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Understanding the training needs of faculty members in producing research outputs: Input to faculty development program

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ABSTRACT

To enhance the institution's performance in research and extension paper presentations and publications, it was essential to address the various challenges hindering faculty and researchers from meeting the institution's annual research targets. Hence, a study was conducted via an online survey administered to 198 (64% retrieval rate) faculty members of a lone agricultural state college in Bulacan, Philippines to determine their training needs in these areas. The results indicated that more than half (52%) had already undergone relevant training on research, yet could not present or publish their papers because of limited time and funding. Only age and length of service significantly correlated with the faculty's training needs. To address these needs, the faculty development program should prioritize training in research conference identification, journal selection, presentation slide preparation, peer review process understanding, and transforming community extension reports into publishable formats. More technical and financial support is recommended to be provided to capacitate the respondents and improve their performance in paper presentation and publication.

1. INTRODUCTION

Human resources are vital components of the organization that have to be valued and taken cared of (Kanthisree & Sarada, 2013). Employees perform important functions in the business operation, which necessitates the presence of a supportive and conducive working environment so that employees can contribute their best efforts towards the attainment of company performance targets (Abioro et al., 2018). In the case of educational institutions, their main employees are the teaching staff or members of the faculty who enrich the minds of the students with vital knowledge and skills. Bergquist and Philips (1975) stated that faculty development must give serious attention to the impact of change on the faculty member himself and his institution. Organizational and personal development thus becomes essential to faculty development. They stated that only through a comprehensive approach that efforts toward improvement can have a lasting impact. According to Frantz et al. (2019), faculty-development initiatives may result in capacity development, which extends beyond individual participants to include a wider community of practice. Salajegheh et al. (2024) stated that the capacity development of faculty development programs facilitates the development of personal and professional capacities.

One way to enhance employee performance is by enabling them to participate in different training and development activities (Sheeba & Christopher, 2020). Hence, it is critical to ensure that the design

and structure of the training interventions to be provided to them are appropriate and based on their actual needs (Sarri et al., 2010) Through proper training, employees can acquire and apply the necessary knowledge and skills on their job, improving their productivity, effectiveness, and efficiency (Sheeba & Christopher, 2020). Effective training among employees means acquiring and applying appropriate knowledge, skills, and attitudes in their jobs that could translate to enhanced performance, job satisfaction, and organizational participation (Truitt, 2011).

In the case of one of the higher education institutions (HEIs) in Bulacan, Philippines, employees, particularly the teaching personnel are encouraged to perform four-fold functions and contribute to the attainment of their respective targets in instruction, research, extension, and production. Among these functions, the conduct of research is very important to produce new knowledge and technology that could make a difference in making this world a better place to live in. Sukhlecha (2011) defined research as "an endeavor to discover facts by study or investigation". Discoveries of knowledge and technology as products of research undertakings have to be disseminated to the target clientele and the public as a whole to make them informed of these developments so that they can take advantage of utilizing these research outputs.

Likewise, Bulacan Agricultural State College's performance in its research functions is critical as the amount of budget allotment from the General Appropriations Act (GAA) for the college lies on the rate of accomplishment of the specified targets in the annual National Expenditure Program (NEP) of the institution. Research is also one of the areas being evaluated in determining the level of BASC on institutional accreditation and various course programs accreditation.

The importance of research dissemination through paper presentation and publication was even highlighted in the latest guidelines to be used for faculty rank promotion based on Joint Circular No. 03, series of 2022 issued by the Philippines Commission on Higher Education (CHED) and Philippines Department of Budget and Management (DBM) last October 18, 2022 that allotted more points one can earn from research and extension paper publication and presentation. Likewise, the Philippines Commission on Higher Education also made research publication as one of the requirements for graduation of graduate students before they can earn the degree CMO no. 15, s. 2019 or the Policies, Standards, and Guidelines for Graduate Programs. To address this, there was a need for teachers in BASC to undergo training in research publication and presentation just like the case of how the teachers in India should learn how to formulate procedures in their methodology and observe ethical ways of researching to meet the publication requirement before they can be promoted to associate professor and professor position (Sukhlecha, 2011).

Research outputs measured in terms of the number of faculty members engaging in research for the past several years in BASC have shown an increasing trend. However, the increase in the number of researchers, as well as an increase in the number of research being conducted, did not translate to an equivalent increase in the number of researchers' paper presentations and publications. The small number of BASC researchers' paper publications, in particular, has been a long-time concern that needs to be addressed, especially since BASC is gearing towards university hood, wherein more paper presentations and publications are required. This is because those teachers who were able to publish their research have an advantage over their colleagues for career promotion (Sukhlecha, 2011).

The literature suggests that training to be effective must be preceded by a needs analysis (Wright & Geroy, 1992). The importance of doing a training needs analysis before the provision of training will ensure that the content of the training to be provided is suitable for the needs of the participants. Hence, this study was anchored on the importance of conducting training needs analysis before the provision of training. Training Needs Assessment (TNA) plays a vital function in designing the training intervention such that its results can be used as the basis for determining which areas in the professional skill deficiencies of the trainees should be addressed and what additional knowledge and skills, they have to learn to improve their career profile (Ferreira & Abbad, 2013).

It is in this note that this study was conducted to assess the training needs of the faculty members on paper presentation and publication. Specifically, it was conducted to determine the profile of the respondents; describe the trends of research outputs in the study area; identify the problems being encountered by the respondents, measure the level of their training needs in paper presentation and publication, and determine the relationship between

the profile of respondents and their training needs. The findings of this study may serve as the basis of the capacity enhancement activities that may be provided to improve BASC performance in research and extension paper presentation and publication.

2. MATERIALS AND METHOD

This study utilized the descriptive method of research in assessing the training needs of the respondents in paper presentation and publication. The population of the study comprised the teaching employees of the lone agricultural college in Bulacan, Philippines. Out of the 198 total teaching employees, a total of 127, representing 64% of the population, have responded to an online survey administered via Google form from April 17, 2023, to August 31, 2023. All responses were checked and verified to have valid responses. Thus, all were included in the data interpretation and analysis.

The measuring instrument used in this study was validated by a content expert and underwent pilot testing to check the structure and comprehensibility of the questions asked. It was used to collect data on respondent's profiles, problems encountered, and perceived training needs. The questionnaire consisted of three sections: demographic information, problem identification, and a Likert-scale rating of training needs. The Likert scale ranges from 1 (Not needed) to 5 (Highly needed) to assess the perceived importance of various training topics related to paper presentation and publication.

Secondary data based on the research performance of the institution for the past five years were also requested from the Research Office to shed light on the data interpretation and for triangulation purposes. Data gathered were analyzed using frequency, percentage, rank, weighted mean, and correlation tests to assess the training needs of the respondents on paper publication and presentation. Specifically, the Pearson's R Correlation test was used in this study. It is a measure of the strength and direction of association that exists between two variables measured on at least an interval scale. A Pearson's correlation attempts to draw a line of best fit through the data of two variables, and the Pearson's correlation coefficient, r, indicates how far away all these data points are from this line of best fit (Sreedevi, 2022). This statistical test was used to determine the relationship between age and length of service and training needs, while the T-test was used to determine sex and training needs. In terms of the demographic variables' civil status, educational attainment, job status, and salary, ANOVA was computed to determine their relationship with the training needs of respondents.

3. RESULTS AND DISCUSSION

3.1. Profile of respondents

The profile of the respondents was described in terms of their sex, age, civil status, gross family income, gross family expenses, affiliations, highest educational attainment, job status, job position/rank, completed papers, paper presentation, paper publication, and training attended.

As shown in Table 1, most of the respondents are female, with 64.60%, while the male respondents represent only 35.40%. Almost equal in number are those who are single and married, representing 48.8% and 48.0%, respectively while a few (1.6% each) are widows/widowers and separated from their partners. Their mean age is 33.50 years old, wherein 62 years old is the oldest and 22 years old is the youngest.

Their average gross monthly income was computed at P31,787.00 wherein the highest salary recorded is P131,124.00 while the lowest is only P20,000.00. On the other hand, their average gross monthly expenses are P24,743.00, with the highest expenses of P100,000.00 while the lowest is P10,000.00.

In terms of their highest academic attainment, it can be noted that although, the minimum educational qualification of teachers in higher education institutions (HEIs) is a Master's degree holder, more than one-third of the respondents only have Master's units (41.70%) so far, which is more than double the number of those who are already Master's degree holders (17.3%) and those with Doctorate units (20.50%). It was also revealed that only a few have earned their doctorate degrees (7.10%). Nasser-Abu Alhija and Majdob (2017) found that teacher educators with doctoral degrees tended to be more research-productive than their counterparts with master's degrees. In addition, they also found that tenured and higher-ranking teacher educators showed a larger volume of research projects compared with non-tenured and lower-ranking colleagues.

Table1. Profile of the respondents

Variables	Indicators	*f*	%
Sex	Female	82	64.6
	Male	45	35.4
Civil Status	Single	62	48.8
	Married	61	48.0
	Separated	2	1.6
	Widow/ Widower	2	1.6
Educational Attainment	Doctorate	9	7.1
	With Doctorate Units	26	20.5
	Master's Degree	22	17.3
	With Master's Units	53	41.7
	Bachelor's Degree	17	13.4
Job Status	Permanent	56	44.1
	Temporary	34	26.8
	Contract of Service	37	29.1
Rank	Instructor	100	78.7
	Assistant Professor	15	11.8
	Associate Professor	12	9.4

Interestingly, there are still 13.4% of the respondents who are only Bachelor's degree holders, which indicates that they are below the minimum qualification required to be at least an instructor in HEI. Nasser-Abu Alhija and Majdob (2017) found that teacher educators with doctoral degrees tended to be more research-productive than their counterparts with master's degrees. In addition, they also found that tenured and higher-ranking teacher educators showed a larger volume of research projects than non-tenured and lower-ranking colleagues did.

As to the job status, almost half of them (44.1%) are permanent, 26.8% are temporary and 29.1% worked on a contract of service (COS) basis. The majority of them (78.7%) occupied the instructor position (from Instructor I to III) while those occupying Assistant Professor and Associate Professor ranks were 11.8% and 9.4%, respectively. Nasser-Abu Alhija and Majdob (2017) and Dangan (2014) found that rank was significant to research productivity.

Consistently, the majority of them (78%) earned the lowest salary grade of 12, amounting to Php 32,082. 00, which is the starting salary for the entry-level permanent item position of Instructor 1. However, out of the 99 respondents with the Instructor 1 rank, 37 of them earned an even lower take-home pay as they worked as COS with a rate of Php 1,000.00 per day on a no-work, no-pay basis. Only a few of the respondents (6) earned higher than the salary grade 23, which is equivalent to P88,003.00 per month.

The average length of service is 5.93 years, wherein the respondent with the longest years of service worked for 36 years, while the newest respondent recorded has been serving in BASC for only four months as of August 2023.

As to their research outputs, as shown in Figure 1, more than half of the respondents (53.5%) already have completed the research, while the rest (46.5) did not yet have any. Out of the 68 respondents who have completed research, only 43 of them were able to present it at research conferences. More than half have either no paper presentation (44.88%) or the question does not apply to them, for they are not yet engaged in research. In addition, of those 68 respondents with completed research, only 28 (22%) of them have a paper publication, while the majority were not yet able to publish their paper in a research journal.

Notably, 22% of the respondents said the questions were not yet applicable to them as they are not yet engaged in research activities of the College. Almost equal in number are the respondents who have attended (52%) and have not yet attended (48%) relevant trainings or seminars on paper presentation and publication.

The data gathered on the profile of the respondents mirrors the fact that educational institutions in the Philippines are still dominated by female teachers (Regalado, 2017). Hence, it is not surprising that the number of female researchers in the academe has outnumbered their male counterparts. This further translates to more research productivity of female

than male researchers, which contradicts the findings of Hesli and Lee (2011) in their study that women tend to publish less than men. In the study area, female researchers have more completed research, paper presentations, and publications than males.

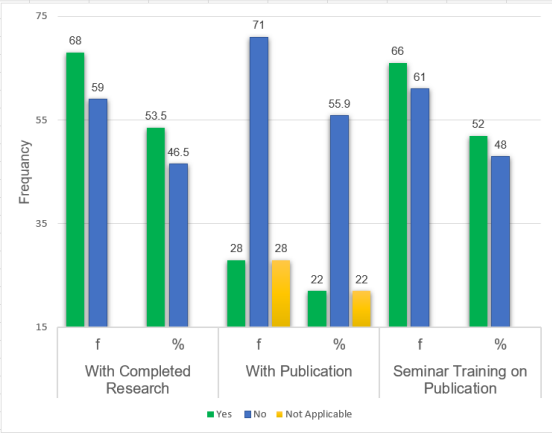

Figure 1. Distribution of faculty rank with completed research, publication, and paper presentation

The results also indicate that the study area has a young generation of employees who are mostly in their early career stage and occupy the lowest position, serving as its human resources. Most employees earn an entry-level salary; however, data reveals that they save money because their monthly income surpasses their monthly expenses.

This young blood, whose majority do not have yet a security of tenure, can become a potential asset of the institution if nourished well through the provision of access to various capacity enhancement activities for their welfare. In the case of higher education institutions, the pressure of having paper publication and presentation was heavier for those who worked under COS, and temporary job status as the higher management makes it one of the requirements before they can be appointed to a permanent status. Because of this, faculty members occupying the lowest position are encouraged to engage more in research activities to get promoted, which is consistent with the findings in the study of Salatan (2024), and Juliano and Zabala (2019).

Meanwhile, paper presentation and publication will also be vital to those who already have permanent items if they want career advancement and promotion as the latest guidelines to be used for faculty reclassification based on the Joint Circular No. 03, series of 2022 issued by the CHED and DBM allotted more points that one can earn from research and extension paper publication and presentation.

Kanthisree and Sarada (2013) noted that human resources are vital components of the organization that have to be valued and taken care of. They perform important functions in the business operation, which requires the presence of a supportive and conducive working environment so that employees can contribute their best efforts towards the attainment of company performance targets (Abioro et al., 2018). Institutional support for research works has direct effects on research productivity (Wichian et al., 2009).

3.2. Trend analysis of BASC research outputs (2019-2023)

A trend analysis based on the respondent's rank and the year the research outputs were accomplished was analyzed and presented in the form of a line graph.

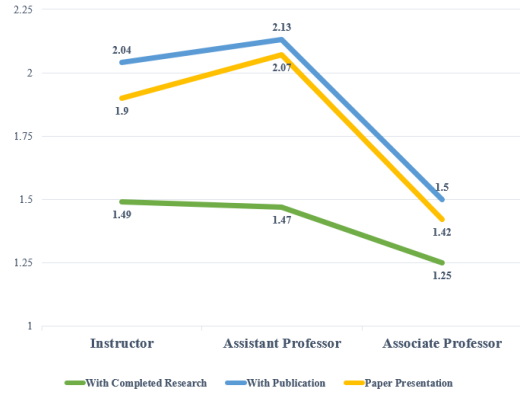

Figure 2. A trend line of faculty rank with completed research, publication, and paper presentation

Figure 2 shows the discrepancy in the average research outputs of the respondents based on their academic rank. Those occupying the Instructor and Assistant Professor ranks have more completed research, paper presentations, and publications compared to those occupying the higher rank of Associate Professor.

On the other hand, Figure 3 shows the increasing trend of completed papers of BASC researchers for the past five years. From only 20 completed papers in 2019, the number rose to 29 papers in 2023, except for 2020 wherein the figure dropped to only 17 due to the disruptions caused by the pandemic. It

can also be noticed that there is an increasing trend both in the number of paper presentations and publications. However, the discrepancy in the number of completed papers that have been presented and published in reputable journals also increased for the past five years. In 2019, out of the 20 completed technical papers, nine papers were not presented and only 11 papers were recorded as the total paper presentation. Unfortunately, no paper was published in that year.

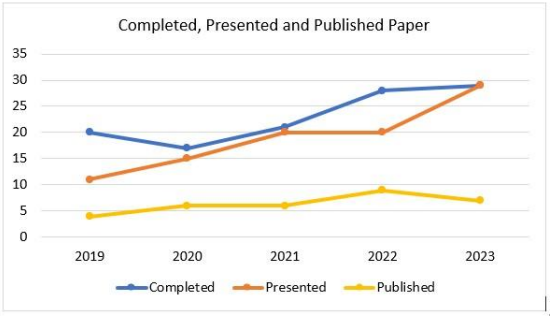

Figure 3. Five-year BASC research outputs (2019 to 2023)

In 2020, out of the 17 completed papers, 15 were presented and six were published in a reputable journal. The same trend was observed in 2021 wherein, out of the 21 completed research papers, 20 have been presented in regional, national, or international conferences while only six have been published. The discrepancy got even bigger in 2022, wherein of the 28 completed studies, only 20 were presented and nine papers were published. But in 2023, the number of paper presentations has equaled the number of completed research with 29 apiece. However, the number of published articles was still far, with only seven in total.

Chirukandath et al. (2024) found that various deterrents to publication are study design, statistical analysis, journal selection, and knowledge of journal submission. In addition, Gusmuliana (2022) found that lack of references, difficulties related to academic writing, long time consumption, high costs associated with international publishing, and no reward are some of the problems lecturers face. Ambong et al. (2022) found that age, administration, designation, and supervision of graduate research determine the likelihood of publishing a research paper among faculty members.

The respondents identified several common challenges, including limited knowledge in identifying predatory journals, insufficient technical skills, and a lack of ideas and suitable journal options. Additionally, they reported limited understanding of the publication review process, inadequate laboratory equipment and statistical tools for further research testing, and lack of experience in face-to-face presentations. Time constraints in writing papers, delayed acceptance notifications from conferences, lengthy institutional procedures for securing financial support for presentations and publications, insufficient budgets for high-impact journal fees, and delays in expense reimbursements were also significant obstacles.

The record shows that there is an increasing trend in the number of completed, presented, and published research papers, which can be attributed to the efforts of the management in encouraging faculty members to conduct research activities. However, such an increase did not translate to a corresponding increase in the number of presented and published papers. This only seems to imply that only a few of those researchers and extensionists who have technical papers were able to disseminate their findings through paper presentation and publication. Thus, revealing the need for improvement in the skills of the respondents on how they will be able to present and publish their papers.

Research productivity differs among the respondent's academic ranks (Nafukho et al., 2019). Interestingly, results revealed that those occupying lower ranks have more completed research, paper presentations, and publications compared to those occupying the higher ranks, which is consistent with the findings in the study of Salatan (2024). This is ironic because more research outputs are expected to be produced by those occupying a higher rank based on the guidelines of DBM-CHED Joint Circular No. 3 and in the design of their Individual Performance Commitment and Review (IPCR) as required in the approved Strategic Performance Management System (SPMS) of the institution which was approved by the Philippines Civil Service Commission (Memorandum Circular No. 6, s. 2012).

Those respondents who did not have a completed technical paper cited no opportunity, not having enough time due to other workloads, insufficient experience; their project/study was still ongoing; being a newbie in the institution, rejected/deferred research proposal, and lack of cooperation of the institution as their reasons for not having one yet.

Meanwhile, the cited reasons of those who did not have a paper presentation include lack of opportunity, not yet ready to present at any

conference, just completed their project/study recently, having other research members present their paper, busy workload, being a newbie, and budgetary problems.

Although the importance of publishing research has been recognized by the faculty members in the study of Hamadneh (2015), several problems prevented them from producing more research publications. The low paper publication outputs can be attributed to the reasons enumerated by the respondents including the lack of opportunity, insufficient knowledge n paper publication, still looking for journals, insufficient knowledge of suitable journals for their paper, too much workload, being just a newbie, just completing the project/study recently, their project/study is still ongoing, and budgetary constraints for the payment of publication fee. The same is true with the findings in the study of Wa-Mbaleka (2015) wherein having limited time, lack of training in publication, limited funds, and lack of institutional support also hindered faculty members from publishing their papers. Salatan (2024) also noted the lack of time, work overload, and writing anxiety as the challenges of teachers engaging in research.

While faculty members recognize the importance of research publications (Hamadneh, 2015), various problems prevent them from producing more research publications. These include a lack of training, time, limited funds, and inadequate institutional support (Wa-Mbaleka, 2015). Salatan (2024) added work overload and writing anxiety as the challenges for teachers in engaging in research. Hence, despite attending previous training, more than half of the respondents still face paper presentation and publication challenges. Factors such as lack of opportunity, insufficient time, being busy with teaching, being just recently hired, and not being included in training lists contribute to this issue. Usita (2022) highlighted the importance of considering factors such as time and resources at teachers' research productivity level.

3.3. Training needs analysis

Table 2 shows that all the paper presentation and publication topics listed in the online survey questionnaire were rated as highly needed by the respondents. However, of these topics, the three most-needed trainings were: searching for reputable research and extension conferences; understanding the peer review publication process; and converting community extension reports into publishable form.

Table 2. Perceived training needs of respondents

Training Needs	Mean	Standard Deviation	Verbal Description
Searching for reputable research/extension conferences	4.78	0.503	Highly needed
Searching for a suitable and reputable journal for my paper	4.74	0.523	Highly needed
Preparing slide presentation and paper for submission for paper presentation	4.57	0.652	Highly needed
Converting research terminal/thesis/dissertation into publishable form	4.73	0.496	Highly needed
Understanding the peer review publication process	4.75	0.483	Highly needed
Converting community extension reports into publishable form	4.75	0.483	Highly needed
Research ethics in publication and paper presentation	4.73	0.543	Highly needed
Grand Mean	4.72	0.526	Highly Needed

Among all the demographic variables, only the respondents' age and length of service were computed to be correlated with their training needs. There is a highly significant relationship (p-value = 0.001) between age and the training needs of the respondents. There is a low negative correlation (R= -0.285) between the two variables. About 8% of the variability of the training needs assessment can be explained by the age of the respondents.

Table 3. Relationship between age and training needs of respondents

Variable	Mean	SD	R-Value	R Square	p-value	Result
TNA	4.73	0.44	-.285a	0.081	0.001	Highly Significant
Age	33.50	9.137				

a. Predictor: Age

b. Dependent Variable: Training Needs of Respondents

This finding suggests that, as age increases, the perceived training needs tend to decrease. Older faculty members may have more experience and expertise, which results in reduced perceived training needs. This is consistent with the findings of Anyaogu and Iyabo (2014), and Milburn and Brown (2003) that age has a significant positive relationship with the research productivity of lecturers.

Table 4. Relationship between length of service and training needs of respondents

Variable	Mean	Std. Deviation	R-Value	R Square	p-value	Result
TNA	4.73	0.44	-.318a	0.094	0.000	Highly Significant
Length of service	6.15	7.48				

a. Predictor: Length of Service

b. Dependent Variable: Training Needs Assessment

Likewise, there is a highly significant relationship (p-value = 0.000) between the length of service and the training needs of the respondents. There is also a low negative correlation (R=-0.318) between the two variables. About 9% of the variability of the training needs assessment can be explained by the length of service of the respondents. Gull and Arshad (2018) found that experience and qualification have a greater influence on research productivity among university teachers. In addition, Tabago (2017) found that research productivity is significantly related to age, the number of research-related training, the number of memberships to research organizations, and the type of research conducted.

Analyzing the training needs and improving the research competencies of the faculty members is crucial for improving the research productivity of the university (Yousif et al., 2019). The result of the TNA is a manifestation of the cited problems that the respondents have encountered in paper presentation and publication. The insufficient knowledge of the respondents on searching for reputable journals and conferences made them a victim of predatory conferences and journals that charge high fees in exchange for paper presentations and publication slots. Likewise, the respondents' difficulty in converting their research/extension reports into a publishable article seems to explain the reason why there were only a few paper publication outputs compared to the number of completed research and extension projects/studies recorded.

Ironically, results revealed that older faculty members do not signify the need for more training on paper presentation and publication as compared to young faculty members, although the former have lower research outputs than the latter. Consistently, as the faculty's length of service increases, their training needs decrease. As they get longer in the service, they perceived that they do not need more training as compared to young faculty members. However, their long years of working experience in the academe did not translate to more research outputs. This can be due to the reason that older and more experienced faculty members were not yet exposed to the research culture, as the need for more research outputs from higher education institutions was highlighted just a few years ago. Faculty with more years of service had the lowest research orientation (Tang & Chamberlain, 2003; Chen et al., 2006).

Consistently, Milburn and Brown (2003) found that age, level of education, and research productivity show a relationship. The same results were reported by Hedjazi and Behravan (2011), that two of the significant predictors for the level of teachers' research outputs are academic rank and age.

4. CONCLUSION AND MANAGERIAL IMPLICATIONS

The study identified the need of faculty for research dissemination, with faculty members expressing a strong need for training in identifying suitable and reputable journals and conferences for their research. However, the provision of training alone was found not enough. Results revealed that attendance to relevant trainings and completion of research did not translate to paper presentations and publications due to time and budget constraints and insufficient technical knowledge, skills, and resources.

Though training is needed to convert research outputs into publishable forms, understand the peer-review process, and ensure ethical research practices, this should be coupled with the provision of financial and technical support. To address these needs, the management of the respondent

educational institution may consider prioritizing targeted training programs on research dissemination, journal selection, manuscript preparation, and effective presentation skills, resource allocation to support faculty members in attending conferences, publishing papers, and accessing necessary research tools, mentorship, and collaboration to guide newly hired faculty and foster collaborative research projects. Furthermore, management may also consider providing institutional and financial support to capacitate the respondents and improve their paper presentation and publication performance. In addition, the implementation of a reward system may also be considered by recognizing and incentivizing the research productivity of faculty members.

Crafting an action plan to address the findings of this study would be a great move for the management of BASC to ensure increasing performance in research publications and presentations. Since age and length of service were found to be significant factors, older and more experienced faculty members may be tapped to serve as mentors to the young, aggressive faculty members who are motivated to work hard to be promoted to a higher rank. Sustaining increasing performance in research would prevent BASC from not meeting the annual research target, which could then result in the reduction of its annual budget allotted for research endeavors. Reduced unding opportunities may result in limited access to external funding sources, impacting research initiatives and infrastructure, lowering faculty morale, weakening academic programs, and missing opportunities for innovation and knowledge advancement.

CONFLICT OF INTEREST

The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

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