

INNOVATIVE PEDAGOGIES IN THE ERA OF INDUSTRIAL REVOLUTION 4.0 AND SOCIETY 5.0

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Abstract: *This paper aims to discuss new teaching methods that are suitable for the current era of technological advancement (Industry 4.0 and Society 5.0) in Indonesian universities. It will provide real-world examples of innovative teaching approaches and explore the difficulties encountered in implementing them. These innovative pedagogies include: Teaching students various forms of literacy, encouraging critical thinking skills, and integrating artificial intelligence (AI) into teaching practices.*

Keywords: *Innovative Pedagogies, Industrial Revolution 4.0 Era, Society 5.0 Era, Literacy, Critical Thinking, Artificial Intelligence.*

Introduction

The fourth Industrial Revolution (abbreviated as IR 4.0) and the Society 5.0 Era have impacted all aspects of human lives including education. As Masami (2021) explained that each country has its own decision on what kind of education is needed to respond to the Industrial Revolution 4.0 and the Society 5.0 era.

Before discussing the pedagogical innovations that could be implemented, it is important to understand the concepts of IR 4.0 and Society 5.0 Era. The concept of Society 5.0 was proposed by Japan which was launched on 22 January 2016 and created as a resolution for the Industrial Revolution 4.0 (Hitachi, 2018). The fourth industrial revolution itself originated in 2011 in Germany to advocate “the computerization of manufacturing” (Dima, n.d.). IR 4.0 involves the interaction between humans and machines. The IR 4.0 is all about digital and technological integration such as Artificial Intelligence (AI) and robots. On the other hand, the Society 5.0 era emphasizes placing society as “the center of industry”. The latest developments in technology should be used as a catalyst to drive citizens' general welfare, aiming for a super-intelligent society. This modern science is used to fulfill human needs to live a comfortable lifestyle. Thus, the use of technology in the Society 5.0 era is part of the human himself. “The IR focuses more on the technology of the industry, while society 5.0. focuses more on humans” (“The Difference between Industrial Revolution 4.0 and Society 5.0,” 2022). These humans were described as “A people-centric Super-smart Society”.

The purpose of this paper is to present pedagogical innovations in response to the fourth Industrial Revolution 4.0 and the Society 5.0 Era in the Indonesian university context. It provides practical pedagogical innovations and discusses the challenges faced in implementing such pedagogical innovations. These practical innovative pedagogies consist of: (1) introducing

multiple literacies to students, (2) incorporating critical thinking, and (3) integrating artificial intelligence (AI) in teaching.

Innovative Pedagogies in the Industrial Revolution 4.0 and Society 5.0 Era

1. Introducing Multiple Literacies in the Classroom

In this era of globalization, the internet, and digital technology, more information becomes available to us in many forms. Describing this world as becoming increasingly complex and diverse, Holloway and Gouthro (2020) asserted that “we need to foster innovative pedagogies and develop a broad array of literacies” (p. 1). In other words, in this era, it is not enough to think of literacy as only reading and writing. To be a good global citizens, it is crucial to process information in multiple literacies. These multiple literacies such as media literacy, information literacy, technology literacy, and digital literacy are important to be introduced to university students. Media literacy refers to the ability to access, analyze, and evaluate news and social media. Information literacy is the ability to use and locate web and print content. To be literate in technology means having knowledge, skills, and abilities to use technology tools and resources effectively, while digital literacy, which is considered a sub-group of technology literacy (Terra, 2023), refers to using digital technology tools in order to find, analyze, and create the information.

The combination of media literacy, information literacy, technology literacy, and digital literacy will have a great influence on students’ lives. These kinds of literacies are connected and related to each other. Gaining these combined literacies will lead the students to success not only in their academic life but also in their real daily life. In the students’ academic life, students should be able to understand and interpret academic texts and to communicate the information effectively when writing research papers or any other academic texts. Technology, media, and information literacies are interconnected to enhance the student’s skills to utilize digital technologies such as the use of computers, internet platforms, and social media when searching for academic references and sources. These multiple literacies have impact on students’ daily life success. Taking the news we read for instance; we could analyze the information conveyed and determine the validity of such news.

2. Incorporating Critical Thinking in Teaching

Critical Thinking has a significant role in the 21st century. It is one of the learning and innovation 4Cs skills of the twenty-first-century skills framework. Critical thinking is a fundamental way of questioning the way we think about the world around us. Critical thinking is defined as, “the ability to analyze a driving question, begin an inquiry, gather and evaluate information, use evidence and criteria, justify choices, and consider alternatives and implications” (Buck Institute for Education, 2019). The ex-education minister Muhajir Effendy stated the importance of developing the curriculum to increase students’ competency in critical thinking in response to the spread of Industrial Revolution 4.0 (Yusnaini, 2019). Critical thinking skills include

observation, analysis, inference, communication, and problem-solving. In teaching academic writing, for example, teachers can support critical thinking and reading skills by designing activities and a reading guide for prereading, during reading, after reading, and annotation before the students begin writing.

3. Integrating Artificial Intelligence in Teaching

The era of the industrial revolution 4.0 and Society 5.0 are characterized by the integration of artificial intelligence in teaching. As explained by Sudibjo, Idawati, and Hasranti (2019), artificial intelligence is used to help students in the learning process to enable them to understand the learning material. With the help of AI, it will be easy for students to obtain relevant and fast information. In the case of teaching English writing skills for example, students can utilize artificial intelligence tools such as Grammarly.

Therefore, based on the explanation above, several efforts should be implemented to transform education to face the rapid technological changes. These efforts could be in the form of curriculum revitalization, proper use of information technology, and the use of blended/ hybrid forms to facilitate teaching and learning (Sudibjo, Idawati, and Harsanti, 2019).

Challenges and Some Recommendations for Implementing the Innovative Pedagogies

As explained earlier, the development of education in the era of the Industrial Revolution 4.0 and Society 5.0 is inevitable. The development of this technology requires all of us to be ready to face existing disruption of innovation in all lines, including education in the era of globalization, where the era is full of competition for quality or quality in the world of education.

In this era of Industrial Revolution 4.0, teachers with strong competence in digital technology are needed. However, it is also challenging for teachers and lecturers. Their levels of media, information, and digital literacies are still low (Wibawa, 2018). For this reason, the Indonesian government should provide equal opportunity in using facilities and resources (Nastiti & 'Abdu, 2020). Not only students, but also teachers should learn and master the use of technology.

There are some caveats that teachers and lecturers should keep in mind when implementing these pedagogical innovations. Related to integrating artificial intelligence in teaching, lecturers should remind university students about the importance of academic integrity and honesty. Breaches of academic integrity related to academic misconduct are mostly related to plagiarism. Training and workshops should be designed to enhance the awareness of students about academic integrity. Lecturers and instructors should remind students to submit their own original work for assessment. Outside sources if used should be acknowledged. Misuse of AI tools may be considered a breach. Raising awareness of academic integrity is a part of character education (*Pendidikan character, moral dan keteladanan*) these should be emphasized by teachers in this Industrial Revolution 4.0 Era. The role of teachers has not changed in terms of educating the students (Nastiti & 'Abdu, 2020). There is

also the matter of equity and accessibility. Teachers and students may not be provided with proper support to utilize technology and artificial intelligence to develop their technology and digital literacy (Dale, 2022).

Conclusion

This paper discusses three pedagogical innovations that can be implemented in the current Indonesian university context. The three innovations emphasize introducing multiple literacies to students, incorporating critical thinking, and integrating artificial intelligence (AI) in teaching. This paper also presents the challenges that might appear when implementing these innovations and raises some possible drawbacks to consider.

The paper concludes that technological developments cannot be avoided, so we must be able to adapt and respond to these developments. The era of Society 5.0 is marked by rapid technological development and integration between humans and technology. Thus, the transformation of education has become very important in this era.

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