

Medical Education in the 5.0 Era

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Abstract: Medical Education Era 5.0 takes the principle according to the Society Era 5.0. In this era, there was a blend of cyber (virtual) and real rooms. Data is collected from a real room. In the cyber room, data are analyzed based on artificial intelligence and processed so that it can provide useful results for humanity. The endpoint of the 5.0 era in medicine needs to be in harmony with holistic people's lives. This paper aims to explain medical education in the 5.0 era. The writing method used is a qualitative review of literature (narrative literature review). Medical education in the 5.0 era covers the field of family medical education known as Inter-Professional Education (IPE). Medical students are encouraged to interact directly with the community and cooperate with various professions. Good and harmonious relationships need to be created in the family as a healing upstream of the disease. The humanistic side of the doctor will not be replaced by the development of information technology. Students need to have three main literacies, namely data, technology, and humanity to become good doctors and adjust to the times. Conclusion: Medical education in era 5.0 includes continuous education in nature to cooperate with other professions. Students should master three main literacies, namely data, technology, and humanism (humanity) to provide holistic medical services.

Keywords: Era 5.0; Inter-Professional Education; Medical education.

Introduction

Medical curricula have an intense coursework load. It consists of extensive practical and training hours. It involves high-pressure learning environments. Studies revealed that medical students are at high risk for psychological problems such as stress and depressive symptoms. These conditions might affect student achievement. Continuous improvement in medical education curricula is critical to prevent negative impacts on students' well-being (Rababah 2024; Taherikharamah et al. 2024).

The Medical Education Era 5.0 takes the principle according to the Society Era 5.0. In this era, there was a blend of cyber (virtual) and real rooms. Data is collected from a real room. In the cyber room, data are analyzed based on artificial intelligence and processed so that it can provide useful results for humanity. The endpoint of the 5.0 era in medicine needs to be in harmony with holistic people's lives. Medical education in the 5.0

era covers the field of family medical education known as Inter-Professional Education (IPE). Medical students are encouraged to interact directly with the community and cooperate with various types of professions. Good and harmonious relationships need to be created in the family as a healing upstream of the disease. The humanistic side of the doctor will not be replaced by the development of information technology. Students need to have three main literacies, namely data, technology, and humanity to become good doctors and adjust to the times (Miller-kuhlmann et al. 2024; Pinatih 2020; Tie, Luo, and Chen 2024).

The industrial era 4.0, like the previous revolution, is changing dramatically into the era of society 5.0. These changes affect the education sector as well. The era is characterized by the critical role of technology, such as artificial intelligence (AI), the Internet of Things (IoT), and others (Indra 2024).

This paper aims to explain how medical education in the 5.0 era.

Materials and Methods

The writing method used is a qualitative review of literature (narrative literature review). Articles were searched from Google Scholar, PubMed, and Science Direct. The publication date was within 5 years.

Results and Discussion

The difference between the industry era 4.0 and 5.0 is the emphasis of the 5.0 era on human resources. The preparation for facing this era is by strengthening the education system. The aim of the learning process is to create more positive and critical thinking skills. An educator must help the students to find solutions to problems and make

creative innovations. The learning process is by using technology to make learning more enjoyable (Pinatih 2020).

A shift to the digital world happened due to the post-pandemic era as is seen on Figure 1. This might affect education and learning as well. The purpose of Education 5.0 is to leverage digital technologies to minimize learning barriers by enhancing the learning method while promoting well-being. The focus is creating a student-centered environment with latest technology and methods. The requirements of Education 5.0 are artificial intelligence, robotics, machine learning, data analytics, chatGPT, virtual, and augmented reality. The benefits of Education 5.0 are improvements in engagement, personalization, and education access (Ahmad et al. 2023; Alharbi 2023; Sukmawati et al. 2023; Thomae, Witt, and Barth 2024).

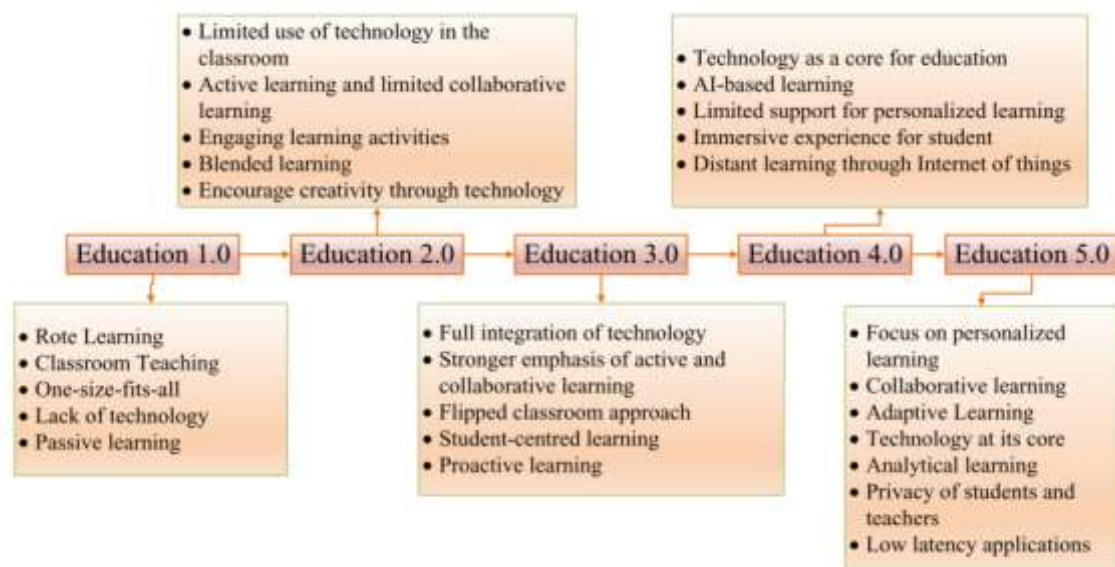


Figure 1. Evolution of education process (Ahmad et al. 2023)

A coaching program is developed in medical education to guide the process of curriculum development. Based on the tips by Kern's Six Steps for Curriculum Development, some useful tips are follows: exploring the reasons of the coaching program, learning from previous program, assessment from stakeholders, identifying resources, developing goals, identifying tools, recruiting coaches, learners, and evaluating (Miller-kuhlmann et al. 2024).

The advantages of the implementation of society 5.0 are as follows (Pinatih 2020):

- a. Online medical service
Online medical service is available on many hospitals. The elderly does not need to go to the far-away hospital anymore due to the availability of telemedicine services.
- b. Mobility
This is important for people who have difficulties in public transportation. They can do

online transactions, including online doctor consultations (telemedicine)

c. Infrastructure

Safety and productivity are enhanced due to technology development.

d. Financial technology

The characteristics of society 5.0 are freedom in accessing news online, customization (active and adaptive), scrutiny (critical in differentiating reliable and non-reliable information), integrity, entertainment, speed, and innovation (Pinatih 2020).

Medical education in the artificial intelligence era

The rise of AI is a huge transformation for medical services and education. This condition emphasizes the importance of AI in medical education, including training and challenges. The goal of AI in the medical education is creating a higher-quality of educational process and outcome. Therefore, mastery-level proficiency of all clinicians is required to reshape the pedagogy of medical education (Xu et al. 2024).

Challenges in implementing the era 5.0

The challenges in this era are some students might find difficulties in technology access due to lack of facilities, technology skills, and data security. Discrepancy might occur due to financial problems. On the other side, there are huge opportunities to enhance the learning process such as using innovative learning platforms, applications, and software. Therefore, educators and students must implement technology-based learning as wisely as possible (Sakiinah, Mahya, and Santoso 2022).

Conclusions

Medical education in era 5.0 includes continuous education in nature to cooperate with other professions. Students should master three main literacies, namely data, technology, and humanism (humanity) to provide holistic medical services. Collaboration among educational institutions, government, industry, and society is required to

ensure adequate skills preparation to tackle medical education in era 5.0.

Conflict of Interest: The authors declare that there are no conflicts of interest concerning the publication of this article.

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