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Building Multidisciplinary Research Capacity in Emerging Provincial Universities: Challenges, Collaboration, and Global Lessons for Nepal

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Abstract

Research capacity development is crucial for higher education institutions seeking to address complex societal issues through multidisciplinary approaches. This study focuses on emerging provincial universities in Nepal that face significant structural and institutional constraints hindering research productivity and academic advancement. This study investigated factors affecting multidisciplinary research capacity, highlighting institutional barriers, collaborative practices, and lessons from international settings. A qualitative design was used, following content analysis of semi-structured interview data with four academicians engaged in higher education. Findings show that, despite increased investment, provincial universities are struggling with inadequate research infrastructure, limited funding, a weak research culture, bureaucratic inefficiencies in grant management, and a lack of institutional support. Key determinants identified for research development include institutional governance, organisational capacity, and academic competencies.

This study underscores the importance of interdisciplinary and trans-disciplinary research in addressing current social, economic, and environmental challenges, while recognising the limitations of traditional academic structures. National and international collaborations are crucial for enhancing research capacity through knowledge sharing and innovation, though challenges such as unequal partnership dynamics and limited academic writing skills constrain global research visibility.

Additionally, this study advocates for community-based and participatory research to boost societal relevance and impact. Insights from Indonesia and the Netherlands reveal that institutional autonomy, policy innovation, and flexible curricula are essential for promoting cross-disciplinary collaboration. Ultimately, strengthening research capacity in Nepal requires integrated strategies that include researcher skill development, supportive institutional policies, equitable collaborative networks, and ensuring association between research goals and societal demands.

Keywords: *community-based research, institutional support, international collaboration, multidisciplinary research, Nepal, provincial universities*

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Introduction

Multidisciplinary research is the combination of expert and knowledge from more than one academic discipline working on the same problem Busse et al. (2022). The objective of this study is to understand the perceptions and experiences of academicians regarding the development of multidisciplinary research capacity in emerging provincial universities, including the challenges, collaboration, and global lessons for Nepal. Despite its widespread significance, scientific publication is extremely difficult for researchers in the Global South, especially those working in non-English-speaking environments. These researchers had a 12-fold higher incidence of language-related paper modifications, a 2-3-fold higher frequency of language-related submission rejections, and a longer writing time (Lozano, 2014).

Despite the existence of language editing services, researchers in the Global South frequently cannot access them due to cost and other obstacles (Ramírez-Montoya et al.s, 2025). Along with other strategies to increase authorship representation, capacity building in scientific writing for authors from the Global South is crucial to advancing equality in global health research (Lozano, 2014). The development of research competencies is delayed in many Global South nations because trainees typically encounter research only late in their programmes, often during the thesis stage.

Journal clubs, didactic lectures, organised seminars, and operational research training programs are examples of scientific writing interventions that have consistently demonstrated increases in long-term capacity and research output (Busse et al., 2022). Different projects implemented in the Global South demonstrate that successful training methods rely on deliberate curriculum design, practical experience, and iterative mentor-ship (Zhang et al., 2022).

Formal faculty development initiatives have become prevalent across different academic faculties and organizations, underscoring their significance in academic professions. Many empirical reports indicate growth in the programmes (Qamar, 2022). Emerging provincial universities in Nepal face challenges in cultivating multidisciplinary research despite faculty members' discipline-focused expertise. With increasing investment in higher education across seven provinces, there is a pressing need to explore institutional support mechanisms, including necessary grants and policy adjustments, to foster engagement in collaborative research.

The role of the University Grants Commission (UGC) in funding initiatives comes under scrutiny, as does the inadequacy of current course offerings, including the absence of relevant subjects such as stock market education. The interplay between academic and industry partnerships reveals both challenges and opportunities and draws lessons from successful European research models (Udaya, 2024). Emphasis is placed on community-based research, government involvement, and cross-university collaboration to address human resources and funding challenges faced in countries such as Indonesia, the Netherlands, and Nepal (Sharma & van Dijk, 2022).

Objectives

To formulate a strategic framework for provincial universities in Nepal that integrates multidisciplinary research structures with targeted institutional support mechanisms to enhance global academic knowledge.

Main Research Questions

What are the current efforts of Nepalese provincial universities in developing multidisciplinary research in Nepalese Universities?

What is the current level of support for Nepalese provincial universities from UGC and Nepal's provincial government in developing multidisciplinary research in Nepalese Universities?

How are the structures of Nepalese provincial universities' discipline-based faculties and institutional support to enhance multidisciplinary research in provincial universities?

What are the current challenges for Nepal's emerging provincial universities in collaborating with international universities to develop multidisciplinary research?

Despite being established over two decades ago, this foundational discovery continues to shape contemporary faculty development initiatives. Specifically, it informs strategies designed to sustain educators' professional commitment, scholarly curiosity, and pedagogical innovation, while simultaneously driving institutional and organizational advancement (Johnston, 2019; McLean, Cilliers & Van Wyk, 2008).

Literature Review

A substantial body of literature highlights international research collaboration as a key strategy for establishing world-class universities and for facilitating the benefits of global science exchange (Deem, Mok, & Lucas, 2008). The characteristics and pathways of those universities are evolving, particularly under the influence of competition and the knowledge economy, with world-class status affecting higher education systems worldwide (Zhang et al., 2022).

Defining "world-class university" remains contentious, presenting challenges for policymakers and academic leaders. Essential attributes identified are research excellence, concentration of talent, resource availability, robust governance, and global engagement (Salmi, 2009). Emerging countries are increasingly adopting strategies that emphasise financial investment in research and endeavour for favourable rankings, often influenced by Western systems (Altbach, 2011).

Collaborative initiatives, such as those from Japan and Germany, have enhanced national publication output and academic prestige (Deem et al., 2008). Despite these developments, concerns arise that international collaboration may overshadow local needs, as seen in countries such as Singapore and China, where local contributions risk being sidelined in favour of global agendas (Liu, Moshi & Awuor, 2019), which has led to calls for a more balanced approach that prioritises both local and international interests in policymaking.

The study by Bentounsi and Nazir (2020) explores skill development initiatives through a literature review of four decades of research partnerships between eye care professionals in developing nations and institutions in North America. It outlined the evolution of community-level interventions, starting in the early 1980s in Nepal and India, expanding to Tibetan regions of China and Cambodia by the mid-1990s, and focusing on sub-Saharan Africa in 2001. The research has evolved to consider care quality, equity, and costs, shifting towards a comprehensive approach to eye health that goes beyond just cataract blindness. Recent collaborations under the Global Sight Initiative highlight the progression of critical thinking and scientific methodology in eye care research.

The study by Zhong, Zheng, and Wang (2022) analysed the relationship between transnational research collaboration and university innovation performance in China, covering 576 panel data points from 64 universities between 2009 and 2019. Results revealed a positive correlation between transnational collaboration and innovation performance, with the national key university initiative directly influencing this relationship. The authors suggest the need for further microlevel research and a more open international mindset from policymakers to ensure sustainable development in research and innovation globally.

The study by Heng (2023) examined the university research in Cambodia, which has encountered both developments and challenges, as revealed by interviews with 22 Cambodian academics. This study identifies barriers that hinder the advancement of higher education research, thus obstructing the country's efforts to internationalize and develop into a knowledge-based society, which calls for policy reforms to improve the university research landscape and address the North-South knowledge divide, commending national and institutional support for Cambodian academics to enhance their research engagement.

The study by Rella and Dipierro (2025) explores efficiency in higher education, using Charnes Cooper and Rhodes (1978) definition of efficiency as the conversion of inputs into outputs. It discusses two main methodologies for measuring efficiency: parametric and nonparametric approaches, with a focus on Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA).

DEA evaluates relative efficiency using linear programming, whereas SFA considers inefficiency and errors. The study identifies a gap in research regarding collaboration and innovation, specifically analysing the efficiency of Italian public universities, which compares output-oriented DEA and SFA models while acknowledging variable returns to scale and employing three distinct DEA models based on current expenditure inputs and varying outputs related to research, cooperation, and innovation efforts.

Insights

Research highlights international collaboration to create leading universities and boost global scientific exchange. 'World-class university' features include research quality, talent, and engagement. Emerging nations invest more in research and enndovation to improve rankings. Countries such as Japan and Germany have boosted their academic output through collaboration, yet concerns persist that global goals often overshadow local needs.

Studies show transnational collaboration boosts innovation in China and highlight Cambodian higher education's challenges in internationalization. Research on Italian public universities uses DEA and SFA to assess resource use, addressing gaps in collaboration and innovation research.

Methods

A qualitative approach is useful for understanding human perceptions and experiences of the importance of collaboration, its challenges, and the global growth of educational institutions in Nepal. A thorough grasp of the multidisciplinary research capacity in emerging provincial universities, as well as challenges, collaboration, and global lessons, is necessary for the provincial universities and their expansion of research collaboration, which can be fulfilled by applying content analysis to extract information from semi-structured interview data (Lichtman, 2013; Cohen, Manion & Morrison, 2018).

Using a methodical coding procedure to minimize complexity and identify significant themes and patterns, content analysis is an organized method for organizing, analyzing, and interpreting vast amounts of textual and visual data (Hsieh & Shannon, 2005; Patton, 2002). Data from semi-structured interviews were collected from experienced and high-potential scholars and academicians at the second OCEM international conference, entitled Innovations for a Sustainable Future: Advancing Green Technologies and Multidisciplinary Research. The interviewees were purposively selected because not all academicians were identified as having holistic knowledge of the conference themes (Adhikari, 2022).

This content analysis is based on the study of Adhikari (2022, p. 124), who followed an inductive approach of five steps of content analysis, where the first step is to transcribe recorded electronic data into Word texts, secondly, the denitrification of the key coded based on the research questions, thirdly, recorded the keycode separately, the fourth step is to find subcategories of different codes based on their similarities. The fourth step is to convert the subcategories into main categories. The fifth step is to interpret the main categories that associate to the different perceptions of the interviewees and support their individual statements (see Figure 1).

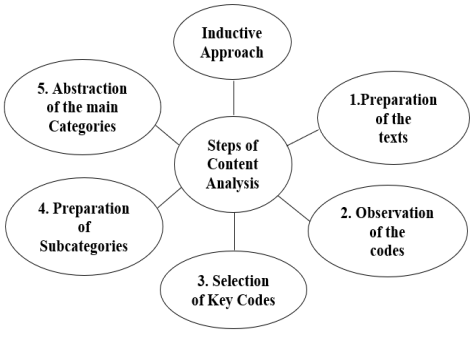

Figure 1. Content Analysis Processes (Adhikari et al., 2026, p.135).

The OCEM Second International Conference's second panel discussion included four interviewees, each of whom received at least three interview questions. The primary focus of the three interview questions was on Nepal's emerging provincial universities, developing sustainable

multidisciplinary research, the structures of discipline-based faculties, institutional support, and collaboration to enhance multidisciplinary research in provincial universities.

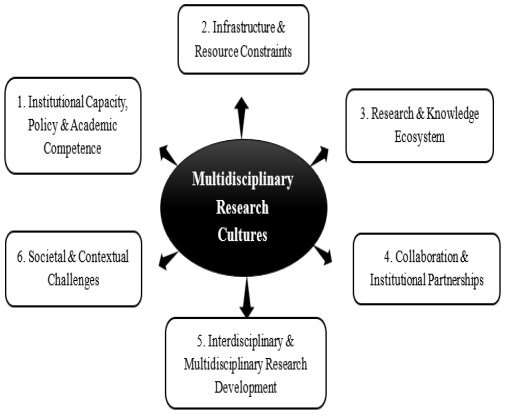

Figure 2: Summary of the Merged Subcategories of the First Interview Data

Results

The initial phase of data analysis yielded thirteen distinct subcategories. After merging them based on their similarity, six categories were institutional capacity, policy, and academic competence, infrastructure and resource constraints, research and knowledge ecosystem, collaboration and institutional partnership, interdisciplinary and multidisciplinary research development, and societal and contextual challenges (see Figure 2).

The first interviewee reported that institutional and legal frameworks, academic capacity and competence, and institutional support are the main issues in enhancing multidisciplinary research in provincial universities in Nepal. He further highlights that institutional support should focus on governance, policies, faculty skills, and academic readiness.

The results further highlight that provincial universities are facing a lack of infrastructure, resources, and workforce capacity, as well as a decline in students' competency levels after graduation. The interviewee noted that the main complexities to improving multidisciplinary research in universities are the lack of physical, financial, and technological resources. He stated.

"First, I would like to share one of the challenges that provincial universities face. What happens? The university is established by law, but it lacks the infrastructure and faculties, and we also expect it to deliver outputs at the same level. Moreover, being academic about where we are and our students' backgrounds does not make sense when issuing the certificate; what matters is the level of competence we provide.

So, in a provincial university, if you do not have resources or workforce, that workforce comes from the disciplines. So, whatever research, whether it is disciplinary, multi-disciplinary, or interdisciplinary, all those researchers are facing problems with this provincial university because we do not have sufficient funds and workforce, so we cannot categorize anyone." (Interviewee - 1)

The same interviewee further disclosed that the university should be able to transfer and create knowledge and solve problems. He stated that provincial universities lack a research culture, innovation, collaboration, and a practical problem-solving orientation. He stated:

"As noted, the problem's complexity has not increased at any level. No single subject can provide a solution to any problem. The job of a university is to do three things. One to transfer knowledge, another to generate knowledge, and another to protect heritage. Doing all three jobs without cooperation is not possible. Madesh University seeks to collaborate with Kathmandu University.

Recently, we have been running a management program in collaboration with Kathmandu University, and all universities are participating because they need to fulfill their requirements. So, one university cannot do anything. Resource and knowledge sharing are continuous processes, and the best things in academia are the knowledge and friendships you can build anywhere. Madesh University is learning from other universities and building relationships with them. That is the only reason we perform well compared to other state universities: from 300 applications, we select 110."

The interviewee further highlights that the traditional interdisciplinary approach, the multidisciplinary approach, and the shift toward an interdisciplinary approach can foster an integrated, collaborative research culture. He further insisted on universities should go beyond individual expertise and adopt an innovative approach. He clearly disclosed his opinion that universities are facing the complexity of cultural and heritage preservation problems, which are combined into societal and contextual challenges. He concludes that a multidisciplinary approach, an interdisciplinary approach, and a shift toward interdisciplinary research underscore the importance of addressing context-specific issues while preserving cultural identity within the research process.

"The categories interdisciplinary approach, multidisciplinary research approach, and shift toward interdisciplinary research are merged into interdisciplinary and multidisciplinary research development, as they collectively emphasise the transition from traditional discipline-based practices to a more integrated and collaborative research culture. This theme highlights the need for universities to move beyond siloed expertise and adopt approaches that encourage cross-disciplinary collaboration and innovation.

Similarly, increasing complexity of problems and cultural and heritage preservation are combined into societal and contextual challenges, as both reflect the influence of real-world complexities and local socio-cultural contexts on shaping research priorities. This category underscores the importance of addressing context-specific issues while preserving cultural identity within the research process."

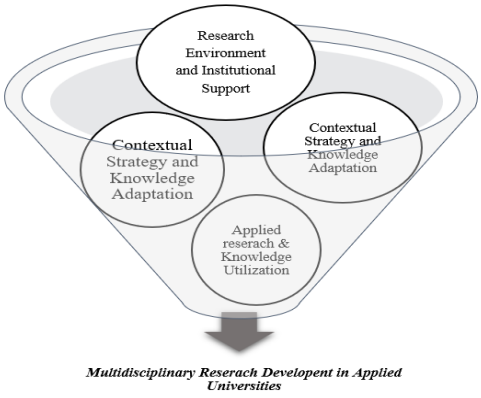

Figure 3: Summary of the Merged Subcategories of the Second Interview Data

The results show eleven subcategories were initially generated. After merging them by similarity, four categories were identified: research and knowledge utilization, contextual strategy and knowledge adaptation, collaboration and innovation ecosystem, and research environment and institutional support (see Figure 3).

The first interviewee emphasised that knowledge application and practice, the role of applied science universities, and the focus on applied research are key aspects of enhancing multidisciplinary research. She further highlights that applied universities should emphasise the practical application of knowledge, enabling the transformation of theoretical concepts into real-world solutions.

The results further highlight that research in applied universities should not be limited to theory development but should focus on transforming theoretical concepts into practical models that students can use for investigation and practice. She stated.

"It is a very good question because bridging knowledge and practice is very important. We need to conduct research, but our goal is not to develop theories; rather, it is to use those theories to build a conceptual model that students can use to examine, investigate, or practice in the field. I think that is one of our main goals as educators at the university."

The same interviewee further disclosed that

research models cannot be directly replicated across different national contexts. She emphasized that each country should analyze its strengths, weaknesses, opportunities, and threats before adopting external practices. The results further highlight that contextual understanding and strategic reflection are essential for effectively adapting research approaches. She stated.

"Every country has its own strength. What we have done cannot simply be replicated in another society. We need to look at our strengths, weaknesses, opportunities, and threats and adapt accordingly."

The next interviewee further highlights that open and collaborative innovation, as well as interdisciplinary collaboration, play a vital role in strengthening research ecosystems. She explained that collaboration among universities allows them to both compete and cooperate by defining their roles and sharing responsibility.

She further emphasised that research environments are highly competitive and funding challenges exist even in developed countries. Institutional support systems, such as research centers and proposal assistance, are essential, while collaborating among individuals from diverse academic backgrounds strengthens multidisciplinary research. She stated:

"In the Netherlands, consortia become very important. Universities cooperate by defining their roles and compete and collaborate. Innovation should be open and collaborative. This society is highly competitive, and everyone has funding problems. However, universities provided strong support systems, including research centers, proposal assistance, and consultancy services. Also working with people from different academic backgrounds helps to strengthen interdisciplinary collaboration."

The results show six subcategories initially. After merging them based on their similarity, two categories were community-centered and participatory research approach, and global collaboration and capacity development. (see Figure 4).

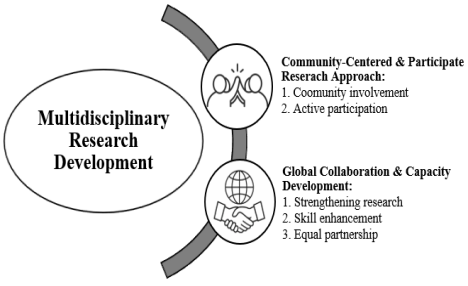

Figure 4: Summary of the Merged Subcategories of the Third Interview Data

The interviewee reported that community-centered research planning and participatory research methods are essential for ensuring that research addresses real community needs. She further highlights that research should begin by understanding the community's needs and involving them from the outset in defining and identifying problems. The results further highlight that participatory approaches, such as participatory action research, are important for engaging communities not only in problem identification but also in implementing research activities.

The interviewee clearly noted that researchers should work together with the community throughout the research process to ensure meaningful outcomes. She stated.

"When planning research, we must start with the community's needs. From the beginning, we involve the community in defining the problem and identifying it together. We use participatory approaches and conduct the research with the community."

The interviewee further disclosed that global collaboration and capacity development play a significant role in strengthening the visibility and impact of research from developing countries. She highlighted that developing countries face various challenges, which create opportunities for collaboration with international researchers. The results further highlight that improving writing skills, meeting international standards, and building confidence in local expertise are essential for gaining recognition. She emphasised that researchers should enhance their competencies, identify their strengths, and collaborate as equal

partners rather than sub-partners.

She stated.

"We live in developing countries, and we often collaborate with researchers from Western countries because they are interested in our challenges. We need to improve our skills, meet international standards, and demonstrate confidence in our expertise so that we can collaborate as partners, not as sub-partners."

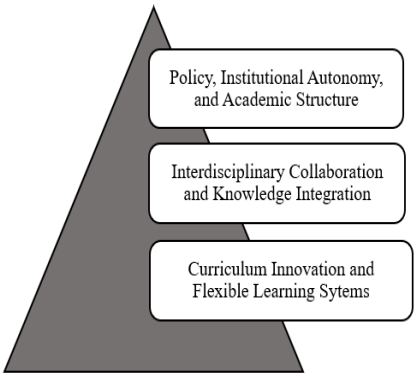

Figure 5: Summary of the Merged Subcategories of the Fourth Interview

The interviewee reported that higher education policy, institutional autonomy, and curriculum and learning initiatives play a crucial role in promoting multidisciplinary research in Indonesia. She further highlights that the Merdeka-Belajar-Kampus Merdeka (MBKM) curriculum encourages cross-disciplinary collaboration by allowing students and faculty from different fields to work together. The results further highlight that institutional autonomy enables universities to establish flexible programs and centers of excellence that are not restricted to a single discipline. The interviewee also emphasized the importance of integrating indigenous knowledge with modern science as a strategic approach for sustainable development. She stated.

"Indonesian higher education policy is centered on the MBKM curriculum, which encourages collaboration across different faculties. Universities have the autonomy to establish centers of excellence and collaborate across departments, integrating indigenous knowledge with modern science."

The same interviewee further disclosed that cross-disciplinary collaboration and knowledge integration are essential for advancing multidisciplinary research. She highlights that universities promote collaboration among different faculties and institutions through research, learning, and academic activities. The results further highlight that centers of excellence serve as platforms for integrating diverse knowledge and fostering interdisciplinary engagement.

The interviewee emphasises that curriculum innovation and flexible learning systems are key to preparing students for multidisciplinary research. She pointed out that curriculum redesign, boundary-less education, and flexible credit systems allow students to engage in learning beyond their primary discipline. She also highlighted the importance of applied learning through industrial internships, which provide students with real-world experience in multidisciplinary environments. The interviewee clearly noted that such approaches enable students to collaborate across disciplines and develop practical skills. She stated.

"The curriculum redesign allows students to take courses across faculties, such as pharmacy students learning big data for health technology. Students can study outside their program and participate in an internship in multidisciplinary environments, which prepares them for real-world challenges."

Discussion

The findings of this study regarding the enhancement of research capability in provincial universities, particularly in the Global South, are closely associated with those of earlier scholars. They also illustrate the specific challenges encountered by Nepal's provincial universities.

Firstly, the results indicate that the primary obstacles to trans-disciplinary research are institutional capability, governance, and resource limitations, which is associated with previous research emphasising the significance of talent

concentration, resource accessibility, and governance frameworks in establishing research-intensive universities (Salmi, 2009; Altbach, 2011). Heng's (2023) analysis from Cambodia corroborates the findings that inadequate infrastructure, funding, and institutional support hinder the cultivation of a robust research culture. However, this study introduces nuance by showing that, even when funding sources (such as UGC) are available, bureaucratic challenges and eligibility requirements disproportionately deter early-career researchers, which has not been sufficiently addressed in earlier research.

Second, the study highlights the crucial role of international and inter-institutional cooperation in boosting research capability. The findings show that cooperation enhances information sharing, creativity, and institutional performance, which is consistent with Deem et al. (2008). The panel discussions make it clear that "no single discipline can resolve complex issues," so working together is not only beneficial but necessary. However, contrary to other global contexts in which international collaboration can hinder local interests, this study illustrates that Nepalese universities are positioned to prioritise increased collaboration, both nationally and internationally, rather than viewing it as a threat (Liu et al., 2019).

The results also underscore the need for researchers in low-income countries to improve their skills and work together as equals rather than as subordinates. This is in line with concerns raised in the literature about unequal relationships.

Third, the results provide compelling evidence that skill development can be facilitated through training, mentoring, and applied learning. Studies such as Busse et al. (2022) have discovered that structured interventions, such as mentor-ship programs and writing instruction, can enhance research productivity. This study demonstrates that insufficient skills, particularly in academic writing and adherence to international standards, constitute a significant barrier to global visibility. The emphasis on skill enhancement and confidence associates with Lozano's (2013, 2014) examination of the challenges encountered by researchers who are non-native English speakers. However, by explicitly linking skill development to international collaboration and recognition, this study enriches the discourse.

Consequently, enhancing capacity is both a technical and strategic imperative for equitable participation in international academia. Fourth, the study contributes to the growing discussion of research methods that draw on more than one field or discipline. The results support the idea that modern research problems need knowledge systems that work together. The findings also show that new approaches to teaching, such as flexible credit systems and learning across faculties, are important for multidisciplinary research. These results are in line with what is done in other countries. For example, Indonesia's MBKM curriculum demonstrates how policy and curricular changes can help people from different fields collaborate.

Fifth, the importance of contextualisation and local relevance emerges as a central theme. While global literature often promotes the adoption of international models, this study corroborates the necessity of customising research methodologies to particular local contexts. The emphasis on SWOT analysis and context-sensitive methods addresses the concerns raised by Liu et al. (2019) about the dominance of Western models. Furthermore, the study highlights the significance of community-based and participatory research, which, although less recognised in conventional higher education literature, is increasingly vital for ensuring that research is impactful and beneficial to society.

The findings reveal a significant conflict between conducting research for career advancement and for societal benefit. This study contributes to the literature by indicating that motivation and research culture are as critical as structural factors. While previous research has primarily focused on institutional and policy-level determinants, this study emphasizes the need to cultivate trust among researchers, society, and government to ensure that research promotes national development.

Insights

The findings provide novel insights into bureaucratic impediments, research motivation,

and the importance of contextual and community-focused methodologies, while also validating a substantial portion of the existing literature on research capacity, collaboration, and institutional advancement.

Conclusion

The objective of this study was to understand the perceptions and experiences of universities and other academicians about the current issues of building multidisciplinary research capacity in emerging provincial universities: challenges, collaboration, and global lessons for Nepal. National and international cooperation between universities can be one strategy to improve multidisciplinary research at provincial universities in Nepal. But issues of funding. Grants, resources, and training and development are current hurdles for provincial universities in Nepal. The findings reveal a significant conflict between conducting research for career advancement and for societal benefit. This study is based on data from a panel discussion, which could threaten the generalisability of the results in similar contexts.

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