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Developing a University Ecosystem Model for Iranian Public Universities

Ali Aminibagh[1], Jamal Salimi[2], Seyed Jamal Barkhoda[3]

1. Ph.D. Graduate in Higher Education Development Planning, Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.
2. Associate Professor of Curriculum Studies, Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.
3. Associate Professor of Educational Management, Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.

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Corresponding Author:
Jamal Salimi

Email:
j.salimi@uok.ac.ir

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Abstract

This study aimed to develop a grounded theoretical model of the Eco-University for Iranian public universities using Strauss and Corbin's systematic grounded theory approach. A qualitative design was employed, involving 17 faculty members from major public universities in Iran selected through purposive sampling. Data were collected through semi-structured interviews until theoretical saturation and Analyzed using open, axial, and selective coding. Trustworthiness was ensured through member checking and expert validation. The findings resulted in a context-sensitive Eco-University model consisting of six interrelated dimensions. Causal conditions included governance reform, mission redefinition, interdisciplinary collaboration, and indigenous research capacity. Contextual conditions comprised sustainable economic models, ecological curricula, technology access, quality assurance, and regional characteristics. Intervening conditions involved growth mindset, professional learning communities, alignment with societal needs, artificial intelligence ethics, and inclusion. Strategic actions emphasized innovation ecosystems, sustainable teaching and research, innovative business models, and social responsibility. These strategies contributed to enhanced institutional reputation, graduate employability, research commercialization, diversified financial resources, sustainability-oriented policies, and the transition toward an ecosystem-based learning paradigm. The proposed model provides a practical framework for transforming Iranian public universities into sustainable, innovative, and socially responsive higher education institutions.

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Extended Abstract

Introduction

Universities are increasingly expected to move beyond their traditional missions of teaching and research and play an active role in sustainable development, innovation, and regional transformation. In response to growing environmental, technological, and socio-economic challenges, the concept of the Eco-University has emerged as a comprehensive framework that integrates education, research, innovation, environmental sustainability, and social responsibility. Rather than functioning as isolated educational institutions, Eco-Universities operate as interconnected ecosystems that foster collaboration among academic, industrial, governmental, and community stakeholders. Although the concept has attracted growing international attention, its theoretical foundations and practical dimensions have not yet been comprehensively examined within the context of Iranian public universities. Existing studies have primarily focused on individual aspects of sustainability or organizational development without proposing an integrated ecosystem model. Therefore, the present study aimed to develop a grounded theoretical model of the Eco-University for Iranian public universities by identifying its underlying conditions, strategic processes, and expected outcomes.

Method

This study employed a qualitative research design using Strauss and Corbin's systematic grounded theory methodology. The participants consisted of 17 faculty members from major Iranian public universities, including the Universities of Tehran, Shahid Beheshti, Kurdistan, Kharazmi, Urmia, Bu-Ali Sina, Mazandaran, and Ilam. Participants were selected through purposive sampling based on their expertise in higher education management, educational policy, and sustainable university development. Data were collected through in-depth semi-structured interviews, and theoretical sampling continued until data saturation was achieved. To ensure the trustworthiness of the findings, member checking and expert review were conducted. Data analysis followed the three-stage coding process of open, axial, and selective coding, through which concepts were progressively integrated into a coherent theoretical framework.

Results

The analysis resulted in a grounded theoretical model comprising six interrelated dimensions that collectively explain the development of the Eco-University. The causal conditions included redesigning university governance, redefining institutional missions, establishing accountable governance structures, integrating soft skills into academic programs, promoting interdisciplinary collaboration, and strengthening indigenous research capacity. The contextual conditions consisted of sustainable economic models, ecological curricula, access to sustainable technologies, quality assurance systems, and regional ecological characteristics. Intervening conditions included growth mindset and self-efficacy, professional learning communities, alignment between university goals and societal needs, data governance and artificial intelligence ethics, and diversity and inclusion. Strategic actions involved establishing innovation marketplaces, strengthening collaboration with national and international innovation ecosystems, adopting innovative business models, integrating environmental sustainability into teaching and research, and promoting a culture of social and environmental responsibility. These strategies contributed to multiple organizational outcomes, including enhanced institutional reputation, improved graduate employability, increased commercialization of research outputs, diversified

financial resources, stronger sustainability-oriented governance, and the emergence of an ecosystem-based learning paradigm.

Discussion and Conclusion

The findings demonstrate that the transformation of conventional universities into Eco-Universities requires a systemic and multidimensional approach rather than isolated organizational reforms. The proposed model highlights the dynamic interaction among governance, education, research, innovation, sustainability, and stakeholder engagement, suggesting that these dimensions function as mutually reinforcing components within an integrated institutional ecosystem. Compared with traditional university models, the Eco-University extends the mission of higher education by embedding sustainability, interdisciplinary collaboration, social responsibility, and innovation into all institutional processes. The model also emphasizes the importance of aligning governance structures with regional ecological capacities, technological advancements, and societal expectations to strengthen institutional resilience and long-term sustainability. Theoretically, this study contributes to the emerging literature on sustainable higher education by providing a context-sensitive grounded theory model tailored to Iranian public universities. Practically, it offers a strategic framework for policymakers, university leaders, and higher education planners seeking to guide institutional transformation toward more innovative, sustainable, and socially responsive universities. Future studies are recommended to validate and refine the proposed model across different institutional and cultural contexts and to examine its applicability through quantitative and mixed-methods research.

Author Contributions: The second author, as the supervisor, oversaw the overall research process, contributed to the development of the interview protocol, and reviewed and finalized the manuscript. The first author conducted the data collection, analysis, interpretation, and manuscript drafting. The interpretation and elaboration of the findings were carried out with the support of the third author, who served as the thesis advisor.

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Ethical Approval: This study was conducted in accordance with accepted ethical standards for research involving human participants. Informed consent was obtained from all participants, and confidentiality, anonymity, and the right to withdraw from the study at any time were ensured.