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Exploration of Teaching Reform for Cultivating Eco-literacy Among Higher Education Students Based on Ecofeminism

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Abstract: Ecological education serves as the foundation for constructing an ecological culture system. With the gradual deepening and advancement of ecological education concepts, the limitations of traditional eco-literacy cultivation models in higher education have become increasingly apparent. Ecofeminism, which reveals the intrinsic connection between gender equality and ecological sustainability, offers a new perspective for fostering eco-literacy in higher education. Against this backdrop, this paper adopts ecofeminism as its theoretical framework and grounds its analysis in the gender-blind spots and challenges prevalent in current eco-literacy cultivation practices in higher education. By examining imbalances in faculty structure, curriculum design, teaching methodologies, and evaluation mechanisms, the study explores the development of an eco-literacy cultivation model from an intersectional perspective. Integrating ecofeminism into ecological education aims to equip students with a holistic vision of ecological civilization, thereby providing a theoretical foundation for cultivating interdisciplinary ecological talents in the new era.

Keywords: ecofeminism, ecological literacy, higher education, teaching reform

Introduction

The integration of ecofeminism and ecological education reflects an emerging trend in the development of ecological education. Ecofeminism introduces a more equitable gender perspective and a more inclusive symbiotic worldview into ecological discourse. In response to the current limitations of ecological education in higher education, ecofeminism offers theoretical guidance for addressing practical challenges. Its emphasis on cultivating intersectional perspectives contributes to the development of future ecological professionals who are not only equipped with humanistic values but also committed to sustainability.

1. The Interconnection Between Ecofeminism and Ecological Literacy Education

1.1 The emergence and advocacy of ecofeminism

Ecofeminism first emerged in the 1970s and reached its developmental peak in the 1990s. Rooted in a critique of patriarchal structures, ecofeminism exposes the binary thinking that places reason in opposition to emotion, men in opposition to women, and humans in opposition to nature. Under such a hierarchical paradigm, women are relegated to the role of caregivers, expected to provide unpaid labor that sustains households, while nature is treated as an inexhaustible "resource bank." Both women and nature are subject to exploitation and control, their subjugation intricately linked within this framework. Ecofeminism confronts this oppressive logic, arguing that the protection of both women and nature requires a reconstruction of ecological ethics grounded in gender equality. It insists that the liberation of women must be intertwined with the preservation of nature (Song, 2023), thereby raising awareness of the intrinsic connection between gender equity and ecological sustainability.

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1.2 Developmental trends in ecological literacy education

Ecological literacy encompasses not only cognitive understanding—such as the recognition of ecological values and a substantial knowledge base—but also behavioral capacity for environmental protection. A student with ecological literacy should demonstrate a comprehensive grasp of concepts, knowledge, and ecological issues, and be able to translate this understanding into practical action (Lang & Qiu, 2025a). In higher education, the goals of ecological literacy education have evolved over time. While traditional approaches prioritized the transmission of knowledge, contemporary education now emphasizes the cultivation of holistic competence. The ultimate goal is not merely to teach students how to understand and coexist with the environment, but to empower them to inspire broader societal awareness of ecological conservation. Future-oriented ecological education requires a global perspective, integrating instrumental and humanistic dimensions to explore the complex relationships between humans, society, and nature. Thus, fostering ecological literacy in higher education students in a comprehensive and multidimensional manner has become particularly critical.

1.3 Building a competency-based system for innovative symbiotic models

The future of ecological literacy development in higher education lies in cultivating interdisciplinary talents who possess systems thinking, critical analysis, and humanistic concern. These individuals must be capable of applying scientific knowledge to solve ecological problems while also using gender perspectives to examine imbalances in ecological governance. They should not only master rational scientific analysis but also hold reverence for nature and empathy for life. This multifaceted perspective challenges the traditional divide between knowledge transmission and values education, enabling students to understand the socio-cultural constructs underlying ecological issues.

Ecofeminism's core principles provide a model for cultivating such intersectional thinking, enriching the cognitive framework of ecological education and reshaping its practical goals. In doing so, it offers a theoretical pathway for training ecological professionals. The internalization of humanistic values through this process represents a core response of higher education to the national call for ecological civilization.

2. Gender Blind Spots and Dilemmas in Ecological Literacy Cultivation in Higher Education

2.1 Gender imbalance in teaching faculty

There exists a pronounced gender imbalance in faculty composition within universities. Male instructors dominate in science and engineering disciplines, while female instructors are more prevalent in the humanities and social sciences. This trend is especially prominent in subjects such as mathematics, physics, and biology. Such a distribution reflects a rigid social division of labor, where the numerical dominance of male faculty results in a male-centered value system in higher education (Zhao, 2010a). Moreover, current faculty training lacks a gender-sensitive perspective. The care and empathy advocated by ecofeminism—ideals that should be central to ecological education—are often neglected due to the faculty's indifference to gender issues. As a result, ecological responsibility is rarely linked with emotional and empathetic capabilities in teaching, and stereotypical gender roles are instead reinforced. Even more critically, gender bias in the distribution of research resources further marginalizes the academic voice of female scholars. Research funding in STEM fields tends to favor male faculty, while eco-humanities studies led by women are often sidelined, rendering female ecological wisdom increasingly invisible.

2.2 Rigid standards in the curriculum system

In terms of teaching materials, most ecological education textbooks focus on raising awareness of ecological crises, promoting environmental protection knowledge, and advocating low-carbon lifestyles. However, these materials often suffer from redundancy and lack interdisciplinary, holistic

content, resulting in a disconnection between ecological literacy cultivation and broader talent development systems. Consequently, ecological education lacks intrinsic motivation for professional advancement (Liu & Kong, 2024). Furthermore, gender bias is also embedded in textbook content: men are often portrayed as inventors of environmental technologies, while women are depicted as caregivers of natural resources. This obscures the intrinsic connection between gender equality and ecological sustainability. Current classroom teaching in higher education also tends to emphasize technical or instrumental training, with many ecological courses centered on rational, logic-driven fields such as environmental engineering or ecological science. This approach often lacks critical analysis of ecological problems from gendered or humanistic perspectives. By simplifying the natural environment into quantifiable technical objects, these courses overlook the socio-cultural dimensions of ecological crises. As a result, the curriculum may produce professionals adept in environmental management, but fail to nurture talent with holistic vision and humanistic care.

2.3 Participation barriers in teaching activities

Gendered divisions of labor in ecological practice create participation barriers for students. In fieldwork or community environmental projects, teachers often unconsciously assign technical tasks to male students and communication or note-taking roles to female students. This replicates stereotypes where men control tools and women provide emotional labor. It not only deprives women of opportunities to develop core technical competencies, but also weakens men's motivation to cultivate ecological empathy. Gender imbalance also exists in classroom interactions: surveys show that teachers are more likely to encourage male students to discuss macro-level ecological policies, while guiding female students toward micro-level environmental behaviors. Such biased pedagogical patterns cast men as decision-makers in ecological matters, while relegating women to subordinate roles in practice. This subtly erodes female students' confidence in participating in the development of interdisciplinary ecological talent. More importantly, gender safety issues in social practice remain largely overlooked. Female students face higher risks of sexual harassment during field investigations or community research, yet universities rarely offer protective mechanisms or humane response strategies. This security concern may lead women to avoid riskier ecological projects, thereby further limiting their role in ecological education.

2.4 Single-dimensional evaluation mechanisms

Current assessments of ecological literacy tend to prioritize quantitative and outcome-based indicators, neglecting general competencies such as ethical care practices and community collaboration. This type of evaluation aligns more closely with the abstract and logical thinking typically associated with male students, but suppresses the relational thinking strengths often exhibited by female students. A single-dimensional evaluation system may lead female students to feel that their ecological contributions lack academic recognition, diminishing their enthusiasm and initiative. Meanwhile, male students, deprived of opportunities to develop empathy toward life, may adopt a utilitarian approach to ecological responsibility—focusing solely on technology while neglecting the humanistic dimensions crucial to personal development. Furthermore, the homogeneity of evaluators often reinforces gender bias. Most ecological course assessments are conducted by faculty from science and engineering backgrounds, which limits the inclusion of intersectional perspectives in evaluation design and prevents accurate assessment of students' true ecological understanding. This contributes to the one-sidedness of ecological literacy education in higher education.

3 Ecofeminism-oriented Pathways for Cultivating Students' Ecological Literacy in Higher Education

3.1 Transforming campus faculty to enhance ecofeminism learning

Cultivating ecological literacy must begin with

a transformed faculty structure. Universities should actively recruit and support more female instructors, breaking long-standing gender imbalances—especially in the sciences—and widening the ecological education lens. Parallel to this, interdisciplinary, cross-gender teaching–research groups should be formed to design comprehensive course content. Policy incentives can further dismantle male-dominated decision-making by funding female-led eco-education projects and incorporating their findings into case libraries for environmental engineering and eco-ethics.

A telling example is Zeng Suping of Qianshan No. 1 High School, who, after extensive research on Wuyi-shan biodiversity, developed the "bird-and-plant dye" technique and an interdisciplinary course series titled Herbal China, Herbal Campus. Drawing on the Dong women's rotational dye-plant practices, she transformed local wisdom into modern teaching materials—an initiative later recognised by UNESCO as an outstanding women-led contribution to nature education.

3.2 Optimising course content by injecting gender care and diverse knowledge

To remedy the curriculum's fragmented knowledge layers and missing humanistic dimension, ecofeminism should drive textbook audits and redesign. A tiered structure—general foundations, specialised theories and ecological-civilisation themes—can balance gender stereotypes by replacing the "men-as-technologists/women-as-caregivers" dualism with genuinely intersectional content. In class, instructors should present ecofeminism as an explicit topic so that female students see their status respected (Yang, 2013). Professional-course teachers must integrate ecological-civilisation goals with disciplinary objectives, ensuring students acquire both subject expertise and an implicit ecological ethos (Lang & Qiu, 2025b).

Chifeng University offers a model: within its Environmental Philosophy course, it added prairie-ecology sessions comparing Mongolian women's nomadic knowledge with state sand-fixing projects, spotlighting the marginalisation of female expertise. The university also created a Northern Ecofeminist Practice Archive—featuring Oroqen women's sustainable hidework and Sanjiangyuan women's wetland-monitoring teams—now listed as a Ministry of Education "curriculum-ideology" demonstration.

3.3 Innovating teaching methods to strengthen emotional connection and empower action

Breaking gendered participation barriers requires role-rotation in all fieldwork and community projects: mixed-gender teams alternate between technical tasks and ethnographic interviews, then debrief to blend their strengths. Ongoing anti-bias training—embedded in syllabi—corrects the informal rule that men debate policy while women discuss care. Safety gaps in field practice must be closed through physical safeguards and an anonymous reporting platform that triggers project adjustments. To foster autonomy, link cross-disciplinary collaboration to student innovation funds, faculty research, "Internet +," Challenge Cup and environmental competitions (Wang, Sun, & Zhou, 2025).

For instance, in the Caiyun Lake wetland restoration project at Chongqing Smart City College, five eco-mechanics teams rotated through water-quality testing, GIS mapping, community interviews and conflict mediation, each guided by ecology and engineering mentors, equipped with safety training and location devices. Presentations alternated male and female leads, dismantling gender barriers through role rotation plus dual-mentor oversight.

3.4 Reshaping campus culture by enriching evaluation dimensions and care systems

A sustainable, diverse higher-education landscape demands new assessment logic (Zhao, 2010b). Care ethics practice and gender-based ecological analysis must count for at least 40 % of course grades, and every ecological-project report must include a standalone gender-impact section. Evaluation panels should incorporate all field stakeholders; divisive cases go to gender-studies

arbitrators to neutralise bias. Real-time, scenario-based assessments gauge students' skill in merging technical rationality with care ethics, turning the evaluation process itself into a cultural lever against gender prejudice.

Zhejiang University exemplifies this shift. Its Interdisciplinary Gender Analysis Scale mandates gender-impact chapters in environmental reports, while a review board—weighted 35 % by NGO and women's-group members—scores fieldwork. The Ministry of Education has since adopted this model as a "curriculum-ideology empowerment" showcase.

Conclusion

Ecofeminism furnishes higher education with intersectional insight and innovative routes for ecological-literacy cultivation. By exposing gender blind spots and rebuilding curricula, methods and evaluations around care ethics, universities can educate interdisciplinary professionals who blend ecological technology with humanistic empathy. This reform transcends pedagogy, offering a constructive response to the quest for harmonious coexistence between humanity, society and nature.

Conflict of Interest

The author declares that she has no conflicts of interest to this work.

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