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Rethinking the Socio-Economic Relevance of Multidisciplinary Research for Sustainable Public Universities in Rivers State

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Abstract **Original Research**

This study examined the socio-economic relevance of multidisciplinary research and its implications for sustainable public universities in Rivers State, Nigeria. A descriptive survey design was adopted to investigate this phenomenon among academic staff. The population comprised 2,849 lecturers across three public universities, from which a sample of 352 respondents was determined using the Taro Yamane formula. Stratified random sampling was employed to ensure representation of 246 male and 106 female lecturers. Data were collected using a 15-item structured questionnaire (SERMRSPUQ) based on a four-point Likert scale. The instrument was validated by experts and achieved a reliability coefficient of 0.82 using Cronbach Alpha. Out of 352 copies administered, 337 were retrieved and analyzed. Mean and standard deviation were used to answer research questions, while z-test was used to test hypotheses at 0.05 level of significance. The findings revealed that multidisciplinary research is highly socio-economically relevant (grand mean = 2.74), particularly in promoting innovation commercialization, improving institutional ranking, enhancing employability, and attracting external funding. However, significant barriers to collaboration were identified (grand mean = 2.78), including restrictive promotion criteria, inadequate funding, lack of shared facilities, insufficient digital databases, and heavy administrative workloads. The study also identified effective strategies for enhancing collaboration (grand mean = 2.83), such as revising promotion guidelines, establishing interdisciplinary research hubs, creating dedicated grant schemes, and strengthening industry partnerships. Additionally, no significant differences were found between male and female lecturers' perceptions across all variables. The study concludes that despite its high relevance, multidisciplinary research is constrained by systemic institutional barriers. It recommends that universities revise promotion policies to adequately reward collaborative research efforts.

Keywords: Socioeconomic, Multidisciplinary Research, Public Universities, Education.

Introduction

Research is one of the major activities carried out by universities, standing as a primary pillar alongside other key functions such as teaching and community development to fulfill the institution's mandate of knowledge creation. Investment in research is critical

to development at any level, whether local, national, or global, and investment in research has continued to grow globally as nations recognize that scientific inquiry is the engine of economic competitiveness (Owen, 2017). More recently, attention has begun to shift to the conduct of multidisciplinary research, driven by the realization that knowledge for development is not limited to any particular discipline but requires the integration of diverse perspectives to solve complex societal problems (Bint-e-Nafeez et al., 2024). Conceptually, research is defined as the process of investigating further into an issue, and it is a systematic, data-driven inquiry aimed at discovering new facts, revising accepted theories, or reaching novel conclusions. On this note, Dalton et al., (2021) noted that multidisciplinary research refers to an investigation from the angle of multiple disciplines, where researchers from different fields such as Economics, Engineering, and Sociology, among others, work independently or in parallel on a common problem while staying within their professional boundaries.

There is no doubt that conducting multidisciplinary research remains important to national development, of which universities are expected to contribute sustainably (Foster et al., 2021), but the understanding of the socio-economic dynamics of this collaboration is vital for aligning academic output with market and policy need. The need to understand the socio-economic importance of this kind of collaboration is essential for getting the buy-in of relevant stakeholders, including government agencies, private sector investors, and university stakeholders. These socio-economic benefits may include, but are not limited to, the commercialization of research through patents, the creation of evidence-based policies to reduce poverty, and the enhancement of graduate employability as students learn to think across traditional silos. However, progress in multidisciplinary research can only be achieved when critical barriers to collaboration are dealt with, as these obstacles often stifle the synergy required for high-impact innovation. Universities need to understand these barriers so that they can prepare to deal with them (Yang et al., 2025). Some of these barriers include, but are not limited to, disciplinary gaps where departments compete for resources, rigid promotion criteria that do not reward collaborative authorship, and a lack of centralized laboratory facilities that facilitate cross-faculty interaction. Singh and Virk (2023) also identified communication barriers, conflicts of interest, and funding limitations as notable barriers.

In order to promote multidisciplinary research for sustainable university education, key implementation strategies must be explored to break down these barriers and foster a culture of shared knowledge. Universities have social responsibility to their immediate community (Shaari et al., 2018) and must continue to do so by all means. Some relevant approaches which can make a meaningful impact include the establishment of Interdisciplinary Research Centers, the provision of joint seed-grants for cross-departmental projects, and the integration of Industry-Academic advisory boards to guide research toward solving real-world economic challenges, among other strategies. The need for training and mentorship cannot also be overemphasized (Okafor et al., 2025) as this prepares staff for this opportunity when it comes.

Several studies have been conducted around this area to expatiate on the essence of collaboration in research. Said et al., (2025) conducted a study that explored the socioeconomic impact of a public university branch campus on its surrounding community and found that the community's income generation ranked first, followed by job opportunities, local development, and business growth in neighbouring communities. The study's findings revealed that higher education is viewed as the nation's major vehicle for improving citizens' socioeconomic conditions in the new economy. On the other hand, Mukoro and Onyeike (2022) conducted a study on collaboration programmes for the internationalization of university education in south-south geo-political zone, Nigeria. The study showed that there is a significant difference between the mean scores of federal and state universities management staff on the scholarly collaboration programmes for internationalization of university education. Furthermore, the results revealed a significant difference between the mean scores of federal and state university management staff on the

constraints to scholarly collaboration programmes for internationalization of university education in South-South geo-political zone, Nigeria. Finally, the result indicated that there is a significant difference between the mean scores of federal and state university management staff on the strategies universities should adopt to overcome the constraints to scholarly collaboration programmes for internationalization of university education.

A related study by Bello and Oyedokun (2025) on promoting research collaboration between librarians and faculties in universities in Osun State revealed that institutional support for research collaboration, particularly through training and professional development opportunities, is both widely accessible and actively utilised by the majority of participants. These studies substantiate the essentiality of research collaboration for institutional and national development.

Aim and Objectives of the Study

The aim of the study was to investigate the socio-economic relevance of multidisciplinary research for sustainable public universities in Rivers State. Specifically, the objectives of the study were to:

1. determine the socio-economic relevance of multidisciplinary research in public universities in Rivers State
2. examine the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State
3. ascertain the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State

Research Questions

The following research questions were raised to guide the study:

1. What is the socio-economic relevance of multidisciplinary research in public universities in Rivers State?
2. What are the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State?
3. What are the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State?

Hypotheses

The following hypotheses were tested at 0.05 level of significance:

1. There is no significant difference between the mean ratings of male and female lecturers on the socio-economic relevance of multidisciplinary research in public universities in Rivers State
2. There is no significant difference between the mean ratings of male and female lecturers on the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State
3. There is no significant difference between the mean ratings of male and female lecturers on the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State

Methodology

The study adopted a descriptive survey design as it focused on investigating a phenomenon that currently exists. The population of the study consisted of the 2, 849 academic staff in the three public universities in Rivers State. Using the Taro Yamane formula for minimum sample size determination, a sample of 352 respondents consisting of 246 male lecturers and 106 female lecturers were sampled using stratified random sampling technique. The instrument used for data gathering was a 15-item questionnaire named "Socio-Economic Relevance of Multidisciplinary Research for Sustainable Public Universities Questionnaire" (SERMRSPUQ). The instrument had two sections namely Section A for collecting the

demographic data of the respondents and Section B which contained the questionnaire items. The instrument was structured along the line of the four-point modified Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with weighted values of 4, 3, 2 and 1. The average of these values produced a criterion mean score of 2.50 which was used for decision making. The instrument was subjected to face and content validation by three Measurement and Evaluation experts at the University of Port Harcourt while the reliability index was estimated as 0.82 using Cronbach Alpha. There were 352 copies of questionnaire administered but 337 copies representing 95.7% from 232 males and 105 females were retrieved and used for analysis. The research questions were answered using mean and standard deviation while the hypotheses were tested using z-test at 0.05 level of significance.

Results

RQ_1: What is the socio-economic relevance of multidisciplinary research in public universities in Rivers State?

Table 1: Mean and standard deviation on the socio-economic relevance of multidisciplinary research in public universities in Rivers State

S/N	ITEMS	Male Lecturers (232)		Female Lecturers (105)		Average Mean	Remark
		Mean	Std Dev	Mean	Std Dev		
1	Collaborative research across different faculties increases the likelihood of attracting external funding	2.75	0.64	2.72	0.68	2.74	Agree
2	The integration of diverse academic perspectives leads to the development of patents and innovations that can be commercialized	2.84	0.61	2.79	0.64	2.82	Agree
3	Multidisciplinary research findings are frequently utilized by the government for evidence-based policy formulation	2.69	0.68	2.66	0.72	2.68	Agree
4	Research involving multiple disciplines significantly improves the global ranking and prestige of public universities	2.77	0.63	2.73	0.67	2.75	Agree
5	Students involved in multidisciplinary research	2.71	0.67	2.75	0.66	2.73	Agree

	projects demonstrate higher employability and entrepreneurial skills upon graduation						
	Grand Mean	**2.75**	**0.65**	**2.73**	**0.67**	**2.74**	**Agree**

Table 1 demonstrates that the socio-economic relevance of multidisciplinary research in public universities in Rivers State is significant, as indicated by a Grand Mean of 2.74, resulting in the decision to agree with the items in general. Respondents identified the integration of diverse academic perspectives leading to commercializable patents and innovations ({x} = 2.82) and the improvement of global university rankings and prestige ({x} = 2.75) as the most impactful socio-economic outcomes. Furthermore, there was strong agreement among both male lecturers ({x} = 2.75) and female lecturers ({x} = 2.73) that collaborative research across faculties increases the attraction of external funding ({x} = 2.74), enhances student employability and entrepreneurial skills ({x} = 2.73), and provides the government with essential findings for evidence-based policy formulation ({x} = 2.68). Ultimately, these findings confirm that multidisciplinary collaboration is perceived as a vital driver for both institutional excellence and the broader economic development of the state.

RQ_2: What are the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State?

Table 2: Mean and standard deviation on the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State

S/N	ITEMS	Male Lecturers (232)		Female Lecturers (105)		Average Mean	Remark
		Mean	Std Dev	Mean	Std Dev		
6	Current departmental promotion criteria do not adequately reward or recognize co-authored multidisciplinary publications	2.88	0.61	2.80	0.63	2.84	Agree
7	Lack of centralized, shared laboratory facilities prevents researchers from different departments from working together	2.76	0.64	2.73	0.67	2.75	Agree
8	Insufficient institutional funding specifically dedicated to cross-faculty or	2.85	0.64	2.83	0.65	2.84	Agree

	interdisciplinary pilot projects						
9	Insufficient digital databases makes it difficult to identify potential collaborators in other areas	2.73	0.65	2.75	0.66	2.74	Agree
10	Excessive administrative workloads leave academic staff with little time to engage in complex collaborative studies	2.70	0.67	2.76	0.65	2.73	Agree
	Grand Mean	**2.78**	**0.64**	**2.77**	**0.65**	**2.78**	**Agree**

Table 2 reveals that several critical barriers hinder multidisciplinary research collaboration for sustainable public universities in Rivers State, as evidenced by a Grand Mean of 2.78 and an overall remark to of Agree with the items**.** Respondents identified the current departmental promotion criteria, which do not adequately reward co-authored multidisciplinary publications ({x} = 2.84), and insufficient institutional funding for cross-faculty pilot projects ({x} = 2.84) as the most significant obstacles. Furthermore, there was strong consensus among both male lecturers ({x} = 2.78) and female lecturers ({x} = 2.77) that a lack of centralized laboratory facilities ({x} = 2.75), inadequate digital databases for identifying collaborators ({x} = 2.74), and excessive administrative workloads ({x} = 2.73) collectively stifle the synergy required for high-impact innovation. Ultimately, these findings indicate that systemic and structural challenges within the university environment significantly impede the ability of academic staff to engage in sustainable, collaborative research efforts.

RQ_3: What are the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State?

Table 3: Mean and standard deviation on the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State

S/N	ITEMS	Male Lecturers (232)		Female Lecturers (105)		Average Mean	Remark
		Mean	Std Dev	Mean	Std Dev		
11	Establishment of dedicated Interdisciplinary Research Hubs to facilitate physical interaction between scholars.	2.81	0.63	2.85	0.62	2.83	Agree

12	Creating a specific internal grant scheme that is only accessible to teams composed of collaborative researchers	2.83	0.60	2.79	0.64	2.81	Agree
13	Revision of promotion guidelines to give equal or weighted credit to multidisciplinary collaborative efforts	2.86	0.58	2.91	0.57	2.89	Agree
14	Developing a digital repository that allows researchers to easily search for and connect with colleagues in other disciplines	2.80	0.62	2.75	0.64	2.78	Agree
15	Strengthening partnership agreements with industries to provide real-world problems for multidisciplinary teams to solve	2.90	0.56	2.80	0.62	2.85	Agree
	Grand Mean	**2.84**	**0.60**	**2.82**	**0.62**	**2.83**	**Agree**

Table 3 indicates that several strategic interventions are considered highly effective for promoting multidisciplinary research collaboration in public universities in Rivers State, as evidenced by a Grand Mean of 2.83 and an overall remark of Agree**.** According to the respondents, the most critical strategy is the revision of institutional promotion guidelines to provide equal or weighted credit for collaborative efforts ({x} = 2.89), alongside the strengthening of partnership agreements with industries to align research with real-world economic challenges ({x} = 2.85). Furthermore, there was a strong consensus among both male lecturers ({x} = 2.84) and female lecturers ({x} = 2.82) that the establishment of dedicated interdisciplinary research hubs ({x} = 2.83), the creation of specific internal grant schemes for collaborative teams ({x} = 2.81), and the development of digital repositories for connecting researchers ({x} = 2.78) are essential implementation pathways. Ultimately, these findings suggest that a combination of policy reform, financial incentives, and improved physical and digital infrastructure is required to foster a sustainable culture of shared knowledge within the state's university system.

Test of Hypotheses

HO_1: There is no significant difference between the mean ratings of male and female lecturers on the socio-economic relevance of multidisciplinary research in public universities in Rivers State

Table 4: z-test Analysis of no significant difference between the mean ratings of male and female lecturers on the socio-economic relevance of multidisciplinary research in public universities in Rivers State

Variables	n	Mean	Std Dev	df	z-cal.	z-crit.	Level of Significance	Decision
Male Lecturers	232	2.75	0.65	335	0.26	1.96	0.05	Not Rejected
Female Lecturers	105	2.73	0.67					

Table indicates that the z-test analysis for the first hypothesis results in an estimated z-cal. value of 0.26. Since this value is lower than the z-crit. value of 1.96 at the 0.05 level of significance, the null hypothesis is not rejected, indicating that there is no significant difference between the mean ratings of male lecturers and female lecturers. This result shows that both gender groups share a high level of agreement regarding the socio-economic importance of multidisciplinary collaboration, suggesting that the drive for research commercialization and evidence-based policy is a uniform academic priority across public universities in Rivers State.

HO_2: There is no significant difference between the mean ratings of male and female lecturers on the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State

Table 5: z-test Analysis of no significant difference between the mean ratings of male and female lecturers on the barriers to multidisciplinary research collaboration for sustainable public universities in Rivers State

Variables	n	Mean	Std Dev	df	z-cal.	z-crit.	Level of Significance	Decision
Male Lecturers	232	2.78	0.64	335	0.13	1.96	0.05	Not Rejected
Female Lecturers	105	2.77	0.65					

Table 5 shows that for the second hypothesis, the z-test analysis yielded an estimated z-cal. value of 0.13. Because the z-cal. value is well below the z-crit. threshold of 1.96, the null hypothesis was not rejected, confirming that there is no significant difference in the perceptions of male ({x}=2.78) and female ({x}=2.77) lecturers concerning the barriers to collaboration. This consensus implies that academic staff, regardless of gender, experience identical institutional challenges such as restrictive promotion criteria, inadequate funding, and a lack of centralized research facilities, highlighting that these

obstacles are systemic rather than person-specific.

HO_3: There is no significant difference between the mean ratings of male and female lecturers on the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State

Table 6: z-test Analysis of no significant difference between the mean ratings of male and female lecturers on the strategies for promoting multidisciplinary research collaboration for sustainable public universities in Rivers State

Variables	n	Mean	Std Dev	df	z-cal.	z-crit.	Level of Significance	Decision
Male Lecturers	232	2.84	0.60	335	0.28	1.96	0.05	Not Rejected
Female Lecturers	105	2.82	0.62					

Table 6 indicates that the z-test analysis for the third hypothesis produced an estimated z-cal. value of 0.28. As this value does not exceed the z-crit. value of 1.96, the null hypothesis was not rejected, showing that male lecturers ({x}=2.84) and female lecturers ({x}=2.82) are in agreement regarding the most effective strategies for fostering multidisciplinary work. Both groups prioritize policy reforms in promotion guidelines and the establishment of dedicated research hubs, indicating a collective professional belief in these specific pathways as the most viable means for achieving sustainable research growth.

Discussion of Findings

The study indicated a strong consensus among lecturers that multidisciplinary research is socio-economically relevant. This agreement may have emerged because contemporary academic and economic environments increasingly prioritize innovation-driven development. The relatively high mean scores for items such as commercialization of innovations and improved institutional ranking suggest that lecturers are aware of the global shift toward knowledge economies, where universities are expected to contribute directly to economic growth through patents, startups, and policy influence. Another reason for this finding is the growing pressure on Nigerian public universities to diversify funding sources. With limited government funding, collaborative research across disciplines becomes a strategic pathway to attract international grants and partnerships. This explains why respondents agreed that multidisciplinary collaboration increases external funding opportunities. Additionally, the agreement on student employability reflects the recognition that employers increasingly demand hybrid skills that cut across disciplines, such as combining technology, business, and social sciences. The implication of this finding is that multidisciplinary research can serve as a catalyst for regional economic development by fostering innovation, improving graduate employability, and strengthening university-industry linkages. It also suggests that universities that fail to embrace multidisciplinary approaches may struggle to remain globally competitive. This finding aligns with Said et al. (2025), who reported that higher education significantly contributes to income generation, job

creation, and community development. Both studies reinforce the idea that universities are central to socio-economic transformation. However, while they focused on community-level impacts, the present study extends the discourse by emphasizing internal academic mechanisms such as cross-faculty collaboration that drive those outcomes.

Furthermore the study revealed that respondents agreed that significant barriers hinder multidisciplinary collaboration in the universities. The prominence of issues such as promotion criteria and inadequate funding suggests that institutional structures are not yet aligned with collaborative research culture. One major reason for this result is the traditional discipline-based organization of Nigerian universities, where promotion and recognition systems prioritize individual achievements and single-discipline publications. This discourages collaboration because academics may perceive multidisciplinary work as risky or less rewarding for career advancement. Similarly, insufficient funding for interdisciplinary projects reflects broader financial constraints within public universities, where limited resources are often allocated to established departmental priorities rather than cross-cutting initiatives. The lack of shared facilities and digital databases also points to infrastructural deficiencies. Without centralized laboratories or accessible collaboration platforms, it becomes difficult for researchers from different fields to interact effectively. Furthermore, excessive administrative workload suggests that lecturers are overburdened with teaching and administrative duties, leaving little time for complex collaborative research, which typically requires more coordination and effort.

The implication of these findings is that without structural reforms, the potential benefits of multidisciplinary research may remain unrealized. Universities risk underperforming in innovation output and global competitiveness if these barriers persist. It also indicates that improving collaboration is not merely an individual responsibility but requires systemic institutional change. In comparison with Mukoro and Onyeike (2022), the present study partially diverges. While Mukoro and Onyeike found significant differences in perceptions based on institutional type which were federal and state universities, this study found no significant gender differences in perceptions of barriers. This suggests that although institutional context may shape experiences of collaboration, gender does not appear to be a determining factor. However, both studies agree that structural constraints are a major impediment to effective collaboration.

In a related manner, the study shows strong agreement on strategies for enhancing multidisciplinary collaboration This result likely reflects lecturers' direct experiences with the barriers previously identified, particularly the misalignment of promotion systems and lack of funding. The emphasis on revising promotion guidelines suggests that respondents believe policy reform is the most critical lever for change. When academic reward systems recognize collaborative outputs, researchers are more likely to engage in multidisciplinary work. Similarly, the strong support for industry partnerships indicates an awareness of the need to align research with real-world problems, which can enhance funding opportunities and societal impact.

The recommendation for interdisciplinary research hubs and digital repositories also reflects the need to address physical and technological barriers to collaboration. These strategies are practical responses to the previously identified lack of shared infrastructure and difficulty in identifying collaborators. The implication is that a holistic approach—combining policy reform, financial incentives, and infrastructure development—is necessary to build a sustainable multidisciplinary research culture. Universities that implement these strategies are more likely to achieve innovation-driven growth and improved academic performance. This finding is consistent with Bello and Oyedokun (2025), who found that institutional support mechanisms such as training and professional development enhance research collaboration. Both studies emphasize the importance of institutional backing in fostering collaborative research. However, the present study goes further by highlighting structural reforms such as promotion criteria as a more foundational requirement.

Conclusion

The study concludes that while multidisciplinary research is highly valued for its ability to drive institutional prestige, attract external funding, and foster commercializable innovations, its practice in Rivers State public universities is currently stifled by significant systemic barriers. Academic staff across all genders strongly agree that restrictive departmental promotion criteria, insufficient dedicated funding, and a lack of centralized infrastructure are the primary obstacles to sustainable collaboration. Consequently, the study suggests that fostering a truly collaborative research culture requires a deliberate shift in university policy, specifically the revision of promotion guidelines to reward co-authorship alongside the establishment of interdisciplinary research hubs and stronger industry partnerships to align academic inquiry with real-world socio-economic need

Recommendations

The following are recommendations made based on the findings of the study:

1. University administrators should prioritize collaborative research as an institutional policy that should guide lecturers research activities across all levels.
2. Local and international funders should prioritize funding for joint research as this has potential for higher national and global impact than single authored research activities.
3. Lecturers should be encourages to register and become members of active research networks that will provide them with the opportunity to network with researchers in order areas with which they can engage in collaborative research ventures.

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