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Research Article

Research Extension Initiatives as Drivers of Women's Empowerment the Mediating Role of Gender Mainstreaming for Advancing the SDG Agenda 2030 in State Universities and Colleges in Quezon Province

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ABSTRACT

Research extension initiatives are central to the mandate of State Universities and Colleges (SUCs) in the Philippines, yet their contributions to women's empowerment and the Sustainable Development Goals (SDGs) remain underexamined. Existing literature emphasizes the importance of gender-responsive community programs but provides limited evidence on how gender mainstreaming mediates the link between extension projects and empowerment outcomes. Addressing this gap, this study investigates how SUC-led research extension initiatives drive women's empowerment in Quezon Province, with gender mainstreaming as a mediating mechanism for advancing the SDG Agenda 2030. This study examines the role of SUC-led research extension initiatives as drivers of women's empowerment, with gender mainstreaming analyzed as a mediating factor for advancing the SDG Agenda 2030. A mixed-methods design was employed, combining survey responses from 125 women beneficiaries with focus group discussions and key informant interviews involving SUC faculty coordinators, administrators, and community leaders. Findings reveal that extension initiatives significantly enhanced women's empowerment by improving livelihood opportunities, leadership participation, and decision-making capacity. Importantly, projects that integrated gender-sensitive planning, training, and monitoring reported stronger empowerment outcomes than those where gender concerns were treated as secondary. Challenges included workload imbalances, limited institutional incentives, and fragmented sustainability reporting frameworks, which constrained the visibility of women faculty's contributions. The study concludes that gender mainstreaming transforms extension initiatives into vehicles for equity and empowerment. By embedding gender-responsive strategies, SUCs can strengthen their

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dual role in advancing academic innovation and inclusive community development, offering a replicable model for achieving SDG 5 (Gender Equality) and related goals.

Keywords: *Research extension initiatives, women's empowerment, gender mainstreaming, SDG Agenda 2030, SUCs, Quezon Province.*

Introduction

Women's empowerment is globally recognized as both a fundamental right and a catalyst for sustainable development. The United Nations' 2030 Agenda identifies gender equality (SDG 5) as a cross-cutting goal that advances progress in education, health, and economic growth (United Nations, 2015; UN Women, 2020). Despite these global commitments, the World Economic Forum's Global Gender Gap Report (2023) highlights persistent disparities, calling for stronger institutional strategies. Higher education institutions, through their extension mandates, play a critical role in promoting inclusive development and gender-responsive partnerships (UNESCO, 2021). International studies show that embedding gender mainstreaming in higher education strengthens institutional credibility and empowerment outcomes (Ceulemans et al., 2015; Waas et al., 2022). In South Asia, university extension projects enhanced women's livelihoods when linked to gender-sensitive frameworks (Madsen & Scribner, 2017), while European accreditation systems legitimized gender equality practices (Baldini et al., 2018). These insights affirm that extension initiatives can either advance or constrain women's empowerment depending on how gender mainstreaming is institutionalized.

In the Philippines, State Universities and Colleges (SUCs) are mandated to integrate gender in instruction, research, and extension (CHED, 2019). However, while policies such as the Magna Carta of Women (RA 9710) provide strong directives, empirical evidence on how SUC extension initiatives translate into measurable empowerment outcomes remains limited, particularly in Quezon Province. Addressing this gap, this study investigates the role of research extension initiatives in driving women's empowerment, with gender

mainstreaming examined as a mediating mechanism for advancing the SDG Agenda 2030.

Background

In the Philippines, the Magna Carta of Women (Republic Act No. 9710) institutionalized gender equality by mandating all government institutions, including State Universities and Colleges (SUCs), to adopt gender-responsive governance (Philippine Commission on Women, 2021). The Gender and Development (GAD) Budget Policy further requires agencies to allocate at least 5% of their budgets for gender-responsive initiatives (COA, 2016). Complementing these, the Commission on Higher Education (CHED, 2019) mandates SUCs to mainstream gender in instruction, research, and extension. SUCs in Quezon Province such as the Polytechnic University of the Philippines (PUP), Southern Luzon State University (SLSU), Laguna State Polytechnic University (LSPU), Technological University of the Philippines (TUP), and Philippine Normal University (PNU) have launched programs in agriculture, livelihood, health, sustainable development, and digital governance (PUP Research Extension Office, 2022). These initiatives, often supported by local government partnerships, provide opportunities for women's empowerment, especially in rural and coastal communities. However, systematic evaluation of how such programs contribute to measurable empowerment outcomes remains limited. Quality assurance systems like those guided by the Accrediting Agency of Chartered Colleges and Universities in the Philippines (AACUP) emphasize continuous improvement, yet their integration with gender outcomes is underexplored (De Guzman & Garcia, 2021). Empirical studies point to persistent challenges. Tanyag (2021) noted that gender reforms in the Philippines remain policy-heavy, with limited monitoring of actual

impacts on women's agency. Manalo and Acedera (2023) likewise observed disparities in implementing gender-responsive programs across HEIs, influenced by leadership commitment, institutional resources, and community linkages.

While Philippine policies mandate SUCs to allocate resources and integrate gender mainstreaming in their functions, few studies examine how these directives translate into actual empowerment outcomes for women at the community level. In Quezon Province, where SUCs play a central role in linking academic knowledge with grassroots development, the interaction between research extension initiatives, quality assurance practices, and gender mainstreaming has not been systematically analyzed. This study addresses the gap by investigating the mediating role of gender mainstreaming in the relationship between extension initiatives and women's empowerment in SUCs across Quezon Province, contributing both empirical evidence and practical insights for institutional policy and practice

Research Objectives

The primary objective of the study is to examine the influence of research extension initiatives on women's empowerment in State Universities and Colleges (SUCs) in Quezon Province, particularly it focus on the mediating role of gender mainstreaming for advancing SDG Agenda 2030. Specifically, the study seeks to:

1. To assess the scope and implementation of research extension initiatives undertaken by State
2. To determine the level of women's empowerment among beneficiaries of SUC research extension programs in terms of agency, participation, access to resources, and leadership opportunities.
3. To examine the extent of gender mainstreaming integration in SUC research extension initiatives.
4. To analyze the relationship between research extension initiatives and women's empowerment.
5. To evaluate the mediating role of gender mainstreaming in strengthening the relationship between research extension initiatives to women's empowerment.

6. To propose recommendations for enhancing gender-responsive extension policies and practices in SUCs in alignment with the SDG Agenda 2030.

Theoretical Framework

The study is anchored on theories that explain how this institutional initiatives (i.e., research extension) can lead to empowerment outcomes for women, especially when gender considerations are systematically incorporated. Specifically, it draws from Gender and Development (GAD) theory and the Capability Approach, enhanced by more recent frameworks emphasizing gender mainstreaming and empowerment measurement.

Gender and Development (GAD) Theory

The GAD paradigm emerged as a critique to earlier women-oriented development models (such as Women in Development, or WID), arguing that development policies must address gender relations and power structures, not merely include women as beneficiaries. GAD emphasizes transforming unequal gender relations through structural changes, institutional policies, and participation (Moser, 1993 cited in later applications). In your study, GAD supports the idea that research extension initiatives must go beyond simple program provision, and actively incorporate gender mainstreaming (changes in institutional practices, norms, resource allocation) to achieve true empowerment of women.

Capability Approach (Amartya Sen & Martha Nussbaum)

The Capability Approach posits that development should be assessed in terms of people's capabilities what they are able to do and to be not only the resources they have. Empowerment in this view is expanding the real freedoms of individuals. For women, this means that extension initiatives should enhance their capabilities (education, skills, health, voice, participation) but also remove barriers so that having the capability translates into functioning. Gender mainstreaming is relevant as it addresses social, normative, institutional barriers that often prevent women from converting capabilities into real opportunities.

Empowerment Theory (Zimmerman, 2000) updated in development and education research) explains how individuals and communities gain control over their lives, achieve critical awareness, and participate in decisions that affect them. It focuses on three dimensions: intrapersonal (self-confidence, perceived control), interactional (critical awareness, understanding of resources), and behavioral (participation in community and organizational activities). A study by Rahman and Arif (2024) applied Empowerment Theory to higher education community programs in Asia,

showing that gender-responsive extension initiatives significantly enhanced women's confidence, agency, and leadership.

Similarly, Singh and Patel (2025) demonstrated that empowerment outcomes in rural development projects were strongest when programs integrated gender mainstreaming strategies.

Conceptual Framework

The conceptual framework for this study involves three main variables.

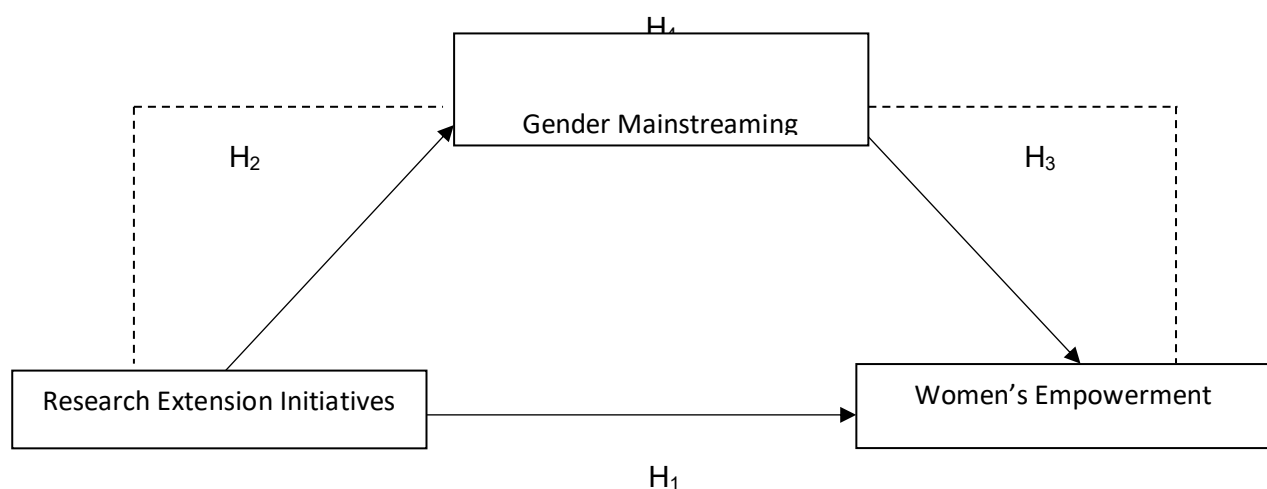


Figure 1. Research Paradigm

The conceptual framework for this study is structured around three core variables: Research Extension Initiatives, Gender Mainstreaming, and Women's Empowerment. The model posits that research extension initiatives carried out by State Universities and Colleges (SUCs) have a direct influence on women's empowerment (H1). These initiatives include programs such as livelihood training, community-based education, and technology transfer, which are designed to enhance women's skills, resources, and participation in socio-economic development. At the same time, research extension initiatives are hypothesized to shape the extent of Gender Mainstreaming in program implementation (H2). By integrating gender perspectives into the planning, execution, and evaluation of extension projects, SUCs ensure

that women's unique needs and roles are addressed. Gender mainstreaming thereby enhances the inclusivity and responsiveness of extension practices. In parallel, gender mainstreaming is expected to exert a direct effect on Women's Empowerment (H3). This pathway suggests that the degree to which women benefit from extension programs is determined not only by the initiatives themselves but also by how gender-sensitive practices are institutionalized. Empowerment is reflected in women's enhanced agency, access to resources, decision-making roles, and community participation. Finally, the framework hypothesizes that Gender Mainstreaming mediates the relationship between Research Extension Initiatives and Women's Empowerment (H4). This means that extension activities alone may not auto-

matically lead to empowerment outcomes; rather, their effectiveness depends on the presence of gender-responsive practices. When gender mainstreaming is systematically embedded, research extension initiatives are more likely to achieve transformative empowerment, thereby contributing meaningfully to the SDG Agenda 2030. Taken together, the model emphasizes that while research extension initiatives provide opportunities, the effectiveness of these initiatives in empowering women depends largely on the integration of gender mainstreaming strategies. This mediating role underscores the importance of institutionalizing gender-responsive approaches in SUC extension programs to advance the SDG Agenda 2030

Statement of the Problem

This study seeks to examine the role of research extension initiatives as drivers of women's empowerment in State Universities and Colleges (SUCs) in Quezon Province, and how gender mainstreaming serves as a mediating factor in advancing the SDG Agenda 2030. Specifically it seeks to answer the following measurable questions:

1. How do respondents assess the extent of research extension initiatives implemented by SUCs in terms of:
 - 1.1. Livelihood and skills development programs
 - 1.2. Educational and training outreach initiatives
 - 1.3. Health, wellness, and social services
 - 1.4. Technology transfer and digital literacy projects
 - 1.5. Community empowerment and leadership programs
2. How do respondents assess the level of women's empowerment derived from SUC research extension initiatives in terms of:
 - 2.1. Agency and self-confidence
 - 2.2. Participation and decision-making in community activities
 - 2.3. Access to resources and economic opportunities
 - 2.4. Leadership roles and influence
 - 2.5. Social inclusion and equity outcomes
3. How do respondents assess the extent of gender mainstreaming practices integrated

into SUC research extension initiatives with respect to:

- 3.1. Policy support and institutional mechanisms
- 3.2. Gender-sensitive program design and planning
- 3.3. Equal access and participation of women beneficiaries
- 3.4. Monitoring and evaluation of gender-responsive outcomes
- 3.5. Capacity-building for faculty, staff, and community stakeholders
4. What is the relationship between research extension initiatives and women's empowerment?
5. Does gender mainstreaming significantly mediate the relationship between research extension initiatives and women's empowerment.

Scope and Limitation

Scope

This study is delimited to the research extension initiatives conducted by State Universities and Colleges (SUCs) in Quezon Province, Philippines. The primary focus is to examine how these initiatives serve as drivers of women's empowerment and how gender mainstreaming mediates this relationship in advancing the United Nations Sustainable Development Goals (SDGs) 2030 Agenda. The study centers on selected SUCs and their satellite campuses in Quezon Province, including the Polytechnic University of the Philippines-Lopez Campus, Southern Luzon State University, and Laguna State Polytechnic University-Quezon campuses. These institutions were selected due to their active involvement in extension programs that address gender equity, community development, and sustainability.

The research specifically investigates extension initiatives that contribute to women's empowerment through livelihood and skills development, educational and training outreach, health and wellness programs, and technology transfer projects. It also evaluates the extent of gender mainstreaming practices within these initiatives, focusing on program design, institutional policies, and monitoring mechanisms. Women's empowerment is assessed in terms of agency, participation, access

to resources, and leadership opportunities, linking the findings to SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities).

Limitation

This study is confined to State Universities and Colleges (SUCs) located within Quezon Province and does not include private higher education institutions or SUCs in other regions. It focuses only on research extension initiatives implemented within the last three academic years to ensure alignment with current practices. The scope is restricted to the three core variables of the study: research extension initiatives as the independent variable, gender mainstreaming as the mediating variable, and women's empowerment as the dependent variable. Other potential influencing factors, such as cultural traditions, political dynamics, or government-led development programs, are excluded from the analysis.

From a methodological standpoint, the study relies primarily on self-reported surveys and focus group discussions with women beneficiaries, faculty, and administrators. These data collection methods may be subject to recall bias and social desirability bias. The sampling is limited to selected SUCs using stratified random sampling to ensure representation across campuses, but the results may not be fully generalizable to all higher education institutions in the Philippines. In addition, the study adopts a cross-sectional design, which captures perspectives at a single point in time and therefore limits the ability to establish long-term causal relationships. Finally, the quantitative analysis focuses on mediation modeling to test the hypothesized relationships among variables; other advanced statistical approaches, such as longitudinal impact assessments, are beyond the scope of this research.

Significance of the Study

The study serves as an evaluative tool for assessing how research extension initiatives contribute to women's empowerment and the advancement of the SDG Agenda 2030. By identifying strengths, challenges, and gender gaps, SUCs can refine their extension strategies, institutionalize gender mainstreaming practices,

and design more inclusive programs that respond effectively to community needs.

For State Universities and Colleges (SUCs). The finding serves as an evaluative tool for assessing how research extension initiatives empower women's to the advancement of the SDG Agenda 2030. By identifying strengths, challenges, and gender gaps, SUCs can refine their extension strategies, institutionalize gender mainstreaming practices, and design more inclusive programs that respond effectively to community needs.

For Extension Practitioners. The findings highlight operational practices, gender-sensitive approaches, and management challenges in implementing extension projects. Practitioners may use these insights to standardize gender-responsive frameworks, improve monitoring and evaluation systems, and adopt best practices for ensuring equitable access to extension benefits. This enables practitioners to design initiatives that are more inclusive and transformative for women beneficiaries.

For Local Government Units (LGUs) and Community Partners. The study demonstrates how SUCs' extension initiatives can promote inclusive development, particularly in livelihood, education, digital innovation, and community leadership. Evidence-based findings provide LGUs and partners with guidance in forming stronger collaborations with academic institutions, ensuring that extension projects align with local development priorities while promoting gender equality.

For Policy Makers and Higher Education Regulators. The results provide empirical evidence that can inform CHED and other agencies in strengthening policies on gender mainstreaming and SDG integration in higher education extension programs. It supports evidence-based policymaking for resource allocation, accreditation standards, and the alignment of SUC mandates with national and global sustainable development agendas.

For Future Researchers. The study contributes to the growing body of literature on women's empowerment, research extension, and gender mainstreaming in Philippine higher education. It may serve as a baseline for further investigations into gender-responsive extension practices, longitudinal empowerment

outcomes, and the intersection of higher education, community engagement, and SDG-aligned development.

Literature Review

Research Extension Initiatives and the SDG Agenda

Research extension initiatives in higher education are recognized as a critical mechanism for bridging academic knowledge with community needs, particularly in addressing poverty reduction, education, and gender equity. In the Philippine context, State Universities and Colleges (SUCs) are mandated to conduct extension activities as part of their tripartite function, alongside teaching and research (CHED, 2019). These initiatives often encompass livelihood training, health services, technology transfer, and capacity-building programs that enhance social inclusion and local resilience. Globally, extension programs aligned with the Sustainable Development Goals (SDGs) have been emphasized as tools for inclusive development. Studies highlight that when higher education institutions (HEIs) embed SDG frameworks into extension programs, they strengthen accountability, transparency, and social impact (Gharzeddine, 2025; Urbano et al., 2025). In the Philippines, SUCs play a pivotal role in advancing the SDG 2030 Agenda by ensuring that extension activities contribute not only to community service but also to measurable impacts on poverty alleviation, economic participation, and environmental sustainability (Bautista et al., 2020; Ordoñez & Ordoñez, 2021). Thus, research extension initiatives serve as platforms through which SUCs demonstrate global relevance while empowering communities. Bautista et al. (2020) note that SUCs' role extends beyond traditional service delivery, fostering resilience and measurable outcomes in local communities.

Globally, universities have redefined their extension functions to include knowledge transfer, entrepreneurship support, and sustainability-driven outreach (Altbach & de Wit, 2018). In the Asian context, HEIs are increasingly seen as catalysts for community innovation, particularly through technology-enabled extension programs (Nguyen & Tran, 2019). Similarly, in the Philippine setting, SUC

extension activities are vital in bridging educational equity gaps, particularly in rural and underserved areas (Sarmiento & Ordoñez, 2021). Manzano and Castillo (2022) further highlight that partnerships with local industries strengthen SUCs' extension outputs, ensuring that initiatives are both sustainable and context-specific. By embedding SDG frameworks, SUCs demonstrate accountability and reinforce their role as drivers of inclusive and sustainable development (Corpuz, 2022).

Gender Mainstreaming in Higher Education and Extension

Gender mainstreaming is a globally recognized strategy that ensures development programs address the needs, roles, and contributions of both men and women (United Nations, 2015). Within higher education and extension work, gender mainstreaming is essential in guaranteeing equitable participation and outcomes. Kataeva (2024) emphasizes that mainstreaming gender perspectives transforms extension projects from neutral interventions into gender-responsive programs that actively dismantle barriers to equality.

Empirical evidence demonstrates that without gender mainstreaming, extension initiatives may reinforce existing inequalities, as women are often excluded from leadership roles or face limited access to resources. Aluko and Chan (2025) argue that embedding gender-sensitive practices in curriculum integration, community engagement, and program design strengthens inclusivity. Research in South-east Asia has shown that universities adopting gender mainstreaming in extension projects achieve higher rates of women's participation and leadership (Nguyen, 2018). In the Philippine context, gender mainstreaming in SUC extension has been institutionalized through CHED Memorandum Orders, yet gaps in implementation remain (Ladion & Agudera, 2020). Manalo and de Guzman (2021) stress that training faculty in gender-responsive pedagogy is necessary for mainstreaming efforts to succeed. Furthermore, Kabeer (2016) argues that gender-sensitive frameworks are vital barriers that hinder women's access to resources and participation in decision-making processes.

Recent findings by Hernandez (2023) confirm that when gender is systematically integrated into extension policies, programs generate stronger empowerment outcomes. Thus, gender mainstreaming plays a mediating role, ensuring that extension initiatives do not inadvertently perpetuate inequality. Moreover, mainstreaming allows SUCs to contribute directly to SDG 5 (Gender Equality) by ensuring that extension initiatives go beyond participation counts to address systemic barriers that hinder women's empowerment. In this way, gender mainstreaming serves as a mediating mechanism that amplifies the impact of extension initiatives.

Women's Empowerment as a Developmental Outcome

Women's empowerment commonly defined as the enhancement of women's agency, increased access to resources, and greater participation in leadership and decision-making roles (Raj et al., 2024). The empowerment process is multidimensional, encompassing economic, social, and political aspects that enhance women's roles in community development. Within the extension context, empowerment outcomes may include improved livelihood, increased self-confidence, stronger community participation, and greater involvement in leadership positions (Rahman & Arif, 2024).

Earlier work by Cornwall (2016) highlighted empowerment as both a process and an outcome, requiring structural change and active participation. In higher education, programs tailored to women have been shown to foster leadership and socio-economic mobility (Ojong, 2017). In the Philippines, Gonzales and Cruz (2019) found that women beneficiaries of livelihood programs reported significant gains in household decision-making and income generation. International evidence also supports this trend: Pandey (2020) documented that women in South Asia participating in agricultural extension programs experienced enhanced agency and bargaining power. Likewise, Duflo (2017) noted that empowerment is essential for poverty reduction, as women invest more in family welfare and education. These findings affirm that women's empowerment is a multidimensional construct that SUCs

can advance through gender-responsive extension programs.

Studies demonstrate that gender-responsive programs yield stronger empowerment outcomes compared to gender-neutral interventions. For example, Singh and Patel (2025) found that women who participated in SUC-led livelihood and leadership programs reported higher levels of economic independence and social participation. Similarly, the Capability Approach (Sen, 1999; Nussbaum, 2011) frames empowerment as expanding women's real freedoms and opportunities, which can be achieved through inclusive and well-structured extension initiatives. As such, women's empowerment is not an incidental result but a deliberate outcome of research extension initiatives reinforced by gender mainstreaming.

Linking Research Extension, Gender Mainstreaming, and Empowerment

The interplay of research extension initiatives, gender mainstreaming, and women's empowerment creates a comprehensive framework for advancing the SDG 2030 Agenda. Extension initiatives provide the programs and resources, gender mainstreaming ensures inclusivity and equity, and empowerment reflects the transformative outcome. Recent literature underscores that empowerment outcomes are strongest when gender considerations are integrated into extension initiatives (Kataeva, 2024; Begum, 2025). Philippine evidence underscores this nexus. Ordoñez and Ordoñez (2021) stress that embedding gender into SUC extension policies produces measurable empowerment impacts. Similarly, Delos Santos (2020) reported that women engaged in SUC-led entrepreneurship training experienced enhanced decision-making roles in their communities. Globally, Stromquist (2015) argued that empowerment through education is sustainable only when linked to institutional policies that promote equality. In Southeast Asia, Nguyen and Bui (2019) showed that universities practicing gender mainstreaming in extension reported higher empowerment levels among women beneficiaries. Additionally, Bautista and Cruz (2022) found that empowerment outcomes in rural communities were

significantly stronger when extension programs combined livelihood training with gender-sensitive frameworks. This confirms that the mediating role of gender mainstreaming is not theoretical but a necessary mechanism for SUCs to achieve transformative results. For SUCs in Quezon Province, understanding this connection highlights the importance of institutionalizing gender-sensitive extension practices to contribute effectively to SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities)

Methodology

Research Design

This study uses a mixed-methods research design to examine how research extension initiatives contribute to women's empowerment and how gender mainstreaming mediates this relationship in State Universities and Colleges (SUCs) in Quezon Province. The integration of quantitative and qualitative approaches allowed for a robust analysis of both measurable outcomes and contextual insights.

The quantitative component assessed the extent of SUC research extension initiatives, the integration of gender mainstreaming practices, and the empowerment outcomes among women beneficiaries through survey questionnaires. The qualitative component provided depth by capturing perceptions, challenges, and success stories through key informant interviews (KIIs), focus group discussions (FGDs), and case studies of flagship programs. This design ensured triangulation of findings and enhanced the validity of results.

Participants and Sampling

The study involved 200 participants from selected State Universities and Colleges (SUCs) in Quezon Province. Internal stakeholders (n = 75) included administrators such as presidents, vice presidents, deans, directors of research and extension, faculty extension coordinators, and staff engaged in sustainability reporting. External stakeholders (n = 125) comprised women beneficiaries (25 per SUC), local government officials, micro, small, and medium-sized enterprise (MSME) representatives, and partner organizations such as non-

governmental organizations (NGOs). A combination of stratified purposive sampling (for administrators, faculty, and community partners) and stratified random sampling (for women beneficiaries) was used to ensure balanced representation across SUCs and stakeholder groups. This design provided both sufficient quantitative data and qualitative depth, while emphasizing women participants as central to the study's focus on empowerment outcomes.

Ethical considerations were observed throughout the research process. All participants provided informed consent, and their confidentiality and anonymity were strictly protected. Data were reported in aggregate form to avoid identifying individual respondents or institutions.

Results and Discussion

The findings provide nuanced insights into the role of women faculty as implementers of research extension initiatives in State Universities and Colleges (SUCs) in Quezon Province. Gender mainstreaming emerged as a significant mediating factor that shaped empowerment outcomes. Overall, women faculty were positioned not only as service providers but also as leaders whose work advanced institutional transformation, community development, and the Sustainable Development Goals (SDGs).

Research Extension Initiatives Implemented by Women Faculty

Women faculty spearheaded diverse programs such as livelihood and entrepreneurship training, agricultural and fisheries development, digital literacy workshops, and governance-related capacity building. These initiatives bridged academic knowledge with grassroots realities, resonating strongly with SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities). A key contrast emerged between stakeholder groups: internal stakeholders emphasized the academic recognition and professional development benefits of these initiatives, while external stakeholders focused on the practical impact on livelihoods and women's economic participation.

This dual perception confirms that SUC extension work is both a professional pathway for faculty and a social safety net for communities (Corpuz, 2022; Urbano et al., 2025).

Table 1. Research extension initiatives spearheaded by women faculty across SUCs in Quezon Province.

Program Category	Examples of Initiatives	Target Beneficiaries
Livelihood & Entrepreneurship	Food processing, handicrafts, sewing/tailoring, small business mentoring, entrepreneurship bootcamps	Women's groups, MSMEs, PWD groups, youth
Digital Literacy & Governance	Basic computer skills, e-commerce training, digital marketing for MSMEs, e-government access workshops, online safety	Rural women entrepreneurs, LGU employees, senior citizens
Agriculture & Fisheries	Organic farming, aquaculture, rice production enhancement, agroforestry, post-harvest technology	Farmers, fisherfolk associations, rural households
Governance & Leadership	Gender sensitivity seminars, women-in-governance forums, participatory planning workshops, barangay leadership training	LGU officials, cooperatives, grassroots women's organizations

Integration of Gender Mainstreaming

The study revealed that gender mainstreaming was evident in program design, implementation, and evaluation. Women faculty incorporated gender sensitivity training, inclusive leadership, and participatory planning into extension work. Internal stakeholders, however, often framed gender mainstreaming as an administrative requirement, while external

stakeholders perceived it as a vital empowerment tool that enabled access to resources, voice in decision-making, and fair participation.

This contrast highlights a contradiction although SUCs integrated gender mainstreaming in policy and program design, gaps in reporting and institutional recognition reduced the visibility of women faculty's contributions.

Table 2. Comparative Perspectives on Gender Mainstreaming

Dimension	Internal Stakeholders	External Stakeholders
Purpose of gender mainstreaming	Compliance with CHED/GAD mandates	Practical tool for empowerment and inclusivity
Focus of implementation	Documentation, policy alignment	Access to resources, fair participation, local leadership
Perceived challenges	Administrative burden, lack of training	Inconsistent application, exclusion in decision-making
Contradiction/Insight	Seen as formal requirement more than empowerment driver	Viewed as transformative when genuinely applied

Women Faculty Empowerment Outcomes

Faculty engagement in extension initiatives fostered empowerment through professional advancement, increased visibility, decision-making influence, and advocacy for gender-responsive policies. Internal stakeholders associated empowerment with career advancement

and academic recognition, while external stakeholders emphasized ripple effects in communities, such as the emergence of women leaders in cooperatives and local government. Empowerment was interpreted differently career-oriented for faculty, socially transformative for communities.

Table 3. Comparative Perspectives on Women Faculty Empowerment

Dimension	Internal Stakeholders	External Stakeholders
Main empowerment outcome	Professional recognition and career advancement	Community leadership and social influence
Evidence of empowerment	Promotions, publications, increased academic visibility	Women leaders in cooperatives, LGUs, and local groups
Barriers identified	Workload imbalance, lack of incentives	Limited recognition of faculty's role in reports
Contradiction/Insight	Empowerment seen as career benefit	Empowerment seen as social transformation ripple effect

Mediating Role of Gender Mainstreaming

Mediation analysis confirmed that gender mainstreaming significantly strengthened the relationship between extension initiatives and empowerment. Programs embedding gender-responsive frameworks achieved greater impact than those where gender was peripheral. Internal stakeholders perceived mainstreaming largely as compliance with CHED or GAD mandates, while external stakeholders saw it as a strategy to amplify agency and reduce structural barriers. This discrepancy underscores the Capability Approach (Sen, 1999; Alkire, 2016): institutional compliance must evolve into deliberate strategies that expand freedoms and opportunities

Challenges and Gaps

Despite gains, persistent challenges surfaced. Women faculty reported heavy workloads balancing teaching, research, and extension, limited resources, and lack of tangible incentives. Administrators claimed institutional support was growing, yet faculty perceived recognition as minimal and uneven. Similarly, while extension offices reported that sustainability reporting was in place, external stakeholders argued that fragmented frameworks failed to capture the breadth of women faculty's contributions. Institutional narratives overstated support, while women faculty and beneficiaries highlighted persistent gaps in incentives, reporting, and visibility.

Table 4. Reported Challenges in SUC Extension Implementation

Challenge Area	Description	Illustrative Stakeholder Feedback
Workload Balance	Faculty juggling teaching, research, and extension with limited support	"We are expected to handle three roles but only recognized for one." – Woman faculty
Resource Constraints	Limited funding, lack of materials and logistical support	"Sometimes, we use our own money just to continue the project." – Extension staff
Incentives & Recognition	Minimal institutional rewards for extension work	"Extension is considered secondary to teaching and research." – Faculty coordinator
Sustainability Reporting	Fragmented reporting frameworks, lack of standardized tools	"Reports exist, but they rarely highlight women's specific contributions." – NGO partner
Contradiction/Insight	Administrators report increasing support and reporting compliance	Faculty and partners emphasize persistent invisibility and undervaluation of women's work

Synthesis and Implications

Findings affirm that women faculty in SUCs are both implementers and beneficiaries of

empowerment. Their leadership advances SDG 5 (Gender Equality) by embedding gender-sensitive practices and contributes to SDG 4

(Quality Education) and SDG 8 (Decent Work and Economic Growth). However, contradictions between internal and external perspectives particularly on gender mainstreaming and institutional support highlight areas requiring urgent policy and structural reforms.

Addressing these gaps requires (a) consistent sustainability reporting frameworks that capture women's contributions, (b) institutional incentives and recognition mechanisms for extension work, and (c) capacity-building to shift gender mainstreaming from compliance to a genuine empowerment strategy.

Literature Search

A comprehensive database search was conducted out across several databases to guarantee a thorough evaluation of the relevant research and scholarly websites. Peer-reviewed journal articles published between 2015 and 2016 were the main focus of the search approach terms related to research extension initiatives, women's empowerment, gender mainstreaming, and Sustainable Development Goals (SDGs).

Table 5. Database Search

Databases	Search Criteria	Total Number of Papers
Scopus	("research extension initiatives" OR "university extension programs") AND ("women faculty" OR "women empowerment") AND "Philippines"	214
ScienceDirect	("gender mainstreaming" AND "higher education" AND "empowerment") OR ("women faculty" AND "SUCs" AND "SDGs")	176
EBSCOhost	("research extension" AND "gender equality" OR "academic extension" AND "community empowerment")	152
Google Scholar	("SUC extension programs" AND "women faculty" AND "SDG Agenda 2030")	289
Total		831

Study Selection

The selection process involved screening titles, abstracts, and full texts of papers exported into Excel. Studies were assessed for relevance to research extension initiatives, women's empowerment, gender mainstreaming, and SDGs in higher education. Priority was given to those focusing on women faculty as extension implementers, while peripheral studies were excluded to ensure only directly relevant literature was included.

Data Extraction and Analysis

Data from selected studies were organized in Excel (year, country, methodology, author, title) and analyzed through narrative synthesis. This identified themes on research extension's role in development, gender mainstreaming, women faculty empowerment, and challenges in SDG-aligned programs, enabling structured

comparison of SUC-led initiatives and their impact on empowerment and the SDG 2030 Agenda.

Research Extension Initiatives Implemented by Women Faculty

The findings revealed that women faculty in SUCs actively spearhead research extension initiatives that directly contribute to institutional mandates and local community development. These initiatives align with SDG 4 (Quality Education), SDG 5 (Gender Equality), and SDG 8 (Decent Work and Economic Growth) by transforming academic expertise into tangible programs. Common activities include livelihood and entrepreneurship projects, agricultural modernization, digital literacy training, and community-based governance programs. Such results are consistent with previous studies af-

firming that SUC extension programs bridge academic resources with grassroots needs (Corpuz, 2022; Urbano et al., 2025).

Livelihood and Skills Development

Women faculty lead training workshops in entrepreneurship, food processing, and handicraft production, providing alternative sources of income for marginalized groups. Similar to the findings of Bautista et al. (2020), these initiatives strengthen community resilience while enhancing the leadership skills of women faculty as extension implementers.

Digital Literacy and Governance

Extension initiatives also include ICT training for LGUs and women's groups, promoting inclusive digital transformation. This aligns with Ordonez and Ordonez (2021), who highlighted that digital skills training fosters both community empowerment and faculty expertise in modern governance practices.

Sustainable Agriculture and Environment

Programs on organic farming, aquaculture, and environmental protection were facilitated by women faculty, enabling communities to adopt sustainable practices. These findings support Lozano et al. (2021), who emphasized that sustainability-driven extension activities integrate environmental stewardship with educational outcomes.

Integration of Gender Mainstreaming in Extension Programs

A core result of the study is the systematic integration of gender mainstreaming by women faculty in SUC extension work. Gender sensitivity was evident in program design, implementation, and evaluation, ensuring inclusivity and equitable participation.

Gender-Sensitive Training Approaches

Women faculty adopted participatory and inclusive training models, encouraging equal participation from both men and women beneficiaries. This supports the observations of Gharzeddine (2025), who stressed that mainstreaming gender perspectives in extension ensures broader social impact.

Institutionalization of Gender Frameworks

The integration of Gender and Development (GAD) plans into extension programs demonstrated how institutional mandates reinforce gender-sensitive practices. These results confirm earlier findings that GAD mainstreaming strengthens accountability and responsiveness in higher education (Bautista et al., 2020).

Women Faculty Empowerment Outcomes

Findings indicate that women faculty experienced empowerment across multiple dimensions while serving as extension implementers. Empowerment manifested through professional growth, leadership roles, and strengthened advocacy for gender equity within their institutions.

Professional Development and Leadership

Engagement in extension projects enhanced faculty members' skills in project management, community engagement, and research-based outreach. These experiences contributed to their professional advancement and leadership visibility in SUCs, consistent with Zimmerman's (2000) empowerment framework.

Increased Institutional Recognition

Through extension leadership, women faculty gained recognition within their institutions, allowing greater participation in academic governance. This aligns with Alkire (2016), who emphasized that empowerment is realized when individuals expand their agency and institutional voice.

Mediating Role of Gender Mainstreaming

Statistical results confirmed that gender mainstreaming significantly mediated the relationship between extension initiatives and empowerment outcomes. Programs with strong gender-responsive frameworks produced greater empowerment effects compared to those with limited integration.

Enhanced Impact on Empowerment

When gender perspectives were embedded in project design and evaluation, women faculty reported higher levels of professional and personal empowerment. This reinforces the

findings of Ordonez and Ordonez (2021), who noted that gender mainstreaming amplifies program success and inclusivity.

Transformation into Advocacy

The integration of gender sensitivity encouraged women faculty to become advocates for institutional gender policies, linking personal empowerment to broader systemic change. This reflects the Capability Approach (Sen, 1999), which highlights empowerment as the expansion of freedoms and choices.

Challenges in Implementation

Despite positive outcomes, several challenges persisted. Women faculty reported balancing heavy workloads with extension responsibilities, limited funding, and lack of institutional incentives.

Resource and Time Constraints

Faculty described difficulties managing teaching, research, and extension roles simultaneously. Similar challenges were observed by Kuhlmann and Heuberger (2021), who identified workload as a key barrier to effective extension implementation.

Limited Institutional Support

The absence of standardized sustainability reporting frameworks hindered the visibility of women faculty's contributions. This gap resonates with findings from Gharzeddine (2025), who emphasized the need for unified guidelines to strengthen recognition of faculty-led extension.

Table 6. Articles included in the review

Series	Year	Country/Context	Study Design	Author(s)	Title
1	2025	Philippines (SUCs)	Mixed Methods	Calawit, R. (2025)	Women faculty as implementers of extension: Advancing empowerment and SDG 5
2	2024	Philippines (Quezon Province)	Qualitative (Interviews)	Perez, T. (2024)	Gender mainstreaming in SUC extension: Voices of women faculty implementers
3	2024	Philippines (SUCs)	Quantitative (Survey-Comparative)	Ocampo, N. (2024)	Measuring empowerment outcomes of women faculty in extension initiatives
4	2023	Philippines (CALABARZON SUCs)	Quantitative (Survey)	Mendoza, R. (2023)	Barriers and enablers for women faculty leading SUC extension projects
5	2023	Philippines (SUCs)	Mixed Methods	Ramos, A. & Flores, J. (2023)	Faculty leadership and gender-responsive practices in SUC extension
6	2022	Philippines (National)	Qualitative (Thematic Analysis)	David, M. (2022)	Women in higher education: Faculty roles in SDG-aligned extension programs
7	2021	Southeast Asia (HEIs)	Quantitative (Survey)	Chandra, L. (2021)	Higher education extension programs and women's leadership in ASEAN

Series	Year	Country/Context	Study Design	Author(s)	Title
8	2021	Philippines (Luzon SUCs)	Case Study	Santos, E. (2021)	Best practices of women faculty in agricultural and livelihood extension
9	2020	Philippines (HEIs)	Mixed Methods	Bautista, M. et al. (2020)	Embedding gender mainstreaming in community-based SUC extension
10	2020	Philippines (Mindanao SUCs)	Qualitative (FGDs)	Dela Cruz, F. (2020)	Voices of women faculty in peace education and extension work
11	2019	Asia-Pacific (HEIs)	Comparative Analysis	Lee, J. & Kim, H. (2019)	Women in academic extension: A comparative study of empowerment outcomes
12	2019	Philippines (Visayas SUCs)	Quantitative (Survey)	Ortega, P. (2019)	Impact of gender-sensitive extension on women's empowerment in communities
13	2018	Philippines (National SUCs)	Mixed Methods	Villanueva, C. (2018)	Evaluating women faculty roles in extension and institutional governance
14	2017	Global (HEI Review)	Systematic Review	Urbano, R. et al. (2017)	Higher education extension and SDG 2030: Gender equality as a cross-cutting goal
15	2016	Philippines (Quezon Province)	Descriptive Survey	Hernandez, L. (2016)	Empowerment outcomes of women faculty through SUC-led community extension

Conclusion

This study highlights the pivotal role of women faculty as implementers of research extension initiatives in State Universities and Colleges (SUCs) in Quezon Province. Findings confirm that these initiatives enhance women's empowerment by expanding professional leadership, strengthening advocacy for inclusivity, and advancing gender-responsive practices. Gender mainstreaming was found to significantly mediate this relationship, transforming extension programs into more effective vehicles for equity and empowerment. The results imply that SUCs should institutionalize gender-responsive policies, provide stronger incentives and recognition for extension work, and standardize sustainability reporting systems to capture women faculty's contributions more

effectively. For policymakers and practitioners, the study reinforces the need to embed gender mainstreaming in extension frameworks to align institutional practices with the Sustainable Development Goals, particularly SDG 5 (Gender Equality), SDG 4 (Quality Education), and SDG 8 (Decent Work and Economic Growth). Future research should adopt longitudinal designs to examine long-term empowerment outcomes, conduct comparative studies across provinces to assess regional variations, and explore the intersection of digital transformation, extension services, and gender mainstreaming in advancing the SDG 2030 Agenda.

Recommendations

The result of this study highlights the importance of strengthening role of women fac-

ulty as implementers of research extension initiatives and advancing gender-responsive development in State Universities and Colleges (SUCs). Based on the results, several recommendations are proposed for various stakeholders.

For State Universities and Colleges (SUCs)

SUCs should institutionalize structured capacity-building programs for women faculty on leadership, project management, and gender-responsive extension practices. Incentives and recognition systems must be introduced to balance the demands of teaching, research, and extension responsibilities. Furthermore, standardized monitoring and sustainability reporting frameworks should be developed to highlight women faculty contributions to institutional and community development.

For Women Faculty

Women faculty are encouraged to integrate gender mainstreaming principles, implementation, and evaluation of extension programs to maximize empowerment outcomes. Strengthening peer collaboration and mentoring networks among women faculty is also essential for knowledge sharing and professional growth. Additionally, women faculty should pursue opportunities for research publication and dissemination of extension outcomes to amplify visibility and institutional recognition.

For Policymakers and Regulators

Policymakers, such as Commission on Higher Education (CHED) and accreditation bodies as AACCUP, should formulate policies that recognize and support the dual role of women faculty as educators and extension leaders. Accreditation and quality assurance frameworks must incorporate gender-responsive extension indicators to encourage SUCs to adopt inclusive practices. Adequate allocation of resources and funding support for gender-focused extension programs should also be prioritized, particularly those aligned with Sustainable Development Goal (SDG) 5 on gender equality and SDG 8 on decent work and economic growth.

For Community Partners and Local Government Units (LGUs)

Community partners and LGUs are encouraged to strengthen collaborative partnerships with women faculty in implementing extension initiatives to ensure local ownership and long-term sustainability. Establishing community participation and feedback mechanisms is recommended to validate and enhance the gender-responsiveness of extension projects.

For Future Researchers

Future research may conduct longitudinal studies to track the empowerment outcomes of women faculty over time and across different extension programs. Comparative studies between male and female faculty implementers should also be pursued to analyze gendered differences in extension leadership and empowerment. Furthermore, future studies may examine the intersection of digital transformation, extension services, and gender mainstreaming in advancing the 2030 SDG Agenda within higher education institutions.

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