

Education in The Era of Society 5.0: A Critical Pedagogical Approach

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ABSTRACT

Challenges in the era of society 5.0 cause to changes in role of the education system, requiring the strengthening of critical pedagogy for students and teachers. Critical pedagogy is a philosophy of pedagogy and a social movement founded on the ideas of critical social theory and paradigm. The purpose of this study is to review literature on the implementation of critical pedagogy in the education system. The research method used is qualitative literature review approach, literature search using Garuda database, Scopus, ScienceDirect, Sage Journal, Taylor & Francis. The results of the study show that there are 11 of critical pedagogy in the education development system: (1) critical pedagogy in the development of education systems, learning and new curricula, (2) critical pedagogy moves in the relevance and transformation of education systems, (3) critical pedagogy supports teacher professional, (4) critical pedagogy in the advancement of the digital age and digital literacy, (5) critical pedagogy as language and intercultural communication, (6) critical pedagogy in formal and informal mixed learning, (7) critical pedagogy towards the advancement of STEM (science, technology, engineering, and mathematics), (8) critical pedagogy as a dimension of consciousness and critical dialogic processes, (9) critical pedagogy as creativity, innovation and Entrepreneurship, (10) critical pedagogy in disaster mitigation, (11) critical pedagogy as action research. Critical pedagogy greatly supports the education system in developing learning processes teachers and students. This study can be used as a review that critical pedagogy plays a very important role in the education system in the era of society 5.0.

Keywords: *Critical pedagogy, Education, Era Society 5.0, Learning*

1. INTRODUCTION

A breakthrough in information and communication technology, the shift in the society 5.0 period has affected many aspects of human life, including education. The idea behind society 5.0 civilization is a human-centered civilization supported by the integration of advanced physical and digital spaces. In every aspect of life, including education, the emergence of society 5.0 civilization presents new difficulties, including learning. Teachers and students work together to create learning plans during the active learning phase (Afwan et al., 2025; Majid et al., 2023). In the era of society 5.0, education plays an important role in preparing the younger generation to face the challenges posed by an increasingly advanced and complex technological landscape (Nafisah & Muaddab, 2023).

Education is the basic pillar of a country's development, equipping the younger generation with the knowledge and skills needed to become smart citizens and future leaders. To face the challenges of Smart Society 5.0, education has an important role and influence in improving the quality of human resources. In addition, several elements

and stakeholders such as community organizations, the government as a policy maker, and various layers of society also have a role in responding to the Smart Society 5.0 era (Indra, 2024). In this case, the many challenges faced due to the digitalization civilization, it is very important how quality education shapes the character of the younger generation.

To realize quality education, teachers play an important role in shaping students in facing various challenges of digitalization. A teacher has skills and competencies in shaping students who are characterized, responsible, and have very good hopes for the future. However, the fact is that the civilization of society 5.0 causes teachers to be versatile and responsive in facing various challenges, one of which is the emergence of artificial intelligence (AI). This causes teachers to have more comprehensive competencies regarding pedagogy that will support learning development.

Pedagogy is a core and unifying component in the study of education, which brings basic disciplines and other subjects into the study of practice, as well as into the initial education and professional development of teachers (Deng, 2024). In this case, pedagogy acts as a learning development that is adapted to changes and technological advances. According to Sulaiman et al. (2022), there is a relationship between teachers' pedagogical beliefs and the comprehensive use of technology that can be applied in teaching. Therefore, the role of pedagogy in supporting the development of learning in education can be improved as one of the basic strengths of education.

Critical pedagogy is an educational philosophy and social movement based on critical social theories and paradigms. It is an integral aspect of education and culture (Luitel et al., 2022). Critical pedagogy in education not only improves students' intelligence, but more importantly, transforms them into ideal human beings. With education, teachers can help students become independent and mature. Because students hone all their talents ready for the future. According to critical pedagogy, education is essentially a process connected to norms and power processes. Groups or governments can utilize education as a strategy to maintain power (Baharizqi et al., 2023). Applying critical pedagogy can provide sufficiency for learners to become active and critical human citizens, with an ethos of re-examining and reconstructing existing curriculum and pedagogy.

Critical pedagogy aims to make people aware of oppression by awakening them to critical thinking (i.e., something can be seen or intuited). When critical consciousness is achieved, it encourages students, teachers, researchers, and communities to make changes in their context through social critique and political action in order to become who they want to be. Therefore, critical pedagogy does not set a static model, but rather includes practitioners to multimodality according to their context (Gray, 2022; Kumar, 2021; Luitel et al., 2022). The role of critical pedagogy can be used as a basis for

implementing learning development with the challenges of technological advances in the era of society 5.0.

Critical pedagogy embodies the interdependent roles of teachers and students. Critical pedagogy can broaden its scope and foster a more symbiotic relationship between formal education and lifelong learning (Skelton, 2023). However, in reality, there is still a lack of literature that explicitly positions critical pedagogy as an analytical and practical framework in educational development facing the era of society 5.0, where the role of critical pedagogy is still underutilized in the learning process in technological innovation. Therefore, it is very important that critical pedagogy can be used as digital literacy because it can encourage students to develop critical awareness and integral results based on digital information and content. Based on the above issues, the purpose of this study is to review the literature on implementing the role of critical pedagogy in the development of educational learning in the era of society 5.0. This study reviews whether critical pedagogy can function as an ethical and ideological framework in the use of technology in education. This can be a first step in the important role of critical pedagogy in supporting the success of education.

2. METHODOLOGY

This study uses a systematic literature review approach to analyze research on critical pedagogy in the development of the education system. The purpose of this literature is to implement critical pedagogy in educational practice. The literature search was conducted in four main databases, namely Garuda, ScienceDirect, Sage Journal, and Taylor & Francis, on the implementation of critical pedagogy in learning development in the era of Society 5.0. The literature review search used the keywords "Critical pedagogy," "Era Society 5.0," "Learning Development," and "System education."

To conduct a systematic review search, PRISMA (Preferred Reporting Items for Systematic Review and Meta-analyses) was used. The selection process resulted in 30 articles that met the inclusion criteria and were relevant to the focus of critical pedagogy. The criteria for articles were in Indonesian and English, full text published in the last 5 years from 2020 to 2025. The data is explained in Figure 1.

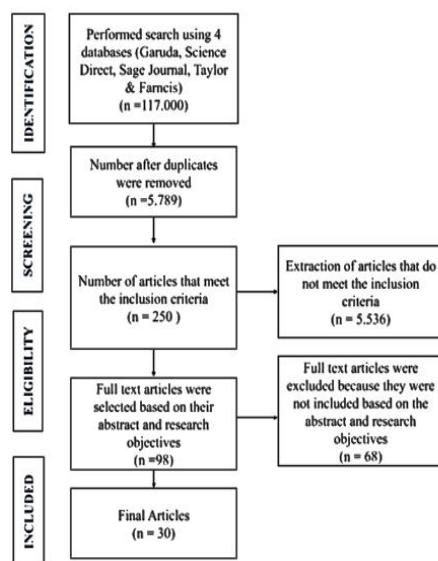


Figure 1. Article Review Process with PRISMA Method

3. RESULT AND DISCUSSION

Based on the results of the literature review, 30 articles were obtained that have been analyzed using the systematic review method which has been grouped according to the role of critical pedagogy. The following are the results of the literature review in Table 1.1.

Table 1. Literature Review

No	Article	Aspect	Details Research Results
Critical Pedagogy in the Development of New Education, Learning and Curriculum Systems			
1	Fajardo-Dack et al., (2024)	Curriculum Policy Analysis Based on Critical Pedagogy Perspective	Critical pedagogy provides opportunities for students to provide flexibility, freedom in learning so that students can express their skills according to their abilities.
2	Hadiansyah & Muhtar, (2023)	The Role of Futuristic Pedagogy in Supporting the New Curriculum.	Futuristic pedagogy can be realized in the educational climate to support the independent curriculum of learning as a multidimensional being in life, developing the potential of learners, providing breadth to adapt to the curriculum, flexible learning with technological frameworks.
3	Baharizqi et al., (2023)	Critical Pedagogical Competence in the Era of Society 5.0	Critical pedagogy guides teachers to create meaningful learning. Teachers must be able to in various skills such as academic cognitive, social, cultural and pedagogical.
4	Hunaepi et al., (2024)	Critical Pedagogy and Student Learning Outcomes	Critical Pedagogy significantly improves educational outcomes and student engagement, advocates for democratic values and social justice.

No	Article	Aspect	Details Research Results
5	Humaeroh et al., (2021)	Critical Pedagogics in Building Humanist Education	Humanist education and critical pedagogy emphasize an educational process that humanizes people. Students are the main actors in the educational process. And the teacher acts as a mediator, facilitator, and motivator in the learning process.
6	Siswadi (2023)	Critical Pedagogy and its Relevance to the Development of the Education System in Indonesia	Critical pedagogy has a view of dismantling forms of formalism and religious fundamentalism in education by restoring democracy in education in Indonesia.
7	Maddamsetti, (2023)	Penerapan Proses Pembelajaran Berdasarkan Pedagogi Kritis	Implementation of Learning Process Based on Critical Pedagogy
8	Qoyyimah et al., (2022)	Critical Pedagogy to Develop Students' Writing Skills	Principles of critical pedagogy such as historicity, problem-solving, emancipation, and dialogic, and have implications that promote critical thinking.
9	Yosia (2023)	Critical pedagogy is the key to education	Critical pedagogy, in the form of independence education, has three implications, namely: sustainable, integrative, and free from elitism.
Critical Pedagogy in Relevance and Transformation of Education System			
10	Nugraha et al., (2024)	Critical Pedagogy in Educational Transformation	Freire's critical pedagogy, there is a critical interpretation of the educational process of the current school system, practicing teaching strategies based on freedom, curriculum planning, and the possibility of transformation into teacher and student roles.
11	Mones et al., (2022)	Critical Pedagogy as Legitimization of Educational Freedom and Transformation in Free Learning	Critical pedagogy emphasizes learning that liberates both politically and socially, humanizing oppressed humans, while the independent curriculum views teachers as professionals who have the authority to work autonomously, based on the science of education.
12	Muhtar, (2020)	The Relevance of Critical Pedagogics in Education in the Era of Industrial Revolution 4.0	Education according to critical pedagogics is not only about making students smart but the most important thing is to make them full human beings. Teachers can make students into independent and mature human beings through education.
13	Valls-Carol et al., (2022)	Critical Pedagogy that Transforms Reality	Critical pedagogy is highly advantageous in that firstly it can achieve broad and deep real transformation, secondly the social impact of the work, especially on the oppressed,

No	Article	Aspect	Details Research Results
			overcoming inequality and improving their living conditions. Third is the equality of outcomes of the oppressed in literacy as well as sentiments and values, without segregation. The fourth is the theoretical and scientific rigor of their contributions
Critical Pedagogy Supports Teacher Professional Development			
14	Syabaruddin et al., (2023)	Critical Pedagogy in the Digital Age	Critical pedagogy seeks to reduce the authoritarian tendencies of education. Critical pedagogy is considered to have a profound impact on the advancement of democracy.
15	Apriyanto et al., (2021)	The Role of Critical Pedagogy in Digital Literacy	The results of the analysis show that digital literacy has a significant influence on students' critical pedagogical understanding ability. This can be used as a reference to improve the quality of students' critical pedagogical understanding.
16	Pikhart et al., (2022)	Application of Critical Pedagogy in Digital Second Language Acquisition	The important role of critical pedagogy in building students' personalities socially and scientifically as one of the main elements in the learning process.
17	Robandi et al., (2022)	Critical Pedagogy Based on Digital Learning and Big Data in Improving Digital Literacy	In-depth critical pedagogic-based learning encourages service activities designed in the form of public discussions and sharing experiences in the field about the effectiveness of organizing digital literacy movements in educational institutions.
Critical Pedagogy in the Advancement of the Digital Age and Digital Literacy			
18	Akinsanya & Ojotule, (2022)	Critical Pedagogy and Professional Teaching	Critical pedagogy can be of great benefit to teaching practice in this century. It has enormous comparative advantages that are particularly important for today's teachers and learners.
19	Sullivan, (2021)	A Critical Pedagogy and Teacher Professional Development	Practical actions that teachers can take to develop their ability to engage in critical pedagogy, providing suggestions on how such work can be improved, especially with regard to the discussion of equity for teachers and students.
20	Rodés et al., (2021)	Teacher Professional Development Strategy Based on Critical Digital Pedagogy and Pedagogy of Care	The critical pedagogy initiative ends up being an enriching alternative to the Teacher Professional Development approach, emphasizing its relevance in the context of a rapid response to the transition to Emergency Distance Teaching.
21	Vavitsas, (2022)	The Role of Critical Pedagogy in	The role of critical pedagogy impacts positive attitudes and positive intellectuals on

No	Article	Aspect	Details Research Results
		Education: Exploring the Views of Greek Teachers	teachers while developing the education system.
Critical Pedagogy as Language and Intercultural Communication			
22	Febrianti, (2024)	The Role of Critical Pedagogy to Build Social Awareness in Language and Literature Learning	The application of critical pedagogy in language and literature learning can increase students' social awareness by linking literary and language texts with social contexts.
23	Wang & Yuan, (2024)	Integrating Critical Pedagogy into Second Language Teacher Education	The role of critical pedagogy in catalyzing the transformation of student teachers' identities into linguistically inclusive, socially conscious, and culturally responsive language teachers. Practical implications are also provided in this study.
24	Corbett & Guilherme, (2021)	Critical Pedagogy and Quality Education (UNESCO SDG-4): Paulo Freire's Legacy for Language and Intercultural Communication	Critical Pedagogy's role as an overcoming of oppression, hope and dignity is still very relevant and inspiring for educational practices around the world.
Critical Pedagogy as Formal and Informal Blended Learning			
25	Smith & Seal, (2021)	Critical Pedagogy in Informal Learning	Critical pedagogy is essential for the teaching of informal educators, allowing teachers and practitioners to stop the hegemony of neo-liberal and neo-managerial thinking in their practice and in education.
Critical Pedagogy Towards Progress STEM ((Science, Technology, Engineering, and Mathematics)			
26	Alvidrez et al., (2024)	The Role of Critical Pedagogy in Education Toward STEM (Science, Technology, Engineering, and Mathematics)	Contextualizing critical pedagogy more broadly and its emphasis on social justice, this research underscores the transformative potential of education in shaping the future of minority students in STEM disciplines.
Critical Pedagogy as a Dimension of Consciousness and Critical Dialogical Processes			
27	Semadi (2022)	Critical education paradigm in the dimension of critical consciousness and critical dialogical process	The development of critical education is an effort of self-awareness, or also called critical consciousness, as time develops its main learning method by emphasizing the principle of critical dialogical dominance.
Critical Pedagogy as Creativity, Innovation and Interpreneurship			
28	Marliyani & Muhtar, (2022)	Creativity, Innovation, and Interpreneurship in Critical Pedagogy	Critical pedagogy positions interpreneurship as part of efforts to change the socio-economic conditions of society.

No	Article	Aspect	Details Research Results
			Interpreneurship is driven by creativity and innovation which is an expression of students' critical consciousness.
A Critical Pedagogy in Disaster Mitigation			
29	Ferani Mulianingsih, (2024)	Critical Pedagogy of Disaster Mitigation in Social Studies Learning	Critical pedagogy can be applied with the awareness of the community, both students and teachers. An awareness of potential flood disasters and flood disaster mitigation through critical pedagogy.
Critical Pedagogy as Action Research			
30	Aliyah et al., (2023)	Critical Pedagogy Pradigm in Action Research	Critical pedagogy extends the meaning of pedagogy into the paradigm of life, which is the view that a person has deeply about his or her relationship with the world and others.

From the results of the literature review, several groupings of implementation of the role of critical pedagogy in the development of learning education systems were obtained. In the current conditions of development of the information society, the spread of mass culture, the transformation of spiritual values, as well as the loss of a sense of security and protection of humanity from natural disasters and other global threats, an important innovative challenge is the study of the classical methods of scientific knowledge of reality, methodology and practice of critical pedagogy. Critical pedagogy is usually associated with the name of the former Brazilian Minister of Education, Paulo Freire, who in the 60s of the 20th century proposed the concept of proper education based on freedom and critical thinking in this field. Freire's critical pedagogy promoted problem-oriented education, anthropological interpretation of culture, the concept of humanity, critical consciousness, and modeling of educators' ideals. This theory quickly spread in different countries of the world, because in the mid-20th century, an active movement for social equality, and freedom from various types of oppression, oppression due to political, economic, or social factors began in the world. In Europe, in particular, it meant the struggle against the dictatorships of fascism and Stalinism, and this, in a way, gave rise to critical trends in science and education (Budnyk, 2023; Luitel et al., 2022).

Critical pedagogy has a very important role in supporting the sustainability of life, especially in the field of education, education is the spearhead of change in future progress. So that the existence of this education does not change due to technological civilization which can cause a lack of teaching process between teachers and students, critical pedagogy plays a role in strengthening the education system. Critical pedagogy provides insights to oppose and criticize the phenomena that occur, because it can create a more just world regarding education, and welfare to anyone who is entitled to receive education (Güneş, 2020). So that the role of critical pedagogy is not only a

philosophy but can be used as a basis for implementation in the education development system.

There are eleven roles of critical pedagogy in supporting the progress and development of learning in the era of society 5. These include, (1) Critical Pedagogy in the Development of Education Systems, Learning and New Curricula, (2) Critical Pedagogy Moves in the Relevance and Transformation of the Education System, (3) Critical Pedagogy Supports Teacher Professional Development (4) Critical Pedagogy in the Advancement of the Digital Age and Digital Literacy, (5) Critical Pedagogy as Language and Intercultural Communication, (6) Critical Pedagogy in Formal and Informal Blended Learning, (7) Critical Pedagogy Towards STEM (Science, Technology, Engineering, and Mathematics) Advancement, (8) Critical Pedagogy as a Consciousness Dimension and Critical Dialogical Process, (9) Critical Pedagogy as Creativity, Innovation and Interpreneurship, (10) Critical Pedagogy in Disaster Mitigation, (11) Critical Pedagogy as Action Research.

1. Critical Pedagogy in the Development of Education System, Learning and New Curriculum

Critical pedagogy guides teachers to create meaningful learning. Teachers must have the ability to think critically. Critical pedagogy can be well developed in the development of the education system as a learning model that can be carried out by students in the classroom such as having freedom, flexibility in learning and having critical thinking skills (Baharizqi et al., 2023; Fajardo-Dack et al., 2024; Hunaepi et al., 2024; Siswadi 2023). Students are not only required to be versatile but are involved in everything to express their skills and abilities, so that there is collaboration in the learning system because students and teachers are able to involve each other in learning through critical pedagogical. According to Humaeroh et al., (2021) students are the main actors in the educational process. As the main player, the teacher acts as a mediator, facilitator, and motivator in the learning process. In this case, critical pedagogy can be used as a basic reference in the development of education as a form of humanizing humans through learning in the classroom. The principles of critical pedagogy such as historicity, problem-solving, emancipation, and dialogic are evident in this study. And has implications that promote critical thinking. By realizing the achievement of critical pedagogical understanding, teachers can create learning with various learning models that are able to involve students in the classroom (Baharizqi et al., 2023; Qoyyimah et al., 2022).

Critical pedagogy significantly improves educational outcomes and student engagement, advocating for democratic values and social justice. This makes critical pedagogy a catalyst in involving teachers and students in learning in democracy and social justice (Hunaepi et al., 2024). To fulfill the implementation of the role of critical

pedagogy, very careful planning is needed in developing the education system through several stages, namely learning planning, learning implementation, and learning evaluation (Maddamsetti, 2023). These three things become the basis for every development of the education system through critical pedagogy to be structured and systematic, this increases the learning process that occurs in the classroom to be effective and successful in implementing. To support the design of a good education system, it is necessary to use the curriculum as a guide in the learning process. This is supported by Hadiansyah & Muhtar, (2023) that pedagogifuturistic can be realized in the educational climate to support the existence of an independent curriculum learning as a multidimensional being in life, developing the potential of students, The development of an independent curriculum is inseparable from the role of pedagogy as the basis for learning

Critical pedagogy in realizing education in accordance with the merdekat curriculum has three implications, namely: sustainable, integrative, and free from elitism (Josiah 2023). The three implications can be applied in the education system through critical pedagogy, the first is sustainable where the curriculum as a guide must be able to maintain and improve a better learning system by not eliminating aspects of learning that have been linked in the previous curriculum. Second, integrative, which must be able to combine a unified whole in learning that is integrated with an independent curriculum. Third, education is a right for everyone, in this case there is no power over power in realizing quality education, by not abusing authority in developing the education system. So in this case, the role of critical pedagogy can perfect the formation of a curriculum that follows technological progress and civilization. In the era of society 5.0, it is necessary to develop a quality education system by emphasizing the competence of critical pedagogy to teachers as student facilitators, so that critical pedagogy plays an important role during the learning process that will not be timeless.

2. Critical Pedagogy Moves in Relevance and Transformation of the Education System

Critical pedagogy is formed and developed in the education system because it is relevant, and transformation to change the reality of education. Critical pedagogy has a strong connection in supporting the development of education, because critical pedagogy becomes a refinement in learning activities. According to Muhtar, (2020) critical pedagogy is not only making students smart but the most important thing is to make them a full human being. Teachers can make students become independent and mature human beings through education. Because students develop the potential to live in the future. In this case, critical pedagogy becomes very relevant to the education system, because critical pedagogy can encourage learning that improves the ability to think critically, is sensitive to social situations and can take action to change in learning.

Freire's critical pedagogy, there is a critical interpretation of the educational process of the current school system, practicing teaching strategies based on freedom, curriculum planning, and the possibility of transformation into the role of teachers and students. Students need to have a critical pedagogy method that can move forward by building relationships between students and their environment (Nugraha et al., 2024). It is emphasized that the role of critical pedagogy becomes correlated in a better education system in accordance with 21st century learning in the era of digitalization of society 5.0.

Structural changes in education are called educational transformation. Educational transformation will continue to develop following the changes and civilization of the times. Critical pedagogy is a strengthening of educational transformation in developing a more improved and quality education system. Critical pedagogy learning according to Mones et al., (2022) emphasizes learning that liberates from both political and social aspects, humanizing oppressed humans, while the independent curriculum views teachers as professional workers who have the authority to work autonomously, based on educational science. This is in accordance with research conducted by Valls-Carol et al., (2022) that critical pedagogy is very beneficial, first, it can achieve broad and deep real transformation, second, the social impact of work, especially on the oppressed, overcoming inequality and improving their living conditions. The third is the equality of outcomes of the oppressed in literacy as well as sentiments and values, without segregation. The fourth is the theoretical and scientific rigor of their contributions to learning (Valls-Carol et al., (2022). The stages of critical pedagogy as an educational transformation present teachers' attitudes and professionals in learning with students. This critical pedagogy as an educational transformation becomes strong in encouraging change and development of a better education system.

3. Critical Pedagogy Supports Teachers' Professional Development

Critical pedagogy can greatly benefit teaching practice in this century. Pedagogy has a huge comparative advantage that is very important for teachers and learners in this day and age (Akinsanya & Ojotule, 2022). Critical pedagogy is very supportive of teacher professionalism because the teacher is a facilitator, motivator, in learning conducted with students, besides that the teacher plays an active role regarding the learning process from beginning to end in the classroom. Good teacher understanding can be improved through critical pedagogy competencies, because teachers must have more ability to think critically, analyze, and take action in the learning process.

The critical pedagogy initiative ends up being an alternative that enriches the Teacher Professional Development approach, emphasizing its relevance in the context of a rapid response to the transition to Emergency Distance Teaching (Rodés et al.,

2021). Distance teaching can also be taken seriously if teachers already have critical pedagogy competencies, because under any circumstances a teacher will still try and strive for the learning process to be carried out very well. This reinforces that teachers can be professional during teaching because they have good abilities in applying critical pedagogy in professionalism in learning. The role of critical pedagogy has a positive attitude and positive intellectual impact on teachers while developing the education system (Sullivan, (2021).

Practical actions that teachers can take to develop their ability to engage in critical pedagogy, provide suggestions on how the work can be improved, especially with regard to discussions about equality for teachers and students (Vavitsas, 2022). Teacher professional developers support the development of the education system through critical pedagogy, because critical pedagogy encourages teachers to develop meaningful learning processes for students in the classroom. In addition, learning based on critical pedagogic makes teachers have competencies that will continue to develop into professional teachers, changing times will not be a barrier because professional teachers have a way to always improve the learning process in developing a quality education system in the era of society 5.0.

4. Critical Pedagogy in the Advancement of the Digital Age and Digital Literacy

The challenges of changing times are inseparable from the digital era, increasingly here will continue to develop related to advances in digitalization. It is undeniable that readiness in the learning process must be better and needs to be improved, so that the process does not stop due to changing times. The important role of critical pedagogy in building students' personalities socially and scientifically as one of the main elements in the learning process. The critical pedagogy approach fosters tolerance for various cultural viewpoints, increases social and political awareness, and fosters moral behavior related to social and political integrity and can be used to maintain student construction within or against conventional conceptual views (Pikhart et al., 2022).

Critical pedagogy is present as a guide and reference in the learning process of the digitalization era, because critical pedagogy will continue to improve the learning development process through digital literacy. Even the results of the analysis conducted by Apriyanto et al., (2021) show that digital literacy has a significant effect on students' critical pedagogy understanding ability. This can be used as a reference to improve the quality of students' critical pedagogical understanding. In-depth critical pedagogy-based learning encourages service activities designed in the form of public discussions and sharing experiences in the field about the effectiveness of organizing digital literacy movements in educational institutions. Critical pedagogy as digital literacy seeks to reduce the tendency of authoritarian education. In addition, critical

pedagogy is considered to have a profound impact on the progress of democracy because it can encourage citizens to think critically, have broad insights, make judgments, and take responsibility for their actions (Robandi et al., 2022; Syabaruddin et al., (2023).

5. Critical Pedagogy as Language and Intercultural Communication

Critical pedagogy plays a role in language and intercultural communication, because it is a learning tool in improving educational development. The application of critical pedagogy in language and literature learning can increase students' social awareness by linking literary and language texts with social contexts. Students can be more critical in understanding the dynamics of power intertwined in language and more reflective of the surrounding social conditions (Febrianti, 2024). Critical pedagogics as language has positive implications for the formation of educational development because language can improve the communication that exists between teachers and students. The role of critical pedagogy in catalyzing the transformation of student-teacher identity into linguistically inclusive, socially aware, and culturally responsive language teachers (Wang & Yuan, 2024). Language that makes a catalyst allows teachers to play an active role in communicating forms of learning in educational development,

Critical pedagogy acts as communication in overcoming oppression, hope, and dignity is still very relevant and inspiring for educational practices around the world. And asserts that the future cannot be determined a priori, as a condition that learners are expected to adapt to (Corbett & Guilherme, 2021). Critical pedagogy, which acts as language and intercultural communication, is very powerful in maintaining communication in learning. Good communication is needed in the era of society 5.0 so as not to be defeated by technological sophistication, the more good communication is carried out by teachers to students, the more sustainable learning will be created, this happens because of the teacher's ability to link the role of critical pedagogy to the learning carried out in the classroom.

6. Critical Pedagogy in Formal and Informal Blended Learning

In learning education there are usually several parts, in addition to formal education received at school there is usually informal education. Informal education usually emphasizes rights and freedoms in learning. According to Smith & Seal, (2021) critical pedagogy is essential for the teaching of informal educators, which allows teachers and practitioners to stop the hegemony of neo-liberal and neo-managerial thinking in their practice and in education, and reorient themselves and examine their position in their institutions. In this case, it can be seen that informal education has an interest in strengthening educational development learning, such as soft and hard skills

training for students including leadership training, discipline, skills, and so on that support students to play a more active role in the learning process through critical pedagogy.

7. Critical Pedagogy Towards STEM (Science, Technology, Engineering, and Mathematics) Advancement

Critical pedagogy is not only supportive as learning but in other contexts critical pedagogy is involved in the development of natural science in the education system. The broader context of critical pedagogy and its emphasis on social justice, this research underscores the transformative potential of education in shaping the future of minority students in STEM disciplines (Alvidrez et al., 2024). Minority students in studying STEM can have an impact on their knowledge, so the role of critical pedagogy can encourage the development of developmentally appropriate learning about STEM, because the use of STEM is closely related to daily life and can also affect students' thinking for the future.

8. Critical pedagogy as a dimension of awareness and critical dialogical process

Awareness and critical dialogic are the concepts of critical pedagogy. Critical awareness of how in every learning process we can reflect and analyze critical situations. While critical dialogue is how we carry out a good communication process with open and directed dialogue in the learning process to build critical awareness. The development of critical education is an effort of self-awareness, or also called critical awareness, as time develops its main learning method by emphasizing the principle of critical dialogical domination (Semadi, 2022). Learning methods that emphasize the concept of critical pedagogy through critical awareness and dialogue can be perfect in supporting critical thinking between teachers and students. This learning development can improve the education system in the era of society 5.0, there is no fear in facing developments because in the process students and teachers can be trained with critical pedagogy.

9. Critical Pedagogy as Creativity, Innovation and Interpreneurship

The role of critical pedagogy is very widespread in supporting the learning process in every field. Critical pedagogy not only forms characters who think critically, responsibility, but the emergence of critical pedagogy can increase creativity, innovation, and interpreneurship. According to Marliyani & Muhtar, (2022) critical pedagogy positions interpreneurship as part of efforts to change the socio-economic conditions of society. Interpreneurship is driven by creativity and innovation which is an expression of students' critical consciousness (Marliyani & Muhtar, 2022). In this case, strengthening the role of critical pedagogy does not only move learning in schools but

makes learning development materials for future provision in knowing socio-economics as a form of critical awareness of students in the education system.

10. Critical Pedagogy in Disaster Mitigation

The role of critical pedagogy in education will continue to grow, even continue to increase with various problems. Critical pedagogy forms a person in the ability to assess, analyze, and implement. Critical pedagogy can be applied with the awareness of the community, both students and teachers. Awareness of potential flood disasters and flood disaster mitigation through critical pedagogy can be implemented in Social Science learning (Ferani Mulianingsih, 2024). One of the specific roles in the development of Social Science learning is that critical pedagogy moves in disaster mitigation learning, where students are expected to learn in critical awareness of how to cope with disasters, the more their knowledge is nurtured, the stronger they will survive in their lives. Students play a role in the progress of the nation in the future, the milestone of change in goodness is in students, so critical pedagogy can build better student roles and characters and not be shaken by changing times, but continue to develop and transform for the better through learning conducted in the classroom with the teacher.

11. Critical Pedagogy as Action Research

Critical pedagogy expands the meaning of pedagogy into the paradigm of life, which is the view that a person has deeply about his relationship with the world and others. Critical pedagogy has power relations in society, which leads to a certain social model (Aliyah et al., 2023). In the development of education, we must always review the problems caused through a research study. Research is conducted to find solutions in dealing with existing problems. Every problem that exists becomes a benchmark for how to take better action. Critical pedagogy does not only play a role in learning but as an action research phrase, namely action research, action review, and action research. Where every action based on critical pedagogy can make a better change in every educational development process, so that education becomes more improved and more qualified to be accepted by students around the world.

4. CONCLUSION

Critical pedagogy is not about the learning process but developing the fundamental thinking capacity of students and teachers and bringing about behavioral changes in their ways of doing, being students who see and examine teaching and learning systems. The role of critical pedagogy is very supportive in the process of developing the education system in the era of society 5.0. There are eleven role implementations that can be applied including; (1) Critical Pedagogy in the

Development of Education Systems, Learning and New Curricula, (2) Critical Pedagogy Moves in the Relevance and Transformation of the Education System, (3) Critical Pedagogy Supports Teacher Professional Development, (4) Critical Pedagogy in the Advancement of the Digital Age and Digital Literacy, (5) Critical Pedagogy as Language and Intercultural Communication, (6) Critical Pedagogy in Formal and Informal Blended Learning, (7) Critical Pedagogy Towards STEM (Science, Technology, Engineering, and Mathematics) Advancement, (8) Critical Pedagogy as a Consciousness Dimension and Critical Dialogical Process, (9) Critical Pedagogy as Creativity, Innovation and Interpreneurship, (10) Critical Pedagogy in Disaster Mitigation, and (11) Critical Pedagogy as Action Research.

The eleven roles of critical pedagogy are the basis for examining deeply rooted values, beliefs and assumptions that may challenge the education system. In this case, it is necessary to strengthen the role of critical pedagogy in the learning process in developing the education system. Critical pedagogy potential is needed for all teachers who teach, critical pedagogy as a way of teaching that encourages teachers to invite students to think critically about the deep structure of things about the future and hope. Changes and developments in the times will continue to develop, education must continue and prevent character changes in students through strengthening critical pedagogy. This research can be used as a reference material for further researchers in applying critical pedagogy in the education system in the era of society 5.0.

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