



Evidence-Informed Policy Directions for Enhancing Research Productivity in Educational Institutions: A PRISMA-Guided Systematic Review

Anna Lynn P. Nuyad

Davao del Norte State College, New Visayas, Panabo City, Philippines

Article Info

Article history:

Received Jul 6, 2026

Revised Aug 19, 2026

Accepted Aug 23, 2026

Online First Aug 26, 2026

Keywords:

Educational Institutions

Evidence-Informed Policy

Policy Directions

PRISMA

Research Productivity

Systematic Review

ABSTRACT

Purpose of the study: This study aimed to systematically review and synthesize existing literature on research productivity and the factors influencing efficiency in educational settings. Specifically, it sought to identify major themes and determinants affecting research productivity in educational institutions and provide evidence-based insights for enhancing scholarly output through institutional support, research culture, incentives, and individual development.

Methodology: This study employed a qualitative systematic review design guided by the PRISMA framework. Relevant literature published between 2019 and 2026 was systematically searched across major electronic databases, including Google Scholar, Web of Science, Scopus, ERIC, Science Direct, and Semantic Scholar. Following rigorous screening and quality appraisal using the Mixed Methods Appraisal Tool (MMAT), a total of 31 articles representing 20 countries met the eligibility criteria and were subjected to thematic analysis to synthesize key findings and policy directions.

Main Findings: The systematic review identified four major themes influencing research productivity in education: Institutional Support and Resources, Institutional Research Culture and Environment, Incentives and Recognition, and Individual Factors. Furthermore, the findings indicate that research productivity and efficiency are heavily shaped by organizational conditions, infrastructure access, and individual competencies. Key contributions to education policy include providing an empirical basis for: (1) establishing minimum institutional standards and dedicated funding for digital and physical research infrastructure, (2) implementing protected workload policies and structured faculty mentoring programs, (3) designing transparent and competitive incentive and recognition systems to boost publication output, and (4) embedding professional development initiatives into educational frameworks to sustain long-term research engagement.

Novelty/Originality of this study: This paper provides an up-to-date, cross-national PRISMA systematic review of 31 investigations across 20 countries, capturing the evolving landscape of research productivity in education. By synthesizing diverse qualitative, quantitative, and mixed-methods findings, it bridges micro-level individual factors with macro-level institutional policies, offering concrete, evidence-based recommendations to strengthen research culture, funding structures, and faculty capacity worldwide.

This is an open access article under the [CC BY](https://creativecommons.org/licenses/by/4.0/) license



Corresponding Author:

Anna Lynn P. Nuyad

Davao del Norte State College, New Visayas, Panabo City 8105, Davao del Norte, Philippines

Email: nuyad.annalyn@dnsc.edu.ph

1. INTRODUCTION

Research productivity in the educational context has been widely recognized as a key driver of improved teaching and learning practices, evidence-based decision-making, and the overall quality and innovation of

Journal homepage: <http://cahaya-ic.com/index.php/IJoER>

education systems [1]-[3]. It contributes to bridging theory and practice by generating knowledge that can inform curriculum development, instructional strategies, and educational policy. Research productivity extends beyond publication output and includes conducting empirical and theoretical studies, publishing in peer-reviewed journals, presenting findings at conferences, participating in collaborative or interdisciplinary research, disseminating knowledge through seminars and workshops, and contributing to community-based research that addresses educational needs [1], [2].

Previous studies have identified several factors that influence research productivity, particularly institutional resources and support systems. Adequate funding, training opportunities, and mentorship can enhance educators' capacity to engage in research activities [4]-[6]. Similarly, institutions that invest in research capacity-building tend to demonstrate stronger scholarly output because institutional support can reduce barriers and strengthen researchers' competencies [6], [7]. Empirical evidence further indicates that faculty members with access to research funding and institutional support are more likely to participate in research and produce scholarly work [7]-[9]. These findings suggest that research productivity is not solely an individual endeavor but is also shaped by the institutional environment.

A strong research culture is another important factor in promoting research productivity in educational institutions [2], [10]. Institutions that value research and provide incentives and recognition for research productivity are more likely to encourage educators to participate in research activities [4], [5]. For instance, institutions providing incentives for research productivity have reported higher levels of research output [2], [3]. Integrating research into curriculum and teaching practices may also promote research engagement, as educators who use research-based strategies are more likely to participate in research activities [11], [12]. Providing students with opportunities to engage in research may likewise encourage greater research involvement among educators [10], [13].

Despite these findings, previous research remains fragmented across educational settings and examines research productivity through different individual, institutional, and organizational perspectives. Although studies have identified specific factors such as resources, institutional support, research culture, incentives, and research integration, there is limited systematic synthesis of the empirical evidence showing how these factors collectively influence research productivity in educational institutions. This gap limits the availability of a consolidated evidence base that policymakers and institutional leaders can use to determine which factors should be prioritized in research policies, institutional support systems, quality assurance initiatives, and strategic planning.

The need to address this gap is particularly important within national and institutional education policy. Quality assurance systems, faculty research policies, and institutional accreditation increasingly require educational institutions to demonstrate research capacity, continuous improvement, evidence-based practices, and institutional effectiveness. A systematic synthesis of empirical evidence can contribute to these policy requirements by identifying consistently reported factors associated with research productivity. Such evidence can support national policymakers in strengthening research-related policies and help educational institutions develop evidence-based strategies for faculty development, research funding, mentoring, incentives, collaboration, and research capacity-building.

The present study addresses this gap by systematically synthesizing empirical research on factors influencing research productivity in educational institutions. Unlike previous studies that primarily examined individual factors or specific educational contexts, this review integrates findings across empirical studies to provide a broader understanding of the factors associated with research productivity. The review specifically focuses on empirical research literature and follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. This systematic approach provides a transparent and structured basis for synthesizing evidence and developing recommendations grounded in empirical findings rather than solely on theoretical assumptions.

The novelty and urgency of this study lie in its potential to transform fragmented empirical findings into an evidence base that can inform both institutional and national policy. As educational institutions face increasing expectations to strengthen research productivity, innovation, quality assurance, and evidence-based practice, identifying the factors that consistently influence research productivity is increasingly important. By systematically consolidating the available evidence, this review can provide timely insights for policymakers, institutional leaders, and educational administrators in designing responsive research policies and support mechanisms that strengthen research capacity and productivity.

Thus, this systematic review seeks to provide evidence-based insights into the factors influencing research productivity in educational institutions and contribute to the development of policies and institutional strategies that promote sustainable research engagement, capacity-building, and educational quality.

2. RESEARCH METHOD

2.1 Research Design

This study employed a qualitative systematic review design guided by the PRISMA framework, following the reporting standards of the PRISMA Statement and PRISMA-P guidelines [14], [15]. It was conducted to address two research questions focusing on the significance of research productivity in education and the factors influencing it. The review followed the PRISMA stages of identification, screening, eligibility, and inclusion. Relevant studies were searched using keywords such as *research productivity in education*, *teachers' research productivity*, and *factors affecting research productivity*. Given the limited and fragmented literature on the topic, this approach was used to systematically synthesize existing evidence and provide a comprehensive understanding of research productivity in the educational context [14]-[16].

2.2 Inclusion and Exclusion Criteria

Studies were considered for inclusion in this review if they met the following criteria: (1) focused on research productivity in education within both public and private basic and higher education institutions, as well as in business/organizations; (2) examined variables and phenomena related to research productivity in the context of education and its delivery; (3) included at least one aspect of research productivity relevant to the field of education; and (4) were published in peer-reviewed journals, books, or edited volumes.

Aligned with our definition of research productivity in education as the number of publications per researcher, we employed the following criteria to identify relevant studies. Firstly, the studies had to be in line with the concept of research productivity within the educational context, emphasizing the factors that impact research productivity. Secondly, the studies needed to investigate variables and phenomena related to research productivity in the field of education, encompassing both public and private basic and higher education institutions, as well as business/organizations involved in education. Thirdly, the studies had to incorporate at least one aspect of research productivity as it pertains to education. Finally, we focused on studies published in peer-reviewed journals, books, or edited volumes to ensure the credibility and quality of the included literature.

Table 1 provides an overview of the included studies, which encompassed various research designs including qualitative, quantitative, mixed methods, and meta-analysis. No specific criteria were imposed regarding the research design employed. Exclusion criteria encompassed studies conducted prior to 2019, studies written in languages other than English, studies that were inaccessible through the Google Scholar, Web of Science, Scopus, ERIC, Science Direct and Semantic Scholar search engines, and studies that focused on research productivity but did not align with the identified topic.

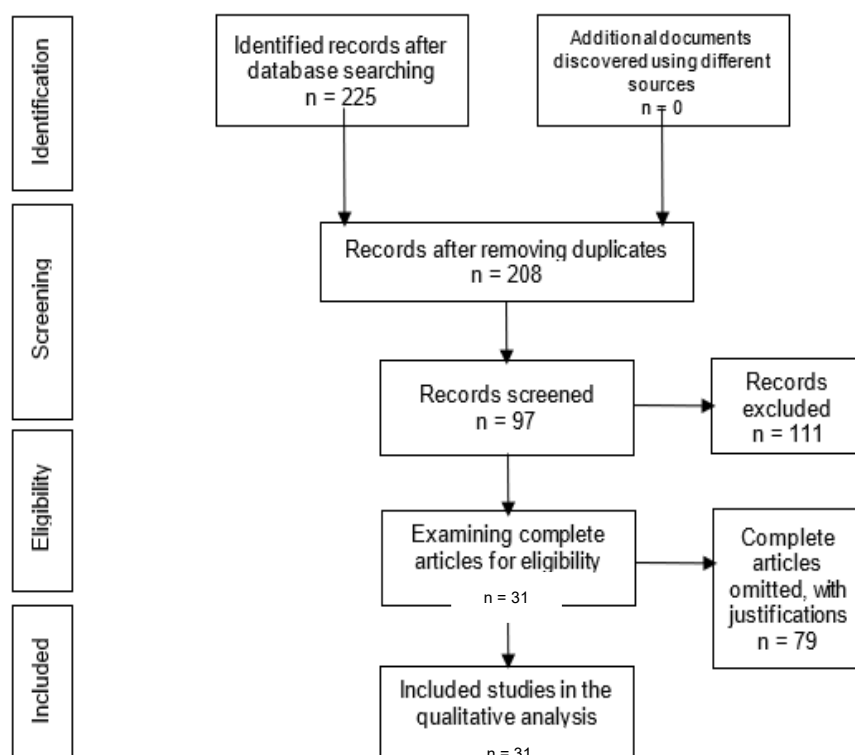


Figure 1. PRISMA Flow Diagram of the Study

Table 1. Inclusion and Exclusion Criteria of the Study

Eligibility Criteria	Inclusion	Exclusion
Time Frame/ Years	2019 to 2026	Below 2019
Language	English	Other Languages
Methodology	Quantitative/ Qualitative/ Mixed Methods/ Literature Reviews/ Meta- Analysis	-
Electronic Databases	Google Scholar, Web of Science, Scopus, ERIC, Science Direct and Semantic Scholar	Other Sources/ Inaccessible Studies
Publication Status	Published in Journals/ Books	-

2.3 Research Instruments

The study used a PRISMA-guided systematic review protocol and a data extraction form (coding sheet) as its primary research instruments. The PRISMA protocol guided the systematic identification, screening, eligibility assessment, and inclusion of relevant studies to ensure a transparent and replicable review process. Meanwhile, the data extraction form was used to systematically record and organize key information from each included study, such as authors, year of publication, research setting, methodology, and major findings related to research productivity in education.

A comprehensive search was conducted on Google Scholar, Web of Science, Scopus, Semantic Scholar, and Research Gate, a widely-used electronic database, covering the period from 2019 to 2026. Additionally, the reference lists of the included research papers and related reviews were thoroughly examined to identify any additional relevant publications. To ensure the accuracy and efficiency of the search, duplicate results were eliminated after exporting all the search results to Endnote, a reference management software. The titles and abstracts of the retrieved articles were independently reviewed and any irrelevant content was excluded. After retrieving the full-text versions of the selected articles, the inclusion and exclusion criteria were applied to determine their eligibility for inclusion in the review. Any disagreements or conflicts that arose during the screening process were carefully considered and resolved through consensus.

To collect relevant data, we developed a data extraction form consisting of five primary indicators: (a) author, year of publication, and country, (b) study design, (c) characteristics of the participants, (d) study aim, (e) definition of research productivity, (f) results and discussion, (g) conclusion, (h) recommendations/implications, and (i) research productivity in the educational context. The data extraction process involved using the data extraction form to systematically collect relevant information from each study.

Table 2 presents a review of 31 studies examining research productivity across different countries and higher education contexts. The reviewed literature covers diverse disciplines, research designs, sample sizes, and research focuses, reflecting the multifaceted nature of research productivity. The studies primarily examined individual, institutional, organizational, and contextual factors such as self-efficacy, research culture, training, mentorship, resources, institutional support, funding, collaboration, and research policies. Collectively, these studies provide a broad foundation for understanding the determinants, outcomes, and mechanisms associated with research productivity in higher education.

Table 2. Reviewed Studies on Research Productivity

ID	Author/s, Year	Country	Discipline	Design	Sample Size	Research Focus
13	Adekunle & Madukoma (2022)	Nigeria	Education	Descriptive-Survey	903	Self-efficacy on the research productivity of doctoral students in universities in Ogun State, Nigeria
17	Alcazaren (2021)	Philippines	Education	Bibliometric Approach	N/A	Explored the factors and consequences of research productivity as a form of capital among faculty members in the context of Philippine academics
8	Baloch et al. (2020)	Pakistan	Education	Comparative	232	Investigated the differences in research productivity between foreign and local doctoral

18	Batool et al. (2021)	Pakistan	Education	Descriptive-Correlational	625	degree holders in Pakistani Public Universities Explored the association of teachers' particular and university factors to enhance research production
1	Bonaccorsi (2021)	Europe	Education	Descriptive and empirical modeling approach	N/A	Analyzed the factors influencing research productivity in European universities, specifically in the areas of STEM (Science, Engineering, Computer Science, Agriculture, and Medicine)
19	Cardona (2020)	Philippines	Education	Structural equation modelling	211	Investigated the enablers and outcomes of research productivity among high school mathematics teachers.
4	Ghabban et al. (2019)	Saudi Arabia	Education	Systematic Literature Review, Cross-sectional survey and Structural equation modelling	375	Explored factors influencing research productivity in Saudi universities, including the use of ICT
10	Heng et al. (2020)	Australia	Education	Systematic literature review	N/A	Examined the factors affecting research engagement and productivity of academics with a focus on the "North-South" gap in knowledge production
5	Henry et al. (2020)	Malaysia	Education	Descriptive-Survey	456	Identified the factors influencing research productivity among academic staff and develop a model to determine RP, considering personal, environmental, and behavioral factors.
20	Ismayilova & Klassen (2019)	Azerbaijan and Turkey	Education	Sequential explanatory approach	528	Examined the research and teaching self-efficacy, job satisfaction, and contextual factors influencing faculty members
6	Kozhakhmet et al. (2020)	Kazakhstan	Education	Structural equation modelling	600	Examined the mediating role of research self-efficacy and moderating role of knowledge-sharing climate in the relationship between training and development and research productivity.
9	Lee (2020)	Korea	Education	Longitudinal econometric design	N/A	Examined the impact of university resources on research productivity in Korean universities, aiming to inform resource allocation and strategic decision-making.
12	Li & Zhang (2022)	New Zealand	Education	Exploratory factor analysis, Confirmatory factor analysis	546	Investigated the relationship between mentorship, working environment, research

7	Nafukho et al. (2019)	Kenya	Education	and Structural equation modelling Cross-sectional survey	N/A	motivation, self-efficacy, and research productivity among Chinese university. Explored research productivity among faculty at Kenyan universities, highlighting the influence of factors with implications for improving research productivity.
2	Ocampo et al. (2022)	Philippines	Education	Interpretive Structural Modeling (ISM) and MICMAC analysis	N/A	Identified and analyzed the interrelationships among driving factors of research productivity in higher education institutions.
21	Ochieng& Gyasi (2021)	Kenya	Education	Scoping Review	N/A	Examined the impact of Open Educational Resources (OERs) and social justice principles on research productivity in higher education institutions.
22	Prado (2019)	Philippines	Education	Descriptive-correlational and Causal design	N/A	Investigated the influence of research culture, competency, and accountability on research productivity among administrators, faculty, and students in a private non-sectarian university.
3	Uwizeye et al. (2021)	Africa	Education	Systematic literature review	N/A	Identified the factors associated with research productivity in Higher Education Institutions (HEIs) in Africa.
23	Kadikilo et al. (2024)	Tanzania	Higher Education / Educational Research	Qualitative multiple-case study	30 participants	Assessed factors influencing research productivity and activities in public universities, including policies, funding, institutional support, and research management.
24	Helali (2024)	Saudi Arabia and Sudan	Higher Education / Computer Science	Mixed-methods design (quantitative survey, qualitative discussions, and deep learning analysis)	67 faculty members (plus 190 for pilot testing)	Examined personal, institutional, and financial factors affecting scientific research productivity and publication performance.
25	Das (2024)	India	Higher Education / Library and Information Science	Quantitative cross-sectional survey design	303 respondents	Identified determinants of academic research and publication productivity.
26	Orfan et al. (2024)	Afghanistan	Higher Education / Education Research	Quantitative cross-sectional survey design	162 faculty members	Examined how individual, institutional, and policy factors influence faculty research productivity and international journal publication.
27	Hanun et al. (2025)	Indonesia	Education	Mixed-methods design; quantitative-	490 students	Examined the direct and indirect effects of research-based learning

				dominant, using SEM-PLS		and institutional support on student research productivity.
28	Gómez-Jorge & Díaz- Garrido (2023)	Spain	Higher Education / Organizational Psychology	Quantitative, cross-sectional survey design	272 university teaching staff	Examined the relationship between self-esteem and teaching and research productivity, including differences by age and professional seniority.
29	Rabiu (2026)	Nigeria	Higher Education / Educational Research	Systematic Review	Not reported	Synthesized how institutional, digital, inclusive, entrepreneurial, governance, and infrastructure factors affect research performance in Nigerian higher education.
30	Adetomiwa et al. (2023)	Nigeria	Higher Education / Academic Research	Quantitative, correlational survey design	657 academic staff	Assessed how institutional investment, information resources, research support, and staff characteristics affect academic research productivity in Southwestern Nigerian private universities.
31	Alemu (2023)	Ethiopia	Higher Education / Educational Research	Qualitative Case Study	13	Examined institutional and individual factors, including funding, facilities, workload, and policies, affecting faculty research productivity.
32	Regla & Ballera (2023)	Philippines	Higher Education / Computer Science / Educational Technology	Developmental / System Development with Descriptive Evaluation	238 research outputs; respondent sample size not reported in the provided text	Developed an NLP-based system using text mining, clustering, and visualization to monitor research outputs and identify trends.
33	Martinez- Daza et al. (2024)	Colombia	Higher Education / Educational Research	Systematic Review (PRISMA 2020), mixed- method synthesis	53 documents	Developed a research productivity model linking training, capacity, publications, innovation, knowledge sharing, and HR development to research skills and outputs.
34	Amanonce et al. (2025)	Philippines	Higher Education / Teacher Education	Quantitative, comparative research design	100 teacher educators	Assessed teacher educators' research productivity and its links to experience, education, rank, research teaching, and seminar participation.
35	Castulo (2024)	Philippines	Higher Education / Educational Research	Policy brief / policy analysis	N/A	Examined research productivity in Philippine HEIs, highlighting policy, internationalization, funding, collaboration, mentorship, and evaluation.

The methodological quality and risk of bias of each included study were assessed using the Mixed Methods Appraisal Tool (MMAT). The MMAT was selected because it provides design-specific criteria for evaluating qualitative, quantitative, and mixed-methods studies. The appropriate MMAT criteria were applied according to the methodological design of each included article. For quantitative studies, the assessment considered the appropriateness of the research design, sampling strategy, measurements, completeness of outcome data, and, where applicable, randomization, allocation procedures, and control of confounding factors. For

qualitative studies, the assessment considered the clarity of the research question, appropriateness of the qualitative approach, sampling strategy, data collection and analysis procedures, interpretation of findings, and consideration of researcher reflexivity. For mixed-methods studies, the assessment examined the appropriateness of the mixed-methods design, integration of qualitative and quantitative components, and the coherence of the overall interpretation. The appraisal findings were used to inform the interpretation of the evidence and the overall synthesis of findings.

2.4 Data Analysis

After compiling the final list of relevant literature, information such as the study year, country, and research focus/topic area was collected. To examine the factors influencing research productivity in the educational context, a rigorous thematic analysis was conducted across the selected studies. The analysis began with repeated reading of the included articles to achieve data familiarization, followed by the systematic extraction of relevant findings related to factors affecting research productivity. Meaningful codes were then generated from the extracted data and compared across studies to identify recurring patterns, similarities, and differences. Related codes were subsequently organized into broader categories and refined into overarching themes through an iterative process of reviewing, merging, and validating the thematic structure to ensure consistency and coherence. Finally, the identified themes were synthesized and interpreted in relation to the existing body of literature, providing a comprehensive and evidence-based understanding of the key factors that influence research productivity in the field of education.

2.5 Ethical Considerations

This study did not involve human participants, as it employed a qualitative systematic review design. All data obtained in this study were sourced from publicly available, peer-reviewed journals, books, and scholarly publications. Proper citation and acknowledgment of all original authors were strictly observed to ensure academic integrity and avoid plagiarism. The study likewise maintained transparency, accuracy, and objectivity in the selection, analysis, and synthesis of the reviewed literature, in accordance with ethical standards for systematic reviews.

3. RESULTS AND DISCUSSION

Table 3 presents the distribution of the reviewed studies according to their place of publication or study and educational level. The reviewed literature was predominantly focused on higher education, accounting for 30 of the 31 studies (96.77%), while only one study addressed basic education (3.23%). The Philippines contributed the largest number of studies, with seven studies consisting of one on basic education and six on higher education. Overall, the distribution indicates a strong emphasis on research productivity within the higher education sector, which comprised nearly 97% of the reviewed literature.

Table 3. Distribution of the Reviewed Studies by Country and by Educational Level

Place of Publication/ Study	Education Level			Total
	Basic Education	Higher Education	Not Identified	
Nigeria	0	3	0	3
Philippines	1	6	0	7
Pakistan	0	2	0	2
Europe	0	1	0	1
Saudi Arabia	0	1	0	1
Australia	0	1	0	1
Malaysia	0	1	0	1
Azerbaijan and Turkey	0	1	0	1
Kazakhstan	0	1	0	1
Korea	0	1	0	1
New Zealand	0	1	0	1
Kenya	0	2	0	2
Africa	0	1	0	1
Tanzania	0	1	0	1
Saudi Arabia and Sudan	0	1	0	1
India	0	1	0	1
Afghanistan	0	1	0	1
Indonesia	0	1	0	1
Spain	0	1	0	1

Ethiopia	0	1	0	1
Colombia	0	1	0	1
Total	1	30	0	31

3.1 Research Productivity in Educational Context

Based on a thorough review of the 31 articles, four key themes emerged that contribute to research productivity in the educational context. These themes include *Institutional Support and Resources*, *Institutional Research Climate*, and *Incentives and Recognition*. Each of these themes plays a crucial role in shaping and influencing research productivity in educational settings. To provide a clear and organized overview of these themes, Table 4 presents a detailed summary of the factors and strategies associated with research productivity in the educational context. This comprehensive analysis offers valuable insights into the various dimensions that impact research productivity, thereby informing the development of effective strategies and initiatives to enhance research outcomes in the field of education.

3.1.1 Institutional Support and Resources

This theme encompasses four interrelated constructs: *research intensity*, *research funding*, *research initiatives*, and *workload*, which collectively shape the institutional conditions under which research is undertaken. Research intensity has been identified as a significant factor in research productivity, emphasizing the need for institutions to strengthen their emphasis on research activities [18]. Likewise, a supportive work environment and the intensity and quality of colleagues' publications have been associated with research productivity [1]. However, the literature also indicates persistent deficiencies in research funding, with increased government support recommended to address financial constraints [13], [23]. Research funding and infrastructural support further serve as important motivations for research engagement in higher education institutions [3], [23]. These findings suggest that research productivity should not be treated solely as an individual faculty responsibility but as an institutional outcome influenced by the extent to which organizations deliberately create conditions that enable and reward research.

A major institutional concern is the inadequacy of physical and digital research infrastructure. Studies reported poor internet connectivity, inadequate offices, and insufficient computers as barriers to research activities [31], while other evidence emphasized the need for adequate research facilities and infrastructure [23], including appropriate research equipment and facilities [24]. Internet resource accessibility has likewise been identified as an important institutional condition [25], with access to internet services, computers, offices, and library resources influencing research production [32]. Conversely, ICT availability, access, and utilization have been associated with improved research performance, while digital infrastructure, research facilities, and institutional preparedness supported research activities [29]. These findings have important policy implications. At the institutional level, higher education institutions should establish minimum standards for research infrastructure, including reliable internet connectivity, functional research offices, computers, laboratories, research equipment, and other ICT resources. Research infrastructure should also be incorporated into institutional research plans and budgets rather than treated as optional support. At the national level, education and research agencies should provide sustained funding mechanisms and infrastructure standards that enable institutions, particularly those with limited resources, to meet minimum requirements for digital connectivity, research facilities, and technological preparedness. Such policies would address structural inequalities that may otherwise limit faculty research productivity regardless of their individual research motivation.

Access to scholarly information and research technologies represents another significant concern. The literature identifies limited access to journal articles, data-analysis tools, and recent relevant literature as barriers to research [26]. The average use of electronic databases was reported to be only moderate [30], while shortages of research materials, facilities, journals, and articles were also documented [31]. Similarly, access to journals and libraries [24], journals and databases [23], and adequate library infrastructure containing current books, journals, and electronic journals [25] have been identified as important institutional requirements. Limited access to and utilization of electronic information resources has been associated with low research productivity [30], whereas data accessibility and research resources supported research engagement [29]. Technological tools also influence the quality of research outputs [32]. Institutionally, this evidence calls for policies that guarantee faculty access to updated electronic databases, scholarly journals, library resources, statistical and qualitative data-analysis software, research management systems, and other essential research technologies. Institutions should establish centralized or consortium-based subscriptions to scholarly databases and provide regular orientation on their effective use. At the national level, relevant research funding bodies could strengthen shared or negotiated access to scholarly databases and digital research resources, particularly for institutions that cannot independently sustain costly subscriptions. This would transform access to scholarly information from an individual privilege into a more equitable institutional research provision.

The findings also reveal weaknesses in research capacity-building, mentoring, and institutional support systems. Uneven support systems, inadequate training, and shortages of experienced researchers have been reported as institutional problems [27], while lack of institutional support has been associated with lower research productivity [33]. Consequently, administrative support through research training [23], research training opportunities [24], and sustained research capacity-building initiatives are necessary. Evidence further indicates that research capacity-building strengthens research skills and scholarly participation [29]. At the institutional level, this requires a formal research development policy that provides continuous training in research design, data analysis, scholarly writing, publication, research ethics, intellectual property, grant proposal development, and research utilization. Such a policy should be complemented by mentoring systems that pair less-experienced researchers with productive and experienced researchers. Institutional facilities, research resources, teacher assistance, research laboratories, mentoring, and administrative support have all been identified as important research resources [27], while institutional encouragement, mentorship, research funding, scholarly materials, and support structures contribute to sustainable research skills [29]. At the national level, research-capacity programs should be expanded through structured faculty development, mentoring networks, research fellowships, and inter-institutional training programs that enable institutions with limited research expertise to access more established research communities.

Another concern is the limited development of academic and research networks. Limited academic networks and insufficient research support have remained challenges [27], [31], while collaborative networks and access to scholarly resources have been found to enhance research engagement [29]. These findings indicate that institutional research policy should move beyond individual research projects toward collaborative and networked research structures. Institutions should establish research clusters, interdisciplinary research groups, mentoring communities, and partnerships with other higher education institutions, government agencies, industry, and international research organizations. In addition, allocated research hours should be institutionalized to provide faculty with protected time for research [23], [24]. This is particularly important because heavy teaching workload has been identified as a barrier to research productivity [26]. At the national level, workload policies should recognize research as a core academic function and provide clear mechanisms for allocating protected research time, particularly for faculty members with active research projects or externally funded studies. National policies may also encourage inter-institutional collaboration through competitive grants that prioritize research teams, institutional partnerships, and research networks.

Funding remains one of the most persistent institutional constraints. Studies identified lack of research budgets and funding [31], inadequate research funding reported by faculty [32], and inadequate financial support as barriers to research productivity [33]. The literature consequently emphasizes funded research opportunities [24], while lack of financial support for international publication and inadequate institutional research funding remain concerns [26]. Grant funding opportunities have also been shown to influence scholarly engagement and publication activities [29]. These findings indicate the need to reconceptualize research funding as a strategic institutional investment rather than a discretionary expenditure. Institutional policies should provide competitive internal research grants, seed funding for new researchers, financial assistance for publication and conference participation, support for research proposals, and incentives for externally funded projects. Funding mechanisms should also be linked to institutional research priorities and measurable outcomes such as publications, citations, research utilization, innovation, intellectual property, and community impact. At the national level, government research agencies should expand competitive grant programs, provide dedicated funding for research infrastructure and publication, and establish mechanisms that enable faculty from resource-constrained institutions to participate in externally funded and international research opportunities.

The importance of these institutional conditions becomes particularly evident in the reported level of research productivity. Overall research productivity was low, with particularly low performance in externally funded research, research utilization, citations, research awards, and intellectual property outputs [35]. These results suggest that institutional support should not be evaluated only according to the number of research projects completed or publications produced. Rather, institutions need policies that support the full research cycle, from capacity-building and funding to publication, dissemination, utilization, citation, innovation, and intellectual property generation. The availability and utilization of legal information resources, electronic resources, and online databases are likewise relevant to research output [30]. Institutional research policies and processes, together with human, technological, and financial resources, therefore form an interconnected support system for research productivity [32]. The literature explicitly emphasizes that institutional support and policies designed to enhance research opportunities are crucial [34].

More broadly, the evidence indicates that institutional research initiatives must be aligned with the national research agenda. Misalignment between institutional research initiatives and broader national research priorities may limit the strategic contribution of research to educational and societal development [2]. Environmental conditions, including research culture, workload, research assistance, and research funding, are likewise significant contributors to research productivity [5]. Universities that primarily emphasize teaching over

research may provide insufficient institutional support for developing faculty research competencies [17]. Thus, the policy response should be systemic rather than fragmented. At the institutional level, research policies should integrate research intensity, funding, infrastructure, scholarly information access, workload allocation, training, mentoring, collaboration, research utilization, and incentives into a coherent institutional research framework. At the national level, education and research agencies should establish enabling policies, sustainable funding mechanisms, shared research infrastructure, national research networks, protected research time, and capacity-building programs aligned with national research priorities. Such a multi-level policy approach would address not only the immediate barriers identified in the literature but also the underlying institutional conditions that determine whether faculty members can consistently produce, disseminate, utilize, and translate research into innovation and educational improvement.

Overall, institutional support and resources should therefore be understood as a policy ecosystem rather than a single determinant of research productivity. Research intensity, funding, initiatives, and workload interact with infrastructure, scholarly resources, research capacity, mentoring, collaboration, and administrative support to create either enabling or constraining conditions for research. The evidence consequently supports a shift from policies that merely encourage faculty to conduct research toward policies that institutionalize the conditions necessary to make productive research possible [29], [32], [34]. This shift is essential for improving not only research quantity but also higher-value outcomes such as externally funded research, research utilization, citations, awards, and intellectual property outputs [35].

3.1.2 Institutional Research Climate

Research culture and environment constitute important institutional conditions that shape how research is valued, practiced, supported, and sustained. The literature indicates that a strong research culture contributes to research productivity [35], while supportive research cultures, research groups, encouragement of staff and students, and collaborative work habits create conditions for sustained research engagement [23]–[25]. Research integrated into curricula and extracurricular activities, together with research teams, mentoring, academic collaboration, seminars, and workshops, can strengthen research skills and cultivate a research-oriented culture [27]. Similarly, collaborative research cultures, professional interactions, institutional climate, organizational culture, and academic labor structures influence research productivity and publication persistence [29]. However, the presence of a weak research culture and the perception among faculty that research is not part of their regular responsibilities remain important institutional concerns [31], [32]. Research-related professional experience and engagement also matter, as teacher educators with research-teaching experience demonstrated higher research productivity than those without such experience [34]. These findings suggest that research culture is not simply an individual attitude toward research; rather, it is an organizational condition shaped by institutional expectations, leadership, opportunities for participation, and the extent to which research is embedded in everyday academic work.

From a policy perspective, these findings imply that institutions should move from merely encouraging research to institutionalizing research as a core academic function. At the institutional level, research policies should explicitly define research as part of faculty responsibilities, establish research groups or communities of practice, integrate research activities into academic programs and extracurricular activities, and provide regular seminars, workshops, mentoring, and incentives for research participation. Such policies would directly address the reported perception that research is not a regular faculty responsibility [31], [32]. At the national level, education agencies should establish policy frameworks that recognize research as an essential component of the academic role and encourage institutions to develop measurable research-culture indicators, such as faculty research participation, collaborative projects, mentoring activities, research dissemination, and research utilization. Importantly, these policies should not be reduced to publication targets alone. The evidence on professional engagement and research-teaching experience [34] suggests that a sustainable research culture requires opportunities for faculty to develop research competence and incorporate research into teaching and professional practice.

The research environment provides the organizational context within which research culture develops and research projects are implemented. A collaborative environment, research-oriented workplace, institutional encouragement, and opportunities to attend seminars and conferences have been identified as important features of a supportive research environment [23]–[25]. However, limited participation in research seminars and presentations indicates insufficient exposure to broader research environments [27]. A supportive research environment encourages meaningful scholarly activities, while institutional climate, organizational culture, and professional interactions influence research productivity and publication persistence [29]. The institutional and research environment also provides the context in which research culture develops and the resources required for project implementation are made available [33]. Thus, the findings indicate that research productivity is partly a function of the institutional environment in which faculty members work, rather than solely a product of individual research capability.

This has concrete policy implications at both levels. Institutionally, schools and higher education institutions should establish research-oriented work environments through regular research fora, seminars, conferences, collaborative spaces, interdisciplinary research activities, and mechanisms for sharing research outputs. Participation in such activities should be incorporated into faculty development plans and institutional research programs. Institutions should also monitor whether faculty, particularly early-career researchers, have equitable access to research activities and professional networks. At the national level, CHED and other relevant agencies could develop institutional research-environment standards that include opportunities for scholarly interaction, professional development, collaborative research, and dissemination. National programs could also support inter-institutional research forums and networks to provide faculty from less research-intensive institutions with access to wider scholarly communities. This would translate the evidence on limited exposure and shallow collaboration [27], [29] into a concrete policy response rather than treating these conditions merely as descriptive barriers.

Research leadership represents another critical mechanism through which research culture and environment are translated into institutional practice. Research-oriented leadership and clearly defined institutional research objectives have been associated with research productivity, while leadership support has been identified as an institutional productivity factor [23], [24]. Recommended strategies include research seminars, workshops, writing communities, mentoring, research collaboration, and the development of an engaged research environment [35]. Academic seniority and professional context are also associated with productivity, with more experienced faculty and those in higher professional categories generally demonstrating greater research productivity [28]. Furthermore, institutional expectations shape scholarly productivity [29]. However, the reported “publish or perish” culture indicates that institutional expectations can become overly focused on publication for appointment, tenure, promotion, career advancement, and institutional visibility [30]. At the same time, the perception that research is not a regular faculty responsibility can weaken research engagement [32]. Faculty who attended three or more research-related seminars also demonstrated substantially higher productivity than those who attended none, while field of specialization was not significant [34]. This finding is particularly important because it suggests that institutional exposure and leadership-supported professional development may be more actionable policy levers than relying on disciplinary differences alone.

Accordingly, institutional research leadership policies should require research leaders to establish clear research priorities, provide mentoring structures, facilitate research collaboration, monitor research participation, and create opportunities for faculty development. Research performance systems should also balance publication expectations with indicators of research quality, utilization, innovation, collaboration, mentoring, and societal or educational impact. This is important to prevent a narrow “publish or perish” orientation [30] from replacing a genuinely developmental research culture. At the national level, education agencies should consider leadership-development programs for research coordinators, department heads, deans, and institutional research administrators. National standards for research governance could likewise require institutions to demonstrate clear research objectives, faculty development mechanisms, ethical research processes, and systems for monitoring research outcomes. In this way, leadership becomes an enabling mechanism for research productivity rather than simply an administrative function.

Research support further strengthens the relationship between research culture and actual research productivity. Peer collaboration, mentoring, and knowledge sharing [23], together with institutional support for research activities [24], provide faculty with the practical assistance required to undertake and disseminate research. Research-informed curriculum development has also been associated with the number of published papers [24], while discipline-specific publication opportunities [25] can expand avenues for scholarly dissemination. However, limited institutional support for international publication remains a concern [26]. Interdisciplinary collaboration and academic networks can expand research opportunities [29], whereas weak cooperation between experienced and novice faculty, shortages of experienced researchers, and insufficient institutional encouragement constrain research engagement [31], [32]. Research training can develop research competencies and contribute to bibliographic production, innovation, knowledge appropriation, and human-resource development, while co-authorship provides evidence of collaborative academic production [33]. Teacher–student research collaboration has likewise been emphasized as a mechanism for strengthening research engagement and productivity [35]. These findings indicate that research support should be designed as a continuous developmental system rather than as isolated training activities.

At the institutional level, policies should therefore establish formal mentoring arrangements between experienced and novice researchers, research writing communities, peer-review groups, collaborative research teams, teacher–student research projects, publication assistance, and institutional research networks. Institutions should also provide targeted support for conference participation and international publication where resources permit, addressing the reported limitation in publication support [26]. At the national level, CHED and research-funding agencies could establish competitive programs for collaborative research, faculty mentoring, early-career researcher development, and inter-institutional research networks. National programs could prioritize partnerships

between research-intensive and developing institutions to facilitate knowledge transfer and reduce disparities in research capacity. Such a policy direction is supported by evidence that research training, collaboration, and co-authorship contribute to research competencies and collective scholarly production [33].

The relationship among research culture, environment, leadership, and support is therefore best understood as an interconnected institutional system. Research culture establishes the values and expectations surrounding research; the research environment provides the context in which those expectations are enacted; leadership translates institutional priorities into strategies and practices; and research support provides the resources, mentoring, collaboration, and professional opportunities necessary for implementation. The positive relationship between work environment and colleagues' publication intensity and quality and research productivity further demonstrates that research behavior is influenced by the wider institutional community [1]. A strong research culture consequently requires clear institutional goals, effective leadership, empowerment, research skills development, and incentives such as travel support for presenting and publishing research [2].

Overall, the policy implication is that research productivity cannot be sustainably improved through individual faculty incentives alone. Institutional policies need to create an enabling ecosystem in which research is recognized as a core academic responsibility, supported by collaborative environments, developmental leadership, mentoring, professional networks, and equitable opportunities for research participation. At the institutional level, this means embedding research expectations and support mechanisms into research policies, faculty workload and development systems, promotion criteria, mentoring programs, and institutional research plans. At the national level, it requires education and research agencies to provide policy standards, leadership-development programs, competitive research and collaboration grants, national research networks, and mechanisms for strengthening research capacity across institutions. Such a multi-level approach would shift research policy from a narrow emphasis on individual publication output toward the development of sustainable institutional research capacity, collaboration, innovation, and research impact.

3.1.3 Incentives and Recognition

Incentives and recognition represent important institutional mechanisms for sustaining faculty motivation, research engagement, and research productivity. The literature indicates that incentives are not limited to direct financial rewards but include promotion, recognition, professional development, autonomy, mentoring, research opportunities, and institutional support. Incentives and perks have been identified as predictors of research production [35], while a functional incentive system combined with faculty development and research collaboration can strengthen research culture [17]. The evidence can be broadly organized into two interrelated dimensions: non-monetary incentives and monetary/financial incentives. This distinction is important for policy because research productivity is unlikely to be sustained through financial rewards alone; rather, institutions need a balanced incentive system that recognizes both the material and professional dimensions of academic work.

Non-Monetary Incentives. Non-monetary incentives primarily involve career advancement, professional recognition, research opportunities, professional development, autonomy, mentoring, institutional encouragement, and scholarly visibility. Career promotion is consistently associated with scientific publishing, with research outputs linked to appointment, tenure, promotion, career advancement, and academic staff evaluation [24], [30]. Academic promotion has likewise been associated with research and publication [31], while promotion opportunities and career advancement function as important non-monetary incentives [18]. Professional status and recognition of merit have also been associated with higher self-esteem and productivity, with faculty in higher professional categories, particularly Professors, demonstrating higher teaching and research productivity [28]. Similarly, research awards represented one indicator of productivity, while higher faculty rank was associated with greater productivity partly because research is linked to promotion requirements [35]. Research is therefore not merely an additional academic activity; it is embedded in the professional progression of faculty members.

The policy implication is that institutional promotion and tenure policies should establish transparent, balanced, and development-oriented criteria that recognize meaningful research contributions. Rather than relying exclusively on publication counts, institutions could recognize peer-reviewed publications, research utilization, innovation, research collaboration, mentoring, research awards, community impact, and other forms of scholarly contribution. This would help prevent an overly narrow publication-driven culture while maintaining research as a legitimate basis for career advancement. At the national level, education agencies should develop broad policy guidelines for recognizing research contributions in promotion and career advancement, while allowing institutions sufficient flexibility to establish discipline-appropriate criteria. Such policies are particularly relevant because research is already closely associated with academic promotion and professional advancement [18], [30], [31].

Professional development also functions as an important non-monetary incentive. Training and development, work autonomy, organizational counseling, reward systems, and learning opportunities can enhance research productivity [6]. Research-related seminars appear particularly important: faculty who attended three or more research-related seminars had higher productivity than those who attended none [34]. Mentorship and skill-

development training have likewise been identified as institutional mechanisms for transferring research skills and building capacity, although mentorship alone may not directly increase output without other supporting mechanisms [12]. The evidence also emphasizes research seminars, workshops, writing communities, mentorship, research collaboration, and an engaged research environment as strategies for strengthening research participation [35].

Consequently, institutional policy should treat professional development as an incentive rather than merely a compliance requirement. Faculty should be provided with regular access to research training, writing communities, mentoring, conferences, research networks, and opportunities to develop specialized research competencies. Institutions could also provide protected time and administrative support for participation in these activities. At the national level, agencies could establish faculty research-development programs, fellowships, mentoring networks, and national research training opportunities, particularly for early-career and less research-experienced faculty. This approach recognizes that professional growth itself can motivate research participation and can strengthen research self-efficacy, which positively affects research productivity [6].

Recognition and scholarly visibility constitute another important non-monetary incentive. Institutional recognition, research awards, and recognition for publications have been identified as mechanisms for encouraging research [23], [25]. Institutional encouragement and opportunities to publish in university journals also vary across institutions [24], [25]. Professional recognition and scholarly reputation were identified as important motivators in 21% of the reviewed studies, while job satisfaction appeared as an intrinsic motivator in 14% [3]. Institutional recognition, research honors, university research journals, and protected research time were likewise identified as non-monetary structural enablers, whereas the absence of recognition and promotion opportunities can constrain research output [3]. Intrinsic motivation, including passion, interest, professional satisfaction, and the joy of inquiry, also interacts with the working environment to influence research productivity [12], [18].

Therefore, institutions should establish formal recognition systems for research achievements, including annual research awards, recognition of high-quality publications, research utilization, innovation, mentoring, collaboration, and research impact. Importantly, recognition should extend beyond only the highest publication counts to encourage diverse and meaningful research contributions. Nationally, education and research agencies could strengthen national research awards, research fellowship programs, and recognition systems that provide visibility to productive researchers and institutions. Such mechanisms would complement promotion policies and help build a research culture in which scholarly contribution is publicly valued rather than viewed only as a requirement for career advancement.

Research participation itself can also serve as an incentive. Competition coaching and research-related activities provide opportunities for student engagement, although participation remained low, indicating the need for stronger institutional mechanisms and structured opportunities [27]. Institutional encouragement and professional engagement support research participation [29], while mechanisms, incentives, and programs are needed to sustain researchers' motivation to participate in research projects [17], [19]. Colombia's research seedbed policy provides an example of how research formation can be connected to program licensing, renewal, and institutional accreditation [33]. This demonstrates that policy can embed research participation within institutional quality-assurance mechanisms, rather than treating it as a voluntary activity.

At the institutional level, research participation could therefore be incorporated into faculty and student development programs, research communities, institutional research plans, and quality-assurance processes. At the national level, research engagement could be supported through policies that recognize research-active institutions, provide incentives for research formation, and incorporate meaningful research-capacity indicators into institutional evaluation and accreditation. Such mechanisms would create stronger structural incentives for sustained participation [17], [33].

Monetary and Financial Incentives. Monetary incentives include research grants, publication rewards, financial bonuses, salary increments, research funding, travel support, conference assistance, and other direct financial benefits. Research funding has been identified as a major institutional factor associated with research productivity, with research grants reported as the most frequent institutional-related factor and primary motive in 43% of the reviewed studies (12 papers) [3]. Salary increments or additional income were reported in 25% of studies (7 papers), while specific financial incentives for research outputs appeared in 11% (3 papers) [3]. Financial incentives therefore constitute a substantial component of the motivational structure surrounding academic research.

The literature also indicates persistent inadequacies in financial incentives. Some studies identified the absence of publication incentives and inadequate institutional encouragement for research, together with limited financial rewards [31]. Faculty have reported very limited research incentives, including inadequate funding, publication support, and rewards [32]. Research awards were also relatively low, indicating limited achievement in research recognition [34]. Conversely, financial incentives, research funding, and publication rewards have been associated with research production [23], [24]. Recognition for publication in high-impact journals and incentives

for conference participation can further enhance academic visibility and dissemination [24], [25]. However, limited incentives for international journal publication remain a concern [26].

These findings suggest that institutional financial incentive policies should be designed around the actual costs of conducting and disseminating research. Institutions should establish competitive internal research grants, publication assistance, conference and travel support, research awards, and financial incentives for high-quality and impactful research. Funding should also support activities across the research cycle, including proposal development, data collection, analysis, publication, dissemination, and research utilization. At the national level, education and research agencies should expand competitive grant programs and provide targeted funding schemes for institutions and researchers with limited access to financial resources. The literature specifically recommends tailored funding schemes and incentives to motivate institutions to enhance research capabilities [17], while financial resources and funding can provide both the capacity and incentive to increase research production [19].

Research grants and external funding are particularly important because they provide resources beyond individual salary-based incentives. Research funding, grants, and DOST scholarships and funding programs have been identified as initiatives for strengthening research capabilities, with recommendations to increase funding avenues and resources for higher education institutions [17]. Grant funding opportunities also influence researchers' scholarly engagement and publication activities [29]. Moreover, research funding is identified as an important incentive and institutional support mechanism [31]. The evidence from the reviewed studies therefore suggests that national research policy should not rely exclusively on individual cash incentives but should strengthen institutional and competitive grant mechanisms that expand researchers' capacity to conduct meaningful research.

At the same time, monetary incentives require careful policy design. Although substantial financial incentives can motivate faculty research, excessive reliance on output-driven rewards may create negative extrinsic pressure and weaken intrinsic engagement once targets are achieved [12]. Monetary rewards for publishing are also associated with the corporate approach to university management and “publish or perish” practices [6]. International publications may provide prestige, visibility, and impact and are increasingly used in academic evaluation [30]. However, an incentive system based primarily on publication quantity may encourage researchers to prioritize measurable outputs over research quality, utilization, collaboration, or social relevance.

Thus, institutional policies should adopt balanced incentive structures that combine financial rewards with professional recognition, career advancement, research development, and opportunities for meaningful scholarly engagement. Financial incentives should preferably be linked to quality, research impact, innovation, collaboration, and responsible research practices rather than publication quantity alone. At the national level, education agencies should provide guidelines encouraging institutions to develop incentive systems that are transparent, equitable, and aligned with national research priorities. Funding schemes could prioritize research quality, societal and educational relevance, collaboration, innovation, and research utilization rather than simply rewarding the number of publications.

Overall, the evidence indicates that effective research incentive policy requires a balanced combination of non-monetary and monetary mechanisms. Non-monetary incentives such as promotion, recognition, professional development, autonomy, mentoring, research participation, and scholarly visibility strengthen researchers' professional identity and capacity [6], [12], [18], while monetary incentives such as grants, publication support, financial awards, salary increments, and research funding provide the resources necessary to undertake and disseminate research [3], [17], [19]. The most appropriate policy direction is therefore not to choose between the two but to integrate them into a coherent institutional incentive system. At the institutional level, this means establishing transparent promotion criteria, recognition programs, professional-development opportunities, mentoring, research grants, publication support, and performance-based but quality-sensitive rewards. At the national level, it means developing sustainable funding programs, national research incentives, faculty-development schemes, and policy standards that encourage institutions to reward research quality, collaboration, innovation, and impact. Such a multi-level incentive framework can sustain research motivation while avoiding an excessive dependence on publication counts or purely financial rewards.

Table 4. Themes on Research Productivity Utilized in Education

Themes on Research Productivity in Educational Context	Characteristics	Study ID	Number of Studies
Institutional Support and Resources	Research Intensity	[1] [2] [3] [5] [17] [18] [23] [29] [34]	9
	Research Funding	[3] [13] [23] [24] [26] [29] [31] [32] [33]	9
	Research Initiatives	[2] [23] [24] [25] [27] [29] [30] [31] [32] [34]	10

	Workload	[5] [23] [24] [26] [27] [29] [31] [32]	8
Institutional Research Climate	Research Culture	[5] [7] [9] [22] [23] [24] [25] [27] [29] [31] [32] [34] [35]	13
	Research Environment	[6] [8] [10] [23] [24] [25] [27] [29] [31] [32] [33]	11
	Research Leadership	[1] [7] [23] [24] [28] [29] [30] [32] [34] [35]	10
	Research Support	[1] [7] [13] [23] [24] [25] [26] [29] [31] [32] [33] [35]	12
Incentives and Recognition	Monetary and Financial Incentives	[6] [12] [17] [18] [20] [23] [24] [25] [27] [28] [29] [30] [31] [32] [33] [34] [35]	17
	Non-Monetary Incentives	[2] [4] [3] [5] [6] [12] [14] [17] [18] [19] [21] [23] [24] [25] [26] [29] [31] [32] [34]	19

3.2 Factors Affecting Research Productivity in Educational Context

Based on the reviewed 31 articles, the factors affecting research productivity in educational context is communicated in three themes which are *Environmental Factors*, *Institutional Factors*, and *Personal Factors* (see Table 5).

3.2.1 Environmental Factors

Environmental factors represent the social, relational, and organizational conditions within which researchers perform their work. Based on the reviewed literature, this theme comprises three constructs: positive group climate, frequent communication, and assertive-participative leadership. These factors indicate that research productivity is not determined solely by individual research competence or institutional resources; it is also shaped by the quality of interactions, collaboration, communication, and leadership within the research environment. Organizations that provide training and development opportunities while fostering a work climate characterized by knowledge sharing and collaboration are more likely to strengthen faculty members' research self-efficacy and productivity [6]. Similarly, workload, time constraints, collaboration, and professional networks have been identified as environmental considerations affecting research engagement [23], while dedicated research hours and research support can facilitate research participation [24]. Academic environment [25], academic collaboration and networks [27], and collaborative culture, professional interactions, institutional climate, organizational culture, academic labor structures, and collaborative research networks [29] further demonstrate the interconnected nature of the research environment.

Positive group climate emphasizes camaraderie, mutual respect, psychological safety, collaboration, and a sense of belonging among researchers. A supportive climate allows faculty members to exchange ideas, seek assistance, share knowledge, and participate actively in research activities. Evidence on knowledge sharing and collaboration indicates that a constructive work climate can strengthen research self-efficacy and productivity [6], while collaborative culture, professional interactions, and organizational climate are associated with research productivity and scholarly engagement [29]. Academic collaboration and networks also provide opportunities for researchers to access expertise and resources beyond their immediate work groups [27]. These findings suggest that a positive group climate should be treated as an institutional policy concern rather than simply an interpersonal matter. At the institutional level, schools and higher education institutions should establish research communities, interdisciplinary teams, mentoring arrangements, peer-learning groups, and collaborative research programs that deliberately promote mutual support and knowledge sharing. Institutions should also incorporate indicators of collaboration and collegiality into research-development programs. At the national level, education and research agencies can support inter-institutional research networks and collaborative grant programs that connect researchers across institutions and disciplines. Such policies would expand opportunities for knowledge exchange and reduce the isolation of individual researchers, particularly those working in institutions with limited research capacity [27], [29].

Frequent communication is essential for coordinating research activities and sustaining collaborative relationships. Open and regular communication enables research teams to clarify responsibilities, share information, provide feedback, address problems, and maintain alignment throughout the research process. Effective communication also contributes to the development of research culture among faculty members [2]. The importance of professional interactions and collaborative research networks further supports the role of communication in sustaining research engagement [29]. Knowledge production and dissemination are also

connected to social appropriation of knowledge, innovation and development, and bibliographic production [33], indicating that communication extends beyond the immediate research team to the broader academic and societal community. Therefore, institutional policy should establish formal communication mechanisms for research, including regular research meetings, research colloquia, writing groups, mentoring sessions, research information systems, and platforms for sharing research opportunities and outputs. At the national level, education agencies could develop or support national research platforms, research networks, and scholarly communication programs that connect researchers across institutions. These mechanisms can facilitate the exchange of research findings, funding opportunities, expertise, and collaborative possibilities, thereby strengthening the research ecosystem beyond individual institutions.

The third construct, assertive-participative leadership, emphasizes leadership that provides direction while actively involving faculty in research-related decisions and activities. Research productivity is influenced by the broader academic environment [25], while dedicated research hours and research support provide organizational conditions that enable participation [24]. Collaboration, professional networks, institutional climate, and organizational structures likewise shape the environment in which researchers work [23], [27], [29]. This suggests that research leadership should not be limited to assigning research targets; rather, leaders should create conditions in which faculty members can participate meaningfully in research planning, implementation, dissemination, and evaluation. At the institutional level, research leaders should establish participatory research planning processes, consult faculty in setting research priorities, provide dedicated research hours, facilitate research support, and ensure equitable access to collaborative opportunities and professional networks. Leadership policies should also provide mechanisms for faculty to communicate research-related concerns and contribute to decisions concerning research priorities and support. At the national level, education agencies should strengthen leadership-development programs for school heads, research coordinators, department chairs, and higher education administrators, with competencies in research governance, collaborative leadership, research mentoring, and resource mobilization. Such policies would help translate leadership from an administrative function into an enabling mechanism for research productivity.

The three constructs are closely interconnected. A positive group climate provides the relational foundation for collaboration; frequent communication sustains coordination and knowledge sharing; and assertive-participative leadership provides direction, resources, and opportunities for faculty participation. The literature's identification of workload and time constraints [23] alongside dedicated research hours and research support [24] further suggests that environmental policies must address both the social and structural dimensions of research work. Similarly, collaborative culture, professional interactions, institutional climate, and collaborative networks [29] indicate that productivity is more likely to be sustained when researchers operate within a connected and supportive institutional system.

3.2.2 Institutional Factors

Institutional factors encompass the organizational conditions, resources, policies, and career structures that enable or constrain faculty research productivity. Based on the reviewed literature, this theme comprises five constructs: staff support, advising and mentoring, sufficient work time, research emphasis, and tenure and promotion. The evidence indicates that research productivity is influenced not only by individual capability but also by the extent to which institutions provide resources, guidance, time, research-oriented policies, and career incentives. Institutional support, research funding, mentorship, scholarly materials, research resources, capacity building, ICT, digital infrastructure, and research support structures have all been associated with research engagement and productivity [29]. Similarly, institutional capacities involving research policies, processes, human resources, technological resources, and financial resources shape the conditions for research [33].

Staff support refers to the institutional resources and assistance provided to enable faculty to undertake research. Research-supportive policies, including dedicated research time and a conducive research environment, can motivate researchers and enhance productivity [3]. However, teaching-focused universities may provide insufficient institutional support for developing research competencies, potentially limiting faculty research engagement [17]. Other evidence identifies leadership, funding, policies, infrastructure, institutional resources, and research support as important institutional conditions [23], [25]. Institution-funded projects, research equipment, financial rewards, and institutional research policies likewise contribute to research productivity [24]. Institutionally, this implies the need for clear research-support policies, adequate resources, and accessible research services; nationally, education agencies should strengthen standards and funding mechanisms that require and enable institutions to provide essential research support.

Advising and mentoring provide researchers, particularly early-career faculty, with guidance, feedback, technical assistance, and professional support. Mentorship establishes a relationship in which experienced researchers serve as guides, role models, and teachers [2], while collaborative mentor-mentee relationships can improve publication productivity [12]. Mentorship and research capacity building are also identified as components of institutional research support [29]. At the institutional level, formal mentoring systems, research

teams, and peer-support programs should be established; at the national level, research agencies can develop inter-institutional mentoring networks and capacity-building programs that connect experienced researchers with emerging scholars.

Sufficient work time is necessary for faculty to conduct research alongside teaching and service responsibilities. Dedicated research time has been identified as an important institutional mechanism for motivating research engagement [3], while institutional support systems can help provide the conditions necessary for research participation [29]. Institutional policy should therefore protect designated research hours and incorporate realistic research workloads into faculty workload policies. At the national level, workload standards and research-time provisions could be incorporated into higher education policies to ensure that research-intensive faculty are provided adequate time to produce quality research.

Research emphasis reflects the extent to which institutions prioritize research through objectives, strategies, policies, curricular integration, seminars, research projects, and research opportunities. Research objectives and strategies, institutional research policies, and funded research projects have been identified as important institutional factors [24]. Research culture, curricular integration, seminars, presentations, and competition coaching can likewise strengthen research engagement [27]. Institutional expectations, research impact metrics, grant opportunities, data accessibility, ICT, digital infrastructure, and research facilities further shape institutional research capacity [29]. Institutionally, research should be explicitly embedded in strategic plans, curricula, faculty development, and performance systems; nationally, education policies should align institutional research priorities with broader national research and innovation agendas and provide funding for priority areas.

Finally, tenure and promotion represent important career-related mechanisms that reinforce the institutional emphasis on research. Although faculty may receive intrinsic and extrinsic rewards for teaching and service, major career rewards such as tenure and promotion are often associated with high research activity and scholarly publication [20]. Promotion opportunities and research outputs therefore function as institutional incentives that can motivate faculty to engage in research. Institutionally, promotion and tenure policies should use transparent and balanced research criteria that recognize quality, impact, collaboration, innovation, and utilization rather than publication quantity alone. At the national level, higher education agencies should provide policy guidance for fair and quality-sensitive promotion systems that recognize meaningful scholarly contributions.

3.2.3 Personal Career Development

Personal career development encompasses the individual capacities, motivations, experiences, and scholarly behaviors that enable faculty members to sustain research engagement and productivity. The reviewed literature identifies motivation, goal setting, collaboration, and publication as key dimensions. Early-career development and mentoring programs can help address disparities in research productivity by strengthening faculty research capacity and providing structured career support [8]. Individual characteristics such as research skills, research experience, motivation, and self-efficacy [23], faculty qualification [24], work experience and education level [25], [26], research training and mentoring [27], and professional experience and rank [28], [34] further demonstrate that career development is closely connected to research productivity.

Motivation provides the psychological foundation for sustained research engagement. Both intrinsic and extrinsic motivation, including rewards, influence faculty research activities and productivity [4]. Motivation and encouragement are particularly important for teachers who undertake research despite demanding academic and administrative responsibilities [18]. Positive research attitudes and digital literacy also support research engagement [29]. At the institutional level, policies should provide faculty with meaningful research incentives, professional development, mentoring, and recognition while also strengthening research self-efficacy. At the national level, education agencies should support faculty research-development programs, fellowships, and incentive schemes that encourage sustained research participation rather than short-term output alone.

Goal setting enables researchers to establish clear objectives, milestones, and expected outputs. Motivation and goal setting work together by translating researchers' intentions into concrete research activities and outcomes [18]. Research training, experience, and professional development can further strengthen the capacity of researchers to formulate and achieve research goals [23], [27], [33]. Institutionally, research development plans should include individual and team research goals, timelines, mentoring, and progress monitoring. Nationally, research policies can provide competency and career-development frameworks that guide researchers from research training toward publication, innovation, and research utilization.

Collaboration expands researchers' access to expertise, networks, resources, and scholarly opportunities. The literature shows an increasing trend toward collaboration among researchers and institutions [9], while collaboration across research fields is considered an important indicator of academic competence and institutional effectiveness [4]. International research collaboration is particularly important for achieving high research productivity [1]. Research team involvement, research-based learning, and mentoring likewise contribute to research development [27]. Institutionally, faculty should be supported through research teams, interdisciplinary

projects, mentoring networks, and collaborative research programs. At the national level, policies should strengthen inter-institutional and international research networks, mobility programs, and collaborative grants to expand researchers' access to broader scholarly communities.

Publication represents a major outcome of personal career development because it enables researchers to disseminate knowledge and demonstrate scholarly productivity. Research effectiveness includes publishing in reputable journals, presenting findings through conferences, and securing grants and resources for research [18]. Publication productivity is also associated with researchers' competence, collaboration, professional experience, and career progression [1], [4], [9]. The evidence on educational attainment, faculty rank, research-teaching experience, and research-related seminar participation further suggests that researchers' career development conditions influence their capacity to produce research outputs [34]. Institutionally, publication policies should provide writing support, mentoring, access to journals and databases, conference opportunities, and assistance in navigating reputable publication outlets. Nationally, research agencies should strengthen publication-support programs, research dissemination grants, and national research networks while emphasizing quality, research integrity, relevance, and impact rather than publication quantity alone.

Overall, personal career development indicates that research productivity is a cumulative process in which motivation, goal setting, collaboration, and publication reinforce one another. Institutions should therefore provide continuous career-development pathways that combine research training, mentoring, clear research goals, collaboration opportunities, and publication support. At the national level, these efforts can be reinforced through faculty research-development programs, competitive grants, collaboration networks, research fellowships, and publication-support mechanisms. Such policies would help reduce disparities in research productivity by ensuring that faculty members—particularly those at earlier stages of their careers—have structured opportunities to develop the skills, confidence, networks, and scholarly experience required for sustained research productivity [8], [23], [27], [33].

Table 5. Themes on the Factors Affecting Research Productivity in Educational Context

Themes on the Factors Affecting Research Productivity in Education	Characteristics	Study ID	Number of Studies
Environmental Factors	Positive Group Climate	[2] [3] [6] [23] [25] [27] [29] [33]	8
	Frequent Communication	[2] [15] [23] [27] [29] [33]	6
	Assertive-Participative Leadership	[8] [23] [24] [25] [27] [29]	6
Institutional Factors	Staff Support	[2] [3] [17] [18] [23] [24] [25] [27] [29] [33] [34]	11
	Advising and Mentoring	[2] [12] [15] [29]	4
	Sufficient Work Time	[3] [8] [23] [24] [29]	5
	Research Emphasis	[3] [8] [11] [17] [23] [24] [27] [29] [33]	9
	Tenure and Promotion	[10] [20] [24]	3
	Motivation	[2] [3] [4] [8] [18] [23] [25] [29] [33]	9
Personal Factors	Goal Setting	[2] [18] [23] [27] [33]	5
	Collaboration	[1] [4] [7] [8] [9] [27] [29]	7
	Publication	[1] [3] [4] [6] [9] [18] [24] [26] [34]	9

3.3 Evidence-Informed Policy Directions for Enhancing Research Productivity

The review identified four core policy directions for enhancing research productivity in educational institutions: *Research Funding Allocation Policies*, *Faculty Capacity-Building Policies*, *Research Incentive Policies*, and *Policies for Strengthening Research Culture*.

3.3.1 Research Funding Allocation Policies

The reviewed evidence indicates that research funding is a critical institutional condition for research productivity, as inadequate financial resources constrain research participation, infrastructure development, and scholarly output [3], [13], [14], [17]. At the institutional level, educational institutions should establish transparent and sustained research funding mechanisms that include competitive internal grants, seed funding for early-career researchers, publication and conference support, and dedicated funding for research infrastructure and equipment. At the national level, education and research agencies should expand competitive grant programs and equitable funding schemes that prioritize institutions with limited research capacity while aligning funding with national research and innovation priorities [14], [17]. Such policies would shift research funding from an ad hoc form of assistance to a strategic institutional investment that enables researchers to conduct, disseminate, and translate research into educational and societal outcomes.

3.3.2 Faculty Capacity-Building Policies

Faculty research productivity is strongly associated with research training, professional development, research self-efficacy, mentorship, and access to opportunities that strengthen researchers' competencies [6], [8], [13]. At the institutional level, schools and higher education institutions should implement continuous research capacity-building programs covering research design, data analysis, scholarly writing, publication, grant development, research ethics, and research dissemination, complemented by structured mentoring for less-experienced researchers. At the national level, education and research agencies should establish faculty research fellowships, inter-institutional mentoring networks, specialized research training, and professional development programs that provide researchers from less research-intensive institutions access to established research communities and expertise [8], [13], [17]. These policies would strengthen research self-efficacy and professional competence while creating sustained pathways for faculty members to progress from research training and mentorship toward independent, collaborative, and productive scholarship.

3.3.3 Research Incentive Policies

The evidence shows that research productivity is influenced by both monetary and non-monetary incentives, including research funding, promotion, recognition, professional advancement, and opportunities for scholarly development [3], [4], [6], [18]. At the institutional level, research incentive systems should provide transparent and equitable recognition for quality publications, research grants, innovation, research utilization, collaboration, mentoring, and other meaningful scholarly contributions rather than relying primarily on publication counts. At the national level, education and research agencies should establish policy guidelines and funding mechanisms that encourage institutions to develop balanced incentive systems combining financial rewards, research grants, career advancement, national research awards, fellowships, and professional-development opportunities [17], [18]. Such an approach can strengthen faculty motivation while reducing the risks associated with excessive "publish or perish" pressures and ensuring that incentives promote research quality, integrity, relevance, collaboration, and impact.

3.3.4 Policies for Strengthening Research Culture

The reviewed literature demonstrates that a supportive research culture, collaborative environment, institutional encouragement, and integration of research into academic work are essential for sustaining research engagement and productivity [2], [5], [7], [9]. At the institutional level, research should be formally embedded in organizational goals, faculty responsibilities, workload systems, academic programs, research communities, mentoring structures, and regular scholarly activities such as seminars, research fora, and collaborative projects. At the national level, education agencies should establish frameworks that recognize research as a core academic function and support institutional research networks, leadership development, collaborative research programs, and mechanisms for monitoring research participation and research impact [2], [7], [9]. Strengthening research culture through these coordinated measures would move institutions beyond an individual-output orientation toward a sustainable research ecosystem characterized by collaboration, knowledge sharing, professional development, institutional commitment, and continuous scholarly engagement.

3.4 A Conceptual Framework for Research Productivity in Educational Context

A synthesis of the literature aligns closely with the structural components mapped out in Figure 2, demonstrating that faculty research productivity is co-produced by the interplay between institutional support and a prevailing institutional research climate. While the conceptual model highlights foundational inputs such as funding, workload management, and collaborative leadership, external empirical studies nuance this view by showing that structural inputs alone are insufficient without considering social and structural frameworks. For instance, Nygaard frames low productivity through the lens of socially embedded academic writing where researchers navigate competing institutional expectations [36], while Fursov, Roschina, and Balmush emphasize

that scientific capital—such as foreign language use and international cooperation—impacts research productivity more heavily than socio-demographic traits like age or gender [37]. The model integrates these perspectives by positioning incentives and recognition as the mechanism that activates resources and culture. Furthermore, literature on collaboration dynamics and funding yields mixed outcomes: Defazio et al. note that mandated network collaborations generate productivity gains in the post-funding stage rather than during active funding [38], and Abramo et al. observe that only intramural and domestic collaborations yield a statistically significant positive effect on future output [39]. These findings validate the model's feedback loop, confirming how institutional strategies generate high-impact scholarly outputs like publications, citations, and IP.

In comparison to data-driven and predictive frameworks, Figure 2 offers a holistic architectural blueprint that contrasts with narrower analytical lenses found in external empirical benchmarks. While Sanmorino et al. utilize machine learning classifiers like K-Nearest Neighbors and Decision Trees to evaluate faculty research productivity through key performance indicators [40], and AstraZeneca's 5R framework applies a five-dimensional evaluation process to reduce early pipeline attrition and improve clinical success [41], the conceptual model embraces a systemic, multi-directional ecosystem. Rather than reducing productivity to isolated algorithmic variables or pipeline metrics, the model's central gear mechanism portrays monetary and non-monetary incentives—such as promotion, tenure, and scholarly visibility—as interactive catalysts. However, a key point of divergence lies in how the model handles complex temporal dynamics: while quantitative studies like those by Abramo et al. [39] and Defazio et al. [38] track longitudinal effects over extended periods, Figure 2 simplifies these trajectories into a fluid, cyclical feedback loop of high research output. Ultimately, while data-driven models excel at measurement and prediction, the presented framework bridges qualitative cultural dimensions and structural supports into a unified strategy.

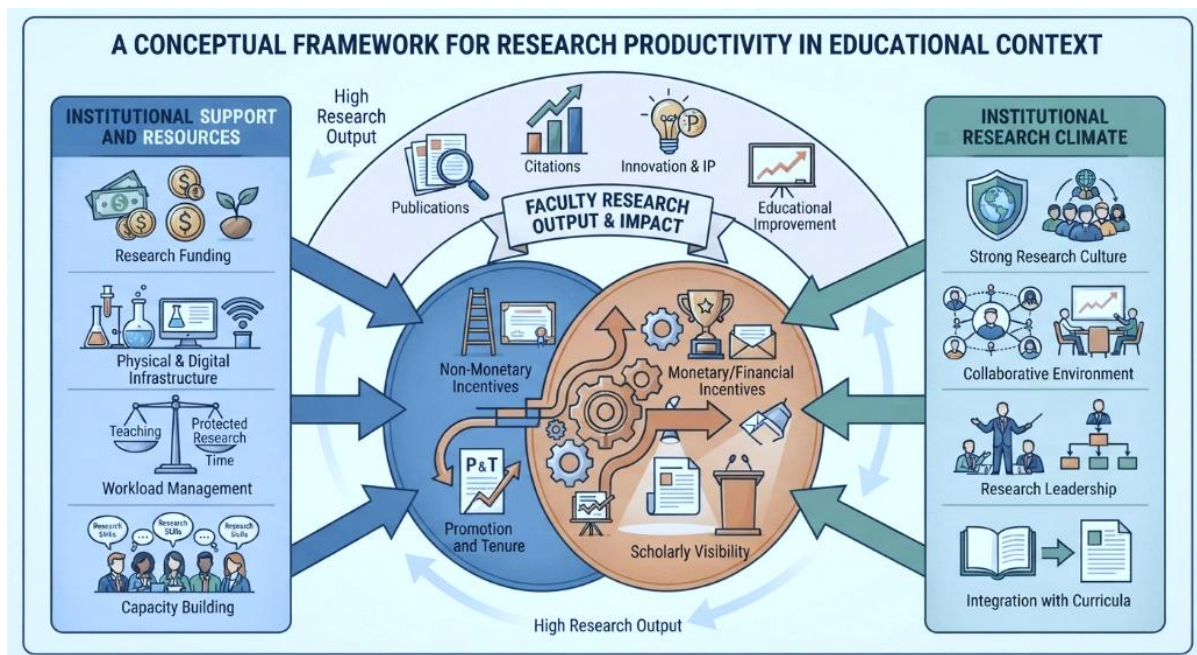


Figure 2. A Conceptual Framework for Research Productivity in Educational Context

4. CONCLUSION

This PRISMA-guided systematic review synthesized existing evidence on research productivity in educational institutions to identify the key factors shaping research outcomes and to inform evidence-based policy directions. The findings demonstrate that research productivity is not determined by a single factor but by the interaction of institutional, environmental, and individual conditions. In particular, institutional support and resources, research culture and environment, incentives and recognition, and personal career development emerged as interrelated determinants that can either facilitate or constrain researchers' capacity and motivation to engage in productive scholarly work.

The findings further suggest that enhancing research productivity requires a comprehensive, coordinated, and sustained institutional approach rather than isolated interventions. Educational institutions should strengthen research infrastructure and funding mechanisms, foster supportive and collaborative research cultures, establish transparent and meaningful systems of incentives and recognition, and provide continuous professional development, mentoring, and career advancement opportunities. At the policy level, these findings highlight the

need for institutional and national frameworks that align resources, leadership practices, researcher development, and performance expectations to create enabling conditions for sustained research engagement and productivity. Such coordinated policy directions can help educational institutions move beyond compliance-oriented research practices toward more sustainable and innovation-driven research ecosystems.

The findings are also consistent with previous research emphasizing the importance of organizational support, research-oriented environments, incentives, and professional development in strengthening researchers' productivity and engagement. This convergence with prior evidence reinforces the view that research productivity is shaped by both structural conditions within institutions and the professional capacities and motivations of individual researchers. However, the review should be interpreted in light of its limitations, including variations in the methodological approaches, educational contexts, samples, and measures of research productivity across the included studies, which may limit direct comparability and the generalizability of the synthesized findings. Despite these limitations, the review provides a useful evidence base for educational leaders and policymakers seeking to develop more coherent and context-responsive strategies for strengthening research productivity.

Beyond consolidating the existing body of knowledge, this review provides a foundation for further empirical and policy-oriented research. Future studies should evaluate the effectiveness of specific institutional policies, leadership practices, incentive mechanisms, and professional development interventions in producing measurable improvements in research productivity. Researchers should also examine how emerging digital technologies, research networks, collaborative platforms, and artificial intelligence may influence research processes and outcomes, while considering potential differences across educational levels, institutional types, disciplines, and national contexts. Longitudinal, comparative, and mixed-methods investigations are particularly encouraged to determine how institutional conditions interact over time and to develop context-specific models that can guide sustainable improvements in research productivity. These directions can strengthen the empirical and theoretical basis for evidence-informed decision-making and contribute to the development of productive, supportive, and sustainable research cultures across educational institutions.

ACKNOWLEDGEMENTS

The authors thank Dr. Malou D. Junsay, PhD in Educational Management Program Chair, for the support and guidance.

REFERENCES

- [1] A. Bonaccorsi, P. Belingheri, and L. Secondi, "The research productivity of universities: A multilevel and multidisciplinary analysis on European institutions," *Journal of Informetrics*, vol. 15, no. 2, Art. no. 101129, 2021, doi: 10.1016/j.joi.2020.101129.
- [2] L. Ocampo, J. L. Aro, S. S. Evangelista, F. Maturan, K. Yamagishi, D. Mamhot, *et al.*, "Research productivity for augmenting the innovation potential of higher education institutions: An interpretive structural modeling approach and MICMAC analysis," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 3, Art. no. 148, 2022, doi: 10.3390/joitmc8030148.
- [3] D. Uwizeye, F. Karimi, C. Thiong'o, J. Syonguvi, V. Ochieng, F. Kiroro, *et al.*, "Factors associated with research productivity in higher education institutions in Africa: A systematic review," *AAS Open Research*, vol. 4, Art. no. 26, 2021.
- [4] F. Ghabban, A. Selamat, R. Ibrahim, O. Krejcar, P. Maresova, and E. Herrera-Viedma, "The influence of personal and organizational factors on researchers' attitudes towards sustainable research productivity in Saudi universities," *Sustainability*, vol. 11, no. 17, Art. no. 4804, 2019, doi: 10.3390/su11174804.
- [5] C. Henry, N. A. M. Ghani, U. M. A. Hamid, and A. N. Bakar, "Factors contributing towards research productivity in higher education," *International Journal of Evaluation and Research in Education*, vol. 9, no. 1, pp. 203–211, 2020.
- [6] S. Kozhakhmet, K. Moldashev, A. Yenikeeva, and A. Nurgabdeshev, "How training and development practices contribute to research productivity: A moderated mediation model," *Studies in Higher Education*, vol. 47, no. 2, pp. 437–449, 2022, doi: 10.1080/03075079.2020.1754782.
- [7] F. M. Nafukho, C. S. Wekullo, and M. H. Muyia, "Examining research productivity of faculty in selected leading public universities in Kenya," *International Journal of Educational Development*, vol. 66, pp. 44–51, 2019, doi: 10.1016/j.ijedudev.2019.01.005.
- [8] N. Baloch, L. Siming, A. Abraha, and S. Hong, "Faculty research productivity: Differences between foreign and local doctoral degree holders in Pakistan," *Higher Education*, vol. 82, no. 1, pp. 203–225, 2020, doi: 10.1007/s10734-020-00630-2.
- [9] Y. H. Lee, "Determinants of research productivity in Korean universities: The role of research funding," *The Journal of Technology Transfer*, vol. 46, no. 5, pp. 1462–1486, 2021, doi: 10.1007/s10961-020-09817-2.
- [10] K. Heng, M. Hamid, and A. Khan, "Factors influencing academics' research engagement and productivity: A developing countries perspective," *Issues in Educational Research*, vol. 30, no. 3, pp. 965–987, 2020.
- [11] F. Alhija and A. Majdob, "Predictors of teacher educators' research productivity," *Australian Journal of Teacher Education*, vol. 42, no. 11, pp. 34–51, 2017.

- [12] Y. Li and L. J. Zhang, "Influence of mentorship and the working environment on English as a foreign language teachers' research productivity: The mediation role of research motivation and self-efficacy," *Frontiers in Psychology*, vol. 13, Art. no. 906932, 2022, doi: 10.3389/fpsyg.2022.906932.
- [13] P. A. Adekunle and E. Madukoma, "Research self-efficacy and research productivity of doctoral students in universities in Ogun State, Nigeria," *Library Philosophy and Practice*, pp. 1–23, 2022.
- [14] D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and the PRISMA Group, "Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement," *Annals of Internal Medicine*, vol. 151, no. 4, pp. 264–269, 2009, doi: 10.7326/0003-4819-151-4-200908180-00135.
- [15] L. Shamseer, D. Moher, M. Clarke, D. Gherzi, A. Liberati, M. Petticrew, *et al.*, "Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: Elaboration and explanation," *BMJ*, vol. 349, Art. no. g7647, 2015, doi: 10.1136/bmj.g7647.
- [16] K. Knobloch, U. Yoon, and P. M. Vogt, "Preferred reporting items for systematic reviews and meta-analyses (PRISMA) statement and publication bias," *Journal of Cranio-Maxillofacial Surgery*, vol. 39, no. 2, pp. 91–92, 2011, doi: 10.1016/j.jcms.2010.11.001.
- [17] H. K. G. Alcazaren, "A systematic review of Philippine research productivity: A Bourdieusian perspective," *Philippine Social Science Journal*, vol. 4, no. 4, pp. 113–124, 2021.
- [18] A. Batool, S. Ahmad, and S. Naz, "Correlation of personal and institutional factors with research productivity among university teachers," *Humanities & Social Sciences Reviews*, vol. 9, no. 2, pp. 240–246, 2021, doi: 10.18510/hssr.2021.9225.
- [19] R. S. Cardona, "The enablers and outcomes of research productivity among junior high school mathematics teachers: A structural model," *Eurasia Journal of Mathematics, Science and Technology Education*, vol. 16, no. 11, Art. no. em1897, 2020, doi: 10.29333/ejmste/8563.
- [20] K. Ismayilova and R. M. Klassen, "Research and teaching self-efficacy of university faculty: Relations with job satisfaction," *International Journal of Educational Research*, vol. 98, pp. 55–66, 2019, doi: 10.1016/j.ijer.2019.08.012.
- [21] V. O. Ochieng and R. M. Gyasi, "Open educational resources and social justice: Potentials and implications for research productivity in higher educational institutions," *E-Learning and Digital Media*, vol. 18, no. 2, pp. 105–124, 2021, doi: 10.1177/2042753021989467.
- [22] N. I. Prado, "Predictors of research productivity among administrators, faculty, and students," *Liceo Journal of Higher Education Research*, vol. 15, no. 2, 2019, doi: 10.7828/LJHER.V15I2.1319.
- [23] A. C. Kadikilo, P. Nayak, and A. Sahay, "Barriers to research productivity of academics in Tanzania higher education institutions: The need for policy interventions," *Cogent Education*, vol. 11, no. 1, Art. no. 2351285, 2024, doi: 10.1080/2331186X.2024.2351285.
- [24] R. G. M. Helali, "An exploratory study of factors affecting research productivity in higher educational institutes using regression and deep learning techniques," *Artificial Intelligence and Applications*, vol. 2, no. 4, pp. 307–314, 2024, doi: 10.47852/bonviewAIA3202660.
- [25] A. Das, "Factors influencing research productivity in higher education institutions in India," *Annals of Library and Information Studies*, vol. 71, no. 2, pp. 155–164, 2024, doi: 10.56042/alis.v71i2.6727.
- [26] S. N. Orfan, A. F. Fazloomand, S. Sarmashq, S. S. Obaidi, and M. Qarizada, "Faculty research productivity at select higher education institutions in Afghanistan," *Cogent Education*, vol. 11, no. 1, Art. no. 2384241, 2024, doi: 10.1080/2331186X.2024.2384241.
- [27] F. Hanun, O. Y. Pamungkas, S. Suprpto, A. Dudin, W. Kozin, and L. D. Ma'rifatani, "The impact of research-based learning and institutional support on student research productivity at madrasah aliyah negeri in Jakarta, Indonesia," *Qubahan Academic Journal*, vol. 5, no. 2, pp. 204–223, 2025.
- [28] F. Gómez-Jorge and E. Díaz-Garrido, "The relation between self-esteem and productivity: An analysis in higher education institutions," *Frontiers in Psychology*, vol. 13, Art. no. 1112437, 2023, doi: 10.3389/fpsyg.2022.1112437.
- [29] T. D. Rabi, "Institutional conditions, digital transformation, inclusive education and research productivity in Nigerian higher education: A systematic review," *Corporate Journal of Educational Research*, vol. 10, no. 4, pp. 276–287, 2026.
- [30] B. Adetomiwa, B. O. Akintola, R. O. Ejiwoye, and A. C. Olabisi, "Academic staff research productivity in private universities in southwestern Nigeria: Factors related to low research productivity," *International Journal of Operations Research and Information Systems*, vol. 14, no. 1, pp. 1–15, 2023.
- [31] A. Alemu, "Factors determining research productivity in Ethiopian Universities: The case of Madda Walabu University," *Social Sciences & Humanities Open*, vol. 8, no. 1, Art. no. 100562, 2023, doi: 10.1016/j.ssaho.2023.100562.
- [32] A. I. Regla and M. A. Ballera, "An enhanced research productivity monitoring system for higher education institutions (HEI's) with natural language processing (NLP)," *Procedia Computer Science*, vol. 230, pp. 316–325, 2023, doi: 10.1016/j.procs.2023.12.087.
- [33] M. A. Martínez-Daza, L. I. Valencia-Quecano, and A. Guzmán-Rincón, "Conceptual model for the assessment of academic productivity in research seedbeds from a systematic review," *European Journal of Educational Research*, vol. 13, no. 2, pp. 813–833, 2024, doi: 10.12973/eu-jer.13.2.813.
- [34] J.-C. T. Amanonce, C. M. Temporal, R. T. Vecaldo, J. B. Calubaquib, A. I. Tamayao, M. F. Malana, *et al.*, "Research productivity of teacher educators in a Philippine state university," *Journal of Education and Learning (EduLearn)*, vol. 19, no. 4, pp. 2192–2200, 2025, doi: 10.11591/edulearn.v19i4.23317.
- [35] N. J. Castulo, "A policy brief on CMO 15 s. 2019: Strategies for enhancing educational research productivity in Philippine higher education institutions," *SSRN*, SSRN 5030248, 2024.
- [36] L. P. Nygaard, "Publishing and perishing: An academic literacies framework for investigating research productivity," *Studies in Higher Education*, vol. 42, no. 3, pp. 519–532, 2017, doi: 10.1080/03075079.2015.1058351.

- [37] K. Fursov, Y. Roschina, and O. Balmush, "Determinants of research productivity: An individual-level lens," *Foresight*, vol. 10, no. 2, pp. 44–56, 2016.
- [38] D. Defazio, A. Lockett, and M. Wright, "Funding incentives, collaborative dynamics and scientific productivity: Evidence from the EU framework program," *Research Policy*, vol. 38, no. 2, pp. 293–305, 2009, doi: 10.1016/j.respol.2008.11.008.
- [39] G. Abramo, A. C. D'Angelo, and G. Murgia, "The relationship among research productivity, research collaboration, and their determinants," *Journal of Informetrics*, vol. 11, no. 4, pp. 1016–1030, 2017, doi: 10.1016/j.joi.2017.09.007.
- [40] A. Sanmorino and D. P. Rini, "Building research productivity framework in higher education institution," *International Journal of Advanced Computer Science and Applications*, vol. 12, no. 6, 2021.
- [41] P. Morgan, D. G. Brown, S. Lennard, M. J. Anderton, J. C. Barrett, U. Eriksson, *et al.*, "Impact of a five-dimensional framework on R&D productivity at AstraZeneca," *Nature Reviews Drug Discovery*, vol. 17, no. 3, pp. 167–181, 2018, doi: 10.1038/nrd.2017.244.