

Article

Teaching Sustainability Through Ancient Texts: Digital Pedagogy and Environmental Humanities in Higher Education

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Abstract

Higher Education Institutions (HEIs) are increasingly called upon to integrate sustainability across curricula and to prepare students to respond critically and responsibly to complex environmental challenges. While sustainability education is often associated with scientific, technological, or policy-oriented disciplines, the contribution of the humanities remains underexplored, particularly in digitally mediated university teaching. This paper argues that ancient texts, approached through the lens of the Environmental Humanities and supported by digital pedagogy, can offer a valuable framework for fostering sustainability literacy in higher education. Drawing on a humanities-based pedagogical model, this article explores how practices such as collaborative close reading, ecocritical discussion, narrative mapping, reflective writing, and digital storytelling can help students connect classical representations of nature, fragility, order, and human responsibility with contemporary ecological concerns. These activities encourage the development of sustainability-related competencies—including critical thinking, ethical reflection, interpretive complexity, and ecological awareness—while also supporting Inner Development Goals such as self-awareness, empathy, relational thinking, and responsible action. Based on a conceptual pedagogical model supported by exploratory qualitative evidence from a small-scale higher education course, this paper suggests that digital pedagogy can make sustainability learning in the humanities more dialogic and reflective. In doing so, this article proposes a practice-based pedagogical framework that may help Higher Education Institutions explore ways of embedding sustainability meaningfully beyond traditionally environmental fields. This article's primary contribution is therefore pedagogical: it presents a humanities-based model for sustainability education while using exploratory qualitative evidence from one course context to illustrate how such a model may support interpretive, ethical, and sustainability-oriented learning.

Keywords: sustainability education; higher education; digital pedagogy; environmental humanities; ancient texts; inner development goals



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1. Introduction

Sustainability has become one of the most urgent challenges facing contemporary societies [1]. Climate change, biodiversity loss, environmental degradation, and resource depletion are increasingly recognized as interconnected crises that affect ecological systems, social structures, and economic models [2]. Addressing these challenges requires not only technological innovation and policy responses but also profound cultural and educational transformations capable of fostering new forms of awareness, responsibility, and action [3–5].

Within this context, Higher Education Institutions (HEIs) play a crucial role in preparing students to understand complex environmental problems and to contribute to sustainable futures [6]. Universities are increasingly expected to equip students with the knowledge, values, and critical capacities necessary to respond to environmental and societal challenges. Consequently, sustainability education has become an important objective in higher education, encouraging universities to integrate sustainability perspectives across curricula and learning environments [7].

However, sustainability education in higher education is still often concentrated in scientific, technological, and policy-oriented disciplines. Fields such as environmental science, engineering, and environmental management frequently take the lead in addressing sustainability issues within university programmes. While these approaches are essential, they risk framing sustainability primarily as a technical problem, thereby overlooking the cultural, ethical, and interpretive dimensions that shape human relationships with the environment.

In this respect, the humanities can play an important role in expanding sustainability education beyond technical frameworks. Through critical interpretation, historical reflection, and narrative analysis, humanities disciplines offer valuable perspectives on how societies understand nature, responsibility, and the limits of human action [8,9]. The emergence of the Environmental Humanities has further highlighted the importance of integrating cultural analysis, ethical inquiry, and historical awareness into discussions of ecological crisis.

Despite this growing interest, the pedagogical integration of humanities-based approaches into sustainability education remains limited. In particular, there is still limited research on how humanities-based teaching practices can contribute to sustainability learning within digitally mediated university environments. Moreover, the potential role of classical texts in fostering sustainability literacy and critical ecological reflection has received comparatively little attention within sustainability pedagogy.

In this article, sustainability literacy is understood as the capacity to interpret environmental challenges in relation to social, cultural, ethical, and ecological systems, and to engage critically with the values and assumptions that shape responses to sustainability problems.

This paper addresses this gap by proposing a humanities-based pedagogical model for sustainability education in higher education, grounded in the study of ancient texts and supported by digital learning environments. It proposes a pedagogical model in which collaborative reading, ecocritical discussion, narrative mapping, reflective writing, and digital storytelling enable students to connect classical representations of nature, fragility, and human responsibility with contemporary environmental concerns.

The article argues that integrating humanities-based pedagogical practices, supported by digital learning environments, can significantly enrich sustainability education by fostering sustainability literacy, critical reflection, and inner development across disciplines. In this framework, ancient texts are approached not only as historical artefacts but also as cultural resources that encourage students to reflect on enduring questions concerning human–environment relations, ecological vulnerability, and ethical responsibility.

Digital pedagogy plays an important role in supporting this approach. Digital platforms can facilitate collaborative interpretation, dialogic learning, and reflective engagement with texts, allowing students to explore connections between historical narratives and present-day sustainability challenges. When thoughtfully integrated into university teaching, digital learning environments can therefore support interdisciplinary approaches that combine interpretive inquiry, ethical reflection, and collaborative learning. In addition to fostering sustainability-related competencies—such as critical thinking, ecological aware-

ness, and ethical reflection—humanities-based sustainability education can also contribute to broader developmental capacities associated with the Inner Development Goals, including self-awareness, empathy, relational thinking, and responsible action. These dimensions are increasingly recognized as essential for addressing complex sustainability challenges, which require not only technical knowledge but also reflective, ethical, and value-oriented forms of understanding.

2. Materials and Methods

2.1. Research Design

The methodological section outlines the pedagogical design and qualitative approach used to explore how humanities-based teaching practices may support sustainability learning in higher education. This article presents a conceptual and practice-based pedagogical contribution supported by exploratory qualitative evidence from a bounded higher education course context. The qualitative component is used to illustrate how literary interpretation and digitally mediated learning activities may contribute to sustainability-oriented teaching within a humanities curriculum. Rather than testing predefined hypotheses through quantitative measurement, this study explores the implementation of a pedagogical model that integrates literary analysis, environmental reflection, and collaborative digital learning. The research design combines conceptual analysis with reflective pedagogical practice. The conceptual dimension draws on theoretical insights from the Environmental Humanities and sustainability education literature in order to frame the role of literary texts in fostering ecological awareness and ethical reflection. The pedagogical dimension focuses on the design and implementation of learning activities that engage students with classical texts through collaborative digital environments. This combined approach allows this study to investigate how interpretive engagement with literary materials may support the development of sustainability literacy within university teaching contexts. Given the exploratory and context-specific nature of this study, the aim is not to generate statistically generalizable findings, but to examine how a humanities-based pedagogical model may function within a specific higher education setting and to identify patterns of interpretive and reflective engagement that may inform future pedagogical research.

The article is therefore positioned as a conceptual and practice-based pedagogical contribution supported by exploratory qualitative evidence from one course-based case, rather than as a fully developed empirical qualitative study aimed at broad transferability.

Within this exploratory pedagogical framework, this study was guided by two qualitative research questions:

- (1) How do students engage interpretively and reflectively with ancient literary texts when these are taught through a digitally mediated sustainability-oriented pedagogical model?
- (2) What kinds of sustainability-related themes, ethical reflections, and relational understandings emerge from students' participation in collaborative and reflective learning activities based on classical texts?

2.2. Educational Context and Participants

The pedagogical model was developed and implemented within a university-level humanities course focusing on classical literature and cultural history. The course involved undergraduate students enrolled in a humanities programme. Students were typically between 20 and 23 years old and had prior experience with literary analysis but limited exposure to sustainability-related topics within humanities courses. The class included 19 students, and the course combined traditional literary analysis with digitally mediated learning activities designed to encourage collaborative interpretation and critical reflection.

Students participated in guided reading and interpretive discussions of selected classical texts, including works by authors such as Virgil, Ovid, and Lucretius. These texts were selected because of their rich representations of human–nature relationships and their potential to stimulate reflection on themes such as environmental balance, transformation, vulnerability, and the limits of human action. The course was conducted in a blended learning format that combined classroom discussion with online collaborative activities supported by a digital learning platform (e.g., Moodle-based discussion forums and collaborative annotation tools). The pedagogical sequence was implemented over the duration of a semester-long course and was organized through a series of interconnected classroom and online activities. The sequence included an initial phase of guided literary introduction, followed by collaborative close-reading activities, online ecocritical discussion forums, reflective writing tasks, and a final digital storytelling or multimodal reinterpretation activity. These activities were integrated into the regular course assessment context as part of normal participation and reflective engagement, rather than as a separate experimental intervention. This structure is important because this study focuses on how sustainability-oriented interpretive practices were embedded within routine humanities teaching rather than tested as an isolated instructional treatment.

2.3. Teaching Activities and Digital Learning Environment

The pedagogical model was structured around a series of learning activities designed to encourage critical engagement with literary texts and their relevance for contemporary environmental reflection. Digital tools were used to support collaborative interpretation and reflective dialogue among students.

The key teaching activities included the following:

- Collaborative close reading, in which students analyzed selected passages from classical texts through shared digital annotation and guided discussion.
- Ecocritical discussion forums, where students reflected on how literary representations of nature relate to contemporary environmental issues.
- Narrative mapping exercises, encouraging students to explore spatial and ecological dimensions of literary narratives.
- Reflective writing and digital storytelling, enabling students to connect literary themes with present-day sustainability challenges.

Digital platforms supported these activities by facilitating interaction, collaborative interpretation, and the sharing of reflections among participants. The integration of digital tools aimed to create a learning environment that combined traditional literary analysis with interactive and reflective pedagogical practices.

More specifically, the digital environment shaped the pedagogical process in three main ways. First, collaborative annotation tools enabled students to engage in layered close reading by attaching comments directly to textual passages and responding to one another's interpretations.

Second, online discussion forums extended interpretive dialogue beyond classroom time, allowing students to revisit themes, formulate more reflective responses, and engage asynchronously with peers' perspectives.

Third, digital storytelling tasks encouraged students to translate literary interpretation into multimodal forms of communication, thereby linking textual analysis to broader questions of sustainability communication and public meaning.

In practical terms, the digital tools were distributed across the teaching sequence according to function: annotation tools were used during close-reading activities, Moodle discussion forums supported asynchronous ecocritical dialogue between sessions, and digital storytelling tasks were assigned in the later phase of the course as reflective and com-

municative outputs. This sequencing was intended to move students from interpretation, to dialogue, to multimodal re-elaboration.

2.4. Data Sources and Analytical Approach

This study draws on qualitative material generated during the teaching process in order to explore how students engaged with literary texts and sustainability-related themes. The sources of qualitative evidence included the following:

- Students' reflective writings;
- Contributions to online discussion forums;
- Collaborative annotations of literary texts;
- Instructors' observations of classroom discussions and digital interactions.

The qualitative corpus consisted of the written and digital materials generated during the teaching sequence in which the sustainability-oriented activities were implemented. These included all reflective writing tasks completed within the course module, the full set of online discussion contributions related to the selected literary texts, collaborative annotations produced during the guided close-reading activities, and instructor field notes recorded during classroom and online interactions. The corpus was therefore bounded by a single course context, a defined group of 19 students, and the sequence of activities specifically designed for the pedagogical model discussed in this article. These materials were examined using qualitative thematic analysis aimed at identifying recurring patterns in students' reflections and interpretive responses. The analysis combined deductive and inductive coding. A formal codebook was not developed for inter-rater reliability purposes because the analysis was conducted as an exploratory interpretive reading within a bounded pedagogical case rather than as a fully standardized qualitative evaluation study. An initial set of analytical categories was informed by the conceptual focus of this study, including sustainability literacy, ecological awareness, ethical reflection, dialogic learning, and interpretive complexity. These categories were then refined through iterative close reading of the qualitative materials in order to identify recurring patterns, thematic variations, and emergent connections across student responses. As themes were progressively refined, attention was paid not only to recurrence but also to the ways in which similar ideas appeared across different types of material. To strengthen interpretive credibility, patterns were compared across reflective writings, discussion forum posts, collaborative annotations, and instructor observations. This process did not aim at statistical reliability, but at interpretive consistency and convergence across sources within the bounded course context. Rather than relying on a single type of evidence, the analysis sought convergence across these materials in order to support the interpretation of recurring themes. This form of qualitative triangulation does not eliminate subjectivity, but it helps reduce dependence on any single source of evidence and strengthens the internal consistency of the interpretive analysis. Reflexive attention was also paid to the instructor-researcher's dual role in the teaching and analytical process. At the same time, it should be noted that this triangulation remains internal to the pedagogical setting under investigation. All qualitative materials were generated within the same course environment and were interpreted within the same overarching research frame. For this reason, this study does not claim external validation in the form of independent raters, third-party assessment, or formally coded learning outcomes, and its findings should be read as interpretive and pedagogically exploratory rather than externally verified measures of impact. Although the corpus remained limited in scale, it was sufficient for the exploratory, pedagogically oriented analysis developed in this article.

The analysis involved iterative readings of the collected materials in order to identify emerging themes related to ecological awareness, ethical reflection, and the connections

students established between literary narratives and contemporary environmental issues. Particular attention was given to how students interpreted representations of human–nature relationships in classical texts and related them to broader environmental and social concerns. Through this interpretive process, the analysis explored how humanities-based learning activities may contribute to the development of sustainability literacy.

2.5. Ethical Considerations and Use of Artificial Intelligence Tools

All teaching activities were conducted within the normal framework of university instruction. Student participation in reflective activities and discussions formed part of standard course engagement. When examples of student reflections or discussion contributions were considered for analytical purposes, they were treated anonymously and students were informed that anonymized excerpts could be used for educational research purposes. According to the institutional procedures governing routine teaching-based educational research using anonymized course materials, formal ethics committee approval was not required in this case. However, because anonymized student materials were considered for research dissemination, informed consent was obtained from participants for their use in the present study.

Generative artificial intelligence tools were used during the preparation of this manuscript to assist with language editing and stylistic revision. No AI tools were used for data generation, analysis, or interpretation.

3. Humanities and Sustainability Education: Conceptual Foundations

In recent decades, sustainability education has become an increasingly prominent objective within higher education [10,11]. Universities are widely encouraged to integrate sustainability across curricula in order to equip students with the knowledge and skills necessary to address complex environmental challenges. This ambition is reflected in international policy frameworks, including the United Nations Sustainable Development Goals, which emphasize the importance of education in promoting sustainable development [12].

Despite this growing recognition, sustainability education within higher education institutions often remains concentrated in scientific, technological, and policy-oriented disciplines. Programmes in environmental science, engineering, environmental management, and public policy frequently serve as the primary institutional spaces where sustainability-related issues are addressed [13]. These disciplines play an essential role in developing the technical knowledge and analytical tools necessary to understand environmental systems and to design effective mitigation strategies [14].

However, the predominance of technically oriented approaches may also produce a partial understanding of sustainability challenges. Environmental problems are not solely technical or managerial issues; they are also deeply cultural, ethical, and interpretive. Questions concerning human responsibility toward nature, the limits of economic and technological growth, and the values that guide collective decision-making cannot be addressed exclusively through scientific analysis [15]. They require forms of reflection that engage with meaning, narrative, and moral imagination.

For this reason, scholars of sustainability education have increasingly emphasized the importance of interdisciplinary approaches that combine scientific knowledge with insights from the social sciences and the humanities. Humanities disciplines in particular offer valuable tools for exploring how societies conceptualize nature, responsibility, vulnerability, and environmental change. Through the interpretation of texts, narratives, and cultural representations, the humanities can help students critically examine the ethical and cultural assumptions that shape environmental attitudes and practices [16].

Yet the role of the humanities within sustainability education remains comparatively underdeveloped, especially in relation to concrete pedagogical models capable of integrating literary and cultural materials into interdisciplinary learning environments. Addressing this gap requires not only pedagogical innovation but also a reconsideration of the historical relationship between scientific knowledge and humanistic inquiry. As the following section will show, the separation between scientific and literary forms of knowledge is a relatively recent development. Throughout much of European intellectual history, literary and philosophical traditions played a significant role in articulating and interpreting knowledge about the natural world.

3.1. Humanities, Scientific Knowledge, and the Cultural Roots of Sustainability

Throughout European intellectual history, literary and philosophical traditions have frequently engaged with questions concerning the natural world, scientific knowledge, and the ethical implications of human action. While these interactions can be observed across several cultural contexts, the Italian humanistic tradition offers particularly clear examples of how literary forms have historically mediated scientific understanding and moral reflection. This brief historical overview is not intended as a comprehensive survey of the European humanities but rather uses the Italian tradition as a focused and historically coherent example of the long-standing interaction between literary culture, scientific knowledge, and ethical reflection.

The contemporary separation between scientific knowledge and the humanities often obscures a much longer intellectual tradition in which literary reflection, ethical inquiry, and the observation of the natural world were deeply interconnected [17,18]. Sustainability education, which requires both scientific understanding and ethical reflection, can benefit from revisiting this tradition. The humanities have historically functioned not merely as repositories of cultural memory but also as spaces where knowledge about nature, human responsibility, and the limits of progress has been articulated and debated [19].

A useful conceptual starting point for this reflection can be found in the work of the Italian philosopher Norberto Bobbio, who distinguished between the cumulative and largely irreversible nature of scientific and technological progress and the more fragile and discontinuous character of moral and civil progress [20]. While scientific knowledge tends to advance through the accumulation of discoveries and innovations, ethical and political achievements remain historically contingent and reversible. This distinction highlights a fundamental challenge for contemporary societies: technological capacity does not automatically translate into ethical responsibility or sustainable action. Addressing this gap requires forms of knowledge that can mediate between scientific understanding and moral reflection—precisely the kind of integrative perspective historically cultivated by the humanities [21].

From the Middle Ages onward, European intellectual culture frequently integrated scientific knowledge within literary and philosophical forms. Medieval encyclopedic traditions often conveyed cosmological and natural knowledge through poetic or narrative structures [22]. A well-known example is Brunetto Latini's *Tesoretto*, which presents elements of cosmology, natural philosophy, and ethical reflection in a poetic framework [23]. Similarly, Dante Alighieri's *Divine Comedy* incorporates extensive references to medieval astronomy, geography, and cosmology, situating human moral experience within a structured vision of the universe. In these works, knowledge of the natural world was not treated as a purely technical domain but as an essential component of moral and intellectual formation [24]. This integration became especially visible during the Renaissance, when humanist culture encouraged dialogue between artistic creativity, philosophical reflection, and empirical observation. Figures such as Leonardo da Vinci and Leon Battista Alberti exemplify this

synthesis, combining attention to the natural world with artistic, technical, and intellectual inquiry [25,26]. Nor did the emergence of modern science in the seventeenth century immediately sever these links. Early modern scientists such as Galileo Galilei and Francesco Redi continued to work within literary and rhetorical cultures shaped by humanistic education, showing that scientific investigation remained embedded in broader cultural forms of expression [27,28]. During the Enlightenment, this relationship acquired a stronger civic and political dimension, as scientific reasoning became increasingly connected with public debate, reform, and ideas of human progress [29–31].

The nineteenth century introduced a more complex and ambivalent reflection on scientific and technological progress. Literary authors increasingly engaged with the cultural and existential implications of scientific modernity. Giacomo Leopardi's philosophical poetry, for example, reflects on humanity's fragile position within an indifferent natural universe, anticipating themes that resonate strongly with contemporary ecological thought [32]. Later authors such as Giovanni Verga and Giovanni Pascoli also explored the tensions between modernization, environmental transformation, and human vulnerability, offering literary perspectives on processes of social and ecological change [33].

In the twentieth century, the dialogue between scientific knowledge and literary reflection continued to evolve in response to new intellectual and historical contexts. Writers such as Italo Svevo engaged with emerging scientific paradigms including Darwinian evolution and Freudian psychoanalysis, while authors like Carlo Emilio Gadda incorporated scientific and technical knowledge into complex narrative structures that reflected the fragmented character of modern experience [34,35]. Perhaps the most powerful example of this convergence between scientific knowledge, ethical reflection, and literary expression can be found in the work of Primo Levi. As both a chemist and a writer, Levi explored the moral implications of scientific knowledge and technological modernity, demonstrating how scientific expertise and humanistic reflection can illuminate fundamental questions about responsibility, memory, and human dignity [36]. Taken together, these examples suggest that the humanities have long functioned as spaces in which scientific knowledge, ethical reflection, and narrative interpretation intersect. For sustainability education, which requires both scientific understanding and moral imagination, this historical continuity provides an important pedagogical resource. Recognizing this continuity helps clarify why literary texts can serve as valuable tools for reflecting on ecological fragility, human responsibility, and the limits of progress. This perspective provides the conceptual background for the pedagogical model discussed in the following sections.

3.2. Theoretical Framework

Building on the historical relationship between literary culture and scientific knowledge discussed in the previous section, this theoretical framework draws on insights from the Environmental Humanities to explore how literary texts can contribute to ecological interpretation and sustainability literacy. If the humanities have historically functioned as spaces where reflections on nature, knowledge, and human responsibility intersect, contemporary scholarship in the Environmental Humanities provides conceptual tools for understanding how cultural narratives shape environmental awareness and ethical reflection. Within this perspective, ancient literary texts can be understood not only as historical documents but also as cultural archives that preserve and transmit ways of interpreting the relationship between humans and the natural world.

In this study, the relationship between Environmental Humanities, digital pedagogy, and sustainability learning is understood as pedagogically sequential rather than merely associative. The Environmental Humanities provide the interpretive lens through which literary texts are approached as culturally and ethically meaningful narratives of human–

nature relations, fragility, transformation, and responsibility. Digital pedagogy, in turn, creates the dialogic and collaborative conditions through which students can engage these texts through annotation, discussion, and reflective exchange. Through this iterative process of literary interpretation, dialogic learning, and reflective repositioning, students may develop forms of sustainability literacy understood as the ability to interpret environmental issues in relation to cultural narratives, ethical assumptions, and relational responsibilities. Within the same process, selected Inner Development Goals—such as self-awareness, empathy, relational thinking, and responsible reflection—are approached not as directly measurable outputs, but as capacities that may be activated and strengthened through sustained interpretive and collaborative engagement.

3.3. *Environmental Humanities and Ecological Interpretation*

In this study, Environmental Humanities is understood as an interdisciplinary field that brings together literary studies, history, philosophy, cultural studies, and related disciplines in order to examine how environmental issues are shaped by narratives, values, historical memory, and cultural interpretation. Rather than treating ecological crises solely as technical or scientific problems, this perspective emphasizes their ethical, symbolic, and interpretive dimensions [37].

A central premise of this field is that the environment cannot be understood merely as a physical or ecological system. Instead, it must also be interpreted as a network of relationships linking human communities, cultural meanings, and non-human forms of life. Environmental questions therefore involve not only scientific knowledge about ecosystems but also cultural interpretations of nature, ideas of responsibility, and collective imaginaries that influence how societies relate to the natural world.

Literary texts play a particularly significant role within this framework because they provide access to the symbolic and narrative dimensions through which environmental realities are perceived and interpreted. Through metaphor, narrative structure, and imaginative representation, literature can articulate complex relationships between humans and their environments, often revealing ethical tensions and existential questions that may remain invisible within purely scientific discourse. Literary works do not simply describe nature; they shape ways of thinking about ecological vulnerability, human agency, and the limits of technological or economic progress [38].

Environmental Humanities scholars have therefore emphasized the importance of examining cultural narratives about nature as part of a broader effort to understand contemporary ecological crises. Cultural memory, literary representation, and symbolic imaginaries all contribute to shaping how environmental problems are interpreted and addressed. In this sense, literature can function as a site where ecological awareness and ethical reflection intersect, enabling readers to explore alternative perspectives on the relationship between human societies and the natural world [18].

This interpretive dimension is particularly relevant for sustainability education. Addressing environmental challenges requires not only scientific understanding but also the capacity to reflect critically on cultural assumptions about nature, progress, and human responsibility [39]. The Environmental Humanities provide a conceptual framework for integrating these dimensions, highlighting how literary and cultural analysis can contribute to a deeper understanding of environmental problems and their ethical implications.

3.4. *Ancient Texts as Cultural Archives of Environmental Thought*

Within this perspective, ancient literary texts can be interpreted as cultural archives that preserve long-standing reflections on the relationship between human beings and the natural world. Classical literature frequently engages with themes that resonate strongly

with contemporary ecological concerns, including the fragility of natural systems, the limits of human ambition, and the ethical implications of human intervention in the environment.

These texts offer insights into cultural conceptions of nature that have shaped Western intellectual traditions over centuries. Rather than presenting nature as a passive background for human activity, many classical works explore complex interactions between human agency, natural forces, and cosmic order. Concepts such as balance, measure, vulnerability, and the consequences of excess frequently emerge within these narratives, inviting readers to reflect on the boundaries between human aspiration and ecological limits.

Latin literary traditions provide particularly rich examples of such reflections. In Virgil's works, for instance, nature is represented both as a productive and fragile system whose rhythms require careful human stewardship. The *Georgics*, in particular, explore agricultural labour as a form of interaction between human effort and natural processes, emphasizing the delicate balance between cultivation and environmental forces [40]. Similarly, Ovid's *Metamorphoses* presents a universe characterized by continuous transformation, where boundaries between humans, animals, plants, and landscapes remain fluid and unstable [41]. Through these narratives of transformation, the text invites reflection on the interconnectedness of life and the dynamic character of the natural world. These literary representations offer particularly valuable material for educational contexts, as they invite students to reflect on themes such as transformation, ecological interconnectedness, and the limits of human control over natural processes.

Other classical authors also contribute to this cultural archive of environmental thought. Lucretius, in *De rerum natura*, offers a philosophical exploration of the material universe that emphasizes natural processes, cosmic change, and the place of human beings within a broader system of matter and motion [42,43]. Pliny the Elder's *Natural History* represents another remarkable attempt to catalogue and interpret the diversity of the natural world, reflecting an early effort to systematize knowledge about nature while simultaneously acknowledging its complexity and vastness [44].

Although these texts emerged within cultural contexts very different from contemporary environmental debates, they nonetheless provide valuable perspectives on enduring questions concerning human responsibility, ecological fragility, and the limits of progress. By engaging with these works through ecocritical interpretation, readers can explore how earlier cultures conceptualized relationships between humans and the natural environment, thereby gaining insight into the historical roots of contemporary ecological thought.

From an educational perspective, these texts offer more than historical information. They function as intellectual resources that allow students to examine how cultural narratives about nature have evolved over time and how ideas of balance, order, and human responsibility have been articulated in different historical contexts. In this sense, ancient texts can support sustainability education by encouraging students to reflect on long-standing cultural debates concerning humanity's place within the natural world [45,46].

3.5. Sustainability Literacy and the Role of the Humanities

The interpretive engagement with literary texts also contributes to the development of what scholars have increasingly described as sustainability literacy. This concept refers to the ability to understand and critically interpret the complex relationships between environmental systems, social practices, cultural narratives, and ethical responsibilities. Sustainability literacy extends beyond technical knowledge of ecological processes. It involves the ability to interpret environmental issues within their broader cultural, social, and ethical contexts [47,48].

Within higher education, developing sustainability literacy requires pedagogical approaches that encourage students to integrate different forms of knowledge and to reflect

critically on the values that shape environmental decision-making. Humanities disciplines play a crucial role in this process because they cultivate interpretive skills, ethical reflection, and historical awareness—competencies that are essential for understanding the cultural dimensions of sustainability challenges [49,50].

Through the interpretation of literary texts, students can examine how narratives about nature, progress, and human agency have influenced environmental attitudes across time. Literature invites readers to consider multiple perspectives, to question dominant assumptions, and to engage imaginatively with alternative visions of human–environment relationships. These interpretive processes can foster forms of ecological awareness that complement scientific understanding and support more holistic approaches to sustainability [51,52].

Moreover, humanities-based approaches to sustainability education can contribute to the development of broader reflective capacities that have recently been conceptualized within the framework of the Inner Development Goals. These include forms of self-awareness, empathy, relational thinking, and ethical responsibility that are essential for addressing complex sustainability challenges. By engaging students with narratives that explore human vulnerability, ecological fragility, and the consequences of human action, literary education can encourage deeper reflection on the moral dimensions of environmental responsibility [53,54].

In this way, the humanities contribute not only cultural knowledge but also interpretive practices that foster sustainability literacy. By connecting literary interpretation with environmental reflection, they help integrate scientific understanding with ethical awareness and cultural analysis.

4. Digital Pedagogy for Sustainability in Higher Education

- From Transmission to Relational and Reflective Learning

The integration of digital technologies into higher education has significantly transformed teaching and learning environments over the past two decades. Initially, many forms of digital learning were designed primarily to replicate traditional models of knowledge transmission, in which digital platforms functioned mainly as repositories of content and tools for the delivery of lectures or instructional materials. Within this model, learning remained largely teacher-centred, and the digital environment served primarily to facilitate access to information rather than to reshape the pedagogical process itself [55–57].

In recent years, however, scholarship on digital pedagogy has increasingly emphasized the potential of digital environments to support more interactive, collaborative, and reflective forms of learning. Rather than functioning merely as channels for the transmission of information, digital platforms can create spaces where students actively participate in the construction of knowledge through dialogue, interpretation, and shared inquiry. This shift from transmissive to relational models of learning is particularly relevant in the context of sustainability education, where complex environmental challenges require forms of thinking that integrate multiple perspectives, ethical reflection, and interdisciplinary understanding [58,59].

From this perspective, digital pedagogy can be understood not simply as the use of technological tools in teaching, but as a broader pedagogical approach that reconfigures the relationships between teachers, students, and knowledge. Digital environments can facilitate forms of relational learning in which students engage with texts, ideas, and one another through collaborative interpretation and discussion [60]. Online platforms, discussion forums, and shared annotation tools allow learners to interact with materials and with their peers in ways that extend beyond the temporal and spatial limits of the traditional classroom. In this article, digital pedagogy is understood not simply as the use

of digital tools in teaching, but as a pedagogical approach in which digital environments actively shape interaction, reflection, collaboration, and the co-construction of knowledge.

Such relational learning environments can be particularly valuable for humanities-based sustainability education. Literary interpretation, by its nature, often benefits from dialogic engagement in which multiple perspectives contribute to the exploration of meaning [47]. Digital platforms can support this process by enabling students to collaboratively annotate texts, exchange interpretations, and reflect collectively on themes such as human responsibility, ecological fragility, and the ethical implications of environmental change. Through these interactions, students participate in a process of co-constructing knowledge that mirrors the interpretive practices characteristic of the humanities [61].

Digital pedagogy can also foster reflective learning processes that are central to sustainability education. Environmental challenges are not only scientific or technical issues but also involve questions of values, responsibility, and ethical decision-making. Learning environments that encourage reflection, dialogue, and critical questioning can help students examine the cultural assumptions and ethical perspectives that shape human–environment relationships. Digital tools such as reflective journals, collaborative writing platforms, and discussion forums create opportunities for students to articulate their interpretations, reconsider their assumptions, and engage with alternative viewpoints [62–64].

Another important dimension of digital pedagogy concerns its potential to enhance accessibility and inclusivity within higher education. Digital learning environments can support diverse forms of participation, allowing students to contribute through different modes of communication, including written discussion, multimedia responses, and collaborative digital projects. This flexibility can make learning more accessible for students with different learning styles and backgrounds, fostering a more inclusive educational environment [65].

Furthermore, digital pedagogical approaches have proven particularly relevant in blended and distance learning contexts, which have become increasingly common in higher education. Online and hybrid learning environments enable sustained interaction among students even when physical classroom meetings are limited. For courses that incorporate textual interpretation and reflective discussion, digital platforms can extend the space of dialogue beyond scheduled class time, allowing students to continue engaging with texts and ideas asynchronously [66–68]. In the context of sustainability education, this capacity for sustained and collaborative engagement is especially valuable. Environmental questions often require long-term reflection and the integration of diverse disciplinary perspectives. Digital environments can facilitate interdisciplinary dialogue and collective exploration of complex issues, enabling students to connect literary narratives, cultural analysis, and contemporary environmental challenges [69].

Within the framework of this study, digital pedagogy therefore functions not as the primary object of investigation but as a mediating infrastructure that supports humanities-based sustainability learning. By enabling collaborative interpretation, reflective discussion, and dialogic engagement with literary texts, digital learning environments create conditions in which students can explore the ethical and cultural dimensions of environmental challenges. In this sense, digital pedagogy contributes to the development of sustainability literacy not by replacing traditional forms of literary analysis, but by expanding the interpretive space in which students engage with texts and with one another.

The following section presents the pedagogical model developed within this framework, illustrating how digitally mediated learning activities can support sustainability-oriented humanities education in higher education contexts. In the context of the present study, these digital functions were operationalized through Moodle-based discussion spaces, shared annotation practices, and multimodal student outputs. Their pedagogical

value did not lie simply in increasing access to materials, but in structuring the temporal and dialogic conditions of interpretation: slowing down reading, making peer responses visible, extending discussion beyond the classroom, and enabling students to return to texts through iterative reflection.

5. Pedagogical Model and Teaching Design

- A Humanities-Based Model for Sustainability Education in Higher Education

This section presents the pedagogical model developed in this study for integrating sustainability education within humanities-based university teaching. The model combines literary interpretation, digital pedagogy, and environmental reflection in order to foster sustainability literacy and critical engagement with environmental issues.

The article's primary aim is to articulate and illustrate a humanities-based pedagogical model for sustainability education, using exploratory qualitative evidence from a single course context rather than offering a fully developed empirical evaluation of learning outcomes. The proposed model aims to demonstrate how classical literary texts can be used within digitally mediated learning environments to encourage students to reflect on ecological relationships, ethical responsibility, and the cultural dimensions of sustainability. The pedagogical approach builds on the theoretical framework discussed in the previous sections and translates its principles into a structured sequence of learning activities designed for higher education contexts.

More specifically, the model assumes that ancient texts provide the narrative and ethical material for ecological reflection, that Environmental Humanities frame the interpretive reading of these materials, and that digital pedagogy supports the collaborative and reflective processes through which students engage with them. Sustainability-related competencies and selected inner capacities are therefore approached as emerging from this interaction between textual interpretation, dialogic learning, and reflective pedagogical design.

5.1. Educational Context

The pedagogical model was implemented within a university-level humanities course focusing on classical literature and cultural history. The course was attended by undergraduate students enrolled in a humanities program and combined traditional literary analysis with digitally mediated learning activities.

The course was delivered in a blended learning format, integrating in-person classroom discussions with online collaborative activities. A digital learning platform was used to support interaction among students, facilitate collaborative text analysis, and enable reflective discussions extending beyond scheduled class time.

Within this context, classical texts by authors such as Virgil, Ovid, and Lucretius were selected as core materials for analysis. These works provide rich representations of human–nature relationships and explore themes such as environmental balance, transformation, fragility, and the limits of human action. Their interpretive potential makes them particularly suitable for encouraging reflection on contemporary sustainability challenges.

5.2. Learning Objectives

The pedagogical model is designed to pursue several complementary learning objectives related to sustainability education within the humanities.

First, the model aims to support the development of sustainability literacy, understood as the capacity to interpret the complex relationships linking environmental systems, cultural narratives, and ethical responsibility.

Second, the learning activities seek to encourage critical reflection on the cultural assumptions that shape human attitudes toward nature, technological progress, and environmental responsibility.

Third, the model promotes connections between ancient literary representations of nature and contemporary environmental challenges. By examining how classical texts articulate themes such as balance, transformation, and ecological vulnerability, students are encouraged to reflect on the long cultural history of human–environment relations.

Finally, the pedagogical design aims to cultivate dialogic, ethical, and interpretive competencies that enable students to engage constructively with complex sustainability issues. Through collaborative interpretation and reflective discussion, students develop skills of critical reasoning, ethical reflection, and interdisciplinary understanding.

These objectives informed the instructional design of the course activities. The pedagogical sequence was therefore developed not only to support literary interpretation, but also to cultivate forms of ecological awareness, ethical reflection, dialogic learning, and selected inner capacities associated with sustainability-oriented education.

5.3. Teaching Activities

The pedagogical model is structured around a set of interconnected learning activities that combine literary interpretation with digital collaboration and reflective engagement.

One of the central activities is collaborative close reading. Students work together to analyze selected passages from classical texts, focusing on literary representations of nature, environmental processes, and human interaction with the natural world. Digital annotation tools allow students to comment on passages, share interpretations, and build collective analyses of the texts.

A second activity consists of ecocritical discussion forums, where students reflect on the environmental themes emerging from the texts and discuss their relevance for contemporary ecological issues. These discussions encourage students to compare historical perspectives on nature with present-day environmental concerns.

Additional activities include narrative mapping exercises, in which students explore spatial and environmental dimensions of literary narratives, and digital storytelling tasks, where students reinterpret literary themes through short multimedia projects or podcasts addressing contemporary sustainability challenges.

Finally, students engage in reflective writing activities that invite them to articulate personal and critical responses to the texts and to consider how literary narratives can shape environmental awareness and ethical reflection.

Through this combination of interpretive, collaborative, and reflective activities, the pedagogical model encourages students to move beyond passive reading toward active engagement with literary texts and environmental questions.

5.4. Role of the Instructor

Within this pedagogical model, the role of the instructor shifts from that of a traditional transmitter of knowledge to that of a facilitator of collaborative learning and critical reflection. The instructor guides students in interpreting literary texts while encouraging open dialogue and multiple perspectives. Rather than providing definitive interpretations, the instructor supports the process of collective inquiry by posing questions, highlighting thematic connections, and encouraging students to explore the broader cultural and environmental implications of the texts. The instructor also functions as an interdisciplinary mediator, helping students connect literary analysis with insights from environmental thought, ethics, and sustainability studies. In this role, the instructor facilitates the integration of humanities-based interpretation with broader discussions about ecological

responsibility and social change. Finally, the instructor plays an important role in helping students connect text, context, and sustainability challenges. By situating classical texts within both their historical contexts and contemporary environmental debates, the instructor encourages students to recognize how literary narratives can contribute to ongoing reflections about human–environment relationships.

Taken together, these activities were designed as an integrated pedagogical sequence in which literary interpretation, digital dialogue, and reflective practice worked in combination rather than in isolation. For this reason, the competencies and inner capacities discussed in the following sections should be understood as pedagogical targets embedded in the instructional design, not as discrete outcomes attributable to single activities in a strictly causal sense.

6. Preliminary Qualitative Evidence

To provide preliminary evidence of the pedagogical model's value, the present study draws on qualitative material generated during the teaching activities described in the previous section. These materials include student reflective writings, contributions to online discussion forums, collaborative annotations of literary texts, and structured instructor observations of classroom and online interactions. Because the article is pedagogically oriented and supported by exploratory qualitative evidence, the discussion below does not present an exhaustive quotation-based analysis, but highlights broad interpretive tendencies observed across the course materials.

Rather than aiming to produce statistically generalizable results, the analysis seeks to identify patterns of engagement that illustrate how humanities-based sustainability learning can unfold in a university context. These findings should therefore be understood as preliminary and illustrative, offering insight into the pedagogical dynamics of a specific course context rather than broad claims about humanities-based sustainability education in general. The limited number of participants and the specific disciplinary context of the course require caution in extending these observations beyond this setting.

The qualitative materials were examined through an interpretive thematic analysis focusing on how students connected literary narratives with environmental reflection and contemporary sustainability concerns. Particular attention was given to recurring themes related to ecological awareness, ethical reflection, interpretive complexity, and the ability to establish connections between historical texts and present-day environmental challenges.

One of the clearest tendencies observed during the course was sustained student participation in collaborative interpretive activities. The use of digital annotation tools and online discussion forums appeared to encourage students to share interpretations, revisit literary passages, and respond to the perspectives of their peers. In this respect, the activities seemed to support forms of dialogic literary engagement that moved beyond isolated individual reading. The digital tools did not function only as delivery supports but also appeared to shape the rhythm and visibility of student engagement. Collaborative annotation made interpretive responses visible at the level of specific passages, while online forums seemed to support more delayed and reflective forms of participation. Digital storytelling tasks, in turn, appeared to encourage students to re-elaborate literary interpretation in multimodal forms connected to broader sustainability-related meanings.

Across the course materials, some recurring interpretive tendencies appeared to concern relationships between literary representations of nature and broader environmental themes. In discussions of Virgil's *Georgics*, for example, the activities seemed to prompt reflection on agricultural labor, natural cycles, balance, and dependence on forces not fully controllable by humans. In work related to Ovid's *Metamorphoses*, the materials suggested forms of reflection on transformation, instability, and the vulnerability of boundaries

between human and non-human life. More broadly, reflective writing and discussion activities often appeared to invite ethical consideration of responsibility, ecological limits, and the tension between human ambition and the fragility of natural systems. In this respect, the pedagogical sequence seemed to encourage reflection on environmental responsibility, technological ambition, and the ethical dimensions of decision-making, while remaining exploratory and context-specific in scope. Instructor observations further suggested that digital learning environments supported sustained dialogue and reflection. Because discussions continued through online forums and collaborative annotation platforms, students were able to revisit passages, respond to earlier comments, and develop more nuanced interpretations over time. This extended interaction appeared to encourage deeper engagement with both the literary material and the environmental themes explored in the course. Taken together, these observations suggest that humanities-based learning activities supported by digital pedagogy can create productive spaces for exploring the cultural and ethical dimensions of sustainability. While the qualitative evidence presented here is exploratory and limited to a specific educational context, it indicates that collaborative literary interpretation can encourage students to connect historical narratives with contemporary environmental challenges and to reflect critically on the relationship between human societies and the natural world. These preliminary findings provide qualitative support for the broader argument of this article, suggesting that humanities-based pedagogical approaches, when integrated with digitally mediated learning environments, can contribute meaningfully to sustainability literacy in specific higher education contexts.

7. Mapping Teaching Activities to Sustainability Competencies and Inner Development Goals

This section examines how the pedagogical activities described above contribute to the development of sustainability-related competencies and Inner Development Goals (IDGs). While sustainability education is often associated with technical knowledge about environmental systems, recent scholarship emphasizes the importance of cultivating broader cognitive, ethical, and relational capacities that enable individuals to respond effectively to complex sustainability challenges.

Within this framework, the humanities can play a particularly important role by fostering interpretive skills, ethical reflection, and narrative understanding. Through the analysis of literary texts and collaborative discussion, students can develop competencies that support both sustainability literacy and the inner capacities required for responsible action in complex social and ecological contexts [70–72].

7.1. Sustainability Competencies

Sustainability education in higher education aims not only to transmit knowledge about environmental problems but also to cultivate a set of competencies that enable students to critically interpret environmental issues and to engage constructively with sustainability challenges. Among the competencies most relevant to humanities-based sustainability education are critical thinking, ecological awareness, and ethical reasoning. Through the interpretation of literary narratives, students learn to analyze complex representations of human–nature relationships and to question cultural assumptions about progress, technological control, and environmental responsibility.

Another important competency is systems thinking, which involves the ability to recognize interconnections between social, cultural, and ecological processes. Literary texts often depict these relationships through narrative structures that reveal the consequences of human actions within broader natural systems. Humanities-based approaches can also foster narrative competence, understood as the ability to interpret and construct narratives that

shape cultural understandings of environmental issues. Because environmental challenges are frequently communicated through stories about risk, loss, transformation, and responsibility, narrative competence becomes an important component of sustainability literacy.

Finally, sustainability communication represents a further key competency. Through discussion, collaborative interpretation, and reflective writing, students develop the ability to articulate complex environmental ideas and to engage in dialogue about sustainability-related issues.

7.2. Inner Development Goals

In addition to these cognitive and communicative competencies, sustainability education increasingly recognizes the importance of cultivating inner capacities that support ethical awareness and responsible engagement with global challenges. The framework of the Inner Development Goals (IDGs) highlights several dimensions that are particularly relevant in educational contexts [73–75].

Among these dimensions are self-awareness and critical reflection, which enable students to examine their own assumptions and values in relation to environmental issues. Literary interpretation provides a particularly effective space for this kind of reflective engagement, as students encounter narratives that challenge established perspectives and invite deeper consideration of human–environment relationships. Other relevant dimensions include empathy and relational thinking, which support the ability to understand multiple perspectives and recognize the interconnectedness of human and non-human systems. Literary texts often explore experiences of vulnerability, transformation, and coexistence with the natural world, encouraging readers to reflect on forms of interdependence that extend beyond human societies.

Finally, responsible action represents a key dimension of the IDG framework. While classroom activities do not directly translate into environmental action, they can cultivate the ethical awareness and reflective capacities that support responsible engagement with sustainability challenges.

7.3. Pedagogical Mapping

The pedagogical activities described in the previous sections can therefore be understood as contributing simultaneously to the development of sustainability competencies and Inner Development Goals. The following Table 1 summarizes the pedagogical alignment between the main learning activities implemented in the course and the competencies and inner capacities they were designed to support. This mapping is intended to make explicit the design logic embedded in the pedagogical model. It does not function as a measurement framework or as evidence of direct causal outcomes. Rather, it provides a theoretically informed account of how specific forms of literary, dialogic, digital, and reflective engagement were expected to support particular dimensions of student learning within the course design.

Table 1. Pedagogical alignment between course learning activities and targeted competencies and inner capacities.

| Teaching Activity | Sustainability Competencies | Inner Development Goals |
|-------------------------------|---|--------------------------------------|
| Collaborative close reading | Interpretive complexity, ethical reasoning, critical thinking | Self-awareness, critical reflection |
| Ecocritical discussion forums | Dialogic reasoning, ecological awareness, plural perspectives | Empathy, relational thinking |
| Narrative mapping | Systems thinking, place-based learning | Connectedness, perspective awareness |
| Digital storytelling/podcasts | Sustainability communication, narrative competence | Courage, co-creation |
| Reflective writing | Metacognition, responsible environmental awareness | Being, integrity, responsible action |

This mapping illustrates how humanities-based teaching practices can support both cognitive and reflective dimensions of sustainability education. By engaging students in collaborative interpretation, dialogic discussion, and reflective writing, the pedagogical model encourages the development of interpretive competencies alongside the inner capacities necessary for ethical engagement with environmental challenges.

Taken together, these findings reinforce the broader argument of this article: that humanities-based sustainability education, when supported by digital pedagogical environments, can contribute meaningfully to the development of both sustainability literacy and the inner capacities required for responsible participation in a complex and changing world.

8. Discussion and Conclusions

- Towards an Integrated, Cross-Disciplinary Model of Sustainability Education in Higher Education

The findings of this study highlight the significant yet often underexplored contribution that humanities-based approaches can make to sustainability education in higher education. While sustainability challenges are frequently addressed through scientific, technological, and policy-oriented frameworks, the results of this pedagogical model demonstrate that such approaches can be meaningfully enriched by the interpretive, ethical, and cultural perspectives offered by the humanities. Environmental issues are not solely technical problems requiring scientific solutions; they are also deeply embedded in cultural narratives, value systems, and historically situated understandings of human–nature relationships.

Within this context, literary texts emerge as particularly powerful pedagogical resources. Classical works, such as those examined in this study, offer enduring reflections on themes that resonate strongly with contemporary environmental concerns, including ecological fragility, the consequences of human intervention, and the ethical implications of ambition and technological progress. Through interpretive engagement with these narratives, students are encouraged to critically examine the cultural and historical roots of current environmental debates, developing a more nuanced and reflective understanding of sustainability.

A key contribution of this study lies in demonstrating how humanities-based learning can foster interpretive complexity, an essential competency for addressing environmental challenges. Literary narratives often present ambiguous, multilayered representations of human–nature interactions, prompting students to engage with multiple perspectives and to consider the unintended consequences of human actions. This openness to interpretation supports the development of critical thinking, ethical awareness, and narrative competence—capacities that are central to sustainability education.

The integration of digital pedagogy further enhances this process by creating learning environments that support collaborative interpretation and dialogic engagement. The digital tools employed in this study enabled sustained interaction among students, facilitating the exchange of perspectives and the co-construction of knowledge. In this sense, digital platforms function not merely as technological supports but as relational infrastructures that expand the interpretive space and make learning processes more interactive, inclusive, and reflective.

Another important implication concerns the transferability and scalability of the pedagogical model. Although implemented within a humanities course focused on classical literature, the core principles underpinning the model—collaborative interpretation, reflective dialogue, and the integration of cultural narratives with environmental reflection—may be adaptable across a range of disciplinary contexts, although this possibility remains to be tested beyond the specific course setting discussed here. Sustainability education in-

herently requires interdisciplinary engagement, and humanities-based approaches can complement scientific and technical perspectives by addressing the ethical, cultural, and narrative dimensions of environmental challenges.

The qualitative evidence presented in this study suggests that such integrative pedagogical practices can support the development of both sustainability-related competencies—including critical thinking, ecological awareness, and sustainability communication—and inner capacities, such as self-awareness, empathy, and responsible action, in line with the framework of the Inner Development Goals. These findings reinforce the idea that sustainability education should not be limited to the transmission of knowledge but should also engage students at the level of values, identity, and ethical responsibility. At the same time, the present study remains limited to a small-scale qualitative implementation within a single course context. For this reason, the pedagogical value of the model should be considered suggestive rather than broadly representative, and its applicability across other disciplinary, institutional, or student contexts remains to be tested empirically. In addition, this study relies on qualitative materials generated within the teaching process itself and does not include external validation measures such as third-party assessment, formal learning outcome coding, or independent expert review. A further limitation concerns the dual role of the instructor as both teacher and researcher. While this position enabled close observation of students' engagement and learning processes, it may also have also shaped both the interpretation of the materials and the framing of the pedagogical outcomes. For this reason, the analysis should be read with reflexive caution, and future studies would benefit from additional external perspectives. The findings should therefore be read as interpretive and pedagogical rather than as externally validated evidence of impact. Future research could extend this pedagogical model across a broader range of institutional and disciplinary settings, involving larger student cohorts and additional forms of qualitative triangulation, such as interviews with instructors, curriculum designers, or sustainability education experts. Such developments would help further test the transferability and interpretive value of the model. Taken together, these considerations point toward the need for a cross-disciplinary reconfiguration of sustainability education in higher education. Rather than being confined to environmentally oriented disciplines, sustainability should be understood as a shared educational responsibility across the university. Humanities disciplines, with their emphasis on interpretation, ethical reflection, and narrative understanding, can play a crucial role in broadening the epistemological scope of sustainability education and in fostering more holistic forms of learning.

If higher education institutions are to effectively prepare students for the complexities of sustainable futures, they must adopt pedagogical models that integrate ecological knowledge with cultural interpretation, critical reflection, and responsible action. The model proposed in this study represents one possible pathway in this direction, demonstrating how humanities-based approaches, supported by digital pedagogies, may contribute to a more comprehensive and potentially transformative vision of sustainability education, while requiring further testing across broader educational contexts.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in this study. The study was conducted within the framework of regular university teaching activities, and no sensitive personal data were collected. Students were informed that anonymized excerpts of their reflections and contributions could be used for research purposes, and all data have been treated in an anonymous and aggregated form.

Data Availability Statement: The qualitative materials generated and analyzed during the current study are not publicly available due to privacy and ethical considerations involving student participation, but anonymized excerpts may be available from the author upon reasonable request.

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