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RESEARCH ARTICLE

Integrating ecological civilization into higher education: Frameworks, practices, and pedagogical pathways

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ABSTRACT

The integration of ecological civilization into higher education has become a crucial step in addressing the global ecological crisis. Ecological civilization, a concept that emphasizes the harmonious coexistence of human society with nature, has gained significant attention in recent years, particularly within China, as part of national policy efforts toward sustainability. This review article presents strategies for teaching college students about ecological civilization so they can support sustainable growth and care for the ecology. It deals with obstacles such as disjointed lessons, insufficient learning for teachers, and difficulty within institutions by thoroughly examining available literature. The study recommends using curriculum from different subjects, encouraging active learning, including traditional wisdom, and forming links with ecological groups as effective ways to proceed. The usefulness of these ideas is confirmed by research that reveals improved student involvement, greater ecological awareness, and more ecologically friendly habits. The article recommends that evaluation and feedback are necessary to keep the system evolving. The study found that significant improvements within higher education institutions are vital for promoting ecological civilization. This research helps colleges to encourage ecologically friendly and responsible graduates, benefiting the process of creating an ecological civilization in society.

Keywords: ecological civilization; college education; interdisciplinary curriculum; active learning; sustainability education

1. Introduction

1.1. Background of ecological civilization

Ecological civilization requires rebuilding human society to ensure harmony in the economy, social fairness, and ecological care. It emphasizes improving the entire system, applying ecological principles to everything people do rather than just focusing on traditional ecological protection[1]. It was inspired by discussions around the ecology in the late 1900s and soon became an important development strategy for China, reflected in its policies and legal systems. Ecological civilization promotes a new approach to human-nature interaction founded on respect, responsibility, and harmony.

In the 1980s, ecological civilization was introduced as an official concept, thanks to the efforts of Soviet

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ecologists and later by Chinese thinkers and government officials. China began adopting the concept of ecological civilization in 2012, shifting from traditional development to one that prioritizes ecological protection and social and economic well-being[2]. These reforms are evident in changes to education, urban design, and ecological oversight, demonstrating that ecological civilization supports every aspect of sustainable development. It uses the political, economic, cultural, and social sectors to support an ecologically friendly society.

Ecological civilization encompasses respect for nature and an understanding of the interdependence between people and the ecology as core principles of sustainable development[4] [see **Figure 1**]. As shown in **Figure 1**, principle of sustainability comprise various domains, such as economic, environmental, cultural, political and social domains. Unlike classical theories, the new approach views humans as part of a network of relationships rather than as separate entities, emphasizing the importance of many species in ecosystems. It supports the global sustainability goals set by the United Nations' 2030 Agenda, which calls for significant changes in how products are made, used, and managed to secure the ecology and human rights[5]. The ecological civilization plan provides an approach to resolving today's ecological problems, combining tradition and science.

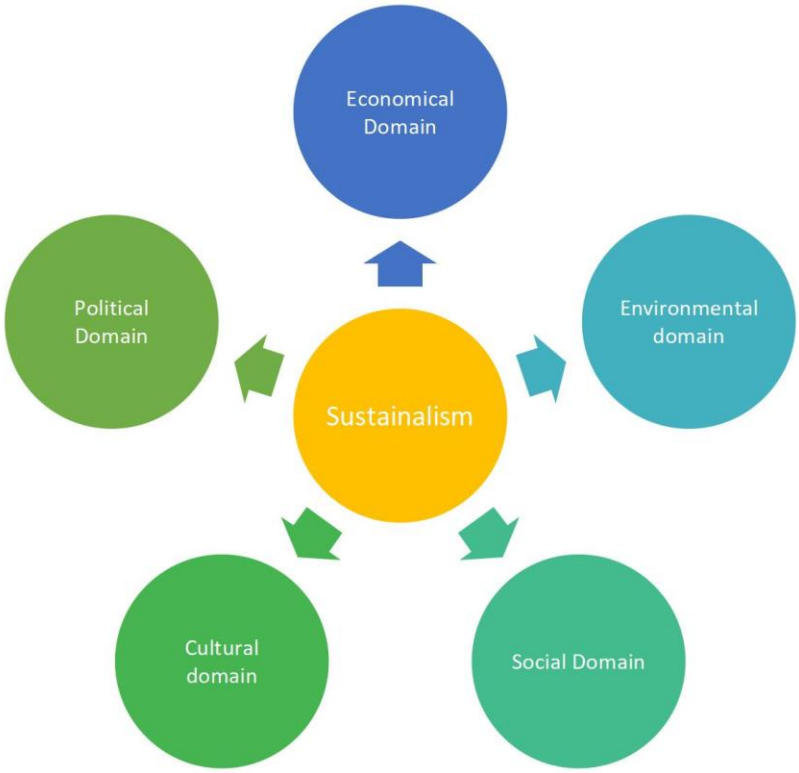

Figure 1. Domains of sustainability [Source: Author].

Ecological challenges caused by climate change, the decline in species diversity, and the overuse of resources are putting both living and nonliving systems at risk and, therefore, giving ecological civilization increased value. Making ecological harmony in society the object of attention would provide a clear approach to solving these problems through cultural development, new laws, and enlightenment[6]. It is essential to create an ecological civilization, and education plays a crucial role in helping young people take care of the ecology, become accountable, and contribute to making life sustainable.

1.2. Research problem

Although there is an emerging consciousness in the world about environmental issues, institutions of higher learning often fail to incorporate core subjects of ecological civilization into their curricula in a manner that actively involves students in solving critical environmental problems. Most environmental studies programs cannot be criticized as too theoretical, lacking on-the-ground and multidisciplinary methods, and failing to connect with real-life sustainability issues such as renewable energy integration, wastewater solutions, and low-carbon economies. Such a vacuum restricts the capacity of institutions of higher learning to produce graduates who are environmentally accountable and have the potential to play a significant role in transforming society towards sustainability. Moreover, despite ecological civilization being an important policy framework in a country like China, its application in various academic pursuits and contexts remains unstable and underutilized. There is also a lack of comparative case studies that analyze the conditions of speech about contemporary environmental issues and the involvement of students in different universities located within the same country. This paper aims to fill this gap by examining the cases of selected universities that involve their students in environmental concerns, aligning with the concepts of ecological civilization. This analysis may facilitate the identification of potential best practices and challenges in integrating sustainability education to achieve meaningful graduate outcomes.

1.3. Research objectives

This study aims to explore effective paths and methods for integrating ecological civilization concepts into college education. The specific research objectives are:

1. To analyze ecological civilization's theoretical foundations and significance as a framework for ecological education in higher education institutions.
2. To evaluate the current status, challenges, and gaps in integrating ecological civilization concepts within college curricula and extracurricular activities.
3. To identify and propose effective pedagogical methods and institutional strategies that enhance the incorporation of ecological civilization principles into college education.

1.4. Research questions

The central research question guiding this study is:

How can ecological civilization concepts be effectively integrated into college education to foster ecological awareness, sustainable values, and responsible behaviors among students?

By addressing this question, the study aims to contribute to the development of educational models that support the broader societal transition toward an ecological civilization.

2. Literature review

2.1. Theoretical framework

This study primarily draws on two complementary theoretical frameworks to underpin the integration of ecological civilization concepts into college education: Ecological Civilization Theory (ECT) [see **Figure 2**] and an Ecological Perspective on Learning in Higher Education. Both theories offer critical insights into the content and process dimensions of ecological education, emphasizing systemic thinking, interdependence, and transformative learning.

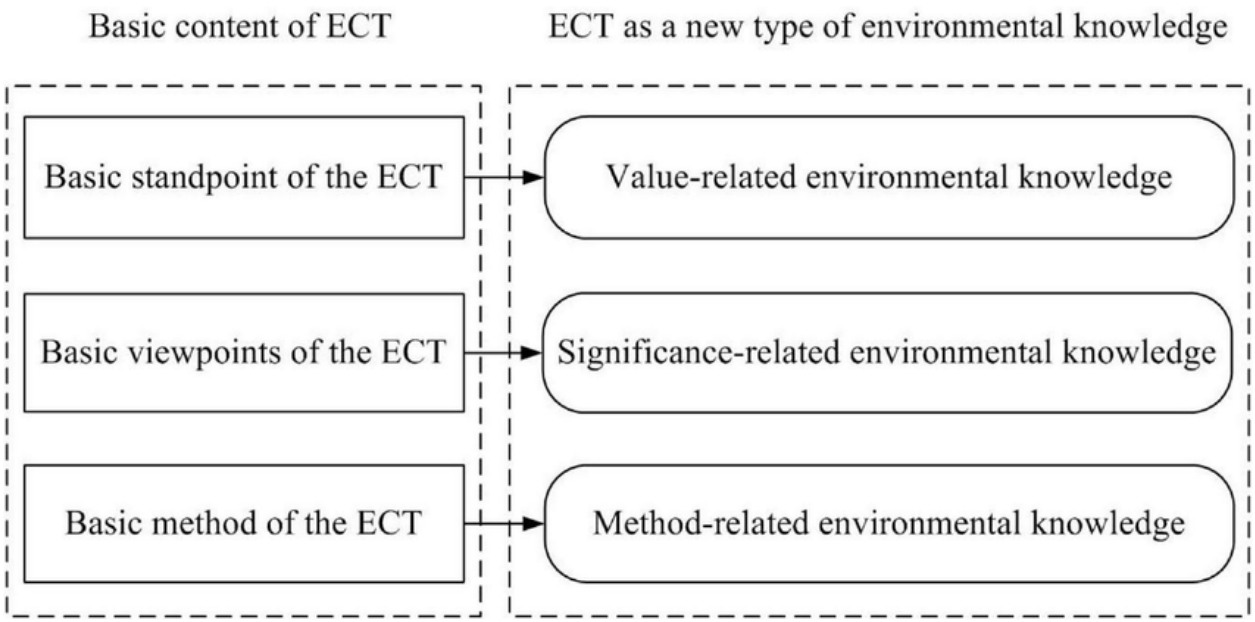

Figure 2. Relationship between ecological civilization theory (ECT) and a new type of ecological knowledge (Source: Wang and Zhang [2]).

2.1.1. Ecological civilization theory (ECT)

Ecological Civilization Theory has become a well-established ecological knowledge framework in China, guiding its efforts toward sustainable development and ecological protection. ECT extends beyond traditional ecological education by integrating political, economic, cultural, social, and ecological aspects of the ecology. The approach holds that there is a direct relationship: ecological prosperity encourages civilization development, while ecological decline bears the opposite results[2].

ECT helps students understand not only the science related to the ecology but also the rules and traditions that preserve it. It shows that students who receive both Educational and cultural traditions, as well as regular ecological education, turn out to be more eco-friendly than those only exposed to the traditional approach[2]. Those who learn through ECT have a better understanding of the role of ecological protection in benefiting the nation and its individuals, demonstrating that ECT helps them appreciate its importance from multiple perspectives.

Nevertheless, making education enjoyable and accessible to everyone remains a challenge. Research suggests that although students recognize the value of ecological civilization, many courses fail to attract them and often do not lead to reliable ecologically friendly actions, as activities and techniques in this field depend on numerous external conditions[2]. Thus, there is a need for innovative teaching practices that connect various topics within the curriculum to embed ECT into higher education successfully.

Since ECT encompasses systemic governance, public community, and ecological economic indicators, it aligns with the philosophy of ecological civilization education, which aims to educate students on these topics. Thanks to ECT, colleges help students grasp ecological issues and work on changes within the government and society.

2.1.2. Ecological perspective on learning in higher education

ECT is complemented by an ecological view of learning, which focuses on education as an active system of interactions between students, their groups, and the world around them. This way of thinking,

grounded in ecological systems theory [see **Figure 3**], posits that knowledge, identity, and agency emerge together through the interplay of multiple elements within an ecosystem[7].

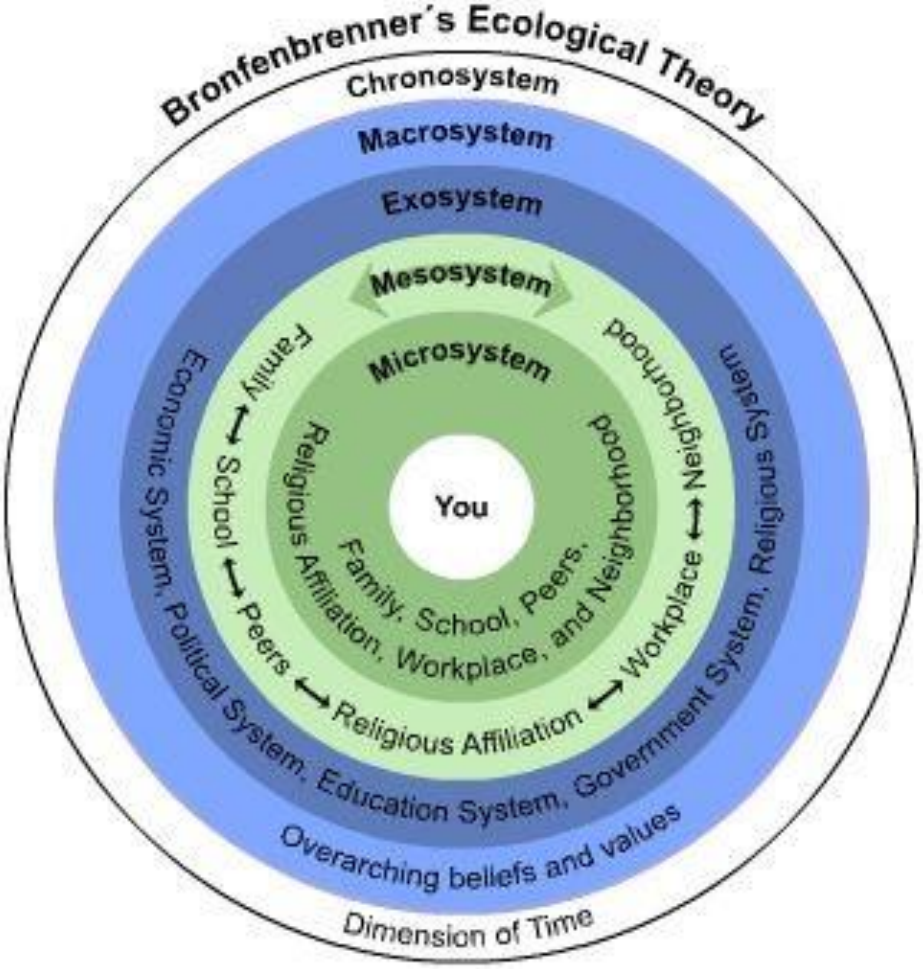

Figure 3. Ecological systems theory (Source: Priolo et al. [8]).

At the university level, ecological learning emphasizes the importance of learning from diverse sources within various social and physical contexts [see **Figure 4**]. It illustrates how different learning ecologys, such as classrooms and communities, both support and are shaped by students' ways of learning and moods[7]. This approach encourages teachers to include all three main dimensions in learning, which can help achieve the goals of ecological civilization.

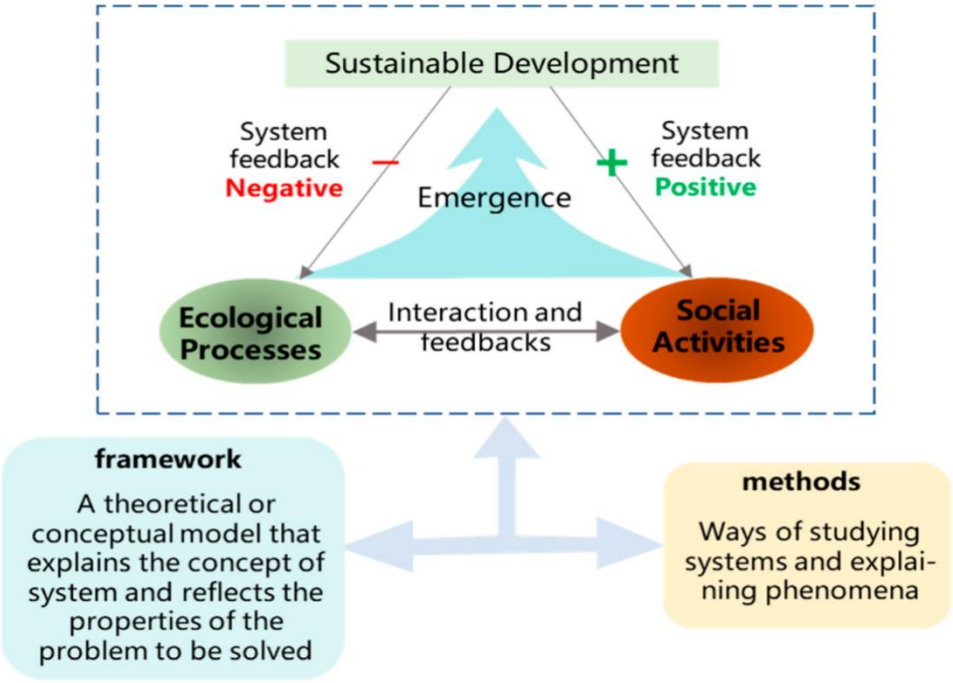

Figure 4. Ecological systems in learning (Source: Liu, Dai and Jin [9]).

Additionally, it aligns with proposals for interdisciplinary and participatory education, as it acknowledges the importance of indigenous beliefs about nature and social justice in teaching sustainability[7]. It overcomes the weaknesses of traditional models, which isolate learners from their surroundings and instead encourage them to engage in social and ecological issues.

2.2. Current status of ecological education in colleges

This field of study is gaining significance globally as individuals strive to address ecological issues and promote sustainability. In China, ecological civilization plays a crucial role in the nation, so universities are making significant progress in incorporating ecological themes into their courses to modify students' attitudes and behaviors related to nature. In this context, subjective norms and the curriculum play crucial roles in shaping attitudes[10]. Well-planned eco-education programs will make students more conscious and responsible for the ecology.

Nevertheless, in the research, a crucial question arose regarding how individuals in school claimed they could not afford to take action on the ecology despite being aware of the need to do so[10]. This difference necessitates that the field introduce practical skills and tools into ecological education, equipping students with real-life applications of the knowledge they acquire. By relating ecological concepts to students' lives, films, and social media have been shown to enhance engagement and foster a sense of control among these students[10].

Other institutions of higher learning around the world have been developing and challenging themselves in terms of ecological learning, not just in China. Various studies show that universities need to improve their ecological perspective throughout the entire education system by introducing new ecology courses, certificates, and Ph.D. programs[11]. Other scholars believe that all professions should have ecological competencies as a mainstream qualification so that every profession aims to conserve the ecology and practices what would be considered ecologically friendly. The design incorporates elements of updating the

curriculum, establishing ecological training centers, providing additional training to teachers at these centers, and engaging in various discussions related to science and policy[11].

Despite these developments, numerous obstacles prevent the complete incorporation of ecological education in universities. A significant concern is that many educators are not equipped or prepared to teach the ecology. Educators in different types of schools note that they are not ready to teach ecology authoritatively, and this is a more frequent circumstance when teachers are forced to introduce ecological concepts into the curriculum of other disciplines[12]. Ecological education does not involve a systematic pattern due to teachers' inexperience, who often only mention basic information about the ecology. Moreover, schools do not actively support teachers in teaching about ecological topics, and proper instructions are not defined[12].

In addition to overcoming the problems both inside and outside of education, ecological education demands that we take care of society, universities, families, and students. Researchers have emphasized that ecological education should be integrated into multiple subjects, accompanied by activities that promote social and ecological well-being[13]. Hence, the youth are being taught ecological values and the importance of taking care of their communities, as well as adopting eco-friendly lifestyles. The inclusion of socialist ecological concepts into civic and political education has proven to be more effective, as students have learned to pay closer attention to the ecology.

Moreover, learning by doing in college is increasingly emphasized; community projects, workshops, and eco-clubs are introduced to accompany lectures and classwork, motivating students to actively participate in addressing ecological problem[s][11]. They help students apply the concepts they learn to everyday life, allowing them to create an ecologically friendly community in their immediate surroundings. Such activities should be supported by government agencies, well-funded, and collaborate with ecological organizations to create the most significant impact.

3. Materials and method

This research methodology will be based on secondary data analysis, with the primary information drawn from existing literature, institutional reports, and other sources focused on the integration of ecological civilization ideas and concepts in higher education. The paper begins with an extensive literature review, drawing on peer-reviewed articles, governmental policies, and past scholarly work to establish the theoretical foundation of ecological civilization. In this review, the emergence and importance of the concept of ecological civilization are identified, with a specific focus on China's national educational reforms. It also highlights the shortcomings of existing formats for teaching ecology and the challenges universities face in making their curricula more sustainability-oriented.

This study utilizes secondary data drawn from various scholarly journals, books, policy reports, and institutional case studies to examine how ecological civilization has been incorporated into higher learning institutions. Careful examination of these sources enables the research to describe current trends in pedagogical methodology, progress in curriculum development, and the strategies employed by institutions to promote ecological awareness and acceptance of sustainability among university students. The choice would enable us to grasp the ecological education landscape well without conducting primary data.

Besides the literature review, the present study also takes into account secondary data in the form of structural equation modeling (SEM) studies that have been conducted on similar matters in the existing literature. SEM study is applied to identify relations among the most critical variables, including social awareness, educational affinity, and the effectiveness of ecological education in universities. The case

studies of various institutions are also analyzed in the research to conclude the shape and outcomes of establishing ecological civilization in academic practices. The study, however, fails to provide detailed information on the sample size or the method used to collect data from secondary data sources, lacking transparency in the decision-making process of data collection, which consequently affects the data analysis process.

Although secondary data have enabled a general investigation into the integration of ecological civilization, there are weaknesses in the methodology as well. The research is highly dependent on the available sources, and the current level of ecological education in the university ecology is not adequately reflected, nor are the latest trends related to pedagogy represented. Moreover, the absence of primary data restricts the possibility of evaluating the practical administration and problems encountered by teachers in real-time.

Therefore, the methodology used in this study, which is secondary data analysis, yielded helpful findings regarding the issue of integrating ecological civilization into higher education. It could also be improved by a closer examination of the methodology applied in the secondary sources' work and the inclusion of more recent data sourced from a broader range of institutions.

4. Results and discussion

4.1. Paths of integrating ecological civilization concepts

The paths of integrating ecological civilization concepts include curriculum development, and extracurricular activities.

4.1.1. Curriculum development

Integrating ecological civilization ideas into college education relies on how the curriculum is developed. Creating classes that bridge different study areas will help reflect how ecological civilization operates. By incorporating ecological science, ethics, social sciences, and economics, these courses enable students to explore sustainability issues and options. Combining geography, biology, political science, and economics enables the study of various aspects of human-nature interactions, resource management, and ecological governance. By applying different disciplines, students can understand that all parts of ecological and social systems are closely tied together and work as a whole, a central aspect of ecological civilization education.

Moreover, students should apply ecological thinking to subjects being taught. Hence, concepts related to ecology are incorporated into chemistry, literature, philosophy, and art education, making thinking about ecology a standard practice across different disciplines. In chemistry, methods that help the ecology could be highlighted, and ecological and ecological ethics could be studied in literature classes. By integrating ecological civilization, schools show that it is essential at all times and throughout the learning process. Ecological education emphasizes experiential learning, where students apply what they learn through teamwork, projects, group work, and community involvement, helping them become eco-smart, innovative, and capable of performing practical work[14].

Improving teachers' skills is key to making curriculum reform work. Teachers should stay up-to-date with new information in ecology and learning techniques to effectively deliver interdisciplinary and ecology-based content[15]. With greater professional skills, teachers help students learn about ecology by encouraging them to think critically and creatively, fostering a sustainable mindset. Overall, having a curriculum that

integrates various disciplines, connects with the ecology, and develops teachers' skills provides a solid foundation for teaching ecological civilization to students.

4.1.2. Extracurricular activities

Eco-related activities enable students to explore ecological civilization concepts outside of school, gain hands-on experience, and foster relationships with others. In universities, eco-clubs organize activities such as ecological campaigning, launching sustainability projects, and improving ecological awareness among students [see **Figure 5**]. As a result, youth learn from each other, develop leadership skills, and become involved citizens by supporting ecological causes. Engaging in eco-clubs encourages students to care about the ecology and adopt sustainable behaviors, as it provides them with useful tasks and a supportive group to help them achieve this goal.

Figure 5. Community involvement in ecological protection.

Specialized events, such as workshops and seminars, enhance education by enabling students to interact on specific subjects related to conservation, climate control, and sustainable farming. They typically include experts, practicing engineers, and the community, helping students learn from diverse experiences and case studies. In workshops, students can develop critical thinking skills and solve ecological problems through teamwork, simulations, and participation in group discussions.

4.2. Methods of teaching ecological civilization

Ecological civilization education encourages students to act in an eco-friendly manner. Good teaching engages students mentally and emotionally, helping them achieve practical outcomes that lead to a deeper understanding and active involvement. This section discusses teaching methods such as active learning, classroom technology, and teaching from various fields.

4.2.1. Active learning strategies

Ecological civilization education focus on using active approaches, such as project-based learning, fieldwork, and simulations. Students develop critical thinking and practical skills as they participate in solving ecological problems. For example, when project-based learning is employed, students will address ecological issues that affect their surroundings, devise solutions that incorporate ecologically friendly options, and be mindful of their impact on the ecology. The fieldwork also provides students with the opportunity to perceive their surroundings and learn through firsthand experiences of nature, as well as human imprints on it. Through simulations, students will learn about various systems and how the decisions of individuals have consequences that they can observe firsthand.

Active learning enables students to gain a more detailed understanding of the ecology and become more ecologically conscious compared to when they sit and listen in a traditional classroom setting. For example, the introduction of fieldwork and ecology into university geography courses has resulted in students becoming more interested in ecological issues and taking care of the ecology.

4.2.2. Use of technology in teaching

The application of technology in the study of ecological civilization can enable teachers to develop more engaging and accessible learning opportunities. VR, online sites, and simulations enable learners to study with creative and flexible methods. With the help of VR technology, a student can learn in a different ecology, take a virtual field trip, and alter explanations without being exposed to risks. Being a member of such experiences teaches us about the ecology and teaches us to appreciate it.

The Internet resources and forums should be utilized to enable students to access up-to-date information and global case studies and connect with others interested in learning. By using them, students will be able to study at their own pace, making it easier to educate students from diverse backgrounds about ecological civilization. Data acquisition and analysis of ecological processes become simplified with the use of digital technology, making students more inclined to participate in the citizen science approach and follow ecological processes in real-time.

4.2.3. Pathway relationships in ecological civilization integration

Research evidence helps better illustrate how ecological civilization can be applied in college education. **Table 1** is based on structural equation modeling and explains the ties between social impact, educational affinity, school education, and the sense of civilization[16].

Table 1. Pathway Relationships in ecological civilization integration [Source: 16].

Pathway Relationship			Estimate	S.E.	C.R.	P
Sense of Civilization	←	Social Impact	0.366	0.126	2.907	0.004
Educational Affinity	←	Social Impact	0.446	0.088	5.043	0
School Education	←	Social Impact	0.021	0.093	0.227	0.82
School Education	←	Educational Affinity	0.881	0.184	4.797	0
Sense of Civilization	←	Educational Affinity	−0.468	0.276	−1.692	0.091
Sense of Civilization	←	School Education	0.895	0.248	3.608	0

The results shown in **Table 1** are from a research conducted on the current situation and problems of ecological civilization education for contemporary college students based on structural equation modelling.

The data was collected from 136 college students randomly sampled from six colleges and universities. These results indicate that improved social awareness positively impacts how people perceive civilization and their interest in education, although it does not directly influence school education. A high degree of educational affinity strongly correlates with more eco-based education at school (Estimate = 0.881, $p < 0.001$), indicating that this indicator significantly helps integrate ecological topics into the official syllabus. Specifically, school education shows the highest direct association with a sense of civilization (Estimate = 0.895, $P < 0.001$), proving that the knowledge gained in schools helps form valuable ecological ideas. Although there is a minor link between educational affinity and a sense of civilization ($P = 0.091$), it indicates that liking education alone, without proper education in school, cannot strongly increase students' awareness of society.

This research demonstrates that a thoughtful curriculum and planned interventions are crucial for incorporating ecological civilization ideas into education. Community matters and social ties are important in shaping attitudes, but it is well-planned, scientifically grounded, and ethically focused curricula that mold ecological civilization in students. Therefore, colleges should emphasize innovative teaching methods, enhance teacher skills, engage the community, and incorporate activities that benefit students to strengthen and sustain the overall learning system.

4.3. Assessment and evaluation

Checking and assessing students' progress also plays a vital role in ecological civilization education, helping ensure that the learning outcomes support the preservation, respect, and protection of nature. Ecological education is a complex phenomenon, making it imperative to go beyond knowledge testing to assess shifts in attitudes, values, and behaviors. A structural system that assesses students takes into account their thinking, feelings, and actions and assists in estimating their ecological ability and the effects of education programs.

The promising option is self-report measures that have been demonstrated to measure knowledge, attitudes, and behaviors regarding ecological civilization. For instance, Ha et al.[17] developed a 20-item Ecological Civilization Theory (ECT) scale to measure students' knowledge concerning the ecology, its value, significance, and strategies. This study showed that as students scored higher in the ECT, they exhibited increased pro-ecological behavior and improved their positive ecological actions after learning about the ECT and the science of the ecology. Thus, the ecological civilization theory should be involved in the assessment of ecological knowledge. Similarly, the researchers noted that having a favorable attitude towards the ecology does not necessarily result in enduring emission-friendly decisions, as economic and technological factors may influence the decisions.

Apart from assessing people's knowledge, ecological education frameworks typically examine several other aspects, including knowledge, awareness, ethics, emotions, and behaviors related to the ecology. According to the case study in Guiyang City[17], residents stated that caring for the ecology was the most important factor, followed by understanding feelings and emotions, while their knowledge of ecologically friendly behavior was less prominent. By assessing all areas, teachers can realize where individual students are strong or weak in ecological knowledge and design suitable actions to enhance their ecological understanding. These frameworks demonstrate that learning about the ecology should foster knowledge, ethics, and appreciation for nature.

At the institutional and policy level, ecological civilization construction is measured using a combination of ecological, social, and economic indicators. For example, Li et al.[18] suggested using a system that evaluates ecological civilization by examining the green ecology, production, living conditions,

and infrastructure. Objective information and special weighting techniques, such as entropy, make these indices fairer and more accurate. Since they are designed for countries or small regions, their strategies can inform educational evaluation by incorporating multiple indicators and employing objective methods. An ecological education assessment should fit into broader sustainability evaluation schemes.

4.4. Case studies

4.4.1. Case study 1: Low-carbon development and renewable energy education in Sichuan province, China

Sichuan Province has developed successful low-carbon production mechanisms since 2011, and since then, the province has decoupled its carbon emissions with energy growth[19]. Institutions such as Sichuan Agricultural University, Jinjiang College, and Sichuan University dedicate themselves to educating students in renewable energy technologies and concepts related to a low-carbon economy through classes and research projects. The students participate in modelling, policy analysis, and carbon emissions accounting, which are supported by incentives for energy-efficient renovations promoted at the provincial level and regulations on emissions. Such inclusion of ecological principles in the education process leads to the development of ecological awareness and establishes graduates to play a role in achieving prospects and the accomplishment of zero emissions.

4.4.2. Case study 2: Wastewater treatment and environmental impact studies in Thailand's tourism and construction sectors

The environmental science and engineering departments in Thailand involve the students in research on wastewater management and assist in the research on the environmental effects of tourism and construction. Students utilize fieldwork to evaluate polluted water resources, implement innovative purification measures, and develop sustainable tourism and construction practices. Community outreach and policy advocacy are also encouraged in the curriculum to showcase knowledge of zero-emission policies and plans that aim to mitigate climate change. This practical philosophy produces graduates who possess both technical and social responsibility, enabling them to contribute to the development of an ecologically sustainable civilization.

4.5. Current challenges and recommendations

Several factors challenge the successful incorporation of ecological civilization ideas into university study programs. A lack of cohesive and comprehensive curriculum design is one of the primary challenges. Courses on ecological issues at many universities are often offered in isolation, which is itself inappropriate to the holistic nature of ecosystem civilization, resulting in students having incomplete and hollow knowledge. The integration of ecological civilization concepts into university curricula is prone to several issues that impede the successful implementation of the concept. The lack of coherent and holistic curriculum design is one of the significant barriers. Most universities teach ecological subjects in isolated modules, which fail to provide a unified picture of ecological civilization and result in incomplete and superficial learning. As cross-disciplinary integration is not being achieved, there cannot be a coherent understanding of the concepts of ecology, which reduces its effectiveness. There is also the effect of scarce skilled teachers who have been trained to integrate the principles of ecology into different subjects, and thus, there are limitations to transformational teaching. Most teachers are not adequately trained in presenting ecological concepts within the broader context of their discipline, resulting in a watered-down education provision [20].

In addition, institutional inertia and resistance to change are also significant drawbacks to the acceptance of ecological teaching. There is also a tendency to place great emphasis on teaching the standard economics and technical training that are supposed to have a more direct relevance to professional outcomes. Instead, ecological and ethical education is often pushed aside unwillingly. This deep-rooted orientation to more conservative topics, along with their outdated pedagogical patterns, hinders the fact that universities can afford to adopt more progressive and holistic approaches to teaching sustainability. Moreover, the lack of regulations and policies exacerbates the institution's commitment to ecological civilization education[21]. When there is no obligatory specification and only weak enforcement, ecological notions are relegated to the fringe rather than being at the core of education.

Moreover, there is reductionist and anthropocentric worldview that dominates most learning institutions. Such a mindset will view human actions and ecological structures differently instead of focusing on individualistic or disciplinary-based issues and will attempt a more interrelated, systems-based view of ecological problems. This has led to efforts at greening campuses being restricted to surface-level efficiency interventions rather than an underlying cultural transformation towards sustainability. The reason is that there is no comprehensive ecological framework in universities, and in this regard, students are not well-equipped to approach complex ecological issues in society presently.

Several suggestions can be made to address the difficulties above. First, universities must incorporate ecological civilization principles into their entire academic content. The integration would encompass ecological ethics, systems thinking, and sustainable living practices, allowing students to encounter these concepts at some point in their education and adopt them in their lives. Revision of the curriculum to include ecological thinking in essential subjects will evolve a more comprehensive learning process for students. In addition, faculty development should be invested heavily to facilitate the ability of well-prepared teachers to teach such concepts with full heart and soul. Continuous professional development and training on ecological issues will help instructors incorporate sustainability into their courses.

In addition, one approach that universities should consider when reevaluating their institutional mindsets is to adopt sustainability as a core value. The current trend could be reinforced through the modernization of institutional policies that focus on ecological education and research. Encouraging interdisciplinary research and collaboration between departments is likely to foster a more comprehensive understanding of ecological civilization[22]. Additionally, cooperation with ecological groups and community-based initiatives will provide students with practical and active opportunities to learn by connecting theory and practice.

Experiential learning, which is represented by field trips, community work, and ecological internships, should be employed to bridge the gap between theory and practice in academia. These activities enable students to develop a new awareness of ecological issues and apply the knowledge they have learned to take constructive action. Efforts in this direction should also be improved through government provisions that obligate and support ecological education in universities to the extent that they enable all institutions to incorporate ecological civilization into their study programs. Finally, international partnerships and knowledge transfer across university boundaries should also drive further ecological and educational advancement, building a worldwide network of sustainable universities.

5. Conclusion

The article highlights the relevance of incorporating the concept of ecological civilization into higher education to support sustainability education and foster sustainable behavior towards the ecology in students.

Universities can help develop a generation of graduates who are well-prepared and experienced in addressing the most pressing ecological problems of our time through an interdisciplinary approach. By embedding ecological principles into fundamental academic subjects, actively engaging their students, and creating alliances with ecological organizations, educational establishments can create a broader and more realistic ecological education structure.

Although the research has several strengths, it also acknowledges some weaknesses. The use of secondary data limited the possibility of taking the minimalistic range of current practices and issues in ecological education. Additionally, sources of primary empirical data are limited, which hinders the in-depth analysis of the barriers experienced by particular educators and institutions. This study could be supplemented with further research involving the direct collection of data, such as surveys and interviews with teachers, students, and policymakers, which would allow for a deeper insight into the process of integrating ecological civilization into higher education.

In conclusion, the project will, in turn, contribute to the debate on sustainability in education by providing specific proposals on how to incorporate the concept of ecological civilization into University curricula. It raises concerns about institutional value change, faculty development, and a need for a more integrative and holistic system orientation in ecological education. Overcoming the issues revealed in the current research, universities may take a central role in promoting the global shift toward a sustainable and ecologically friendly approach to nature.

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1. Research Project Title:*"Enhancing Targeted Approaches and Attractiveness of 'Wei Sizheng' (Micro Ideological-Political) Education in Language-Related Majors through Intelligent Technology"* (Project No. JY2552201)

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