factors. Based on an extensive literature review, various factors affecting research engagement and productivity can be classified into three different levels: individual, institutional, and national.

According to Adekunle et al., (2022), the prosperity of any nation is inevitably linked to research productivity measured in quality and quantity. Research is meant to respond to the needs of society and advance the growth of the nation. In light of this, universities have been recognized as centers for continued initiation, conduct, and dissemination of research and its findings. Citing the study of Simisaye et al., (2019), they described research productivity as the total number of journal articles, textbooks, monographs, conference proceedings, technical reports, chapters in books, theses, dissertations, scientific peer reviews, co-authored textbooks, occasional papers and patents produced by scholars within a specified time frame. With this description, universities across the world, through post-graduate education, should put in place a process of training, mentoring, and initiating generations into the research culture.

Poh et al., (2019), on the other hand investigated the relationship between research self-efficacy and the perception of the research training environment, interest in research, research mentoring experience, and research knowledge within a sample of Ph.D. students (N=120) at a local university in Malaysia. An apparent correlation was found between research self-efficacy, research training environment, interest in research and research mentoring while research self-efficacy was not correlated with research knowledge.

In the study conducted by Wong (2019), having Master Teachers as respondents, it was revealed that they are incapable in the following research dimensions: research process, research utilization, and research dissemination, implying that their capability in research is low and it could be attributed to its relationship with the personally related variables such as age, length of services, teaching position, training attended, research conducted, research project involvement, research knowledge, attitude towards research and institutional support. The result provides a general implication that for any capacity-building program to progress, the importance of knowledge, attitude, and institutional support must be emphasized, as these are the driving forces toward research productivity. This research by Wong (2019), utilized the theory of Self-efficacy by Bandura to provide the foundation of knowledge with regard to the capability of teachers to conduct a study.

Meanwhile, Perez et al. (2022), conducted a study to determine the research capability of faculty members of Cebu Technological University in terms of demographic profile, research exposure, and its relationship to their

research capability, utilizing descriptive-correlation research design. The study was conducted on the premise that college instructors who finished master's or doctorate degrees should conduct research and publish it. Based on the data gathered, it was revealed that in terms of the degree of relationship, age and gender were found not significant to research capability, while educational attainment, number of years in service, number of years conducting research, number of papers published, and number of local and international conferences attended denotes a significant relationship. The researchers, therefore, implied that profile and research exposure might affect the research capability of the respondents.

Viewed from this, Monsura et al. (2022) conducted a study to evaluate the research capability of the faculty members of the Polytechnic University of the Philippines (PUP). It was revealed in their study that faculty needs to improve their performance in research activities such as research production, research presentation, and publication. The results showed that the average participation rate of the faculty in these research activities was below 26%, which implies that almost 75% of the faculty did not at all participate in any of these activities. Among the three activities, it was noted that the faculty members were more engaged in research production. In terms of compliance rate, only 20% were engaged in each of the research activities. It is worth noting that while production and presentation decreased over time (2016-2020), research publication, on the other hand, increased, with an annual average growth rate of 50.17%, which could be reflective of the initiatives provided, such as the conduct of capability building programs through webinars, workshops, and other training which emphasizes on how to publish research paper in collaboration with Scopus and Web of Science (WOS) journal publishers, and provision of publication assistance and incentives, and promotion through research publication.

In line with this, the study undertaken by Fabiana et al. (2019) also dealt with research productivity. However, as the other studies delve more into the relationship between capability and productivity, their study analyzed the characteristics of the institution, the school leaders, and the individual faculty as predictors of research productivity. Viewed from the data gathered, it was revealed that variable sufficient work time was statistically significant at a 5% significance level, which means that if the teachers have given enough time, they will likely want to conduct research. The result also showed that for every unit increase in the mentioned variable, the research productivity would also increase. School leaders' characteristics (scholar, research-oriented, critical leadership role, and participative leader) showed that school leader characteristics are not the variables that could predict research productivity, though they manifest as a significant predictor of research productivity.

Generally, these past studies provide valuable insights and factors that influence academic engagement in research and publication. Although there are various factors which have been discussed in the literature, the contextual factors particularly in the environment which tend to hold them back from engaging in research and publication should not be overlooked. Moreover, more researchers are needed to gain a deeper understanding of the phenomenon of research engagement and productivity of academics.

Theoretical Framework

This study was anchored on Bandura's Self Efficacy Theory. Bandura's concept of self-efficacy is redounded to the beliefs and ideas of an individual about the level of capability to execute certain kinds of actions. The theory of self-efficacy was utilized by Hoy et al. (2009) followed by Perez et al. (2022) as a database about teachers' mechanisms in carrying out the expected functions set by an institution. One highlight notion of this theory is about developing intrinsic motivation to carry out challenging deliverables. In this study, it is the research function) set by the institution to create a certain mindset that these tasks are opportunities to develop their abilities for their career choice and professional growth. This study represents that among the beliefs that a teacher has, the most powerful was the perception about their capability and skills to navigate themselves around the field of research, thereby making themselves productive. Following Bandura's social cognitive theory, self-efficacy is described as an individual's belief about what the faculty can achieve because self-efficacy is task-specific. Thus, research self-efficacy would then be the belief in one's ability to engage successfully in different components of the research process.

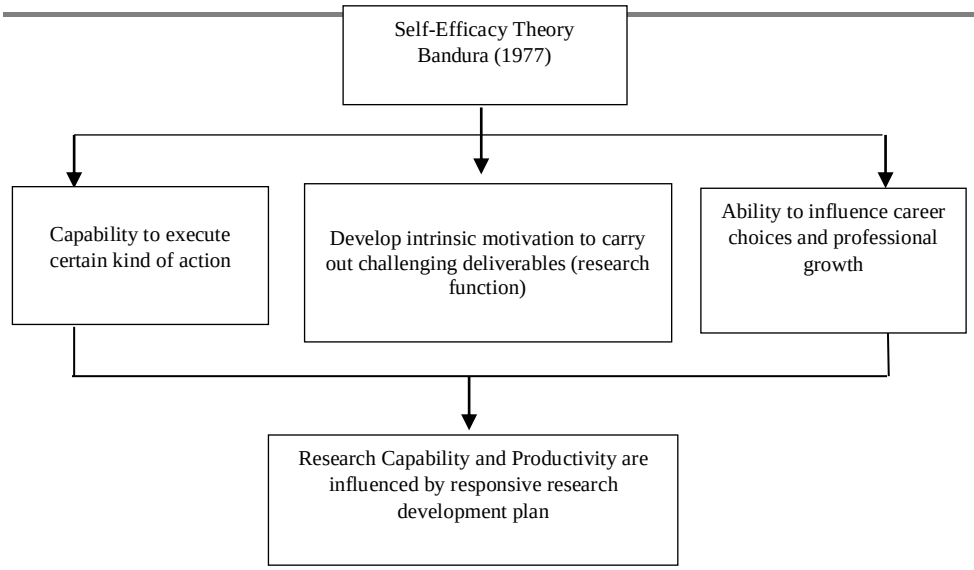

Figure 1 Theoretical Paradigm of the Study

Teacher's difficulty in undertaking research may indicate significant experience in doing the tasks. Since teachers are the key factors in transferring research knowledge to students, it is necessary that they be equipped with substantial knowledge in doing research.

In this study, the research capability and productivity of the faculty were the primary indicators measured. For the capability attributes, their conceptual, computational, and technical skills were determined and correlated to their productivity performance through publication, authorship, publication outlet, and journal indexing of their scientific work.

With this, the research capability of faculty should be enhanced to be more productive, which could be achieved through a responsive research development plan.

METHODS

A descriptive-correlation method of research was adopted using the Pearson Product Moment Correlation in determining the relationship between faculty's research capability and research productivity. The data were gathered through validated semi-structured survey instruments and unstructured interviews. Frequency distribution, percentage technique, weighted mean, and Pearson Correlation Coefficient were used in the interpretation of data.

In this case, all faculty members of the one private HEI, regardless of their ranks, were assessed to determine whether or not a relationship exists between their research capability and research productivity. There are 167 teaching personnel from all levels were subjected to total enumeration as the respondents in this study. However out of these 167 populations, only 143 (85.62%) faculty members took part as respondents since other non-participants chose to exercise their rights to privacy.

Data collection was done using a researcher-made semi-structured survey instrument A Cronbach Alpha test was employed to measure its reliability and assess how closely related a set of test items are as a group. Prior to the distribution of the validated questionnaire, the researcher took necessary measures to adhere to ethical principles. In compliance with the Data Privacy Act, the data collected was taken care of with utmost confidentiality. Thus, respondents' identities were not revealed. The research was conducted in a manner that respects and protects the rights of participants.

Population, Sample Size, and Sampling Technique

Based on the secondary data obtained from the Human Resource Development Office there are 167 teaching personnel from all levels which were subjected to total enumeration as the respondents in this study. It constitutes eighty-one (81) regular, nineteen (19) probationary, sixty-three (63) part-time, one (1) contractual,

and three (3) substitutes. However out of these 167 populations, only 143 (85.62%) faculty members took part as respondents of the study since other non-participants chose to exercise their rights to privacy.

Research Instrument

The researcher-made semi-structured survey questionnaire used in this study consists of three parts to elicit data that corresponds to the research questions. The first part was about the profile of respondents, which covers age, educational attainment, number of years in teaching, number of research conducted, and participation in research-related activities. These profiles were considered to gain deeper insights and make predictions more accurately since these might contribute to the relationship between research capability and research productivity. The second part focused on the research productivity profile specifying their involvement in publication, authorship, publication outlet, and journal indexing.

This component evaluates the aforementioned productivity profile of the respondents, through a 5-point Likert scale using the descriptive interpretation of (5) highly productive, (4) productive, (3) moderately productive, (2) slightly productive, and (1) not productive. The scores obtained were subjected to computation and interpretation of the weighted mean.

The third part provided answers to the research capability skills of the respondents, consisting of three predictors: conceptual skills, computational skills, and technical skills. Each predictor has 10 items, with a total of 30 items. Items from this part make use of the Likert scale type of measurement with corresponding quantitative values of (1 to 5), 5 being the highest and 1 being the lowest. A qualitative value of 5 means highly capable, 4 capable, 3 moderately capable, 2 somewhat capable, and 1 not capable. To determine if there was a correlation between research productivity and research capability, the statistical treatment employed was Pearson r. It is a statistical measure used to assess the relationship between two quantifiable variables (productivity and capability). One of the purposes of correlational study is to predict likely outcomes. As in this case, the predictor research productivity was correlated to criteria on research capability. The variable productivity is the one employed to make a prediction, while a variable capability is the one which is a prediction is made.

A responsive research development plan was crafted as an output of the study. The plan aimed at enhancing the research productivity and capabilities of the faculty members, focusing on developing research skills and integrating technology in research and publication.

Statistical Treatment of Data

Data sets generated from the study were analyzed using quantitative tools such as descriptive statistics (frequency count, percentage, and mean) and Pearson's Product Moment Correlation (r) Coefficient (P). A statistician was consulted to ensure data accuracy and analysis.

To ensure systematic and objective presentation, analysis, and interpretation of research data, the following statistical tools and techniques were applied with their corresponding formula:

For SOP 1, frequency count and percentage were used in the presentation of the profile of the respondents in terms of personal variables: age, educational attainment, number of years in teaching, number of research conducted, participation in research-related activities, and incentives provided.

$$P = \left(\frac{F}{N}\right)100$$

For SOP 2and 3, weighted mean was employed in determining the research productivity and capability of the respondents concerning their contribution to research productivity along publication, authorship, publication outlet, and journal indexing. This descriptive measure was also used in assessing their research capabilities in terms of conceptual skills, computational skills, and technical skills.

For SOP 4, Pearson's Product-Moment Correlation (r) Coefficient (P) was utilized in determining the significance of correlation between the research productivity and research capability of the respondents.

Pearson's Product – Moment Correlation. This was used to determine the significance of the relationship between research capability skills and research productivity. The formula applied was:

$$WM = \frac{\Sigma fx}{N}$$

Computation of significant relationship was done using the computer software Simplified Statistics for Researchers (SSR**),** which is a software program for quantitative data analysis.

RESULTS AND DISCUSSION

Faulty Members Profile

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Faculty respondents are in their middle age (31-40), new in the service (1-5 yrs.), with the highest educational attainment of a bachelor's degree (108), with low (3-4) research conducted, with limited participation in research-related activities (82), and received monetary and non-monetary awards as incentives.

Table I shows the frequency count with corresponding percentages on the profile of the respondents in terms of age, educational attainment, number of years in teaching, number of research conducted, participation in research-related activities, and incentives provided as well.

Table I Profile of the Faculty Members

Age Distribution		
Age Range	**Frequency**	**Percentage (%)**
Below 25	6	4
25–30	38	27
31–40	50	35
41–50	22	15
51–60	14	10
61 & above	13	9
Educational Attainment		
Attainment	**Frequency**	**Percentage (%)**
College	108	75.52
MAED-CAR	1	0.7
DBA-CAR	1	0.7
Masters	20	13.99
Doctorate	13	13.99

Number of Years in Teaching		
Years	**Frequency**	**Percentage (%)**
Below 1 year	5	3.5
1–5	52	36.36
6–10	42	29.37
11–15	16	11.19
16–20	11	7.64
21–25	6	4
26 & above	11	8
Number of Research Conducted		
Research Count	**Frequency**	**Percentage (%)**
None	65	45.45
1–2	62	43.36
3–4	9	6.29
5–6	3	2.1
7 & above	4	2.8
Participation in Research-related Activities		
Activity Type	**Frequency**	**Percentage %)**
Training/Seminars/Symposium	82	57.34
Scientific Conference/Colloquium	28	19.58
None	33	23.08
Incentives Provided		
Incentive Type	**Frequency**	**Percentage (%)**
Monetary Award	17	11.89
Certificate of Appreciation	53	37.06
Monetary Assistance for Publication & Presentation	8	5.59
Honoraria	9	6.3
Thesis and Dissertation Assistance	8	5.59
None	48	33.57

Research Productivity Profile of the Faculty

Table II presents the faculty members publication output. It resulted to an average mean of 4.05 which is interpreted as productive. It could be noted that a mean of 4.08 was the rating obtained, while a mean 4.03 was generated for no publication. These results could probably mean that, they showed shortfall on publication acceptance. The result conforms with the study of Adekunle et al., (2022) that research productivity is measured in quality and quantity.

Table II Research Productivity of the along Publication

INDICATORS	Weighted Mean	Adjectival Interpretation
1. Manuscript accepted for publication	4.06	Productive
2. Manuscript not accepted for publication	4.08	Productive
3. No publication	4.03	Productive
Over-all Weighted Mean	4.05	Productive

Legend: 4.20 -5.00 Highly Productive 3.40 - 4.19 Productive 2.60 -3.39 Moderately Productive

1.80 - 2.59 Somewhat Productive 1.00 - 1.79 Not Productive

Table III shows the authorship output of the faculty members. It can be gleaned that all of the indicators got moderately productive rating resulting to gain an average mean of 3.27 interpreted as moderately production

Table III Research Productivity of the Faculty along Authorship

INDICATORS	Weighted Mean	Adjectival Interpretation
Conducted research as sole author	3.29	Moderately Productive
2. Conducted research as co-author	3.28	Moderately Productive
3. Conducted research as sole and co-author	3.26	Moderately Productive
	3.27	Moderately Productive
4. None Over-all Weighted Mean	3.27	Moderately Productive

Legend: 4.20 -5.00 Highly Productive 3.40 - 4.19 Productive 2.60 -3.39 Moderately Productive

1.80 - 2.59 Somewhat Productive 1.00 - 1.79 Not Productive

Table IV reflects the over-all mean of (2.69) which indicates that faculty members were moderately productive in submitting manuscripts to different publication outlet. It could be noted that publication in both journals and conferences (2.89) got a moderately productive rating, while remaining indicators got a somewhat productive rating.

Table IV Research Productivity of the Faculty along Publication Outlet

INDICATORS	Weighted Mean	Adjectival Interpretation
1. Published papers on journals	2.56	Somewhat Productive
2. Published papers on conference proceedings	2.58	Somewhat Productive
3. Published papers on both journals and conferences	2.89	Moderately Productive
4. None	2.76	Somewhat Productive
Over-all Weighted Mean	2.69	Moderately Productive

Legend: 4.20 -5.00 Highly Productive 3.40 - 4.19 Productive 2.60 -3.39 Moderately Productive

1.80 - 2.59 Somewhat Productive 1.00 - 1.79 Not Productive

With regards to journal indexing, Table V revealed that articles indexed in Web of Science like the Scopus and ISI journals obtained a mean rating of 2.06 indicating that it is somewhat productive, while articles not indexed

in Web of Science got a rating of 2.08 interpreted as somewhat productive. Based from these ratings an over-all weighted mean of 2.07 was obtained indicating that faculty were somewhat productive along journal indexing.

The low result, could be related to personal factors with affects their publication in international journal. They probably encountered the problem of not knowing on how to submit their articles to international journals because of different guidelines and requirements.

Table V Research Productivity of the Faculty along Journal Indexing

INDICATORS	Weighted Mean	Adjectival Interpretation
1. Published in ISI / Scopus journals	2.06	Somewhat Productive
2. Not published in ISI / Scopus journals	2.08	Somewhat Productive
3. None	2.09	Somewhat Productive
Over-all Weighted Mean	2.07	Somewhat Productive

Legend: 4.20 -5.00 Highly Productive 3.40 - 4.19 Productive 2.60 -3.39 Moderately Productive

1.80 - 2.59 Somewhat Productive 1.00 - 1.79 Not Productive

Research Capability Skills of the Faculty Members

Conceptual Skills. Table VI, presents the respondents capability in terms of conceptual skills. The data generated confirms that respondents were moderately capable with an overall mean of (4.31). It was noted that among the indicators, the statements “I can synthesize the related literature and studies” and “I can draw conclusion and recommendations” having both a mean of (4.38) got the highest response. However, the statement “I can establish relevance of the study” and “I can analyze and interpret the outcome of the study” got the least mean of 4.23 and 4.26 respectively.

Table VI Faculty Members Capability Along Conceptual Skills

No.	Indicators	Mean	Adjectival Interpretation
1	Identify or recognize researchable problem	4.31	Moderately Capable
2	Formulate the conceptual framework of the study based on the objectives	4.34	Moderately Capable
3	Formulate testable hypothesis	4.34	Moderately Capable
4	Synthesize the related literature and studies	4.38	Moderately Capable
5	Establish relevance of the study	4.23	Moderately Capable
6	Determine what theories could be adopted that gives parallelism to the study	4.32	Moderately Capable
7	Arrange research settings, respondents, and spell out the procedures and research design	4.31	Moderately Capable
8	Analyze and interpret the outcome of the study	4.26	Moderately Capable
9	Draw conclusion and recommendations	4.38	Moderately Capable
10	Discuss the specific findings of the study	4.31	Moderately Capable
	Grand Mean	**4.31**	**Moderately Capable**

Legend: 4.20 -5.00 Highly Capable 3.40 - 4.19 Capable 2.60 -3.39 Moderately Capable

1.80 - 2.59 Somewhat Capable 1.00 - 1.79 Not Capable

Computational Skills. Table VII shows the item mean rating of faculty members capability in terms of their computational skills. It could be noted that all of the items were rated moderately capable as backed up by the mean ratings ranging from 3.26 to 3.31. The faculty responses were along the statements "I can identify the appropriate research design"; "I can identify different tools or research techniques used in generating data"; "I can determine basic statistical tools in research and data analysis; "I can interpret and analyze data based on statistical computation"; and "I can determine the reliability of the survey questions using the Cronbach Alpha" all of which got a mean rating of 3.31. However, it can be noted also that the lowest mean rating of 3.26 was generated from the statements "I can employ sampling techniques" and "I can identify when to use descriptive and inferential statistics". `Aside from these the statements "I can employ appropriate research procedures" and "I can develop an index to summarize the collected/classified data' got both a mean rating of 3.28. As a whole, the respondents "assessed their computational skills as moderately capable with a grand computed mean rating of 3.29.

Table VII Faculty Members Capability Along Computational Skills

INDICATORS	Mean	Adjectival Interpretation Moderately Capable
1. Identify the appropriate research design	3.31	Moderately Capable
2. Employ appropriate sampling techniques		Moderately Capable
3. Employ appropriate research procedure	3.26	Moderately Capable
4. Identify different tools or research techniques used in generating data		Moderately Capable
5. Determine basic statistical tools in research and data analysis.	3.28	Moderately Capable
		Moderately Capable
6. Develop an index to summarize the collected/classified data	3.31	Moderately Capable
7. Identify when to use descriptive and inferential statistics		Moderately Capable
		Moderately Capable
8. Interpret and analyze data based on statistical computation	3.31	Moderately Capable
	3.28	
9. Determine the reliability of the survey questions using the Cronbach Alpha	3.26	
	3.31	
	3.31	
10. Distinguish when to use content analysis, narrative analysis, discourse analysis, and grounded theory for data analysis in qualitative research	3.28	
	3.29	
Grand Mean		

Legend: 4.20 -5.00 Highly Capable 3.40 - 4.19 Capable 2.60 -3.39 Moderately Capable

1.80 - 2.59 Somewhat Capable 1.00 - 1.79 Not Capable

Technical Skills. With regard to the faculty members technical skills, Table VIII provides the mean ratings gathered. It could be gleaned from the table that the respondents are moderately capable with their technical skills as evidence by the overall mean rating of 2.89. However, three out of 10 items were rated "somewhat capable" with a mean rating ranging from 2.29 to 2.51. The statements that received responses with least mean rating were "Interpret and analyze data based on statistical results (2.29); "Identify which data collection methods are most appropriate for different needs" (2.33); and "Utilize the APA style of citing and referencing the literature and studies" (2.51).

Table VIII Faculty Members Capability along Technical Skills

INDICATORS	Mean	Adjectival Interpretation
1. Determine basic understanding in evaluating research format	3.24	Moderately Capable
2. Identify which data collection methods are most appropriate for different needs	2.33	Somewhat Capable
3. Utilize the APA style of citing and referencing the literature and studies	2.51	Somewhat Capable
4. Organize research process correctly	2.75	Moderately Capable
5. Use the computer software app in statistical analysis	3.21	Moderately Capable
6. Write the final research report in publishable format.	3.17	Moderately Capable
7. Present the gathered data through tables and graphs	3.26	Moderately Capable
8. Write completed research in publishable writing format.	3.15	Moderately Capable
9. Employ the appropriate research format	3.06	Moderately Capable
10. Interpret and analyze data based on statistical results.	2.29	Somewhat Capable
Grand Mean	2.89	Moderately Capable

Legend: 4.20 -5.00 Highly Capable 3.40 - 4.19 Capable 2.60 -3.39 Moderately Capable

1.80 - 2.59 Somewhat Capable 1.00 - 1.79 Not Capable

Relationship Between Research Productivity and Research Capability

Pearson's correlation between the research capability and research productivity of the respondents is shown in Table IX. It can be seen from the result that the research productivity flagged a significant relationship with research capability in terms of conceptual skills with a mean value of (4.31, SD 27) and technical skills (2.89, SD .42). The correlation was significantly found at (r.693*p 0.039) and (r .786* p-value of .012) for conceptual and technical skills respectively, which manifests a substantial relationship between research capability and research productivity.

Table IX Test on Significant Relationship between Research Capability and Research Productivity of the Faculty Members Using Pearson Correlation

Variables	Publication r	p	Authorship Research p	Publication Outlet p	Journal Indexing p
Conceptual Skills	0.693*	p.0.39	0.297	0.389	0.384
Computational Skills	0.481	p.190	0.364	0.088	0.576

Technical Skills	0.786*	p.012	0.967	-0.25	0.358

Note: *correlation is significant @ 0.05**correlation is significant @ 0.01

Content Analysis of In-depth Interviews

The ability of faculty member in providing quality education is directly influence by their research capability based from the results obtained on the faculty profile it showed that most of the respondents are middle-aged, new in the service, and have the highest educational attainment of a bachelor's degree. The research conducted was low, implying that respondents were more inclined to devote their time to teaching rather than indulging in doing research. Their participation in research-related activities was attendance at training/seminars/symposiums and colloquia, either as paper presenters or attendees. Though there was a stipulation in the Research Operation manual regarding the provision of incentives (33.57%), respondents were not able to receive such benefits.

During the conduct of data gathering, interviewing of respondents was undertaken using *Focus Group Discussion (FGD). In the discussion they mentioned that though monetary incentives were stipulated in their research policy, actively engaging in research activities is difficult, because of heavy teaching load assigned to them which is common to a small size private institution which give preference to teaching over research.* Their genuine interest in doing research is evidence of their belief that teachers' active engagement and taking the lead role in conducting research could be a significant approach to introducing creativity to teaching and successful facilitation of professional growth.

The research productivity profile of respondents displays a productive inclination when it comes to publication outputs, while authorship and publication outlets are both moderately productive. Journal indexing, however, is somewhat productive.

The respondents' productivity profile was more in publication since the administration provided support for this endeavor. Papers published were in reputable journals, and some were in indexed in Scopus.

In the conducted interview, one of the concerns aroused was the opportunity that could be derived for publication of their research work. Publication could be the pathway towards networking and linkaging. One faculty even mentioned that *she wants to be recognized in the academic field for my personal advancement and achievement.*

On the basis of their research capability, faculty demonstrate consistent levels of research capabilities. They are moderately capable when it comes to conceptual skills, computational and technical skills. This capability manifested during the initial phase of conducting research through their ability to organize thoughts and understand various theories of the discipline he/she explored. They are less capable of analyzing and interpreting the data gathered using appropriate statistical tools, designs, and research methods. Likewise, the respondents have difficulties in the interpretation of the data based on the statistical results.

Improving the capacity of educators, (Phunga et. al., 2020) manifested that it is necessary to improve the capacity of educators, focusing on the following areas professional ethics, learning capacity, program development capacity; research capacity; social engagement capacity; ability to provide education; capacity for international cooperation in higher education with emphasis on the ability to elaborate teacher training programs directed on the development of students' competence while combining theory and practice.

Transcript of the individual interviews of the two faculty were expressed in these responses, *such as enhancement of my research skills and exercising it, provoke a critical thinking which is my desire for self-improvement.*

The research capability of the respondents, along conceptual and technical skills, showed significant relationship on their research productivity in terms of publication.

On relationship between research capability and research productivity faculty members through their research undertakings, significantly influence research productivity based on their research capability. Research skills and abilities are important for their professional development, which also vital to HEIs growth and reputation to the academic world. Faculty who are engaged in research make a substantial contribution to the school's capability to attract research grants/donors.

Based from the interview conducted, faculty members stated *that the bottleneck that they commonly met is the low acceptance of the research manuscript for publication due to the different compliance requirement imposed by the publishing entities.*

Implications of the Findings

Faculty Members Profile

Age. The data obtained, exemplified that the respondents are dominated by middle-aged, in which they manifested higher research conducted.

Educational Attainment. Based on the data obtained, it can be inferred that the respondents' highest educational attainment was a bachelor's degree. It could imply that educational attainment could have a significant relationship as to how they expected to perform their function as research instructors.

Number of Years in Teaching. This result manifests that most of the faculty members are within the range of 1-10 years of teaching. The number of years may have an effect on increasing the respondents' capability to conduct research since their exposure is limited compared to those with more years in the service.

Number of Research Conducted. These findings could manifest that faculty members were more inclined in devoting their time in teaching rather than indulging in doing research. Their capacity to conduct research might also affected by their educational attainment as this predictor interact with their acquired knowledge.

Participation in Research-Related Activities. This is probably attributed to the inadequacy of the paper to be presented in accordance with the themes provided by the host/sponsoring agency, while in terms of participation in training/symposium/seminars, it could imply that budgetary constraints were among the challenges being encountered, which was being mentioned during the interview conducted.

Incentives Provided. Based on the result of the data gathered, it was revealed that certificates of appreciation were garnered with 53 recipients, followed by monetary awards to 17 (11.89%) respondents. Aside from those mentioned above, honoraria (6.3%) were also provided, together with assistance for publication and presentation and assistance for thesis and dissertation, which both obtained (5.59%).

This implies that these respondents had a higher teaching load. Thus, engagement in research activities was not accomplished.

Research Productivity Profile of the Faculty

Research Productivity of the along Publication. These findings implied that their research productivity performance in terms of identified variables was able to complete research study. However, most of them were not accepted for publication.

Research Productivity of the Faculty along Authorship. It implies that they are aware that authorship in academic profession is a method of showing new knowledge in order to advance oneself. As indicated in the above table, faculty members contributed a range for authorship. According to them, their contributions ranges from drafting the manuscripts data gathering, data analysis, and computing skills.

Research Productivity of the Faculty along Publication Outlet. These findings could imply that faculty members had mid-level research skills but low research productivity, when it comes to publication of their works. This finding corroborates with the study of Tashildar et. al (2021), that mostly of the faculty in Heart University published their works mostly in local journals and international journal of low quality.

Research Productivity of the Faculty along Journal Indexing. The low result, could be related to personal factors with affects their publication in international journal. They probably encountered the problem of not knowing on how to submit their articles to international journals because of different guidelines and requirements.

Research Capability Skills of the Faculty Members

Faculty Members Capability Along Conceptual Skills. It provided a clear implication that there is a need for the reorientation of the concept of research among the teachers. It can also be highlighted that research is essential in the effective delivery of content of knowledge. Through interviews, respondents also manifested that they lack the research writing skills, and they have difficulties on how to search and evaluate information as starting point of research.

Faculty Members Capability along Computational Skills. This implies that they need to pursue or undergo trainings, seminars, and other activities that could establish competence in research endeavor and for the development of their computational skills particularly in statistics. Moreover, it also implied that the faculty-respondents can conduct research but need more skills in terms of processes, procedures, and techniques to carry out research. Although they are capable of doing the initial process of conducting research, the data also showed that they are less capable when it comes to analyzing and interpreting the data gathered and using appropriate statistical tools, designs, and methods of research.

Faculty Members Capability along Technical Skills. These result, it implied that teachers need continuing professional development to maintain and upgrade skills. They need more training and experience in statistical software and preparation of the final research report for possible research presentation and publication.

Relationship Between Research Productivity and Research Capability

These findings also implied that the research capability predictors conceptual and technical skills have a significant influence on the research productivity of the respondents since the p-value obtained from these two predictors was lower than the .05 significance level. With this evidence, the null hypothesis was rejected and restated thus: research capability has significant relationships on the research productivity of the faculty members along with conceptual and technical skills.

Relevance of Findings

The significance of this research lies in the role of research in academic institutions since the core concept of research is the pursuit of knowledge. Basic inputs for planning and policy decision-making can be found through research. Since academic research and academicians are the key players in the progress of society, this study is particularly relevant and beneficial to the following key holders:

Planners. The main purpose for research in planning is to provide the foundation for informed decision making, enabling them to identify problems, develop solution and effective strategies, with efficient resource allocation to ensure the success of the developed plans. Therefore, planners in an educational institution could benefit in this study since it can contribute in managing research programs, and make optimal policy and operational decisions since basic inputs for planning and policy decision-making were revealed by this study.

Faculty Members. Faculty engagement in research is a part of their mission around learning and discovery, thus in turn contributes directly to their primary mission of teaching. Students were educated, trained and honed for a successful career. Part of these preparation derives from exposure to faculty who are engaged in research. Aiming to improve their professional and personal qualities, the results of this study could be

beneficial to them since it makes one aware of the areas, he/she needs to perk up, thus providing them greater confidence to help students achieve meaningful outcomes.

School Administrators. Addressing challenges requires comprehensive approach that encompasses effective policy making. Integrating fundamental research into policy making process would enable educational administrators to plan and improve developmental programs. It is along this context that the school administration may revisit policies and protocols for possible modification on issues related to training, resources, and funding by providing equal opportunities for those with inadequate research seminars/training, using evidence-based results derived from this study.

DepEd School Officials. The Basic Education Governance Act of 2001, underscore the role of research in the management and administration of the basic system, thus research plays a crucial role in DepEd governance. Viewed on this, DepEd school officials could developed evidenced-based decision making for the improvement of teaching and learning, and strengthen the quality of education, thus improving student's outcome.

Learners. One aspect surrounding the importance of research to learners includes performing actual research in collaboration with the faculty. With this, they will be benefited in the sense that they could learn critical appraisal skills and strategies to search for information, and assess the quality of information found.

Researcher, herself. As research offers numerous personal and professional benefits, research could contribute to her personal growth and development as well as her professional advancement It could also widen her horizons and understanding that research entails the encouragement of faculty collaboration to employ balanced teaching and research responsibilities.

Future Researchers. For future researchers who would work on a similar topic, the results of this study could be a valuable reference and a guide for a comprehensive study in this area, since it could bridge them towards creating a better study and interventions that would contribute to a more research productive engagement.

Responsive Research Development Plan

In designing a responsive research development plan, the focus was on strengthening the research capability of the faculty, which could eventually enhance their research productivity so that they could produce research that is acceptable for presentation and publication.

From the findings gathered, the following conclusions were generated: Most of the faculty respondents are middle-aged, new in the service, and have the highest educational attainment of a bachelor's degree. Most of the faculty were not able to conduct research, and with a few who were able to produce minimal research output. Participating in research-related activities was done through attendance and paper presenters. School administrators provided support in terms of awarding certificates, honoraria, and assistance for publication and paper presentation, and thesis/dissertation completion. The respondents' productivity profile was more in publication since the administration provided support for this endeavor. Papers published were in reputable journals, and some were indexed in Scopus. Faculty demonstrate consistent level of research capabilities. They are moderately capable in terms of conceptual, computational and technical skills. A significant relationship exists between research capability and productivity in terms of conceptual and technical skills; however, when it comes to computational skills, a relationship does exist, but such a relationship is not considered significant. The research capability of the faculty, along with conceptual and technical skills, showed significant relationship with their research productivity when it comes to publication. "A Responsive Research Development Plan" was designed for faculty members to enhance their research capabilities, focusing on developing research skills and integrating technology in research and publication.

Along with these findings, it is recommended that a research capability training program be designed to enhance teachers' skills in writing publishable research; the administration may continue motivating faculty members to do research; school's administrators is highly encouraged through the provision of adequate

management support either in monetary and non-monetary incentives; the responsive research development plan may be forwarded to the BOT for their approval and, consequently, for implementation.

Summary

Results obtained showed that most of the respondents are middle-aged, new in the service, and have the highest educational attainment of a bachelor's degree. The research conducted was low, implying that respondents were more inclined to devote their time to teaching rather than indulging in doing research. Their participation in research-related activities was attendance at training/seminars/symposiums and colloquia, either as paper presenters or attendees. Though there was a stipulation in the Research Operation manual regarding the provision of incentives (33.57%), respondents were not able to receive such benefits. Although this profile could be discarded since it has no significant bearing in the hypothesis testing of the study, these moderating variables were considered to gain deeper insights and make predictions more accurate in designing the research development plan. More so, the data gathered can be an indispensable tool that could be used as a reference in framing the research development plan, meaning it could help in identifying what profile might have an effect on the strength of the relationship between capability and productivity of the respondents.

The research productivity profile of respondents displays a productive inclination when it comes to publication outputs, while authorship and publication outlets are both moderately productive. Journal indexing, however, is somewhat productive.

Faculty demonstrate consistent levels of research capabilities. They are moderately capable when it comes to conceptual skills, computational and technical skills. This capability manifested during the initial phase of conducting research through their ability to organize thoughts and understand various theories of the discipline he/she explored. They are less capable of analyzing and interpreting the data gathered using appropriate statistical tools, designs, and research methods. Likewise, the respondents have difficulties in the interpretation of the data based on the statistical results.

The research capability of the respondents, along conceptual and technical skills, showed significant relationship on their research productivity in terms of publication.

Based on the findings of this study, an intervention in the form of a "Responsive Research Development Plan" was designed to address the issues that affect their research productivity due to their limited research capability. The plan focuses on strengthening their research capability so that their productivity can be enhanced. Hence, competency in developing research that is acceptable for presentation and publication could be achieved. The plan, with the goals of developing research skills and integration of technology, has 8 columns to identify specific activities and information that will be the basis for sound decision-making and implementation upon presentation and approval by the Board of Trustees.

CONCLUSION

Based on the gathered results, the researchers arrived at the following conclusions:

Most of the faculty respondents are middle-aged, new in the service, and have the highest educational attainment of a bachelor's degree. Most of the faculty were not able to conduct research, with a few who were able to produce minimal research output. Participating in research-related activities was done through attendance and paper presenters. School administrators provided support in terms of awarding certificates, honoraria, publication and paper presentation assistance, and thesis/dissertation completion assistance.

The respondents' productivity profile was more in publication since the administration provided support for this endeavor. Papers published were in refutable journals, and some were indexed in Scopus.

Faculty demonstrate varying levels of research capabilities. They are capable in terms of conceptual skills while moderately capable when it comes to computational and technical skills.

A significant relationship exists between research capability and productivity in terms of conceptual and technical skills along publication.

"A Responsive Research Development Plan" was designed for faculty members to enhance their research capabilities, focusing on developing research skills and integrating technology in research and publication.

RECOMMENDATIONS

Anchored on the research findings, the following are the recommendations offered to strengthen the research capability and productivity of the faculty members.

Middle-aged faculty members may engage in any professional development program either through pursuing a post-baccalaureate degree program or participation in research-related activities, including but not limited to training/seminars and colloquia, to further equip themselves with the needed competencies to achieve higher research productivity. The administration should continue motivating faculty members to do research by providing them with support and incentive schemes that are in accordance with their performance. School administrators should actively promote and advocate research-related activities, emphasizing their importance in improving teaching delivery and student learning outcomes.

Though faculty members exhibit a positive attitude toward research productivity, the administration may provide them with needed encouragement by providing adequate management support, either monetary or non-monetary incentives, to refine their research skills and capabilities in disseminating and publishing the results of their works.

Design a research capability training program that may enhance teachers' skills in conceptualizing research projects with an emphasis on analyzing and interpreting data gathered, research methodology and design, formulation of research problem and hypothesis, and writing research output in a publishable format.

Encourage faculty members to participate in relevant research development activities that provide insights into honing their skills in writing publishable research, thereby bringing the school closer to connections and knowledge through publication. School administrators may focus on building the research capability of faculty members by exposing them to periodic training, workshops, and scientific conference gatherings for them to learn the general practices and procedures for conducting and designing studies, collecting and analyzing data, and writing a well-organized publishable manuscript.

The research development plan may be presented to the academic council of the school for feedback to make necessary requirements and adjustments to ensure its effectiveness and responsiveness in developing critical thinking, which is listed among the 21st-century skills. The revised development plan should be forwarded to the BOT for their approval and, consequently, for implementation.

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