

LIFELONG CITIZENSHIP: INTEGRATING ECOLOGICAL VALUES INTO PODCASTER-BASED DIGITAL LEARNING

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ABSTRACT

The principle of lifelong citizenship plays a crucial role in fostering citizens' ecological awareness and responsibility in the digital age. This study aims to integrate lifelong citizenship values through podcast technology in ecological citizenship learning. The research method employed a qualitative approach with a case study design, implemented in the Wetland Environmental Citizenship course in the Civics Study Program at Universitas Lambung Mangkurat. Respondents comprised four lecturers and 12 students, selected through purposive sampling. Data were collected through in-depth interviews, observation, and document analysis, and validated using source triangulation and member checking. Data analysis was conducted interactively through the stages of data condensation, data presentation, and conclusion drawing. The results showed that using podcast media provides flexibility, creativity, and active student involvement in critically understanding citizenship and environmental issues. Podcast-based learning strengthens students' character as reflective, participatory, and sustainable ecological citizens, which aligns with the principle of lifelong citizenship.

ABSTRAK

Prinsip kewarganegaraan sepanjang hayat memegang peran penting dalam menumbuhkan kesadaran dan tanggung jawab ekologis warga negara di era digital. Penelitian ini bertujuan mengintegrasikan nilai-nilai kewarganegaraan sepanjang hayat melalui pemanfaatan teknologi podcast dalam pembelajaran kewarganegaraan ekologis. Metode penelitian menggunakan pendekatan kualitatif dengan desain studi kasus yang dilaksanakan pada mata kuliah Kewarganegaraan Lingkungan Lahan Basah di Program Studi PPKn Universitas Lambung Mangkurat. Responden terdiri atas empat dosen dan dua belas mahasiswa yang ditentukan melalui teknik purposive sampling. Data dikumpulkan melalui wawancara mendalam, observasi, dan analisis dokumen, serta divalidasi menggunakan triangulasi sumber dan member checking. Analisis data dilakukan secara interaktif melalui tahapan kondensasi data, penyajian data, serta penarikan kesimpulan. Hasil penelitian menunjukkan bahwa penggunaan media podcast memberikan fleksibilitas, kreativitas, dan keterlibatan aktif mahasiswa dalam memahami isu-isu kewarganegaraan dan lingkungan secara kritis. Pembelajaran berbasis podcast memperkuat karakter mahasiswa sebagai warga negara ekologis yang reflektif, partisipatif, dan berkelanjutan, yang relevan dengan prinsip kewarganegaraan sepanjang hayat.

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INTRODUCTION

Education in a global perspective is a continuous process and lasts throughout life (Aspin & Chapman, 2019). This principle is the background for why education is seen as strategic worldwide. Various education policies in countries around the world promote progress, innovation, and critical thinking among their citizens. The concept of lifelong education, as evidenced by many studies, has an impact on the development of a spirit of increasing self-capacity through continuous learning activities. So that each country always carries out the commitment to improving its quality in the form of policies and technical implementation. Indonesia is one of the countries that has a long history in the context of improving the quality of education. The education policy currently implemented in Indonesia aims to adopt the concept of deep learning, leveraging a wide range of learning resources based on big data and technology. Bennett et al. (2009) in their introduction to the concept of deep learning, they introduce a pattern in machine-based learning and technology. These various policies have an impact on the holistic learning process.

One skill that every educator needs in continuously develop is the ability to innovate in the field of learning media. In the increasingly advanced digital era, the use of interactive learning media has become increasingly important in modern education. The integration of information and communication technology (ICT) in learning not only offers various advantages for students and educators but also creates a more interesting, interactive, and practical learning experience (Sabiri, 2019).

This research design aims to strengthen the understanding of how the principles of lifelong citizenship can be integrated into ecological citizenship learning through the use of digital media, specifically podcasts. This research direction emphasizes not only the lifelong learning process but also the formation of citizens with a reflective, participatory, and sustainable awareness of environmental issues. In this context, lifelong citizenship is understood as an individual's ability to learn and adapt to social and ecological changes continuously, and to contribute to the sustainability of life together actively. This approach positions civic education not merely as a means of transmitting values, but as a process of forming a civic awareness that continues to live and develop within students.

The concept of lifelong citizenship is closely related to ecological citizenship. Both emphasize the dimensions of social responsibility and environmental sustainability as part of the ideal citizen's identity. Ecological citizenship requires individuals to understand the reciprocal relationship between humans and nature and to internalize ethical values in their daily behavior. The integration of lifelong citizenship and ecological citizenship in learning aims to ensure that students not only understand the concepts of citizenship theoretically but also practice these values in the context of social and environmental life. Thus, the learning process provides students with a space to build critical awareness, develop reflective skills, and demonstrate sustainable ecological concern. In the opinion of Alt (2018) defining lifelong citizenship: "The concept of citizenship continues to develop along with the lifelong learning process, where individuals do not cease being citizens after completing formal education, but continue to learn, reflect, and participate morally and democratically throughout their lives." This concept is very close to lifelong learning, but more specific to citizens and their contributions to realizing the principle of lifelong learning. Faure (1972) defined lifelong education as education that should not stop at formal schooling but continue throughout human life, because the world and society are constantly changing.

Meanwhile, the concept of ecological citizenship was put forward by Dobson (2003) which emphasizes the contribution of citizens in the environmental field. This concept is

very relevant if integrated with lifelong citizenship. Because these concepts can be implemented together to achieve sustainable environmental conservation, in this study integrates them through podcasts as a participatory and reflective learning medium. Podcasts provide students with the flexibility and autonomy to explore issues of ecological citizenship through self-produced narratives, interviews, and discussions. This medium enables students not only to be recipients of information but also to be producers of ideas oriented towards social and environmental responsibility. The use of podcasts reinforces a collaborative and contextual learning approach, where students play an active role in building civic knowledge and awareness rooted in real-life experiences and self-reflection.

One of the main reasons the integration of interactive learning media is so important is that it provides students with an opportunity to be actively involved in the learning process. Through interactive learning podcast media, students can be more active in exploring the concepts taught, testing their understanding, and applying knowledge in relevant contexts (Kustandi & Sutjipto, 2011). With the various media and learning activities available, students have the flexibility to choose the learning method that best suits their learning style (Sadiman, 2006).

This study explores and implements the integration of lifelong citizenship principles into ecological citizenship learning, specifically through the use of podcasters as an innovative digital medium. The core focus is situated within the Wetland Environmental Citizenship Course, a two-credit subject offered in the Pancasila and Citizenship Education (Pendidikan Pancasila dan Kewarganegaraan or PPKn) Study Program at Universitas Lambung Mangkurat. This course is designed to contextualize civic values within the unique ecological and cultural characteristics of wetland environments, which are a defining feature of South Kalimantan. The selection of this course as a research locus is not incidental but rather strategic, considering its direct relevance to both the ecological and civic dimensions of the study.

This research focuses on the use of podcast media and its relevance to the principle of lifelong citizenship. One of the studies relevant to the dissertation discussed in this dissertation is Feriandi & Ulfah's (2024) research, which shows that ecology-based learning media in the Civic Education Course can improve students' ecological competence, especially in efforts to build an understanding of citizens' rights and their ecological obligations. The findings of this study reaffirm that citizenship learning is not only related to the political aspects of citizens, but also the ecological dimension as part of citizenship practice. Furthermore, research by Enríquez et al. (2023) entitled "Enhancing collaborative learning through podcast production," conducted at Complutense University of Madrid, shows significant results from the use of podcast media in increasing motivation, engagement, and conceptual understanding. Zenouzagh et al. (2023) developed a theoretical and practical framework grounded in research on the use of multimodal learning (text, audio, and video) in higher education. These findings contribute to the design of a diverse learning media technology ecosystem for university students. Other relevant research, conducted by Mouton (2025), Polly et al. (2023), Ajala et al. (2025), and Brehm (2022), focuses on the use of podcasts and digital media in learning, contributing to the success of technology-based learning practices. However, none of these studies have integrated them into the field of ecological citizenship and the principles of lifelong citizenship. This research is strategically positioned to present data and analysis on how podcasts can support lifelong citizenship values in ecological citizenship learning.

Various studies published in the Journal of Citizenship Education point to new directions for strengthening ecological and digital citizenship practices in Indonesia. These studies demonstrate how citizenship education focuses not only on cognitive and normative aspects but also on developing citizens with ecological awareness and the ability to adapt to social and technological change. Through diverse empirical research, researchers attempt to link environmental issues, civic ethics, and digital learning innovations within the context of Pancasila and Citizenship Education (PPKn). Studies conducted by Mufidah et al. (2025) and Mahmudi et al. (2024) emphasize the importance of ecological responsibility manifested through concrete environmental management practices, such as community-based waste management and waste bank programs. These studies demonstrate that ecological awareness is not solely fostered through teaching materials but must be integrated into social activities involving citizen participation. This approach confirms that citizenship education can serve as a vehicle for community empowerment in maintaining environmental sustainability.

Meanwhile, Al Fikri (2025), Kabatiah et al. (2024), and Hodriani et al. (2025) highlight the pedagogical and technological dimensions in developing teacher professionalism and student character. They emphasize that mastery of learning technology and digital innovation is an integral part of 21st-century educator competencies. Innovation in Civics Education (PPKn) is not just about presenting material; it is also about how digital media can strengthen civic values, increase student participation, and foster a sense of social responsibility in the digital space. Furthermore, Maulana & Bakhrun (2024) and Utomo et al. (2023) emphasize the importance of social engagement, digital literacy, and psychosocial well-being in developing environmentally conscious and technologically literate young citizens. Both demonstrate that collaborative activities in digital spaces can strengthen social solidarity, emotional well-being, and a sense of belonging to a community. Thus, digital literacy is not just a technical skill, but also a moral and social dimension of modern citizenship.

Overall, the research in the Citizenship Journal illustrates the synergy between ecological values, the use of digital technology, and civic participation as essential foundations for civic learning in the digital age. However, most studies still examine these issues separately. Therefore, this research aims to fill this gap by offering an approach that integrates the values of ecological citizenship and lifelong citizenship through podcast media as a technology-based learning innovation.

A review of the literature shows that previous studies have made significant contributions to the development of the concepts of ecological and digital citizenship. However, most of these studies still discuss these two aspects separately, with some focusing on environmental education and others on the use of digital media in learning, without explicitly linking them within the framework of lifelong citizenship. Therefore, there remains a research gap in understanding how digital learning platforms such as podcasts can serve as a medium for integrating lifelong citizenship principles into ecological citizenship learning. This study seeks to fill this gap by offering a new perspective that combines the values of lifelong citizenship and ecological citizenship through podcast-based learning.

The novelty of this research lies in integrating the concept of lifelong citizenship with the values of ecological citizenship through podcasts as a digital learning tool. Unlike previous research that generally focused on strengthening environmental character (Mufidah et al., 2025), improving teacher professionalism (Hodriani et al., 2025), and innovation in conventional web-based learning media Al Fikri (2025), this study positions podcasts as a participatory and reflective space for students to build sustainable ecological awareness. Through this approach, the research not only develops the cognitive dimension of

citizenship learning but also enlivens the process of forming citizens who continuously learn, think critically, and are responsible for social and environmental sustainability.

This study's empirical foundation further reinforces its novelty. Based on preliminary investigations, including document analysis, classroom observation, and in-depth interviews with both lecturers and students from the Civic Education (PPKn) Study Program, clear evidence emerged that no prior educational practice or research initiative has explicitly woven together the values of lifelong citizenship with ecological citizenship content using podcast-based strategies. This study applies podcast learning media directly in the Wetland Environmental Citizenship course to instill ecological citizenship values in students. In the context of Indonesian higher education, especially within the domain of civic education, this gap is particularly significant. Most existing efforts focus either on environmental awareness campaigns or on one-time instructional modules. The lack of integration between substantive content (ecological citizenship) and pedagogical innovation (podcast media) indicates a rich space for both theoretical and practical contributions. In this research, lifelong citizenship is understood as an individual's ability to continue learning, participating, and being responsible for social and ecological issues throughout their life.

Besides the data above, this research fills a critical gap between two major trends. On the one hand, existing studies on ecological citizenship, such as Dobson (2003), tend to focus primarily on normative theory or political discourse, without providing concrete pathways for pedagogical implementation, especially in specific ecological settings like wetlands. On the other hand, the abundant literature on educational media and digital learning tools, including influential work such as Mayer (2002), often remains focused on cognitive processing, multimedia learning design, or general instructional efficiency, without addressing deeper value-based learning dimensions, such as civic awareness or ecological ethics. Several previous studies have demonstrated the importance of integrating civic values with digital technology in strengthening citizens' ecological awareness. Gooding & Phillips (2025) highlighted the role of digital learning in shaping ecological sustainability practices, while Ozaki & Shaw (2022) demonstrated that citizen engagement in environmental issues fosters reflective attitudes and social responsibility. In Indonesia, Al Fikri (2025) and Utomo et al. (2023) emphasized the importance of digital media innovations such as learning apps and digital corners in fostering civic participation and environmental literacy. However, there is limited research integrating lifelong citizenship and ecological citizenship values through reflective, participatory, and sustainable podcast-based learning.

Based on these gaps, this study seeks to answer two main questions: (1) How are the principles of lifelong citizenship integrated into ecological citizenship learning? Moreover, (2) How can the use of podcasts strengthen the application of ecological citizenship values in the context of civics learning? Furthermore, this study aims to analyze the process of integrating lifelong citizenship principles into ecological citizenship learning and describe the role of podcasts in shaping students' ecological awareness and responsibility as lifelong citizens.

Several previous studies reinforce the urgency of this research. Dedeoglu & Ekmekcioglu (2020) demonstrate that digital information and technology infrastructure play a strategic role in building reflective ecological citizenship in the Anthropocene era. Meanwhile, Gooding & Phillips (2025) emphasize the importance of aligning digital transformation and strengthening ecological citizenship as a foundation for social sustainability. Meanwhile, Alt (2018) highlights the role of interactive digital media in fostering civic participation, digital literacy, and social responsibility in online learning

environments. These three views emphasize that digital technology, including podcasts, can be an effective vehicle for strengthening ecological awareness and lifelong civic responsibility.

METHOD

This study employed a qualitative research approach with a case study design because the focus of this research was to examine in depth the integration of lifelong education in ecological citizenship learning through podcast media. Creswell & Poth (2016) emphasized that qualitative research is relevant for understanding the meaning that individuals or groups attribute to a social phenomenon. At the same time, Yin (2018) explained that a case study allows an in-depth and contextual exploration of specific cases in real-life settings. Both perspectives support the choice of method in this research.

The research was conducted in the Pancasila and Citizenship Education (Pendidikan Pancasila dan Kewarganegaraan or PPKn) Study Program at Universitas Lambung Mangkurat (ULM), particularly in the Wetland Environmental Citizenship course, during June and July 2025. The subjects of the research were four lecturers who teach the course and twelve students who were directly involved in the ecological citizenship learning process. Participants were selected through purposive sampling, with the primary consideration being their direct participation in learning activities integrating ecological citizenship with podcast media. The media used was a podcasting application, not a new development, but it was implemented directly in learning activities. The learning process began with a reflection activity on current environmental issues affecting the students, which then served as the basis for creating podcast content in small groups. Each group discussed the issue from the perspective of ecological citizenship values and the principles of lifelong citizenship. After the podcast was published and listened to by other groups, a joint reflection session was held to examine the values, attitudes, and ecological awareness that emerged. Next, in-depth interviews were conducted to validate data related to learning experiences, conceptual understanding, and student engagement in this podcast-based learning process.

Data were collected using three techniques: in-depth interviews, observations, and document analysis. In-depth interviews were carried out both face-to-face and online, each lasting between forty-five and sixty minutes, in order to explore the experiences, perceptions, and challenges faced by lecturers and students in the learning process. Observations were conducted during classroom activities and group discussions to capture learning interactions, student engagement, and the integration of ecological themes into civic education. Document analysis included a review of teaching materials, student assignments, and podcast scripts that were used in the course.

Data analysis followed the interactive model of Miles et al. (2013), which consists of three stages: data condensation through coding and categorisation, data display in narrative and tabular forms, and conclusion drawing and verification. To ensure the trustworthiness of the findings, this research employed the four criteria for validity proposed by Lincoln & Guba (1990), namely credibility, transferability, dependability, and confirmability. Credibility was established through triangulation of data sources and member checking; transferability through thick description of the research context; dependability through maintaining an audit trail of the research process; and confirmability through grounding the findings in participants' perspectives rather than in researcher bias.

Ethical considerations were also addressed in this research. Participants were fully informed about the study's objectives and gave voluntary consent to participate. Their

identities were anonymized in all transcripts and reports to maintain confidentiality. In addition, the research received ethical clearance from the Faculty of Teacher Training and Education, Universitas Lambung Mangkurat.

RESULTS AND DISCUSSION

This research seeks to address two main focuses: (1) how the process of integrating the principles of lifelong citizenship into ecological citizenship learning works, and (2) how the use of podcasters can strengthen ecological citizenship learning. The research findings were obtained through learning observations, student reflections, and in-depth interviews, which underwent data validation through member checking and triangulation across observations, documents, and student narratives. All data were then analyzed thematically to explore student thinking patterns, learning experiences, and involvement in this digital media-based learning process.

Lifelong citizenship is a concept that emphasizes that learning is not limited to the formal environment, but continues throughout a person's life to increase their capacity in society (Alt, 2018). The process of integrating the principles of lifelong learning in ecological citizenship learning is very appropriate in supporting the role of citizens in the context of the environment. In fact, citizens are not only encouraged to be responsive to social and political issues, but also to consider how they participate and have an impact on the sustainability of their natural environment. The results and discussion of this research are heavily influenced by Alt's (2018). theories and concepts on lifelong citizenship, as well as other sources. The relevance in it is very apparent in the concept of lifelong citizenship as a means of strengthening moral and democratic values.

The discussion in this study will focus on the process of integrating the principles of lifelong education in ecological citizenship learning and, secondly, on the impact of using the podcast application in ecological citizenship learning. The following are the results and discussion based on the 2 (two) discussion focuses.

1. Process of Integrating Lifelong Citizenship Principles in Ecological Citizenship Learning

Ecological citizenship represents a distinctive and increasingly urgent strand within the broader field of citizenship studies, emphasising the role of individual and collective responsibility in addressing environmental challenges. Unlike traditional models of citizenship that often focus on political participation within nation-states, ecological citizenship expands the scope to include ethical, transnational, and intergenerational obligations. As articulated by Dobson (2003), ecological citizenship situates the individual not merely as a rights-bearing member of a political community, but as a moral agent within a global ecological system. This perspective demands conscious and sustained participation in environmental preservation, transcending boundaries of geography, nationality, and temporal immediacy.

The philosophical orientation of ecological citizenship aligns closely with the framework of lifelong education, particularly in its insistence on continuous personal development and sustained civic engagement. Lifelong education encourages individuals to cultivate competencies, values, and dispositions that support sustainable living. It is not limited to formal educational settings but extends into everyday life, promoting a civic ethic grounded in awareness, empathy, and responsibility. In this context, ecological citizenship can be viewed as a moral and educational commitment that evolves over the life course,

enabling individuals to adapt to ecological challenges through informed, reflective, and transformative action.

From a normative standpoint, the integration of ecological citizenship within education is pivotal. It helps students not only understand their technical role in supporting environmental systems, such as reducing waste, conserving energy, and promoting biodiversity, but also nurtures their moral imagination about what it means to be a responsible and responsive citizen in an age of ecological crisis. Educational approaches that incorporate ecological citizenship aim to instill a sense of agency, encourage interdisciplinary thinking, and foster global ecological consciousness. Empirical findings in this learning context indicate that students can connect ecological awareness with civic responsibility reflectively. This aligns with Alt (2018) view of lifelong citizenship, where a continuous learning process enables one to develop a growing moral awareness and social engagement. In practice, students understand environmental issues not only as academic topics but also as civic experiences that require concrete action and personal reflection.

This educational mission is deeply relevant in the context of the PPKn (Pendidikan Pancasila dan Kewarganegaraan or Pancasila and Citizenship Education) Study Program at Universitas Lambung Mangkurat, where the integration of lifelong learning values into ecological citizenship education is not only conceptual but also contextual (Smederevac-Lalic et al., 2020). The Wetland Environmental Citizenship course embodies this integration. Designed as a 2-credit subject, this course equips students with theoretical insights and practical competencies to engage meaningfully in participatory environmental stewardship. It acknowledges and responds to the unique ecological character of South Kalimantan, a region rich in wetland biodiversity but also vulnerable to environmental degradation from climate change, unsustainable land use, and socio-economic pressures.

The course's pedagogical model incorporates the principles of lifelong education through various methods: (1) experiential learning, where students directly interact with the environment through field visits and ecological mapping; (2) reflective practices, including civic journaling and environmental storytelling that foster personal connection with nature; (3) collaborative projects, such as community engagement activities that promote awareness and ecological action; and (4) interdisciplinary dialogue, bridging ecological knowledge with legal, cultural, and civic dimensions of citizenship.

Through these integrative strategies, the Wetland Environmental Citizenship course not only provides cognitive understanding but also nurtures ecological sensitivity, civic commitment, and lifelong learning habits. This integration principle demonstrates the integration of the concepts of lifelong citizenship (Alt, 2018) and lifelong education (Faure, 1972), where ecological citizenship learning serves to form citizens who are reflective, ecologically aware, and committed to environmental sustainability. In line with research by Mufidah et al. (2025) and Mahmudi et al. (2024) ecological citizenship education not only fosters environmental knowledge but also builds social responsibility in the actual practice of ecosystem conservation. It offers a transformative educational experience that prepares students to be eco-literate citizens who are capable of responding to contemporary environmental challenges with resilience, creativity, and ethical orientation. Furthermore, this course reinforces the PPKn program's vision of cultivating graduates who are not only civically competent but also ecologically aware, embodying the spirit of lifelong citizenship in action.

a) Accommodation of Curriculum and Ecological Competence Based on Wetland Environment

The PPKn curriculum has accommodated the content of ecological citizenship in the form of Wetland Environmental Citizenship Courses. This course is mandatory for students to take to equip them with the principles of ecological citizenship. This course is derived from the university and faculty curriculum, namely the introductory wetland course at the university level and Wetland Environmental Education at the faculty level. This course, based on research results, is an adaptive course, both to its environmental conditions and to the concept of lifelong citizenship. In line with these data, Venkatesh et al. (2003), revealed that the principles of lifelong education are applied by taking a reflective and collaborative approach that allows students to continue learning from their experiences in the surrounding environment. Thus, the curriculum that is applied is relevant and allows for the growth of the principles of lifelong education and ecological citizenship. Interviews indicated that students felt the course helped them understand environmental issues from a civic perspective. One student stated, "I just realized that protecting the environment is also part of our civic responsibility, not just the government's responsibility." This quote demonstrates that the learning process has fostered a reflective and sustainable ecological awareness, as is the goal of lifelong citizenship education.

b) Digitalization and Use of Podcasters Applications

In line with technological developments, digitalization of learning has become an important part of the process of integrating lifelong education in ecological citizenship learning. One of the things implemented in the ULM PPKn Study Program is the use of the Podcasters application in learning Wetland Environmental Citizenship. Students are formed into 2-member groups, then the lecturer provides a theme that is relevant to the issue of wetland environmental citizenship. Each group records a podcast through the Podcasters application, presenting at least 3 data from national news, journals, and books, to strengthen the opinion in the podcast. The digitalization process is also carried out by conducting an environmental poster project made by students and uploading it through social media accounts. The project carried out in the ULM PPKn Study Program has an impact on 2 things, first, learning is more interactive and creative, second, students can demonstrate educational actions that have an impact on environmental conservation.

The process in this description can directly become a means of digital literacy for every citizen. In line with this, Alt (2018) in their book on the concept of lifelong citizenship, that this effort is relevant to the concept of digital literacy, which offers easy access and sustainability. Some of the benefits obtained from this integration process are the creation of more flexible learning, ensuring student involvement in learning and bridging students' ecological awareness, and strengthening 21st century skills within the 4C framework (Creativity, communication, collaboration, critical thinking). Based on student reflections and classroom observations, the use of podcasters provides a space for students to learn independently and collaboratively outside the classroom. Students use this medium not only to convey information but also as a means of expression and to build critical dialogue about environmental issues. This process illustrates the concrete implementation of the principle of lifelong citizenship, where learning is continuous, adaptive to technology, and oriented toward meaningful social action.

c) Integrating Wetland Environmental Citizenship Courses in environmental projects

The lifelong learning process within the framework of the Wetland Environmental Course has been patterned in the ULM PPKn Study Program agenda through a relevant field funding program. This project is relevant to the principle of project-based learning and is allocated together with the Community Service Program (P2M) of the ULM PPKn Study Program Lecturers. Both of these activities are carried out with an internal funding scheme that allows students and lecturers to implement their roles.

Based on student observations and reflections, the podcast-based learning process encourages students to continue learning independently, seek additional sources of knowledge, and reflect on their responsibilities toward environmental issues. This demonstrates the emergence of the principle of lifelong citizenship, where students don't stop learning in an academic context but incorporate the values of ecological citizenship into their daily lives.

2. Use of Podcasters Application Media in Ecological Citizenship Learning

The Podcasters application functions as a dynamic digital platform designed to facilitate the recording, editing, and distribution of audio content in podcast format. Its relevance to educational contexts, particularly within the framework of higher education, is increasingly evident as the demand for innovative and flexible learning media continues to grow (Guertin et al., 2021). Within the scope of the Wetland Environmental Citizenship course at the Pancasila and Citizenship Education (PPKn) Study Program of Universitas Lambung Mangkurat (ULM), the Podcasters application emerges as not merely a tool, but a pedagogical medium that enables the delivery of content in a way that is accessible, student-centered, and aligned with the principles of 21st-century learning. Consistent with the views of Brehm (2022) and Ajala et al. (2025), the use of podcasts in education serves not only as a means of conveying information but also as a means of reflection, participation, and revitalization of cultural and civic values. Furthermore, Mouton's (2025) research confirms that blog- and podcast-based projects can enhance new media literacy and cross-functional collaboration in the learning process. Similar findings were found by Polly et al. (2023), who demonstrated that teacher readiness in using digital technology significantly contributes to the effectiveness of learner-centered learning.

The core advantage of utilizing this platform in ecological citizenship learning lies in its ability to support the development of key competencies, notably the 4Cs: Creativity, Communication, Collaboration, and Critical Thinking. These four components are central to the formation of a learning environment that is not only knowledge-oriented but also future-oriented. Consistent with the conceptual proposition by Kilbane & Milman (2014), the integration of 4C skills into classroom practices is essential for shaping adaptive, critical, and socially aware learners who are capable of understanding and responding to complex issues, including environmental degradation, sustainability challenges, and civic engagement. The Podcasters platform, in this light, becomes a technological mediator that bridges students with relevant, meaningful, and practical content related to environmental citizenship in wetland ecosystems.

Lecturers in the Wetland Environmental Citizenship course have shown a strong pedagogical commitment to using this application as a medium of transformation. They begin by introducing students to pressing environmental issues, such as pollution in wetland areas, land conversion, and loss of biodiversity. These issues are not only presented descriptively, but are also framed through theoretical lenses that discuss the responsibilities

of citizens in the context of ecological justice. The delivery of this material aligns with the constructivist learning theory, particularly as formulated by Vygotsky & Cole (1978), who posits that students build their understanding through direct engagement with experiences, social interaction, and cognitive scaffolding. In this pedagogical framework, lecturers serve as facilitators who provide initial stimuli, namely theories, problems, and questions, that students later interpret, reconstruct, and present through independent or collaborative exploration (Hadjichambis et al., 2020).

The use of podcasts as a medium for civics learning is also in line with the research findings of Al Fikri (2025), who emphasized the importance of digital media innovation in strengthening student engagement creatively and collaboratively. Furthermore, a study by Kabatiah et al. (2024) showed that mastering 21st-century pedagogical competencies requires teachers and students to utilize digital media adaptively. This research strengthens the evidence that integrating podcasts can develop 21st-century skills, such as communication, collaboration, creativity, and critical thinking (the 4Cs), which are crucial for developing reflective and adaptive citizens. The learning design structured around podcasting enables a process-oriented engagement, in which students are guided through several pedagogical stages to deepen their understanding and agency. The initial classroom meetings are used to introduce both conceptual knowledge and contextual environmental issues related to the wetland ecosystem. Students are then encouraged to identify themes or problems they find meaningful. This is not merely a matter of free selection, but a deliberate intellectual exercise: each group is required to choose a unique topic that has not been selected by others in the class, fostering both originality and diversity of perspectives. By working in pairs, students collaborate intensively, simulating micro-level civic partnerships akin to real-world collaborative action.

As the project progresses, students are tasked with producing their own podcast episodes using the Podcasters application. The recording process itself becomes a reflective and analytical exercise, as students must synthesize environmental theories with empirical or anecdotal data. To ensure academic rigor, each podcast episode must incorporate at least three credible data sources, including news articles, journal findings, government regulations, or interviews with practitioners. This requirement not only improves students' research and analytical skills but also models responsible information use a vital civic literacy skill in the digital age. The podcasts are capped at a 20-minute duration, which encourages clarity, conciseness, and intentionality in communication.

Once recordings are complete, students publish their content through the Podcasters platform and submit the podcast links to the lecturer collectively. This dissemination step adds a public dimension to their work, simulating real-life civic discourse and enabling peers and potentially external audiences to engage with the content. In this way, students do not only consume knowledge they become knowledge producers and civic communicators, exercising their right and responsibility to voice ecological concerns through a democratic and creative medium.

Moreover, the use of podcasts fosters active learning and deepens the students' sense of ownership over the learning process. Rather than relying on passive absorption of content, students must construct meaning, apply concepts to authentic problems, and communicate their ideas in ways that are understandable, compelling, and well-reasoned. The combination of voice, narrative, argumentation, and media production enhances multimodal literacy and expands the pedagogical repertoire of civic education beyond traditional modes. In sum, the integration of the Podcasters application into the Wetland

Environmental Citizenship course represents more than a pedagogical innovation, it exemplifies a synergistic relationship between digital technology and transformative civic education. Through this integration, educators are not merely adopting a new tool; they are reimagining the learning space to become more dialogic, participatory, and reflective in nature. This approach supports the overarching goals of lifelong education, which emphasize continuous, meaningful, and relevant learning experiences that extend beyond the classroom and into real-world social and ecological contexts.

By embedding the values of ecological citizenship into a platform that encourages active expression, collaboration, and dissemination, such as podcasting, students are no longer passive recipients of environmental knowledge. Instead, they are positioned as co-creators of discourse, as engaged citizens who can articulate, critique, and contribute to sustainability conversations. This is critical in fostering higher-order thinking skills such as critical analysis, ethical reasoning, and systems thinking, all of which are essential in confronting the complex ecological challenges of the 21st century. The integration of podcasts into learning also increases students' civic engagement. These results reinforce the findings of Hodriani et al. (2025) and Maulana & Bakhrun (2024) that collaborative and communicative civic experiences can strengthen soft skills, social well-being, and a sense of responsibility towards the community. Thus, podcasts serve not only as a learning medium but also as a space for social and moral reflection for students to internalize lifelong civic values. Ultimately, the pedagogical model emerging from this practice aligns technological fluency with civic responsibility. It not only brings relevance to the content of the Wetland Environmental Citizenship course but also fosters interdisciplinary competencies that blend environmental awareness, digital literacy, and civic action. Students are equipped with not just theoretical insights, but also with tools, perspectives, and platforms that enable them to become adaptive, innovative, and responsible ecological citizens, committed to shaping a sustainable and just future through informed, collaborative participation in environmental discourse. The findings of this study also align with the study by Utomo et al. (2023), which emphasized the development of digital citizenship through technology-based learning. In this context, the use of podcasters not only expands access to learning but also strengthens students' digital literacy and ethical responsibility as digital citizens who actively participate in social and ecological issues.

The overall analysis shows that the use of podcasters serves as a bridge between the concept of lifelong education and the practice of ecological citizenship. Students experience a learning process that does not stop at conceptual understanding, but develops into a reflective, critical, and collaborative civic awareness. This integration process reinforces Faure (1972) notion that lifelong education is a means of developing whole people (learning to be), while also supporting Alt (2018) view that lifelong citizenship is a manifestation of moral and democratic values within a context of continuous learning. Based on the data found in this study, it is very clear that there is a connection between the various parts, as shown in the following image:

Figure 1. Integration Model of Lifelong Citizenship and Ecological Citizenship through Podcast-Based Digital Learning



Source: Research, 2025

The use of podcasters is very adaptive in today's learning, because it is able to integrate with technology. This is in line with Mayer (2002) Multimedia Cognitive Theory, that text, audio, and video can improve students' cognitive processing. Hew (2009) Podcasts can increase student engagement and facilitate flexible learning. In addition, research from Fernandez et al. (2009) found that the use of podcasts can improve conceptual understanding by up to 30% better than traditional methods. The process of adapting podcasters technology can have a positive impact on students in understanding their role as citizens who contribute to the environment. Students get an interesting learning experience in improving their creativity and communication skills through the application Venkatesh et al. (2003). In line with this, the Use of Podcasters Media is also in accordance with the application of the principle of lifelong learning. Podcast content can be accessed anytime and anywhere, especially as innovation and internet provision are increasingly widespread (Shirazi & Hajli, 2021). Integration of lifelong education values in ecological citizenship learning through podcasters applications, becomes a means for students to improve their critical thinking skills, creativity, collaboration, and communication, and strengthen their position as contributing citizens (Haleem et al., 2022). Podcasters become a forum for voicing thoughts about the environment, becoming an alternative learning resource besides direct meetings, becoming a digital literacy platform for students and strengthening civic engagement for students.

The findings of this study not only address the research problem regarding the integration of lifelong citizenship values into ecological citizenship learning, but also demonstrate that podcasts can be a reflective and participatory tool for building students' ecological awareness. The novelty of this study lies in the integration of two conceptual dimensions: ecological citizenship and lifelong citizenship, implemented through podcast-based digital learning practices. Theoretically, the results of this study broaden the understanding of citizenship education in the digital era by emphasizing the role of digital media in shaping citizens with ecological character and adaptability to social change. These findings align with those of Dedeoglu & Ekmekcioglu and Gooding & Phillips (2025), but differ in context and implementation approach. While previous studies have focused more on conceptual analysis of digital ecological citizenship, this study offers a practical approach through the application of podcasts in the context of citizenship learning in Indonesia. Thus, the results of this study not only provide an empirical contribution to the practice of citizenship education but also offer an innovative learning model that can be adapted to

strengthen ecological awareness and a spirit of lifelong citizenship in various educational contexts.

CONCLUSION

This study aims to analyze the integration of lifelong citizenship principles into ecological citizenship learning and to describe the role of podcasts in strengthening students' ecological awareness. Based on the research findings, both of these focuses can be addressed through the implementation of podcast-based learning that combines ecological citizenship values and the spirit of lifelong citizenship as part of lifelong education. The novelty of this research lies in the integration of lifelong citizenship principles with ecological citizenship learning through digital podcasts, a practice that has not been widely studied in the context of citizenship education in Indonesia. This innovation positions podcasts not merely as learning aids, but as reflective and participatory spaces that foster awareness of sustainable ecological citizenship.

The integration of lifelong citizenship principles into ecological citizenship learning through the application of podcasts as an innovative medium offers strong potential for fostering adaptive, participatory, and reflective learning. This approach aligns with the spirit of sustainable lifelong education, which encourages individuals to continuously learn and be responsive to environmental and civic challenges. By using podcasts, learning becomes more flexible and student-centered, enabling them to interact creatively and personally with ecological issues. The results of this study can serve as a reference for civics educators in developing technology-based learning models that encourage critical reflection and social participation in students. The podcaster application can be widely adapted in other civics learning contexts to strengthen digital literacy, ecological awareness, and 21st-century skills.

Future research is recommended to explore the effectiveness of podcast-based learning using a quantitative or mixed methods approach to more deeply measure its impact on the cognitive, affective, and social dimensions of ecological citizenship. Furthermore, cross-disciplinary collaboration between civics education, educational technology, and environmental studies is needed to expand the implementation of lifelong citizenship principles in various educational contexts.

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Disclosure of Interests

The authors have no competing interests to declare relevant to this article's content.

REFERENCES

- Ajala, B. C., Salawu, A., Fadipe, I. A., & Aromavo, Y. P. (2025). Exploring the Nexus of Opportunities and Challenges in Indigenous Language Podcasting Through Natural Language Processing of User-Generated Content. *Journalism and Media*, 6(4), 179–198. <https://doi.org/10.3390/journalmedia6040179>
- Al Fikri, M. A. (2025). Inovasi Pembelajaran Pendidikan Kewarganegaraan: Pengembangan

- Media Pembelajaran Google Sites dan Aplikasi Android Untuk Mahasiswa. *Jurnal Kewarganegaraan*, 22(1), 16–28. <https://doi.org/10.24114/jk.v22i1.61527>
- Alt, D. (2018). *Lifelong Citizenship: Lifelong Learning as a Lever for Moral and Democratic Values*. BRILL. <https://doi.org/10.1163/9789463512398>
- Aspin, D. N., & Chapman, J. D. (2019). *Values Education and Lifelong Learning: Principles, Policies, Programmes*. Springer.
- Bennett, W. L., Wells, C., & Rank, A. (2009). Young Citizens and Civic Learning: Two Paradigms of Citizenship in the Digital Age. *Citizenship Studies*, 13(2), 105–120. <https://doi.org/10.1080/13621020902731116>
- Brehm, W. (2022). Podcasting and Education: Reflections on the Case of FreshEd. *ECNU Review of Education*, 5(4), 784–791. <https://doi.org/10.1177/20965311221094860>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Sage Publications.
- Dedeoglu, C., & Ekmekcioglu, C. (2020). Information Infrastructures and the Future of Ecological Citizenship in the Anthropocene. *Social Sciences*, 9(1), 1–17. <https://doi.org/10.3390/socsci9010003>
- Dobson, A. (2003). *Citizenship and the Environment*. Oup Oxford. <https://doi.org/10.1093/0199258449.001.0001>
- Enríquez, I. G., Cutuli, M. S., & Mancha-Cáceres, O. I. (2023). Enhancing Collaborative Learning in Higher Education through Podcast Production: An Experiential Approach with Anthropology and Tourism Students. *Education Sciences*, 13(9), 898.
- Faure, E. (1972). *Learning to Be: The World of Education Today and Tomorrow*. UNESCO.
- Feriandi, Y. A., & Ulfah, R. A. (2024). How Can Ecology-based Civics Learning Media “PKN Ekologi” Foster Ecological Competence in Students? *Jurnal Civics: Media Kajian Kewarganegaraan*, 21(2), 191–198. <https://doi.org/10.21831/jc.v21i2.74159>
- Fernandez, V., Simo, P., & Sallan, J. M. (2009). Podcasting: A New Technological Tool to Facilitate Good Practice in Higher Education. *Computers & education*, 53(2), 385–392. <https://doi.org/10.1016/j.compedu.2009.02.014>
- Gooding, L., & Phillips, R. (2025). Aligning Digital Futures with Ecological Citizenship for Sustainability. *Sustainability*, 17(18), 8102. <https://doi.org/10.3390/su17188102>
- Guertin, L., Theveny, K., & Barber, D. (2021). Virtual Informal Learning and Community Building via Nature-Themed Podcast Discussions. *Bulletin of the Ecological Society of America*, 102(1), 1–7. <https://doi.org/10.1002/bes2.1798>
- Hadjichambis, A. C., Reis, P., Paraskeva-Hadjichambi, D., Činčera, J., Boeve-de Pauw, J., Gericke, N., & Knippels, M.-C. (2020). *Conceptualizing Environmental Citizenship for 21st Century Education*. Springer Nature.
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the Role of Digital Technologies in Education: A Review. *Sustainable operations and computers*, 3, 275–285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- Hew, K. F. (2009). Use of Audio Podcast in K-12 and Higher Education: A Review of Research Topics and Methodologies. *Educational Technology Research and Development*, 57(3), 333–357. <https://doi.org/10.1007/s11423-008-9108-3>
- Hodriani, Pinem, W., Sutrisno, Safitri, I., & Bahauddin, N. A. binti. (2025). Integrating Civic Engagement to Foster Soft Skills and Teacher Professionalism. *Jurnal Kewarganegaraan*, 22(2), 228–245. <https://doi.org/10.24114/jk.v22i2.66124>

- Kabatiah, M., Batubara, A., Ramadhan, T., & Rachman, F. (2024). Pedagogical Competence of Civic Education Teacher in 21st Century: A Systematic Literature Review. *Jurnal Kewarganegaraan*, 21(2), 139–150. <https://doi.org/10.24114/jk.v21i2.53446>
- Kilbane, C. R., & Milman, N. B. (2014). *Teaching Models: Designing Instruction for 21st Century Learners*. Pearson Higher Ed.
- Kustandi, C., & Sutjipto, B. (2011). *Media Pembelajaran: Manual dan Digital*. Ghalia Indonesia.
- Lincoln, Y. S., & Guba, E. G. (1990). *Naturalistic Inquiry*. SAGE Publications.
- Mahmudi, M. A. R., Ismail, M., Sawaludin, & Alqadri, B. (2024). Penguatan Karakter Peduli Lingkungan Melalui Program Bank Sampah Inges (Studi Kasus Desa Dasan Lekong Kecamatan Sukamulia Lombok Timur). *Jurnal Kewarganegaraan*, 21(2), 235–246. <https://doi.org/10.24114/jk.v21i2.61208>
- Maulana, M. Y., & Bakhrun, A. (2024). The Impact of Sense of Community and Civic Engagement on the Well-Being of Student Executive Board Members of Politeknik Negeri Bandung. *Jurnal Kewarganegaraan*, 21(2), 247–264. <https://doi.org/10.24114/jk.v21i2.62134>
- Mayer, R. E. (2002). Multimedia Learning. In *Psychology of learning and motivation* (Vol. 41, hal. 85–139). Cambridge University Press. <https://doi.org/10.1017/CBO9780511811678>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative Data Analysis: A Methods Sourcebook* (4 ed.). SAGE Publications.
- Mouton, A. (2025). The Blog and Podcast Project: Developing New Media Literacy and Cross-functional Team Skills. *Communication Teacher*, 39(3), 258–264. <https://doi.org/10.1080/17404622.2024.2433235>
- Mufidah, N., Pertiwi, F. N., Negara, T. D. W., & Jehyeh, N. (2025). Ecological Citizenship: Bioconversion of Food Wastage With Maggot Black Soldier Fly. *Jurnal Kewarganegaraan*, 22(2), 199–215. <https://doi.org/10.24114/jk.v22i2.66089>
- Ozaki, Y., & Shaw, R. (2022). Citizens' social participation to implement sustainable development goals (SDGs): A literature review. *Sustainability*, 14(21), 14471.
- Polly, D., Martin, F., & Byker, E. (2023). Examining Pre-Service and In-Service Teachers' Perceptions of Their Readiness to Use Digital Technologies for Teaching and Learning. *Computers in the Schools*, 40(1), 22–55. <https://doi.org/10.1080/07380569.2022.2121107>
- Sabiri, K. A. (2019). ICT in EFL Teaching and Learning: A Systematic Literature Review. *Contemporary Educational Technology*, 11(2), 177–195. <https://doi.org/10.30935/cet.665350>
- Sadiman, A. S. (2006). *Media Pendidikan: Pengertian, Pengembangan dan Pemanfaatannya*. Raja Grafindo Persada.
- Shirazi, F., & Hajli, N. (2021). IT-Enabled Sustainable Innovation and the Global Digital Divides. *Sustainability*, 13(17), 1–24. <https://doi.org/10.3390/su13179711>
- Smederevac-Lalic, M., Finger, D., Kováč, I., Lenhardt, M., Petrovic, J., Djikanovic, V., Conti, D., & Boeve-de Pauw, J. (2020). Knowledge and Environmental Citizenship. In *Conceptualizing environmental citizenship for 21st century education* (hal. 69–82). Springer International Publishing Cham. https://doi.org/10.1007/978-3-030-20249-1_5
- Utomo, M. D., Ismail, M., Sawaludin, L. S., & Sumardi, L. (2023). Pengembangan Digital Citizenship Melalui Pojok Baca Digital di Masyarakat Karang Bedil Kota Mataram. *Jurnal Kewarganegaraan*, 20(2), 179–190. <https://doi.org/10.24114/jk.v20i2.48274>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of

Information Technology: Toward a Unified View. *MIS quarterly*, 27(3), 425–478.
<https://doi.org/10.2307/30036540>

Vygotsky, L., & Cole, M. (1978). *Mind in Society: Development of Higher Psychological Processes*. Harvard University Press.

Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods* (6 (ed.)). SAGE Publications.

Zenouzagh, Z. M., Admiraal, W., & Saab, N. (2023). Learner Autonomy, Learner Engagement and Learner Satisfaction in Text-based and Multimodal Computer Mediated Writing Environments. *Education and Information Technologies*, 28(11), 14283–14323. <https://doi.org/10.1007/s10639-023-11615-w>