



DIGITAL CITIZENSHIP IN THE DYNAMICS OF POST-DIGITAL EDUCATION

Feriyansyah¹, Siti Murtiningsih², Hastanti Widy Nugroho³

1), 2), 3) Universitas Gadjah Mada, Yogyakarta, Indonesia.

Author Correspondence Email: *feriyansyah@mail.ugm.ac.id

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ABSTRACT

This study examines the dynamics of digital citizenship in post-digital education through the lens of Henry Giroux's critical pedagogy philosophy. This research is motivated by digital transformation, with the primary concern being the issue of technological determinism in education, which overlooks the need for emancipatory critical awareness. This inquiry philosophy research is based on literature related to post-digital education as a material object and critical pedagogy as a formal object. Methodologically, the study elaborates interpretation, induction and deduction, internal coherence, holism and historical continuity, comparison, heuristics, language inclusiveness, and in-depth reflection on formal and material objects in philosophical research. The study found that Giroux's critical pedagogy positions education as an ethical and political arena against dehumanization in the digital era. The rationality of post-digital education requires metaphysical and epistemological reflection to affirm the existence and implementation of humanistic values in post-digital educational practices. Conceptually, encouraging digital citizenship education to develop beyond technical competence into an emancipatory project of political awareness. So that students critically question their existence in digital power structures. Critical digital citizenship education fosters adaptive, ethical, and sensitive responses to social issues in uncertain future scenarios.

ABSTRAK

Penelitian menganalisis dinamika konsep kewargaan digital pada pendidikan pascadigital dengan lensa filosofi pedagogi kritis Henry Giroux. Penelitian ini dilatarbelakangi transformasi digital dengan permasalahan utama tentang determinisme teknologi dalam pendidikan yang mengesampingkan kesadaran kritis yang emansipatoris. Penelitian filsafat inkuiri ini bertumpu pada literatur yang berkaitan dengan pendidikan pascadigital sebagai objek material dan pedagogi kritis sebagai objek formal. Secara metodologis, penelitian mengelaborasi interpretasi, induksi dan deduksi, koherensi internal, holisme dan kesinambungan historis, perbandingan, heuristik, inklusivitas bahasa dan refleksi mendalam pada objek formal dan material dalam penelitian filsafat. Pedagogi kritis Giroux menempatkan pendidikan sebagai arena etis-politis melawan dehumanisasi di era digital. Rasionalitas pendidikan pascadigital membutuhkan refleksi metafisik dan epistemologis untuk menegaskan keberadaan dan implementasi nilai-nilai humanistik dalam praktik pendidikan pascadigital. Secara konseptual, mendorong pendidikan kewargaan digital berkembang melampaui kompetensi teknis menjadi suatu proyek emansipatoris kesadaran politik. Sehingga siswa secara kritis mempertanyakan keberadaannya dalam struktur kekuasaan digital. Pendidikan kewargaan digital kritis menumbuhkan kemampuan adaptif, etis, dan peka terhadap isu sosial dalam situasi ketidakpastian masa depan.

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INTRODUCTION

In the context of contemporary societal development, education plays a crucial role in shaping individuals who can adapt to the changing times. The transformation of educational paradigms and pedagogical approaches is inevitable in the digital age, given that technology and democracy are two significant challenges that simultaneously influence the direction and practice of education today (Wibowo, 2017). The Indonesian government has developed various digital platforms to build a digital education ecosystem, supporting recovery and accelerating educational progress. The digital education ecosystem has consequences for the learning process, from elementary to higher education. Elementary education is the initial phase in which a person gains access to education to develop basic skills in developing knowledge by processing information from learning sources on various digital platforms. The Ministry of Education, Culture, Research, and Technology's policy on achieving digitalization in education involves developing various digital platforms, such as the Merdeka Mengajar Platform, the Kampus Merdeka Platform, the School Resource Platform, the Education Report Card and Data Management Platform, and infrastructure. The digital education platform policy is expected to continue prioritizing the interests of students as the primary goal of the national education system, shaping citizens who are capable of critical and adaptive thinking in the face of future challenges.

The Ministry of Education has developed an independent curriculum to address the decline in learning during the COVID-19 pandemic. The independent curriculum emphasizes the critical role of digital technology in encouraging active student engagement, differentiated learning tailored to individual needs, and adaptive learning methods. The independent curriculum policy involves a more intensive and in-depth use of digital technology in the learning process through various digital platforms. Incorporating digital technology into the learning process requires a more holistic approach to learning that aligns with the multidimensional aspects of life in the digital space. In basic education, the independent curriculum prioritizes strengthening the main foundations, namely literacy, numeracy, and inquiry-based thinking. The independent curriculum elaborates on subjects so that they are interrelated in the context of life, such as the elaboration of natural sciences with social sciences into natural and social sciences, and the mastery of foreign languages that are more practical. The competencies developed in elementary education through the independent curriculum are technological, digital, and computational competencies in the subject of informatics (Anggraena et al., 2022). The development of digital technology competencies requires a learning process to build critical thinking skills, enabling individuals to face various challenges in the digital social space.

Henry Giroux developed a critical pedagogy approach to the learning process, highlighting the urgency of developing critical thinking and contextual understanding, as seen in the cultural studies approach to popular culture. In the context of digital transformation, critical pedagogy is positioned as an educational tool that aims to shape active, reflective citizens who can participate critically in social life. Using Giroux's perspective in analyzing digital transformation enables us to understand that various digital platforms in education can be viewed as a manifestation of oligarchic power, which is more oriented towards profit accumulation than towards addressing social impacts and contributing to educational justice. Giroux refers to digital oligarchs as "the Jackal," who spread neoliberal fascism through the use of digital platforms, exploiting public ignorance to manipulate national and cultural life for their hegemonic interests (Giroux, 2020). The phenomenon of digital oligarchy aligns with the concept of state capitalism, where the oligarchy's control of technology is utilized

to support the state's dominant role in the digital space, thereby creating power relations that strengthen political and economic control through digital infrastructure (Nuryatno, 2011).

The development of critical pedagogy since the early 1980s cannot be separated from the emergence of new technologies and media that have had a significant impact on the world of education. In the context of digital transformation, critical pedagogy has evolved in tandem with the emergence of new media and popular culture, which serve as powerful instruments of social learning. However, in the current dominance of neoliberalism, education tends to be market-oriented, so that students are positioned as commodities prepared to meet labor needs, rather than as critical subjects in society (Giroux, 2020). Critical pedagogy encourages teachers to take on the role of facilitators who strive to develop students' critical thinking skills, especially in understanding and critiquing the hegemony of power amid technological transformation. The practice and role of teachers as facilitators often clash with education policies oriented toward the interests of power, where students are positioned as assets to meet the needs of the labor market, rather than as autonomous subjects in the learning process (Precalya & Darwan, 2021).

Digital technology has brought about fundamental changes to the way humans build knowledge, including in learning and teaching practices. More than just a tool, digital technology has formed a new social construct by revolutionizing patterns of interaction, where social exchanges can occur without physical or virtual presence, thereby redefining the meaning of presence and connectivity in the educational process (Shields, 2005). The digitization of education has transformed the social relationship between educators and learners into an instrumental relationship that tends toward commodification, thereby eroding the social value dimension that should be the primary foundation of the teaching process. In fact, social values in education play a crucial role as the foundation for building intellectual relationships, engaging in scientific activities, and fostering meaningful collaboration to formulate ideas for communal life within the framework of the academic community (Giroux, 2020). Instrumental relationships and commodification in the learning process encourage transactional relationships between teachers and students, where educational interactions are reduced to formal exchanges in an education system that is trapped in market logic and efficiency, thereby neglecting the humanistic and transformational dimensions of education itself.

One of the main consequences of digital transformation in education is the strengthening of the market's presence as an ideology that underlies the direction and formulation of education policy, where economic values such as efficiency, competition, and productivity tend to shift the role of education as a space for character building, critical thinking, and social development (Precalya & Darwan, 2021). Critical pedagogy emphasizes the urgency of developing critical awareness and understanding of socio-political realities as a means to empower individuals through the learning process. In the context of the dominance of neoliberal corporate power in the digital space, critical pedagogy serves as a political force that drives public transformation through liberating and transformative education (Giroux, 2020).

Critical pedagogy in the context of digital education transformation positions education as a force of resistance that brings discourse about hope, emphasizing the urgency of capacity building, knowledge, and skills that empower individuals as agents capable of speaking, writing, and acting reflectively and transformatively in the face of social injustice and structural domination (Giroux, 2020). The empowerment of educational subjects not only includes the development of intellectual, social, and emotional intelligence but also

requires the strengthening of adaptive, exploratory, and transformative intelligence so that individuals can respond to the dynamics of change, explore their potential, and contribute actively in creating meaningful social change (Napitupulu, 2023b). Digital competitiveness is an indicator of a country's ability to compete in the digital era, which includes aspects of technology mastery, digital infrastructure ownership, and readiness to respond to rapid technological developments. Indonesia's digital competitiveness still lags behind several ASEAN countries, such as Singapore, Malaysia, and Thailand, and is only slightly above that of the Philippines, highlighting the urgency of strategic efforts to strengthen national digital capacity (Napitupulu, 2023a, 2023b). The roadmap for the digitization of education in Indonesia to date still focuses on the transition from conventional platforms to digital platforms, without deeply touching on the substance of digital education transformation that emphasizes the meaningful use of technology in the learning process to encourage pedagogical innovation, active participation, and the formation of 21st-century competencies (Napitupulu, 2023a).

The next stage of digital transformation in education requires awareness that digital technology and education are undergoing a natural integration process, in which technology is no longer positioned as an external element, but rather as an integral part of the learning system and process. The integration of technology in education requires adjustments to the curriculum, teaching strategies, and learning approaches that align with the dynamics of technological development. The context of digital education integration must prepare students who are adaptive and reflective towards the use of technology as a natural element in the learning process, while shaping them as digital beings who live and develop in the digital world as an existential environment (Hardiman, 2018, 2021). In the context of digital transformation, digitalis faces serious challenges in the form of a narrowing of space for critical and deep thinking, due to the dominance of instant information, digital distractions, and click culture that encourages a fast but shallow mindset, thereby hindering the reflective process and the formation of substantial understanding (Pando, 2014).

The digital transformation of education that drives the digitalization ecosystem of schooling in Indonesia needs to be analyzed through a more critical approach to the social, political, and pedagogical implications of technology integration. The concept of postdigital education provides a critical framework that highlights the complexity of the relationship between digital technology and educational practices, emphasizing the importance of meaning, context, and the impact of power in the process of integrating education and digitalization (Fawns, 2023). The critical perspective in postdigital education emphasizes the urgency of considering various aspects, such as technology, pedagogy, biology, politics, economics, the environment, and, especially, social justice, in responding to digital education transformation. Postdigital education views every educational situation as the result of complex interactions between digital, social, and material activities. The critical pedagogy approach encourages educators to adopt a critical stance toward the processing of educational data and invites marginalized groups to build awareness of ethical issues, working conditions, digital corporate domination, environmental damage, and the direction of political-economic policies. Therefore, postdigital education requires transdisciplinary collaboration in designing education based on the values of inclusion, care, and social justice (Fawns, 2023). Postdigital education describes the integration of digital technology as an inseparable part of the learning experience, where digital engagement does not stand alone but is integrated with the social, material, and temporal aspects that shape the dynamics of the educational process holistically (Fawns, 2019).

Post-digital education faces several crucial challenges that require serious attention. The transformation of the educational paradigm from human-to-human interaction to human-machine interaction. Advances in artificial intelligence have the potential to shift the humanistic dimension of learning. The phenomenon of the digital divide in access to knowledge sources widens the gap in educational quality. The phenomenon of technological determinism leads to the dominance of digital technology, which unilaterally changes the learning process and thereby reduces the space for pedagogical autonomy. The digital divide reflects inequality and injustice in access to learning opportunities during the digital education transformation process (Napitupulu, 2022). Post-digital education encourages educational subjects, including teachers and students, to develop the ability to reflect on challenges and problems in the digital space. Equality and justice are challenges in digital education transformation. Improving the quality of education is primarily a challenge of adapting the curriculum, approach, and media in the learning process.

Post-digital education is relevant for developing digital citizenship education. Post-digital education provides a critical and reflective approach that serves as the foundation for fostering a culture of democracy, characterized by heightened citizenship awareness in the digital social sphere. The perspective of post-digital education encourages students to become active, responsible digital citizens with adequate digital literacy, enabling them to navigate the complexities of social interaction, politics, and ethics in the digital age (Burgess et al., 2006; Merlano et al., 2021; Simsek & Simsek, 2013). Critical pedagogy encourages the development of critical thinking, moral judgment, and ethical responsibility as the foundation for forming resilient and reflective digital citizenship, particularly in the face of future uncertainty marked by technological acceleration and social complexity in the digital space (Bough & Sainz, 2023; Wendt, 2021). The elaboration between critical pedagogy and post-digital education is expected to provide tangible contributions to the development of digital citizenship education, aiming to shape adaptive and participatory learners in the digital social space. Digital citizenship is a strategic component in responding constructively and sustainably to the dynamics of change in digital society (Light & Akama, 2014; O'Hara, 2022; Peters et al., 2023). Critical pedagogy can describe the ethical interaction between technology and humans as a mutually beneficial, symbiotic relationship, where technology is not merely a tool but an integral part of a social relationship that shapes the learning experience. In the context of post-digital education, the design and configuration of algorithms have significant ethical implications for human life, particularly in a future marked by uncertainty and complexity (Maharani et al., 2022; Mittelstadt et al., 2016). Critical pedagogy highlights the dangers of homogenizing thinking in the digital transformation of education. Digital transformation that is not accompanied by the development of critical thinking skills in education subjects risks marginalizing social issues in the learning process.

Critical pedagogy's critique of the concept of post-digital education seeks to propose alternative approaches for transforming digital education within the context of basic education, thereby developing a balanced educational paradigm. Basic education is the primary foundation in promoting comprehensive individual development, improving communities, and realizing national awakening (Pei & Bao, 2020). Therefore, it is essential to understand the future direction of basic education in light of the concept of post-digital education, as informed by Henry Giroux's critical pedagogy perspective. Critical pedagogy's critique of the concept of post-digital education seeks to foster reflection on basic education in shaping a cultured, ethical society capable of navigating the uncertain challenges of the future. The challenges of basic education are expected to enable it to respond to the changes and challenges of the 21st century. The basic education system can adapt to the

transformation of digital education. A review of Henry Giroux's critical pedagogy provides an in-depth analysis of the challenges of post-digital education, aligning it with the developmental stages of students. Critical pedagogy critically analyzes the concept of post-digital education and its development within the framework of critical pedagogy.

Critical pedagogy critiques the concept of post-digital education, elaborating on the transformation of digital education through Henry Giroux's critical pedagogy to develop critical thinking skills, social sensitivity, and empowerment among students. Students will develop an active role to adapt to the uncertain developments of the future. Education is the starting point for shaping young citizens as digital citizens, so digital citizenship education is a concept that will also influence the learning process in the transformation of digital education.

Critical pedagogy critiques the concept of post-digital education by exploring in depth the implications of Henry Giroux's critical pedagogy thinking on education in the post-digital era and its contribution to the development of digital citizenship education. The digital transformation in education requires an understanding through the lens of critical pedagogy to build a holistic and adaptive concept of education. Critical pedagogy critiques the concept of education in the post-digital era, aiming to foster critical reflection on education in this era by analyzing the development of post-digital education studies within the field of education. Studies on post-digital education should be reviewed through a critical pedagogical approach to formulate a view of educational philosophy based on human nature amidst the digital technology transformation.

METHOD

As a starting point for research on current philosophical issues, the researcher collected data on the problems to be studied as raw material for critical pedagogical criticism of the concept of post-digital education. First, collected raw research data in the form of primary and secondary literature related to the material object of the concept of post-digital education and the formal object of analysis of Henry Giroux's conceptual critical pedagogy. Second, conducting a philosophical analysis in reflection using general methodological elements such as interpretation, induction, deduction, inherent coherence, holism, historical continuity, idealization, comparison, heuristics, inclusive language, description, specific methods, and personal researcher reflection (Bakker & Zubair, 2007).

Critical pedagogical research on the concept of postdigital education uses research sources and materials from supporting literature studies on the rationality of the existence of the postdigital concept as a material object (Bakker & Zubair, 2007), namely in the form of literature sources in the form of scientific journal articles, research reports, and reference books as follows.

Primary sources include Giroux, H. A. (2020). *On Critical Pedagogy* (First). Bloomsbury Academic.; Giroux, H. A. (2022). *Pedagogy of Resistance: Against Manufactured Ignorance*. Bloomsbury Publishing.; Giroux, H. A. (2023b). *Insurrections: Education in an Age of Counter-Revolutionary Politics*. Bloomsbury Publishing.; Giroux, H. A. (2023a). *Education, Culture, and Struggles for Democracy*. Editora UFRJ Portugal. Meanwhile, secondary sources include Fawns, T. (2019). Postdigital Education in Design and Practice. *Postdigital Science and Education*, 1(1), 132–145.; Ford, D. R., & Jandrić, P. (2024). Postdigital Marxism and Education. *Educational Philosophy and Theory*, 56(1), 1–6.; Ford, D. R., & Jandrić, P. (2024). Postdigital Marxism and Education. *Educational Philosophy and Theory*, 56(1), 1–6.; Jandrić, P., & Hayes, S. (2020). Postdigital We-Learn. *Studies in Philosophy and Education*, 39(3), 285–297.; Jandrić, P., & Knox,

J. (2022). The Postdigital Turn: Philosophy, Education, Research. *Policy Futures in Education*, 20(7), 780–795.; Knox, J. (2019). What Does the ‘Postdigital’ Mean for Education? Three Critical Perspectives on the Digital, with Implications for Educational Research and Practice. *Postdigital Science and Education*, 1(2), 357–370.; Pepperell, R., & Punt, M. (2000). *The Postdigital Membrane: Imagination, Technology and Desire*. Intellect Books.; Peters, M. A., Jandrić, P., & Hayes, S. (2023). Postdigital-biodigital: An Emerging Configuration. *Educational Philosophy and Theory*, 55(1), 1–14. Taffel, S. (2016). Perspectives on The Postdigital: Beyond Rhetorics of Progress and Novelty. *Convergence: The International Journal of Research into New Media Technologies*, 22(3), 324–338.; Freire, P. (2000). *Pedagogy of the Oppressed* (M. B. Ramos (trans.)). The Continuum International Publishing Group Inc.; Fuchs, C. (2020). *Communication and Capitalism: A Critical Theory*. University of Westminster Press.; Peters, M. A., & Besley, T. (2019). Critical Philosophy of the Postdigital. *Postdigital Science and Education*, 1(1), 29–42.

Critical pedagogical research on the concept of post-digital education draws on various additional sources to determine its relevance to the development of studies related to research themes, such as Berry, D. M. (2024). Post-digital Humanities: Computation and Cultural Critique in the Arts and Humanities. *ArXiv*.; Hogan, M., & Harney, O. (2022). Postdigital Applied Systems Science Education: Toward an Integral Framework, Curriculum, and Pedagogy. *Postdigital Science and Education*, 4(3), 814–842.; Lehdonvirta, V. (2022). *Cloud Empires: How Digital Platforms are Overtaking the State and How We Can Regain Control*. Mit press.; Maboloc, C. R. (2020). Critical Pedagogy in the New Normal. *Voices in Bioethics*, 6, 1–3.; Malott, C., & Ford, D. (2015). *Marx, Capital, and Education: Towards a Critical Pedagogy of Becoming* (5th ed.). Peter Lang Inc.; Markauskaite, L., Marrone, R., Poquet, O., Knight, S., Martínez-Maldonado, R., Howard, S., Tondeur, J., De Laat, M., Buckingham Shum, S., Gašević, D., & Siemens, G. (2022). Rethinking the Entwinement between Artificial Intelligence and Human Learning: What Capabilities Do Learners Need for a World with AI? *Computers and Education: Artificial Intelligence*, 3(100056), 1–16.; Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The Ethics of Algorithms: Mapping the Debate. *Big Data & Society*, 3(2), 104–117.; O’Hara, I. (2022). Automated Epistemology: Bots, Computational Propaganda & Information Literacy Instruction. *The Journal of Academic Librarianship*, 48(4).; Örtengren, A. (2022). Digital Citizenship and Professional Digital Competence—Swedish Subject Teacher Education in a Postdigital Era. *Postdigital Science and Education*, 4(2), 467–493.; Peters, M. A. (2012). Bio-informational Capitalism. *Thesis Eleven*, 110(1), 98–111.

The literature sources will continue to develop as a tool for deepening analysis related to critical pedagogical criticism of the rationality of the concept of post-digital education and its relevance to the development of studies on digital citizenship education, until research data saturation is reached, namely, no new information and data are found in the process of collecting and analyzing data. The research can draw conclusions based on the results of the analysis and discussion of the problem formulation.

RESULTS AND DISCUSSION

1. Digital Citizenship in the Dynamics of Post-Digital Education

Digital citizenship is not merely a technical ability to operate technology, but rather a journey of deep identity formation in the virtual realm. As Mossberger states in *Digital Citizenship: The Internet, Society and Participation*, individuals who participate regularly, effectively, and responsibly in the digital world must always be guided by ethical norms to make positive contributions (Mossberger et al., 2008). The virtual environment opens up new opportunities for citizen engagement (Bers, 2007). That encourages a shift from mere

citizenship skills towards a more holistic citizenship identity. The postdigital era makes critical digital literacy a key factor in shaping citizenship, which is a concept increasingly influenced by the teacher competency framework (Villar-Onrubia et al., 2022), and has evolved to include forms such as pandemic, citizenship, algorithmic citizenship, liquid citizenship, metropolitan citizenship, and stateless citizenship (Calzada, 2023).

Furthermore, the connection between media literacy and digital citizenship, especially in teacher education, emphasizes the urgency of evaluating media credibility, accessing and interacting with media, and information security to create knowledgeable and active citizens (von Gillern et al., 2024). The process of co-constructing meaning through online discussions also emphasizes the central role of each individual in realizing holistic global citizenship (Myers, 2022, p. 602). The virtual environment presents opportunities for new forms of citizen engagement. The connection between media literacy and digital citizenship is linked to the education of preservice teachers, enabling them to evaluate media credibility, access, and interaction with media, as well as media safety. The factors of well-informed citizens, community involvement and activism, citizenship, technological proficiency, awareness, security, and respect require the ability to evaluate messages from credible media to build citizens' breadth of knowledge, technological knowledge, community participation, security, and responsibility (von Gillern et al., 2024).

The concept of digital citizenship continues to evolve in line with societal developments and changes resulting from the integration of technology into various aspects of life. Digital citizenship emphasizes the safe and responsible use of technology. Digital citizenship is evolving and adapting to the post-digital concept, where digital and non-digital spaces are no longer distinct. Post-digital citizenship education is a leap from the safe and responsible use of technology to a critical awareness of the power of algorithms in shaping identity in the digital space. Digital citizenship fosters an ethical and reflective understanding of the risks and responsibilities associated with using digital technology. Digital citizenship promotes participation in moral order, justice, security, and respect for human dignity within the digital public sphere (Kabatiah et al., 2024; N. D. Saputra & Saputra, 2024; Siregar & Rachman, 2024; Usmi et al., 2025; Utomo et al., 2023).

Digital citizenship education approaches often overlook the reciprocal relationship between humans and digital technology. Humans are positioned within a digital space surrounded by algorithms that shape their identities. The postdigital concept emphasizes that technology is not merely a neutral tool; it is a powerful force that shapes our world. Technology is a powerful entity that shapes interactions and challenges in digital citizenship. The educational curriculum necessitates an in-depth examination of the socio-technical relationship to equip students for complex realities (Webster, 2024). Postdigital citizenship pedagogy encourages educators to instill sustainable and ethical teaching practices that shape environmental awareness (both digital and natural), promote equality, and safeguard privacy and data protection, utilizing critical thinking skills. Critical digital citizenship education aims to foster awareness that actions in the digital space have real-world consequences for individuals and society as a whole.

Digital citizenship fosters critical digital literacy and awareness of artificial intelligence (AI) to help students understand the ethical implications of technology use and how AI affects society, thereby requiring openness, privacy, and responsibility in the use of AI (Villar-Onrubia et al., 2022). Digital citizenship instills practical skills and prevents negative behavior by instilling digital etiquette, critical evaluation of information online, digital security, and intelligent media interaction. Unacceptable behavior online, such as

cyberbullying and harassment, is prevented through comprehensive strategies that involve the community in instilling critical digital citizenship literacy.

Digital citizenship requires the development of communication and interpersonal skills, enabling students to participate as digital citizens and engage in community and political activities within the digital space. Communication in the digital space transcends geographical boundaries and socio-political contexts. Digital citizenship is a tool for developing global citizenship awareness. The dynamics of digital citizenship are no longer limited to being able and skilled in using digital technology for socio-political and economic interests. Still, they are related to the process of preparing digital citizenship in the curriculum within the context of a post-digital society, with an awareness of socio-technical relations and critical digital literacy. Issues regarding digital citizenship ethics encompass principles related to the ethical use of technology, including data protection, privacy, and digital security. The digital citizenship education system is a crucial factor in strengthening digital security, thus requiring innovative strategies to address various behavioral irregularities in the digital space.

2. Development of Digital Citizenship Education Policy

The concept of digital citizenship refers to the individual activities that occur within the information network in the digital space. Humans in the digital space have three roles: as recipients, producers, and disseminators of information. The digital space is also a consequence of digital transformation, which impacts the construction of individual identity as citizens. Digital technology brings about changes in the construction of a new identity as digital citizens. Digital citizenship in the digital space fosters social relationships that also establish a value system, shaping digital norms and ethics. A set of characteristics based on values and norms in the digital space forms the basic concept of digital citizenship (digital citizenship).

Digital citizens are individuals who engage in activities in the digital space for various purposes beyond entertainment, including social, political, cultural, and economic purposes for the sake of well-being. Mossberger defines the concept of digital citizens as individuals who are regularly and effectively connected to the internet in their daily lives for various purposes and interests (Mossberger et al., 2008). Digital citizens utilize digital technology and digital spaces for civic activities, such as providing criticism of government policies. Digital citizens are individuals who are accustomed to using digital technology to build networks of political information, rights, and obligations, as well as for economic purposes (Mossberger et al., 2008).

Digital citizenship is a set of characteristics that enable individuals to contribute to online communities. The development of knowledge and skills is fundamental to developing digital intelligence. The development of the concept of digital citizenship emphasizes several key aspects, including literacy, online behavior ethics, and the use of digital platforms for civic engagement and activism. Digital literacy is a fundamental concept in the development of digital citizenship. Digital literacy and education in the context of developing digital citizenship education aim to prepare and develop digital competencies (Prasetyo et al., 2023). Digital education policy emphasizes the development of digital citizenship competencies, encompassing knowledge, skills, and behaviors essential for the safe and responsible use of technology (Japar et al., 2024; Prasetyo et al., 2021, 2023).

Project-based learning involves teachers and students demonstrating their understanding and practice of digital citizenship. Project-based learning aims to develop

autonomy and digital skills that can be applied in everyday life (Prasetyo et al., 2023). Digital citizenship education also aims to build awareness of digital ethics (digital ethics) and digital responsibilities. Digital ethics serves as the foundation for maintaining privacy, preventing the spread of fake news (hoaxes), and respecting the existence of communities within the network. The principles of digital ethics are the foundation for the development of responsible digital citizenship (Japar et al., 2024; Sari et al., 2020). The threat of crime in the digital space is also an issue that needs to be considered in the development of digital citizenship. Awareness of cybercrime is necessary to increase awareness and education, promoting safe online practices for students (Ahmad & Smith, 2024; Budiyanto et al., 2022).

Digital citizenship emphasises engagement and active citizenship. Activism and online engagement utilize digital platforms, such as social media, to promote online citizenship. Digital citizens actively participate in anti-corruption campaigns, which can serve as indicators of activism in the concept of digital citizenship (Fauzanafi, 2016; Seto, 2017). Digital citizenship encourages political participation, shaping one's understanding of social issues and the broader political landscape. However, a gap remains among teachers in involving learning in political activism within networks (Ananto & Ningsih, 2023).

Giroux's thinking is inseparable from the concept of critical citizenship development at the beginning of the development of critical pedagogy. Giroux emphasizes public pedagogy to encourage the transformation of digital public spaces through digital citizenship education. The transformation of digital public spaces is inextricably linked to the educational process. Critical pedagogy is not limited to the classroom but also extends to public spaces. The digital public sphere is inextricably linked to the processes of education and politics. The digital public sphere is a new space for the activities and engagement of citizens as digital citizens. Awareness of social injustice is the driving force behind the digital public sphere, which challenges those in power to bring about social change. The pedagogy of the digital public sphere is an effort to foster political knowledge and awareness by promoting digital citizenship as a set of characteristics that can be developed through the process of critical pedagogy.

The concept of digital citizenship is not merely about the formal rights and obligations of citizens. Digital citizenship is a construct of awareness about identity, emotions, and actions in the digital public sphere, built on an understanding of the effects with concern and commitment to democracy. Activism of citizenship in the digital sphere is an expression and alignment in building solidarity to maintain democracy.

The challenge of digital citizenship education lies in the gap between awareness and participation in citizenship among teachers and students. Teachers, as public intellectuals, must encourage students to act transformatively. Sometimes, teachers are reluctant to engage in online political activities due to the emphasis on depoliticizing education. The depoliticisation of education is a manifestation of power to maintain the status quo. Teachers are trapped in various forms of structural surveillance (panopticon), such as fear of sanctions, low levels of digital-critical literacy, or a focus on curriculum outcomes that emphasize technical competencies. Critical pedagogy offers an alternative perspective on connecting knowledge with awareness and real action through the concept of digital citizenship. Giroux emphasises that educators should be able to dismantle inequalities by acting as transformative intellectuals. Teachers in critical pedagogy encourage and inspire students to build the courage to become agents of change.

Henry Giroux's concept of critical pedagogy enriches the concept of digital citizenship education by connecting the processes of pedagogy, politics, and digital citizenship within the digital realm as a space for public pedagogy and transformative activism. The elaboration of the concepts of critical pedagogy and digital citizenship will foster an active and courageous awareness of citizenship activism in the effort to maintain democracy in the digital public sphere, amidst the influence of digital algorithms. The dominance of digital algorithms is a manifestation of the operation of power in the digital sphere, which is subject to the logic of digital capitalism and neoliberal fascism. Education is a tool for promoting the values of democracy, digital citizenship, and social justice.

Critical pedagogy offers an alternative critical perspective on the concept of digital civilization development. Digital civilization requires comprehensive and integrated transformation, starting from the policy level at the state and government levels, as well as a digital society with various dynamics and challenges to the digital economic system, with the intention of achieving welfare through digital justice. A nation's digital civilization does not merely depend on technological sophistication that can be adapted, but also on how the process of internalization into the system of values, behavioral changes, and public policy is carried out. The primary foundation for the development of digital civilization is the educational process, which builds the intelligence and productivity of digital citizens. The process of digital citizenship education with literacy programs, digital skills and expertise, as well as security in critical awareness of social justice in the digital space.

Digital citizenship education can be fostered through strong governance and regulation. Fairness and transparency (accountability) in digital policy are needed to protect democracy and the public interest in the digital space. Digital technology companies play a significant role in the digital space. Digital companies should be governed by transparent governance and rules regarding data collection and management that are subject to democratic public oversight. The government is a crucial variable in designing regulations in the digital space to regulate and protect various critical issues that arise, such as data protection, cybersecurity, and the investment climate. Government involvement in the digital space must also be grounded in accountability to prevent the abuse of power and the monopolization of technological transformation for the common good.

Digital culture is developed based on inclusivity and ethics in the digital space. Digital transformation must establish fundamental values as the foundation of digital ethics and inclusivity. Digital literacy fosters the development of critical thinking skills regarding information that exposes citizens to the digital world. The vision of Indonesia Emas 2045 is inseparable from preparing the digital generation to become digital citizens in the post-digital space, where technology is an integral part that forms the digital ecosystem. Digital citizenship education is a deliberate effort to promote awareness of social justice in the digital realm.

The development of a digital ecosystem will shape a digital civilization, which is a strategic policy of the government in bringing social justice to the digital space. The digital ecosystem requires a foundation to establish the core values that serve as the primary pillars in the digital space. Digital transformation is a step toward adapting digital technology that shapes the digital ecosystem. The journey toward an advanced digital ecosystem is built on digital readiness, which includes improving infrastructure and developing human potential (citizens) through an education system that fosters digital citizenship.

Education is the primary foundation for building excellence in the digital ecosystem. Education is a conscious effort to shape digital citizenship, which fosters social and cultural

responsibility, literacy, and digital competence. The education system must be able to adapt to the continuous improvement of teacher capacity, equitable access to digital technology, and curriculum policies that support the development of digital citizenship. Digital citizenship will shape civic activism in the digital space. Digital citizenship will enable citizens to optimize various opportunities and address challenges within the digital ecosystem. Challenges in the digital space, such as access gaps and cybersecurity threats, require an education system that is adaptive and transformative in preparing citizens to become digital citizens.

The strength of the digital ecosystem is the primary capital in building a digital civilization. A digital civilization is a digital structure that forms a network of interactions between the government, citizens, and various dimensions of life in the digital space. A digital civilization requires guarantees of transparency, equality, and compliance with the basic principles and values of society. The digital ecosystem cannot be separated from the central role of digital service providers. Digital companies, if not regulated by the government, will be able to monopolize the use of big data. Digital civilization requires the government to regulate stability, tools, and components in the digital space that encourage society to function in the digital space (Patria, 2024, p. 10). Education is the primary foundation for the formation of critical digital citizenship, which is a valuable asset in building a digital civilization. Critical education is an effort to build awareness and maintain humanity amid the challenges of transhumanism and machine intelligence in the digital space.

3. From Digital Citizenship to Critical Digital Citizenship: A Conceptual Proposal from Critical Pedagogy

Digital education necessitates the ongoing development of competencies and awareness among teachers to cultivate digital citizenship skills. Digital education policy still appears to be formalized and fragmented, technocratic. Henry Giroux's critical pedagogy offers a conceptual framework to expand and deepen the National Movement for Digital Literacy as a practice of political education that shapes critical awareness in a democratic and socially just digital public sphere. Critical digital citizenship education encourages the creation of an emancipatory space for students to develop an awareness of power relations in the digital public sphere. Critical pedagogy serves as the foundation for critical citizenship education, fostering critical imagination and promoting active participation in democratic and socially just digital public spaces. Critical pedagogy serves as the conceptual foundation of critical digital citizenship education, employing a learning process approach to transform critical awareness of power in digital public spaces.

Understanding the theoretical framework of pedagogy is the starting point for conceptualizing Henry Giroux's critique of education in the context of post-digital education, which has implications for the concept of digital citizenship education. Critical pedagogy critique of positivism and technocratic rationality. Giroux criticizes the dominance of scientific logic and technocratic rationality that has infected contemporary education. The supremacy of scientific logic and technocratic rationality overlooks the interconnectedness of education with social, political, and historical forces in shaping critical consciousness (Giroux, 2018b, p. 28). Giroux rejects the positivist culture that treats education as a neutral and objective entity. Discourse on the neutrality and objectivity of education ignores ideological and historical dimensions, thereby failing to reveal forms of oppression hidden in language and social practices. Reflective capacity regarding contemporary reality is built through historical awareness of societal transformation.

Technocratic rationality traps education as a process of technical reproduction without emancipatory dimensions.

Education is often trapped in technocratic rationality, which leads to the dominance of efficiency logic and control over the educational process. Education has lost its ethical, imaginative, and political values in an educational process oriented towards technical control and efficiency in the learning process. The dominance of positivistic discourse reduces theory to a technical tool. Theory construction is the ability of individuals to reflect on a phenomenon in social reality critically. Technocratic rationality is a form of manipulation of consciousness so that the construction of educational theory merely supports the dominant discourse with technical and control objectives in the learning process. Technocratic rationality ignores the capacity of humans to act autonomously and create social change. Education merely shapes individuals as technical objects controlled by oppressive system algorithms. Technocratic rationality manipulates the human capacity to imagine alternatives and strive for a more just condition with critical and historical awareness, thereby recognizing the existence of an oppressive system.

The concept of Border Pedagogy is an educational approach that respects differences and diversity by encouraging students to navigate and understand various cultural, social, and physical boundaries. The concept of Border Pedagogy was developed from the concept of critical pedagogy, which encourages students to become cross-borderers who can interpret, negotiate, and reconstruct their experiences as they cross social, cultural, and political boundaries, thereby developing a critical awareness of the conditions they face (Giroux, 2018a). Border Pedagogy uses difference as a starting point to engage students in crossing various social, cultural, and political boundaries, and then reflecting on building new, alternative spaces that are more democratic and socially just. Students who cross boundaries will be able to interpret agency, identity, and political relations with critical awareness. Border pedagogy fosters critical awareness of the realities of social boundaries and history (historical) that shape knowledge and identity in public spaces. Students who act as border crossers will be able to propose alternative conditions after reflecting on various findings, ranging from injustices to acts of kindness. Boundary-crossing students conceptualize a transformation and emancipation improvement that they can undertake as part of the struggle toward a radical and transformative democracy.

The concept of public pedagogy is a development of Henry Giroux's critical pedagogy, emphasizing the role and function of education in fostering critical awareness. Public pedagogy is a process of empowering (emancipatory) students with the courage to question and resist various forms of domination that have become the norm that maintains conditions of injustice in the public sphere (Buchanan, 2011; Giroux, 2018b, 2018a; Topkaya & Yavuz, 2011). The concept of public pedagogy encourages the education system to function as a democratic public space as a democratic public space is a process of educating citizens to have the authority and independence to access and produce knowledge, serving as a starting point for the emancipation of citizens in a socially just democratic public space (Giroux, 2018a).

Civic education often focuses on the stability and compliance of citizens as the goal in the educational process. Public pedagogy, on the other hand, opposes conditions of compliance by fostering critical abilities and awareness to question the reality of social and political irregularities in the public sphere. Civic education is the practice of shaping moral awareness and public virtue, encouraging young citizens to become reflective and critical subjects to negotiate identity in the digital public sphere (Bila et al., 2023; Khairunnisa &

Apoko, 2023). Public pedagogy encourages social transformation through the formation of critical citizenship. The role of teachers as public educators will shape knowledge, habits, and critical skills to become good citizens in thought and practice (Giroux, 2003, 2015, 2018b). Public pedagogy is a means to foster critical citizenship.

Public pedagogy makes ethics the foundation of pedagogical action. Ethics are not merely a personal or individual matter. Ethics are a form of social responsibility that presents resistance to oppressive realities as a form of injustice and shared suffering. Public pedagogy fosters ethical sensitivity rooted in social struggle, aiming to bring about social justice. Public pedagogy encourages the educational process as a political practice in shaping critical citizenship. Public pedagogy critiques education as a technocratic approach. Critical civic awareness raises philosophical questions about the form of citizenship and society that is hoped to emerge from the struggle through the educational process. The philosophical questions arising from critical civic awareness stem from the social and historical context of the students. Students are invited to reflect on their existence and form their voices and identities as critical and autonomous democratic citizens.

Education in the context of post-digital education will be closely linked to digital transformation in education. The acceleration of digital technology integration in education policy aims to increase flexibility in classroom management and learning (A. M. A. Saputra et al., 2023; Triwiyanto et al., 2022). The transformation of digital education presents both opportunities and challenges, including inadequate teacher competencies and insufficient support for digital infrastructure (Saa, 2024). The challenge of post-digital education is to foster critical awareness of the social structures and power dynamics operating in the digital space. Critical pedagogy serves as the foundation for post-digital education, promoting a deep understanding of the political and cultural space that fosters awareness of injustice in the digital realm. Awareness of the urgency of the struggle for social justice in the digital space is a pressing need in the context of post-digital education. Giroux's thinking provides a critical foundation, ensuring that education does not merely focus on the development of digital skills and mastery of digital use, but extends and deepens into social, political, and ethical issues in the dimensions of digital citizenship. Critical digital citizenship is a conscious effort to equip students with the knowledge, skills, and behaviors necessary to be responsible and ethical digital citizens when engaging in digital spaces (Prasetyo et al., 2021, 2023; Webster, 2024).

Digital citizenship also equips students with an understanding of digital security, digital literacy, and the ethics of technology use (Prasetyo et al., 2021). Digital citizenship education should be promoted through a critical pedagogy approach as an educational policy to address the challenges of post-digital education. Critical pedagogy is the foundation for criticizing digital approaches that are trapped in the formation of technical skills and digital literacy as manifestations of technocratic rationality. Digital citizenship education needs to understand the reality of human interconnectedness in digital technology networks. Digital citizenship education needs to understand the reality of sociotechnocratic interconnectedness in relation to citizenship issues in the post-digital context. The critical pedagogical approach in the learning process values and respects the diversity of ideas and thoughts in dialogue, as part of elaborating ideas and criticism, in a joint struggle to bring about social and democratic justice in public life. The joint struggle in the digital public sphere necessitates a robust philosophical foundation to advocate for social justice in the development of critical digital citizenship.

Critical pedagogy is an approach to critical digital citizenship education based on moral and ethical awareness in the use of digital technology (Emejulu & McGregor, 2019; Prasetyo et al., 2023). Critical pedagogy in building critical awareness as a moral and ethical guide for character education development in the context of digital citizenship education that is active in the digital space. The challenge of citizenship activities in the digital space is the encirclement of algorithms that threaten the construction of an independent identity as digital citizens. Critical digital citizenship education fosters awareness of the socio-technical relationship in the interconnectedness of identity, agency, and the experiences of citizens formed within digital networks. The challenge of independent identity, agency, and citizenship experiences is shaped by human interactions with algorithms in the digital space. Algorithms, as the basis for constructing digital infrastructure, cannot be considered neutral entities in terms of power relations in the digital space. The challenge of critical digital citizenship transformation is the existence of a digital divide that perpetuates social and political inequality in digital society.

Empowering students by fostering critical awareness as digital citizens as a foundation for questioning and challenging the status quo in the digital space. Empowerment will be the starting point for engaging and being informed in the digital space (Buchanan, 2011; Giroux, 2018b). The starting point for student empowerment in critical pedagogy is the ability to think critically as an ethical and political endeavour, particularly as subjects in the digital public sphere. Active subjects in the digital space can read, interpret, and challenge the normality and digital hegemony to promote a democratic digital public sphere. Resistance in the digital space requires democratic awareness as a capital for transformative action in the digital space. Democratic awareness is based on understanding and dialogue about differences in ideas and concepts in reaching alternative agreements.

Post-digital education requires a foundation of ethics, agency, and democracy as the core of digital citizenship education, one that is sensitive to the conditions of disorder and injustice in the digital space. Digital citizenship will serve as a form of agency in resisting various forms of power and hegemony that perpetuate the digital divide. Critical digital citizenship education encourages students to reflect on various phenomena in the digital space, building an alternative imagination of ideal and democratic conditions within it.

Digital citizenship education impacts the transformation of digital education into a democratic space. Digital education is not merely about training students and teachers to optimise the opportunities and challenges of using digital technology. Teachers and students, as subjects of education, are critical, ethical, and empowered agents in overcoming the digital divide, algorithmic dominance, and strengthening inclusive and transformative digital mitigation and competencies (Ananto & Ningsih, 2023; Prasetyo et al., 2021). Giroux's thoughts on pedagogy and politics hope are the conceptual foundation for formulating digital citizenship education policies that challenge the hegemony of technocratic rationality by building critical awareness and strengthening the dimensions of values, ethics, and history of digital citizenship. Digital citizenship education policies are often trapped in technocratic, normative, and ahistorical rationality, distancing themselves from sensitivity to social justice in the digital space.

Education needs to be encouraged to function as a public space that empowers students to develop critical awareness, metaphysical awareness (of existence), and historical awareness. The digital public space has a hidden curriculum that reinforces the status quo in the digital space with a dominant discourse. Digital citizenship education policy is an

effort to build agency as subjects who possess critical awareness, political awareness, and democratic awareness in reading the construction of power structures in the digital public sphere. Students are intellectual actors as agents in shaping a just digital culture. A digital citizenship agency is formed with awareness of the power of algorithms in digital platforms that drive the digital ecosystem. Algorithmic power will dominate, with technocratic rationality influencing the formation of identity, choices, and social relations in the digital space. Critical digital citizenship education policy is an instrument for shaping the digital ecosystem of education by fostering critical digital citizenship literacy that embodies the values of democracy, justice, and emancipation through a reflective, participatory, and transformative learning approach.

The concept of critical pedagogy can be used to justify criticism of the concept of digital citizenship education. Critical pedagogy critiques the positivist paradigm that shapes technocratic rationality in education curriculum policy. The education curriculum formally encourages student-centred learning and flexibility to adapt to digital transformation. The paradigm of curriculum development is trapped in the logic of efficiency and administrative adjustments to learning. The curriculum has not yet addressed the dimension of student empowerment in digital education transformation. Giroux criticizes the trap of technocratic rationality that dominates education, overlooking the ethical, historical, and political dimensions of student learning. Positivist rationality devalues the historical dimension of historical consciousness, which encourages individuals to become agents for shaping and changing reality when under pressure from power structures (Giroux, 2018a).

The development of digital literacy in the education curriculum primarily focuses on developing technical skills. The digital education curriculum can be encouraged to shape critical digital citizenship. Giroux emphasizes in the concept of public pedagogy that education is an arena for the formation of reflective, ethical, and democratic citizenship. Critical pedagogy connects education with the needs and demands of critical democracy, which aims to create a public space where citizens are empowered to manage their own lives (Giroux, 2018a). The digital education curriculum needs to open up space for flexibility and differentiation in learning by integrating the principles of critical pedagogy. Teachers enhance their capabilities in designing learning that is oriented towards reflection in building critical awareness of the concept of critical digital citizenship. Digital education transformation is an educational paradigm that aims to equip students with the capacity to transcend the boundaries of discourse domination, enabling them to identify forms of irregularity and injustice in the digital space. Digital education transformation requires the drive to be willing and able to engage in democratic collective action by critically examining agency, identity, and politics in the digital public sphere (Giroux, 2018a).

Digital citizenship education is a transformation of education to **build an educational ecosystem** based on ethical, reflective, and transformative foundations. Policies on digital education transformation need to be reviewed regarding the role of educational subjects so that they can understand the complexity of the digital public sphere with critical awareness. Critical pedagogy can be expanded by critiquing the concept of digital citizenship, especially in terms of the ability to deconstruct and empower students in the digital public sphere in a radical manner. Digital citizenship is expanded with the formation of critical awareness about the dominance of digital power structures, reading algorithmic biases, and manipulating identities and consciousness that are besieged in digital spaces. Digital citizenship is the development of digital political literacy for emancipation and the fight for social justice in digital public spaces. Critical pedagogy in the context of post-digital education is a conscious effort to re-examine the boundaries of dominant discourse by

offering alternatives for democratic action in the digital space. Digital citizenship education encourages the formation of identity and agency as digital citizens, enabling them to understand, critique, and collectively and reflectively engage in the digital space. Discourses on ethics and technology in the digital space, related to data security, algorithmic manipulation, cyberbullying, and the digital divide, are trapped in the paradigm of digital positivism. Policy approaches and reforms in digital education are needed to establish a safe, fair, and inclusive digital ecosystem. Critical pedagogy advocates for increased investment in digital technology in education, enhanced teacher capacity, and the establishment of regulations to ensure a safe, fair, and inclusive digital public space, enabling students to participate actively.

CONCLUSION

Digital citizenship in the dynamics of post-digital education must be understood not merely as the acquisition of technical competencies but as an emancipatory project rooted in humanistic values. Through the lens of Henry Giroux's critical pedagogy, education becomes a philosophical and ethical arena to challenge the reduction of knowledge and subjectivity to technocratic rationality. This perspective asserts that the primary purpose of education in the digital age is to foster critical consciousness, social sensitivity, and ethical responsibility, thereby empowering students to resist dehumanization and actively contribute to shaping a just and democratic society. Critical digital citizenship education is an emancipatory practice rooted in critical pedagogy, aiming to foster a reflective awareness of the power dynamics between humans and algorithms. This enables students to autonomously negotiate their identity, agency, and humanity in a democratic and socially just digital space.

Future studies should further investigate how critical pedagogy can be practically integrated into curricula and pedagogical strategies for digital citizenship education, particularly within diverse cultural and socio-political contexts. Empirical research involving classroom practices, teacher training, and student experiences would enrich the philosophical framework with concrete applications, ensuring that post-digital education not only critiques but also transforms educational realities toward emancipatory and inclusive outcomes.

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