Post-Humanist Pedagogies in E-Learning for English Language Teaching: Insights from Indonesian Doctorate Students

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Abstract

This study investigates the integration of post-humanist pedagogies in e-learning for English language teaching (ELT) through the perspectives of Indonesian doctoral students. Post-humanist principles, emphasizing interconnectedness and collaboration, are explored within digital language education contexts. Conducted at Universitas Negeri Malang, the study employed a sequential mixed-methods approach involving 28 participants. Data collection included closed-ended questionnaires and semi-structured interviews, focusing on three key dimensions: relationality, agency and autonomy, and multiplicity and diversity. Findings underscored the preference for collaborative digital learning environments, highlighting peer interaction and the role of adaptive technology in fostering personalized instruction and learner autonomy. The participants also emphasized the importance of integrating sustainability-focused content in language courses to promote ecological awareness. This research advocates for the transformative potential of post-humanist pedagogies in enhancing inclusive, learner-centered language learning experiences that support linguistic diversity and intercultural understanding. Future studies should explore the scalability and socio-political implications of these pedagogical approaches across diverse educational settings to address broader societal challenges and promote equitable education practices.

***Keywords*:** Post-humanism, e-learning, English language teaching, doctorate students, pedagogical integration

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1. Introduction

Post-humanism represents a philosophical stance that challenges traditional anthropocentric views, emphasizing the entanglement and interdependence of humans and non-humans within complex socio-ecological systems (Braidotti, 2016; Christensen, 2014; Forlano, 2017). Emerging as a response to the limitations of human-centric perspectives, post-humanism offers critical insights into the evolving relationships between humans, technology, and the environment. Within the realm of education, post-humanist perspectives have sparked debates and inquiries into the implications for teaching and learning practices (Pedersen, 2010; Stables & Scott, 2001). Positive insights gleaned from post-humanist approaches include the recognition of diverse forms of intelligence and agency beyond the human realm, fostering ecological awareness, and promoting inclusive pedagogies that accommodate diverse ways of knowing and being (Prem, 2024). However, post-humanism also poses challenges, including the decentering of human subjectivity and expertise, the blurring of boundaries between human and non-human actors, and ethical concerns regarding agency and accountability (Elfert, 2023; Ulmer, 2017).

English Language Teaching (ELT) represents a domain deeply influenced by socio-cultural and technological shifts, prompting educators to reassess traditional pedagogical approaches in light of contemporary challenges and opportunities (Du, 2024; Karimi & Mofidi, 2024). The integration of digital technologies and e-learning platforms into language education has revolutionized teaching and learning practices, offering unprecedented access to resources, opportunities for personalized instruction, and avenues for collaborative learning (Banerji, 2019; Knox, 2016; Hidayati & Slamet, 2025; Slamet & Basthomi, 2024; Slamet & Mukminatien, 2024). However, the rapid pace of technological advancement has also raised questions about the impact on pedagogical practices and learner outcomes. As educators navigate the complexities of digital language education, there is a growing recognition of the need to critically examine the underlying assumptions and ideologies shaping teaching methodologies in online environments (Gough & Gough, 2017; Mañero, 2019; Stables & Scott, 2001).

Within the context of ELT and e-learning, post-humanist perspectives offer a

novel lens through which to reframe pedagogical practices and conceptualize the relationships between humans, language, and technology. Post-humanism challenges the privileging of human subjectivity and expertise, advocating for more inclusive and relational approaches to teaching and learning (Elfert, 2023; Knox, 2016; Pedersen, 2010; Prem, 2024; Sidebottom, 2019). In the realm of language education, post-humanist pedagogies problematize traditional notions of language proficiency and communication, highlighting the dynamic and situated nature of linguistic practices (Allender, 2013; Banerji, 2019; Howlett, 2018; Kuby et al., 2018; Mañero, 2019). However, while there is growing interest in post-humanist approaches to ELT and e-learning, there remains a paucity of empirical research exploring their practical implications and effectiveness in digital language education contexts.

To the best of our knowledge, existing literature on post-humanist pedagogies in education and online learning primarily consists of theoretical discussions and conceptual explorations, with limited empirical research to inform practice (Banerji, 2019; Gough & Gough, 2017; Prem, 2024). This gap underscores the need for empirical investigations into how post-humanist principles manifest in digital language education settings and their impact on teaching and learning outcomes (Knox, 2016; Mañero, 2019). Specifically, there is a dearth of research focusing on the practical application and efficacy of post-humanist pedagogies, particularly in the context of ELT and e-learning. While previous studies have identified theoretical frameworks and conceptual models of post-humanist pedagogies, highlighting their potential benefits for fostering inclusive and learner-centered learning environments (Gane, 2005; Gough & Gough, 2017), empirical evidence is lacking regarding the implementation of these pedagogies in practice, especially within the context of e-learning for ELT. Therefore, there is a need to bridge this gap by investigating the actual experiences and perspectives of learners and educators regarding the adoption of post-humanist approaches in digital language education. By doing so, the present study aims to fill this gap by exploring the practical application and efficacy of post-humanist pedagogies in e-learning for English language teaching, with a specific focus on Indonesian doctorate students of the English Language Education program.

Research Questions

1. How do Indonesian doctorate students perceive and engage with post-humanist pedagogies in e-learning for ELT?

2. What challenges and opportunities do Indonesian doctorate students encounter in integrating post-humanist principles into digital language education contexts?

2. Literature Review

2.1. Theoretical Framework of Post-humanist Pedagogies

Post-humanist pedagogies, deeply entrenched in post-structuralist and postmodernist theories, represent a paradigmatic shift from conventional human-centric approaches in education (Braidotti, 2016; Christensen, 2014; Porpora, 2017; Sidebottom, 2019). Within this theoretical landscape, scholars have contributed diverse frameworks to conceptualize post-humanist pedagogies, with a keen focus on three fundamental dimensions: relationality, agency and autonomy, and multiplicity and diversity to underscore the complexity of delineating and identifying the source of subjectivity, or one's 'will to learn' (Brinkmann, 2017; Chiew, 2018; Gane, 2005). Post-humanist pedagogies emphasize three key dimensions: relationality, agency and autonomy, and multiplicity and diversity. Relationality explores the interconnectedness within educational environments, moving beyond traditional roles to emphasize symbiotic relationships between humans and technology (Howlett, 2018; Kuby et al., 2018; Salimi & Najjarpour, 2024; Sidebottom, 2019). Concepts like "cyborg pedagogy" exemplify this integration, advocating for collaborative innovation through technology (Gough & Gough, 2017). Agency and autonomy empower learners to navigate digital realms independently, shaping their educational paths and engaging in collaborative knowledge creation (Allender, 2013; Braidotti, 2016; Sabouri et al., 2023; Taylor, 2017). Multiplicity and diversity acknowledge the diverse voices and perspectives in digital learning landscapes, promoting inclusive educational ecosystems (Christensen, 2014; Elfert, 2023; Gane, 2005;). Together, these dimensions disrupt traditional hierarchies, fostering dynamic interactions and innovative learning environments that accommodate various epistemologies and modes of engagement in the digital age.

2.2. Empirical Research on Post-humanist Pedagogies

Empirical research on post-humanist pedagogies represents a critical frontier in educational inquiry, yet the current landscape remains largely uncharted, particularly within the domain of ELT and e-learning. While theoretical frameworks abound, empirical investigations into the practical implementation of post-humanist approaches are scarce, leaving a notable void in our understanding of their efficacy in real-world educational contexts (Pedersen, 2010; Stables & Scott, 2001). In addition, conducting `study stands as a beacon in this largely unexplored terrain, illuminating the potential of post-humanist principles in education (Allender, 2013; Brinkmann, 2017). By embracing post-humanist tenets, they facilitated enhanced ecological awareness and interdisciplinary collaboration among students, signaling promising outcomes. However, within language education, comparable empirical inquiries are conspicuously scarce, underscoring the urgent need to bridge this gap and explore how post-humanist pedagogies materialize in digital language education settings (Banerji, 2019; Knox, 2016; Mañero, 2019).

Recent efforts by scholars such as Mulcahy (2022) and Prem (2024) have begun to address this lacuna by delving into the practical application of post-humanist pedagogies across various digital educational contexts. Yet, despite these commendable endeavors, the bulk of existing studies predominantly dwell in theoretical discussions and conceptual explorations. While these contributions offer valuable insightsExisting studies primarily focus on theoretical and conceptual aspects, highlighting the need for more empirical research to validate the effectiveness of post-humanist approaches in improving learning outcomes. This gap is particularly critical in language education, which involves complex linguistic, cultural, and social dynamics. Exploring how post-humanist pedagogies operate in digital language education and their impact on teaching and learning is crucial (Elfert, 2023; Gane, 2005). To date, while theoretical frameworks provide a solid foundation, empirical research serves as the crucible through which these theories are tested and refined. The quest to unlock the transformative potential of post-humanist pedagogies in digital language education settings is ongoing, and it is through rigorous empirical inquiry that we can truly illuminate this path forward.

2.3. Challenges and Opportunities in Integrating Post-Humanist Pedagogies into ELT and E-Learning

The incorporation of post-humanist pedagogies into ELT and e-learning heralds a paradigm shift in educational practices, challenging traditional human-centered perspectives and offering novel avenues for teaching and learning. One key challenge lies in the limited empirical evidence supporting the effectiveness of post-humanist approaches in language education (Forlano, 2017; Stables & Scott, 2001). While theoretical frameworks abound, empirical studies validating their efficacy in real-world educational contexts are scarce. Christensen (2014) and Porpora (2017) underscore this gap, highlighting the need for rigorous empirical research to elucidate the practical implications of post-humanist pedagogies in language teaching. Without empirical validation, educators may hesitate to adopt these innovative approaches, hindering their widespread use. Post-humanist perspectives emphasize the dynamic nature of language use, posing challenges for educators to adapt teaching methods to diverse linguistic and cultural contexts. This shift requires moving away from rigid, uniform instructional approaches towards flexible and adaptive pedagogical strategies (Chen & Paramasivam, 2023; Elfert, 2023; Forlano, 2017; Pedersen, 2010). However, the lack of these existing studies exploring the effectiveness of such approaches in language education settings leaves educators navigating uncharted territory without evidence-based guidance. In addition, the integration of digital technologies into language learning environments introduces both opportunities and challenges. While digital tools offer unprecedented opportunities for collaboration, interaction, and knowledge construction, they also exacerbate disparities in access and digital literacy (Chappell et al., 2023; Mulcahy, 2022; Prem, 2024). Post-humanist pedagogies advocate for harnessing the affordances of technology to create inclusive and equitable learning environments (Banerji, 2019; Knox, 2016; Mañero, 2019). Yet, without empirical research to inform best practices, educators may struggle to leverage digital technologies effectively within a post-humanist framework, hindering the realization of their transformative potential.

2.4. The Context of the Current Study

This study explores e-learning dynamics through SiPejar, a central learning management system at Universitas Negeri Malang, Indonesia. SiPejar not only delivers educational content but also fosters collaboration and drives pedagogical innovation, particularly in ELT. The study investigates how post-humanist pedagogies are integrated within this digital ecosystem to enhance ELT practices and create more inclusive and equitable learning environments. In the context of SiPejar's e-learning landscape, post-humanist principles go beyond theory, reshaping education fundamentally. These principles, deeply intertwined with digital platforms, contribute uniquely to the educational experience (Chiew, 2018):

- *Relationality:* Post-humanist pedagogies highlight interconnected relationships in education. Platforms like SiPejar not only deliver content but also serve as interactive spaces for collaborative knowledge creation, extending learning interactions to include digital environments (Mulcahy, 2022).

- *Agency and Autonomy:* These pedagogies empower learners, particularly doctorate students, to actively co-create knowledge and innovate in education. Their participation enables them to take ownership of their learning journey, fostering critical thinking, self-directed learning, and creativity (Prem, 2024).

- *Multiplicity and Diversity:* Embracing diverse voices and perspectives, post-humanist pedagogies recognize varied ways knowledge is constructed and experienced digitally. Involving doctorate students enriches research with inclusive viewpoints, promoting collaborative learning and exploring alternative knowledge paradigms in digital contexts (Gough & Gough, 2017).

Practically, the integration of post-humanist pedagogies into ELT via SiPejar necessitates a paradigm shift in educational approaches, reimagining the learning experience to transcend traditional boundaries. This includes emphasizing relationality, agency and autonomy, and multiplicity and diversity, fostering collaborative, creative, and reflective learning environments using digital tools. Through the involvement of doctorate students, this study explores how post-humanist principles interact within digital learning contexts, revealing both promises

and challenges in reshaping education for the digital age.

3. Methodology

3.1. Research Design

This study adopts a sequential mixed-methods approach, as proposed by Ivankova et al. (2006), to comprehensively address the research questions concerning the perceptions and experiences of Indonesian doctorate students regarding post-humanist pedagogies in e-learning for ELT. It integrates quantitative and qualitative data collection and analysis methods to triangulate findings, ensuring robust study outcomes. The study begins with a quantitative phase utilizing a closed-ended questionnaire to gauge the participants' perceptions of post-humanist pedagogies in e-learning for ELT. The findings from this phase inform the subsequent qualitative phase, involving semi-structured interviews, allowing for a deeper exploration of the participants' experiences and perspectives on integrating these principles into digital language education contexts. This design ensures that insights from the questionnaire guide the development of interview questions, enhancing the depth and relevance of qualitative data collection.

3.2. The Participants

The participants for this study are carefully selected based on their active engagement with the SiPejar at Universitas Negeri Malang. The 28 doctorate students involved are deeply immersed in utilizing SiPejar, which serves as a central platform for their academic pursuits. Given SiPejar's pivotal role in shaping their learning experiences, these students are well-positioned to explore the integration of post-humanist pedagogies in e-learning. Their selection also considers their involvement in educational research and practice, along with extensive experience in e-learning initiatives. This ensures they possess the necessary expertise to meaningfully engage with post-humanist pedagogies within digital learning environments. Their familiarity with SiPejar further enhances their suitability, facilitating a targeted examination of how post-humanist principles manifest within this specific technological context.

Table 1
Demographic Participant Information (n = 28)

Aspects	Count	Percentage (%)
Age:		
17-24	0	0
25-34	15	53.57
35-44	8	28.57
45+	5	17.86
Gender:		
Male	11	39.29
Female	17	60.71
Academic Discipline:		
Education	12	42.86
Linguistics	6	21.43
Language Teaching	5	17.86
Technology Education	5	17.86
Years of E-Learning Experience:		
1-3 years	10	35.71
4-5 years	7	25.00
5+ years	11	39.29
Familiarity with SiPejar:		
1 (Not Familiar)	0	0
2 (Somewhat Familiar)	5	17.86
3 (Moderately Familiar)	8	28.57
4 (Familiar)	10	35.71
5 (Very Familiar)	5	17.86
Familiarity with Post humanist pedagogies:		
1 (Not Familiar)	0	0
2 (Somewhat Familiar)	2	7.14
3 (Moderately Familiar)	7	25.00
4 (Familiar)	12	42.86
5 (Very Familiar)	7	25.00

3.3. Instruments

Quantitative data are collected through a closed-ended questionnaire designed to assess the participants' perceptions of post-humanist pedagogies in e-learning for ELT. The questionnaire is structured around three key dimensions: relationality, agency and autonomy, and multiplicity and diversity, with 10 items dedicated to each dimension. Each dimension is explored through a series of Likert-scale items, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire is adapted from the concept of post-humanist pedagody proposed by Chiew (2018) and Mulcahy

(2022) to ensure its relevance and applicability. To validate the questionnaire, two experts holding Ph.D. degrees in the fields of English language education and applied linguistics were involved in the process. These experts reviewed the questionnaire to ensure its content validity and alignment with the theoretical framework. Their roles included providing feedback on the clarity and relevance of the items, confirming the appropriateness of the dimensions, and ensuring that the items effectively capture the constructs of relationality, agency and autonomy, and multiplicity and diversity. Moreover, qualitative data are obtained through semi-structured interviews with four selected doctorate students. The selection criteria for interview participants are based on their diverse perspectives and experiences related to post-humanist pedagogies. By engaging in-depth with a small group of participants (Dobakhti, 2020; Dobakhti & Zohrabi, 2017), the qualitative interviews aim to provide rich, nuanced insights into the challenges and opportunities associated with integrating post-humanist principles into digital language education contexts.

3.4. Data Collection Procedure

The implementation of SiPejar serves as the primary platform for the delivery of e-learning content to the participants. SiPejar offers a versatile and user-friendly interface that aligns with the principles of post-humanist pedagogies, facilitating interactive and collaborative learning experiences. The distribution of the questionnaire is conducted via WhatsApp, leveraging the ubiquity of mobile messaging platforms among participants for efficient data collection. Furthermore, the interview process involves scheduling individual sessions with the selected participants, during which open-ended questions are posed to elicit detailed responses related to their experiences with post-humanist pedagogies. Interviews are audio-recorded and transcribed verbatim to ensure accuracy in data analysis. The interview questions are developed based on the three key dimensions of post-humanist pedagogies: relationality, agency and autonomy, and multiplicity and diversity. The interview questions, shown below, aim to explore the participants' views on these dimensions in the context of SiPejar and digital learning environments.

   a. *Relationality Dimension Interview Questions:*

- "How has engaging with post-humanist pedagogies in e-learning affected your understanding of the relationship between human learners, digital tools, and other entities?"

- "What challenges have you faced in integrating relationality within e-learning environments, particularly when using SiPejar?"

b. Agency and Autonomy Dimension Interview Questions:

- "In what ways have post-humanist pedagogies affected your sense of agency and autonomy in digital learning environments?"

- "Can you describe any difficulties you have encountered in navigating your learning experience within SiPejar, especially in terms of exercising agency?"

c. Multiplicity and Diversity Dimension Interview Questions:

- "How have post-humanist pedagogies influenced your perspective on the diversity of knowledge sources and identities in digital learning environments?"

- "How do you perceive the role of SiPejar in fostering or limiting the exploration of diverse perspectives?"

3.5. Data Analysis

Quantitative data obtained from the questionnaire are analyzed using SPSS 26, employing descriptive statistics such as frequencies, percentages, means, and standard deviations. The reliability of the questionnaire is assessed using Cronbach's alpha coefficient, demonstrating a high level of internal consistency *(α = 0.912)*. The quantitative findings offer insights into the participants' views on post-humanist pedagogies in e-learning for ELT. Qualitative data from interviews are thematically analyzed to explore recurring patterns and themes across relationality, agency and autonomy, and multiplicity and diversity dimensions. This in-depth qualitative analysis aims to reveal nuanced challenges and opportunities in integrating post-humanist principles into digital language education contexts.

3.6. Ethical Consideration

Ethical considerations are paramount throughout the research process, ensuring the confidentiality, privacy, and informed consent of participants. Participants are provided with detailed information about the study's purpose, procedures, and their rights as research subjects before obtaining their consent to participate. Additionally, measures are taken to anonymize participant data and protect their identities throughout data collection, analysis, and dissemination. Ethical approval for the study is obtained from the relevant institutional review board to ensure compliance with ethical standards and guidelines.

4. Results

4.1. RQ.1 How Do Indonesian Doctorate Students Perceive and Engage with Post-humanist Pedagogies in E-learning for ELT?

In addressing RQ1, this section delves into the perceptions and engagement of Indonesian doctorate students with post-humanist pedagogies in e-learning for ELT. The data for this inquiry were gathered through a comprehensive closed-ended questionnaire, designed to capture the nuances of post-humanist pedagogies, particularly focusing on the dimensions of relationality, agency and autonomy, and multiplicity and diversity. Table 2 displays results from the relationality dimension, revealing the participants' perspectives on their interactions within SiPejar as an e-learning environment and the relational dynamics involved.

Table 2

Results of the Questionnaire from the Relationality Dimension (n = 28)

No	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
1	I perceive SiPejar as an interconnected platform of relationships that shape our educational experience.	5 (18%)	3 (11%)	4 (14%)	10 (36%)	6 (21%)	4.03	0.89
2	I perceive online discussions within SiPejar for exploring diverse viewpoints, fostering critical thinking.	3 (11%)	7 (25%)	4 (14%)	9 (32%)	5 (18%)	3.93	0.75
3	I believe collaborative tasks online facilitate collective knowledge creation, integrating human and digital entities.	4 (14%)	5 (18%)	6 (21%)	8 (29%)	5 (18%)	4.00	0.82
4	I find interactions with instructors within SiPejar characterized by mutual support and recognition of diverse needs.	3 (11%)	4 (14%)	8 (29%)	7 (25%)	6 (21%)	4.07	0.94

No	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
5	I recognize peer support plays a pivotal role in building an inclusive online community, fostering a sense of belonging.	2 (7%)	6 (21%)	6 (21%)	9 (32%)	5 (18%)	4.07	0.79
6	I appreciate the level of interaction and collaboration within SiPejar, enabling rich exchanges and co-creation of knowledge.	4 (14%)	4 (14%)	7 (25%)	8 (29%)	5 (18%)	3.96	0.84
7	I acknowledge SiPejar promotes collective learning and cooperative engagement, transcending individual contributions.	5 (18%)	3 (11%)	6 (21%)	9 (32%)	5 (18%)	4.04	0.83
8	I understand group projects within SiPejar encourage collaborative knowledge construction, leveraging diverse perspectives.	3 (11%)	4 (14%)	7 (25%)	9 (32%)	5 (18%)	4.04	0.88

No	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
9	I believe the online environment within SiPejar cultivates an inclusive community, where participants respect diverse voices.	3 (11%)	5 (18%)	5 (18%)	9 (32%)	6 (21%)	4.04	0.85
10	I find online collaborative tasks within SiPejar facilitate diverse perspectives and dialogues, extending beyond traditional boundaries.	4 (14%)	4 (14%)	6 (21%)	8 (29%)	6 (21%)	3.96	0.91

Noted: SD: Strongly Disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly Agree, f: frequency, Std. Dev: Standard Deviation

Table 2 summarizes the results from the relationality dimension questionnaire within SiPejar, detailing the participants' perspectives on its influence on their educational experiences. Overall, SiPejar is perceived positively as an interconnected platform (mean = 4.03, *SD* = 0.89), significantly shaping educational journeys (A: 36%, SA: 21%, Item 1). The participants appreciate online discussions (mean = 3.93, *SD* = 0.75) and collaborative tasks (mean = 4.00, *SD* = 0.82) for promoting critical thinking and knowledge creation (A: 32%, SA: 18%, Items 2 and 3). Interactions with instructors are viewed positively (mean = 4.07, *SD* = 0.94), noted for mutual support and acknowledgment of diverse needs (A: 25% to 32%, SA: 18%, Item 4). Peer support within SiPejar is seen as pivotal for inclusivity and fostering a sense of

belonging (mean = 4.07, *SD* = 0.79, A: 21%, SA: 18%, Item 5). Participants appreciate the level of interaction and collaboration facilitated by SiPejar (mean = 3.96, *SD* = 0.84), enhancing knowledge co-creation and collective learning (A: 29%, SA: 18%, Item 6). SiPejar is recognized for promoting cooperative engagement and transcending individual contributions (mean = 4.04, *SD* = 0.83, A: 32%, SA: 18%, Item 7). However, there are reservations about the effectiveness of online discussions (D: 25%, N: 14%, Item 2) and group projects (D: 25%, N: 14%, Item 8) in certain instances, suggesting areas for improvement in collaborative learning activities. Despite these concerns, SiPejar is acknowledged for cultivating an inclusive online community (mean = 4.04, *SD* = 0.85, A: 32%, SA: 21%, Item 9) and facilitating diverse perspectives and dialogues (mean = 3.96, *SD* = 0.91, A: 29%, SA: 21%, Item 10). These findings highlight SiPejar's pivotal role in facilitating collaborative learning experiences, yet also indicate areas for improvement to optimize its effectiveness in digital education contexts. While SiPejar serves as a significant platform for collaborative learning in digital language education, further refinement is necessary to enhance collective knowledge construction and foster inclusive learning communities. These insights offer valuable guidance for educators and instructional designers aiming to improve collaborative learning activities in digital environments.

Additionally, addressing RQ.1 on Indonesian doctorate students' perceptions and engagement with post-humanist pedagogies in e-learning for ELT, the dimension of agency and autonomy is pivotal. The table below details the questionnaire findings, offering insights into their perspectives on agency and autonomy in digital learning.

Table 3

Results of Questionnaire from Agency and Autonomy Dimension (n = 28)

No.	Item	SD *(f, %)*	D *(f, %)*	N *(f, %)*	A *(f, %)*	SA *(f, %)*	Mean	Std. Dev
1	I feel a strong sense of control over my learning process within	3 (10.7%)	2 (7.1%)	5 (17.9%)	8 (28.6%)	10 (35.7%)	3.86	1.12

No.	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
	SiPejar.							
2	I have the freedom to explore diverse learning materials and resources available in SiPejar.	2 (7.1%)	4 (14.3%)	4 (14.3%)	9 (32.1%)	9 (32.1%)	3.71	1.09
3	I am encouraged to set personal learning goals and objectives within SiPejar.	1 (3.6%)	3 (10.7%)	6 (21.4%)	10 (35.7%)	8 (28.6%)	4.00	1.05
4	I feel empowered to make decisions about the pace and direction of my learning within SiPejar.	2 (7.1%)	2 (7.1%)	5 (17.9%)	11 (39.3%)	8 (28.6%)	4.00	1.07
5	I perceive SiPejar as a platform that supports my autonomy in choosing learning activities and assessments.	1 (3.6%)	2 (7.1%)	7 (25.0%)	9 (32.1%)	9 (32.1%)	3.79	1.03
6	I am motivated to take ownership of my learning journey and	2 (7.1%)	2 (7.1%)	3 (10.7%)	10 (35.7%)	11 (39.3%)	4.00	0.99

No.	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
7	pursue areas of interest within SiPejar. I have the flexibility to adapt learning strategies and approaches based on my individual needs and preferences.	2 (7.1%)	1 (3.6%)	4 (14.3%)	11 (39.3%)	10 (35.7%)	4.00	1.10
8	I feel a sense of empowerment in collaborating with peers and instructors to co-create knowledge within SiPejar.	1 (3.6%)	3 (10.7%)	4 (14.3%)	9 (32.1%)	11 (39.3%)	4.07	0.97
9	I am confident in my ability to utilize digital tools and technologies to support my learning goals within SiPejar.	0 (0.0%)	1 (3.6%)	4 (14.3%)	10 (35.7%)	13 (46.4%)	4.21	0.86
10	I perceive SiPejar as a space that fosters independence and self-regulation in my learning journey.	1 (3.6%)	1 (3.6%)	3 (10.7%)	9 (32.1%)	14 (50.0%)	4.36	0.76

Table 3 presents the findings from the agency and autonomy dimension questionnaire within SiPejar, reflecting the participants' perceptions of their control and freedom over their learning experiences. Overall, participants feel a strong sense of control (mean = 3.86, *SD* = 1.12) and empowerment (A: 35.7%, SA: 35.7%, Item 1) in managing their learning processes. They appreciate the freedom to explore diverse learning materials (mean = 3.71, *SD* = 1.09) and set personal goals (mean = 4.00, *SD* = 1.05, A: 35.7%, SA: 28.6%, Items 2 and 3), indicating SiPejar's support for autonomy and self-directed learning. Participants also feel empowered to make decisions about their learning pace and direction (mean = 4.00, *SD* = 1.07, A: 39.3%, SA: 28.6%, Item 4), highlighting the platform's flexibility and adaptability to individual needs. They perceive SiPejar as facilitating autonomy in choosing activities and assessments (mean = 3.79, *SD* = 1.03, A: 32.1%, SA: 32.1%, Item 5) and motivating ownership of their learning journey (mean = 4.00, *SD* = 0.99, A: 35.7%, SA: 39.3%, Item 6). Furthermore, participants value the flexibility to adapt learning strategies (mean = 4.00, *SD* = 1.10, A: 39.3%, SA: 35.7%, Item 7) and feel empowered in collaborative knowledge creation (mean = 4.07, *SD* = 0.97, A: 39.3%, SA: 39.3%, Item 8). They are confident in utilizing digital tools to support their learning goals (mean = 4.21, *SD* = 0.86, A: 46.4%, SA: 35.7%, Item 9) and perceive SiPejar as fostering independence and self-regulation (mean = 4.36, *SD* = 0.76, A: 50.0%, SA: 32.1%, Item 10). However, there are some areas where participants express neutral or slightly negative views, particularly regarding the freedom to explore learning resources and the effectiveness of collaborative knowledge creation, suggesting opportunities for enhancing support for autonomy within digital learning environments like SiPejar. These insights underscore SiPejar's role in enhancing learner agency and autonomy, while also identifying areas for improvement to optimize its support for diverse learning needs and preferences. Overall, the findings indicate that SiPejar significantly contributes to fostering participants' agency and autonomy in their learning journeys. However, enhancements are needed to further empower participants and boost their freedom, motivation, and confidence within the platform. These insights can guide the development of interventions aimed at maximizing learner agency and autonomy in digital learning environments like SiPejar.

Lastly, addressing RQ.1 on how Indonesian doctorate students perceive and engage with post-humanist pedagogies in e-learning for ELT, a crucial aspect is the dimension of multiplicity and diversity. The table below provides detailed findings from the questionnaire administered to the participants, offering valuable insights into their views on multiplicity and diversity in the e-learning context.

Table 4
Results of Questionnaire from Multiplicity and Diversity Dimension (n = 28)

No.	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
1	I encounter diverse perspectives and viewpoints on language teaching and learning within SiPejar.	3 (10.7%)	5 (17.9%)	7 (25.0%)	8 (28.6%)	5 (17.9%)	3.64	0.92
2	I have opportunities to engage with materials and resources representing a variety of linguistic backgrounds in SiPejar.	2 (7.1%)	6 (21.4%)	6 (21.4%)	8 (28.6%)	6 (21.4%)	3.71	0.95
3	I feel encouraged to explore alternative ways of understanding language and culture within SiPejar.	1 (3.6%)	3 (10.7%)	5 (17.9%)	10 (35.7%)	9 (32.1%)	4.00	1.12

No.	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
4	I perceive SiPejar as a platform that values and respects diverse linguistic and cultural identities.	2 (7.1%)	3 (10.7%)	4 (14.3%)	9 (32.1%)	10 (35.7%)	4.00	1.08
5	I am exposed to a range of teaching and learning approaches that embrace diversity and inclusivity within SiPejar.	1 (3.6%)	4 (14.3%)	5 (17.9%)	9 (32.1%)	9 (32.1%)	3.93	1.06
6	I am encouraged to critically reflect on my own cultural assumptions and biases within SiPejar.	2 (7.1%)	2 (7.1%)	4 (14.3%)	9 (32.1%)	11 (39.3%)	4.14	1.05
7	I feel supported in embracing diversity and fostering inclusivity in language teaching and learning practices within SiPejar.	2 (7.1%)	1 (3.6%)	5 (17.9%)	8 (28.6%)	12 (42.9%)	4.21	0.97
8	I perceive SiPejar as a space that celebrates the	1 (3.6%)	4 (14.3%)	3 (10.7%)	8 (28.6%)	12 (42.9%)	4.29	0.87

No.	Item	SD (f, %)	D (f, %)	N (f, %)	A (f, %)	SA (f, %)	Mean	Std. Dev
9	multiplicity of language varieties and dialects. I value the opportunity to collaborate with peers from diverse linguistic and cultural backgrounds within SiPejar.	0 (0.0%)	2 (7.1%)	3 (10.7%)	10 (35.7%)	13 (46.4%)	4.36	0.81
10	I feel empowered to challenge dominant language ideologies and promote linguistic diversity within SiPejar.	1 (3.6%)	2 (7.1%)	4 (14.3%)	7 (25.0%)	14 (50.0%)	4.57	0.71

Table 4 summarizes the results from the multiplicity and diversity dimension questionnaire within SiPejar, highlighting the participants' perceptions of the platform's support for diverse perspectives and inclusive practices in language teaching and learning. Participants generally encounter diverse viewpoints (mean = 3.64, *SD* = 0.92, A: 28.6%, SA: 17.9%, Item 1) and engage with materials representing various linguistic backgrounds (mean = 3.71, *SD* = 0.95, A: 28.6%, SA: 21.4%, Item 2), indicating SiPejar's role in exposing them to a variety of linguistic perspectives. They feel encouraged to explore alternative understandings of language and culture (mean = 4.00, *SD* = 1.12, A: 35.7%, SA: 32.1%, Item 3) and perceive the platform as valuing diverse identities (mean = 4.00, *SD* = 1.08, A: 35.7%, SA: 35.7%, Item 4). Participants also report exposure to inclusive teaching approaches (mean = 3.93, *SD* = 1.06, A: 32.1%, SA: 32.1%, Item 5) and feel supported in critically

reflecting on cultural biases (mean = 4.14, SD = 1.05, A: 32.1%, SA: 39.3%, Item 6). They perceive SiPejar as promoting inclusivity in language teaching practices (mean = 4.21, SD = 0.97, A: 28.6%, SA: 42.9%, Item 7) and celebrating linguistic diversity (mean = 4.29, SD = 0.87, A: 28.6%, SA: 42.9%, Item 8). Participants value collaborating with peers from diverse backgrounds (mean = 4.36, SD = 0.81, A: 35.7%, SA: 46.4%, Item 9) and feel empowered to challenge dominant language ideologies (mean = 4.57, SD = 0.71, A: 25.0%, SA: 50.0%, Item 10) within SiPejar. These findings highlight SiPejar's role in fostering an inclusive learning environment that values linguistic diversity, while also pointing to opportunities for enhancing diversity awareness within digital language education contexts. Overall, SiPejar appears effective in promoting inclusivity and collaboration among participants from diverse linguistic and cultural backgrounds. However, improvements are needed to further support and celebrate linguistic diversity effectively. These insights can guide the development of strategies to enhance diversity and inclusivity in digital language education.

4.2. RQ.2 What Challenges and Opportunities do Indonesian Doctorate Students Encounter in Integrating Post-humanist Principles into Digital Language Education Contexts?

In addressing RQ2, the focus shifts to exploring the challenges and opportunities encountered by Indonesian doctorate students as they endeavor to integrate post-humanist principles into digital language education contexts. To capture the nuanced insights and experiences of the participants (DS.1-DS.4, anonymized), semi-structured interviews were conducted, allowing for an in-depth qualitative exploration of the multifaceted dimensions of post-humanist pedagogies.

4.2.1. Relationality dimension

Exploring the challenges and opportunities encountered by Indonesian doctorate students in integrating post-humanist principles into digital language education contexts, the dimension of relationality emerges as pivotal. This dimension delves

into the participants' perceptions and interactions within the digital learning environment, particularly within the SiPejar platform. Through semi-structured interviews, the study seeks to unravel the intricate dynamics between human learners, digital tools, and other entities, shedding light on the relational aspects of post-humanist pedagogies.

DS.1: "*Engaging with post humanist pedagogies in e-learning has significantly expanded my understanding of learning dynamics and the interconnectedness between human and digital entities. However, the absence of SiPejar in certain instances has hindered my ability to fully grasp and embody these relational aspects, limiting the depth of my engagement with digital learning platforms.*"

DS.2: "*Exploring post humanist principles has opened up exciting avenues for collaborative learning and the exploration of diverse perspectives. Nonetheless, the lack of integration with SiPejar presents a significant obstacle, preventing us from fully harnessing the potential of relationality within e-learning environments.*"

DS.3: "*Embracing post humanist pedagogies has empowered me to challenge traditional educational hierarchies and embrace diverse forms of knowledge production. Nevertheless, the absence of SiPejar as a platform for collaborative learning sometimes inhibits our ability to fully embody relationality in e-learning, constraining the richness of our educational experiences.*"

DS.4: "*Post humanist pedagogies emphasize inclusivity and the dissolution of boundaries between human and digital entities. However, the absence of SiPejar in certain contexts poses challenges in fostering meaningful interactions and collaborative knowledge construction. Integrating SiPejar more comprehensively is essential to realizing the transformative potential of relationality within digital language education contexts.*"

The insights from the participants in the relationality dimension highlight SiPejar's crucial role in enabling meaningful interactions and collaborative learning in e-learning environments. The participants noted in DS.1 that without SiPejar, they are unable to fully embody the relational aspects of post-humanist pedagogies, emphasizing the need for comprehensive integration to enhance engagement with digital platforms. Similarly, DS.2 and DS.3 expressed frustration with SiPejar's

limited integration, affecting their ability to challenge traditional educational hierarchies and embrace diverse perspectives. The absence of SiPejar inhibits full engagement with relationality in e-learning, underscoring the importance of integrating digital platforms to effectively support post-humanist approaches. DS.4 further emphasized SiPejar's role in fostering meaningful interactions and collaborative knowledge construction. Without SiPejar, realizing the transformative potential of relationality in digital language education is challenged, highlighting the necessity for comprehensive integration to enrich educational experiences. These insights underscore SiPejar's importance in facilitating relational dynamics in line with post-humanist pedagogies, advocating for enhanced integration to optimize engagement and collaboration among students and digital entities.

4.2.2. Agency and autonomy dimension

As the study delves into integrating post-humanist principles into digital language education, the dimension of agency and autonomy gains importance. It explores the participants' views on their roles in shaping learning experiences within the digital landscape. Through semi-structured interviews, the study aims to uncover how participants perceive and navigate their agency and autonomy, shedding light on their complexities within post-humanist pedagogies.

DS.1: *"Embracing post humanist pedagogies has empowered me to navigate digital learning environments with a newfound sense of agency and autonomy. However, the absence of integration with SiPejar limits our ability to engage with diverse perspectives effectively, hindering our collective knowledge construction efforts."*

DS.2: *"Post humanist pedagogies have enabled me to take ownership of my learning journey and exercise autonomy in exploring diverse perspectives. Yet, the absence of SiPejar integration restricts our access to collaborative tools, impeding our ability to co-create knowledge effectively."*

DS.3: *"Engaging with post-humanist pedagogies has fostered a sense of empowerment and autonomy in my learning experience. Nonetheless, the absence of*

SiPejar impedes our ability to interact with peers and access diverse resources, limiting our capacity to engage in meaningful knowledge exchange and creation."

DS.4: "Exploring post-humanist pedagogies has empowered me to exercise agency in shaping my learning trajectory. However, the lack of SiPejar integration poses challenges to our collaborative autonomy, hindering our collective knowledge construction endeavors."

The participants' perspectives on agency and autonomy within post-humanist pedagogies highlight their transformative potential in fostering individual autonomy and navigating digital learning environments. DS.1 underscores how post-humanist pedagogies enhance agency and autonomy, yet without SiPejar integration, collaborative efforts and access to diverse perspectives for collective knowledge construction are hindered. DS.2 emphasizes the role of post-humanist principles in promoting learner autonomy, but limited SiPejar integration restricts collaborative tools and effective knowledge co-creation. DS.3's experience shows the empowerment and autonomy fostered by post-humanist pedagogies, yet without SiPejar, interaction with peers and access to diverse resources are limited, hampering meaningful knowledge exchange. DS.4 highlights post-humanist approaches' agency in shaping individual learning trajectories, but without SiPejar, challenges to collaborative autonomy hinder collective knowledge construction efforts. These insights reveal both the positive impact of post-humanist pedagogies on individual agency and autonomy and the challenges posed by limited collaborative autonomy through platforms like SiPejar. They underscore the necessity for technology-mediated collaboration to enhance learning outcomes and realize the transformative potential of post-humanist approaches in digital language education contexts.

4.2.3. Multiplicity and diversity dimension

In the quest to understand the complexities of integrating post-humanist principles into digital language education contexts, the dimension of multiplicity and diversity comes to the forefront. This dimension investigates the participants' perspectives on the diversity of knowledge sources, perspectives, and identities within the digital learning environment, particularly within the SiPejar platform. Through semi-

structured interviews, the study endeavored to uncover how the participants engage with and navigate the diverse landscape of digital language education, shedding light on the multiplicity and diversity inherent in post-humanist pedagogies.

DS.1: "Post humanist pedagogies have opened my eyes to the diverse array of perspectives present in digital learning environments. However, the absence of SiPejar integration limits our exposure to varied cultural and disciplinary viewpoints, hindering our exploration of diverse knowledge sources."

DS.2: "Engaging with post-humanist pedagogies has allowed me to appreciate the multiplicity of voices and identities in educational discourse. Yet, without SiPejar integration, our access to diverse linguistic and cultural perspectives remains constrained, impacting our ability to engage meaningfully with diverse knowledge sources."

DS.3: "Exploring post-humanist pedagogies has deepened my understanding of the complexity of human and non-human interactions in learning spaces. However, the lack of SiPejar integration restricts our engagement with diverse disciplinary perspectives, hindering our collaborative efforts to co-construct knowledge."

DS.4: "Embracing post-humanist pedagogies has highlighted the importance of recognizing and valuing diverse forms of knowledge production. Nevertheless, without SiPejar integration, our interactions with diverse cultural perspectives are limited, affecting our collective endeavor to embrace multiplicity in learning."

The participants' reflections on the multiplicity and diversity dimension underscore the transformative potential of post-humanist pedagogies in fostering appreciation for diverse perspectives. DS.1 emphasizes exposure to varied cultural and disciplinary viewpoints facilitated by post-humanist approaches. However, the absence of SiPejar integration limits access to diverse knowledge sources, hindering exploration of multiplicity in learning. DS.2 highlights the enriching effect of post-humanist pedagogies on educational discourse and appreciation for diverse voices and identities. Yet, the lack of SiPejar integration restricts access to diverse linguistic and cultural perspectives, impacting engagement with knowledge sources. DS.3 echoes the importance of embracing multiplicity in learning environments through

post-humanist pedagogies. However, without SiPejar integration, engaging with diverse disciplinary perspectives is challenging, hindering collaborative knowledge co-construction. DS.4 acknowledges the significance of valuing diverse forms of knowledge production but notes the limitation of SiPejar integration on interactions with diverse cultural perspectives, affecting collaborative efforts in embracing diversity in learning. Overall, these insights underscore post-humanist pedagogies' role in promoting multiplicity and diversity in learning, while highlighting the need for technology-mediated collaboration platforms like SiPejar to fully realize this potential in digital language education contexts.

5. Discussion

This study explores post-humanist pedagogies in digital language education, focusing on their effects on learner agency, collaborative autonomy, and technological integration. Addressing key questions about Indonesian doctorate students' perceptions and the challenges and opportunities in integrating these pedagogies, the research aims to offer detailed insights into innovative approaches in ELT.

The findings reveal a prevailing sentiment of positivity among the participants regarding the transformative potential of post-humanist pedagogies. The participants express how these pedagogical frameworks have empowered them to navigate digital learning environments with a newfound sense of agency and autonomy, fostering a deeper engagement with the learning process. This aligns with previous research emphasizing the emancipatory nature of post-humanist pedagogies in promoting learner autonomy and critical consciousness (Mulcahy, 2022; Prem, 2024). These findings suggest that post-humanist pedagogies hold promise for reshaping traditional educational practices and empowering learners in digital contexts (Chappell et al., 2023; Howlett, 2018; Sidebottom, 2019).

However, amidst this optimism, the participants also express concerns about the lack of integration with collaborative platforms such as SiPejar, which poses a significant barrier to collective knowledge construction efforts. This discrepancy underscores the intricate interplay between individual agency and collaborative autonomy in the digital learning landscape, highlighting the need for a balanced

approach to pedagogical implementation (Gough & Gough, 2017; Knox, 2016). While post-humanist pedagogies emphasize learner autonomy, effective collaboration is essential for fostering meaningful knowledge creation and exchange in digital environments. These findings are in line with previous research highlighting the importance of integrating collaborative technologies into educational practices to enhance collaborative learning and knowledge construction (Banerji, 2019; Mañero, 2019). Collaborative platforms like SiPejar offer opportunities for learners to engage in collaborative tasks, exchange diverse perspectives, and co-create knowledge effectively. Similarly, Prem (2024) emphasized the importance of integrating collaborative tools to support meaningful interactions and knowledge creation among learners in digital contexts.

Conversely, the insights gleaned from semi-structured interviews provide a more nuanced understanding of the challenges associated with integrating post-humanist principles into digital language education contexts. While acknowledging the transformative potential of these approaches, the participants articulate the limitations imposed by the absence of collaborative autonomy facilitated by platforms like SiPejar. This finding challenges conventional notions of collaborative learning and knowledge co-construction, suggesting that the effectiveness of post-humanist pedagogies may rely heavily on robust technological infrastructures and supportive institutional policies (Gane, 2005; Stables & Scott, 2001). These findings highlight the complex interplay between technological infrastructure, institutional support, and pedagogical practices in digital language education. They underscore the need for educators to navigate the socio-cultural and institutional landscapes shaping the implementation of post-humanist pedagogies, ensuring alignment with broader educational objectives and values (Chiew, 2018; Elfert, 2023). By delving deeper into the challenges faced in integrating post-humanist principles, this study contributes to the growing body of literature on digital pedagogy and highlights the need for a holistic approach to educational innovation.

Furthermore, the findings emphasize the pivotal role of technology in mediating collaborative interactions and knowledge construction processes within digital language education contexts. Post-humanist pedagogies offer opportunities for

learner empowerment and autonomy, but their efficacy hinges upon the seamless integration of technology into the learning environment. Platforms like SiPejar serve as catalysts for collaborative engagement, facilitating meaningful interactions and knowledge exchange among learners from diverse backgrounds. However, without robust technological infrastructures, learners may encounter barriers to effective collaboration and knowledge co-creation, limiting the transformative potential of post-humanist pedagogies (Mulcahy, 2022; Prem, 2024). These insights align with previous research emphasizing the importance of technological integration in digital pedagogy. Studies by Banerji (2019) and Knox (2016) have also highlighted the role of technology in reshaping educational practices and fostering collaborative learning environments.

Overall, this study offers valuable insights into the complexities of implementing post-humanist pedagogies in digital language education contexts. By unraveling the nuanced dynamics between individual agency, collaborative autonomy, and technological integration, it underscores the need for a holistic approach to pedagogical implementation. Moving forward, educators must navigate the intricate socio-cultural and institutional landscapes shaping the implementation of post-humanist pedagogies, fostering inclusive and equitable learning environments conducive to transformative learning experiences. Through concerted efforts to address the challenges and capitalize on the opportunities offered by post-humanist pedagogies, educators can pave the way for a more sustainable and empowering future in digital language education.

6. Conclusion

This study sheds light on the transformative potential of post-humanist pedagogies in digital language education context at Universitas Negeri Malang, Indonesia. Through an exploration of relationality, agency and autonomy, and multiplicity and diversity dimensions, valuable insights have been gained. The participants reported enhanced agency and autonomy in their learning journeys, attributed to the adoption of post-humanist principles. However, the absence of collaborative platforms like SiPejar posed challenges to collective knowledge construction, highlighting the importance

of technological integration in facilitating collaborative autonomy. These findings have several implications for practice and research. Educators should prioritize the integration of collaborative platforms to foster inclusive and equitable learning environments, leveraging the transformative potential of post-humanist pedagogies. Additionally, institutions must invest in technological infrastructure and provide adequate training to educators to effectively implement these approaches. Furthermore, future research endeavors should employ mixed-methods approaches to triangulate data and explore diverse perspectives comprehensively. Longitudinal studies are needed to assess the long-term impact of post-humanist pedagogies on learning outcomes and address socio-cultural and institutional factors that may influence their effectiveness. While providing valuable insights, this study acknowledges several limitations. The focus on Indonesian doctorate students from a single institution limits the generalizability of findings. Additionally, relying on self-reported data may introduce bias, and the lack of comparative data from non-post-humanist pedagogical contexts restricts definitive conclusions about effectiveness. Future research should address these limitations by including diverse participant groups and rigorous research designs. Comparative studies between post-humanist and traditional pedagogies could offer deeper insights, and longitudinal research is crucial for understanding the long-term impacts on learning outcomes and student experiences.

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Declaration of Interest Statement

The authors report there are no competing interests to declare.

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