Research Article

Challenges and Future Tendencies in Thailand's National Education System

Wichai Siriteerawasu *

Abstract

Innovation and technological advancements (e.g., Industry Revolution 5.0, Society 5.0, and Education 5.0) are currently progressing at an extreme rate and scale. These lead to a huge transformation in the educational system worldwide. The educational system of Thailand has been impacted by these advancements as well. However, research investigating the impacts of these advancements on Thailand's educational system is still scarce. Because of this rationale, this research study was conducted and utilized a qualitative documentary research method to examine the notions of the Industry Revolution 5.0, Society 5.0, and Education 5.0 and their impacts on Thailand's educational system. The data used in this research were collected from several sources and analyzed using a content analysis. The research findings indicated that it is important for educational institutions in Thailand to grasp the opportunities of these advancements by educating and training current and new generations of educators and students to be competent and cultivating them to be true global citizens. The finding of this research will help educational institutions and stakeholders in formulating policies and plans regarding the development of educational system at the institutional and national levels.

Keywords: Industry Revolution 5.0, Society 5.0, Education 5.0, Educational System, Thailand, SDG4

* Lecturer, Dr., Faculty of Social Sciences and Humanities, Mahidol University, Email: wichai.sir@mahidol.ac.th

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1. Introduction

With the advent of science and technology, the fast pace of economic and social change has adapted to basic education provision (Zhukova et al., 2022) to correspond with such alteration and progress. To increase the quality of education, innovative and effective ways must be devised. Learners' efficiency and creative collaborative abilities will boost Thailand's status of international competition (Wetcho & Na-Songkhla, 2022). There is also an imperative necessity to instill recognition of Thai stereotype in terms of self-reliance, public and people concern, and compliance to a constitutional democracy as specified in the Constitution of the Kingdom of Thailand 2007 and the National Education Act 1999 and Amendments 2002 (Poungjinda, 2021).

A paradigm shift in Thai education system to the 21st century is advocated. The national strategy for innovation development as the principal emphasis puts into operation a framework for establishing dimensions of educational capacity of the nation such as educational administration and management, education equality (Budsayaplakorn & Sompornserm, 2022; Kitchanapaibul et al., 2022; Kornpitack & Sawmong, 2022; Tantrakarnapa et al., 2022; Terasawa et al., 2022).

The long-term national strategic development plan is definitely inevitable for educational system in Thailand. The plan is also aligned with the Sustainable Development Goals 4 (SDGs4) of the United Nations: Quality Education. There are multiple areas of view of consolidation, affluence, and sustainability including social equality, public security, human capital, environmental development (Cecilia et al. 2022; Fabiola et al., 2021). National sustainability and direction can be paved by the strategic plan of the nation, strength reinforcement within the nation, and the interrelation with countries worldwide.

Thus, the objectives of this research are to study the notions of the Industry Revolution 5.0, Society 5.0, and Education 5.0 and examine their impacts on Thailand’s educational system. The author expects that findings of this research will provide useful information for Thai educational institutions and stakeholders in developing the educational system of Thailand to meet future challenges.

2. Understanding of the Educational System of Thailand

Education has been regarded as a pivotal factor mobilizing the initiative of human resources development as well as been a critical device to leverage economy and society in Thailand for decades. Education in Thailand has mirrored the transition and reformation of learning and instruction for Thai citizens to be able to access to Thailand education, including the enhancement of quality of education (The Office of the Higher Education Commission., n.d.).

When making a comparison between Thailand's education and that of other countries, it was found that there is a common and analogous aspects. For instance, the curriculum ranges from kindergarten to doctoral studies, with postdoctoral study options available based on each individual interest (The Office of the Higher Education Commission., n.d.). It is compulsory for Thai citizens to obtain a basic education through grade 9. This complies with the declaration by the Ministry of Education of Thailand (The Office of the Higher Education Commission., n.d.). Plus, there is a tuition fee with no charges for the study of basic education.

The educational management in Thailand at the tertiary level offers a wide spectrum of study fields which generally take certain years to complete, and it can be said that a bachelor's degree is considered to be the first priority contributing the citizens to their professions after a long duration of study (Foreign Consultants, n.d.). In general, university programs offered 4 years of study. Some certain fields of tertiary study are likely to take more than 5-6 years to completion like structural engineering, architectural designs, and medicine (The Office of the Education Council., n.d.). After five or six years of study, graduates can immediately pursue a master's and subsequently a doctorate degree, just like four-year graduates.

For medical schools, students can pursue master's and doctoral degrees in medical science, as well as a professional doctorate for qualified physicians. Several doctors are likely to study for several years for a certificate of specialization (Britannica, n.d.). in a specific core subject, and the subsequent certification that is conferred is comparable to a Doctor of Philosophy (The Royal College of Physicians of Thailand, n.d.).

Under the mainframe of Thailand education system, significant strategies pertaining to the 21st century skills involve the progress of research and innovative studies for the labor capital to

support competitive capacity of the nation. The central emphasis comprises skill-ability development pertinent to the workforce market as well as national growth, prominent and expertized graduates subsidized by the educational establishments, together with innovation knowledge from research and development to boost the value of national economy.

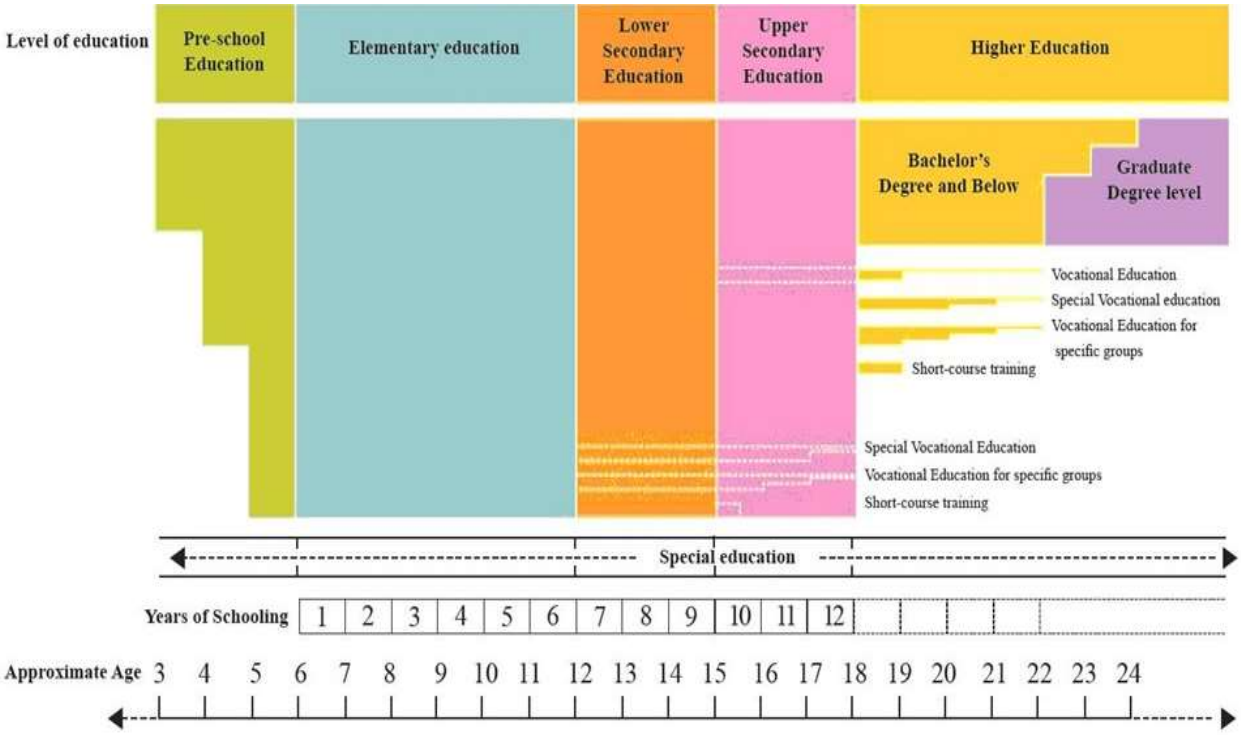

Figure 1. Thai National Education System.

Note. SEAMEO Secretariat (2023).

3. Research Methodology

A documentary research method was used in this research to study the notions of the Industry Revolution 5.0, Society 5.0, and Education 5.0 and their impacts on Thailand's educational system. Data used in this research included governmental documents, published academic and research articles, and other related documents. These data were analyzed using a content analysis (Scott, 2006). Research results, discussion, and recommendations were presented in the subsequent sections.

Notably, this research was approved by the Institutional Review Board of the Faculty of Social Sciences and Humanities, Mahidol University, and its protocol number was MUSSIRB 2023/169.

4. Findings

The findings of this research were presented as follows:

4.1 Industry Revolution 5.0 and Its Impact on Thailand's Educational System

The incessant transformation of technological advancement has a huge impact on the lives of humans including productivity. Besides, the trade flow and information are also dramatically affected due to the progress of information and communication technology (ICT) (The Office of the Education Council, 2017).

Today's implementation of technology for the industry production is totally dissimilar to it in the old days. The Industrial Revolution is regarded as the change agent influencing economic transformation from traditional agriculture to modern series of machinery (Britannica, n.d.).

Around the 18th century, Industry 1.0 was originally born with a steam-generated machine which leveraged productivity and triggered a breakthrough in humanity as commodities and services could be moved in a short period of time. However, in the 19th century, it was the beginning of Industry 2.0 where electricity was used for mass production, specifically the production of automobiles. This era encouraged low cost with fast pace of production (Leng et al., 2022).

In the late 20th century, the use of automation emerged, and it affected the whole industry production. Robotic driving was the case without the interruption of humans. To reduce costs, Industry 3.0 enabled manufacturers to transfer their operational procedures of production (Leng et al., 2022).

Industry 4.0 where all industries make use of information and communication technology such as internet access and digital innovations for their productions (Leng et al., 2022). The ways of producing process and product distribution are transformed by manufacturing digitalization. Smart industries and cyber-networking systems are almost self-directed in this current era.

Still, the industrial revolution is still progressing, Industry 5.0 focuses more on human-automation interaction (Leng et al., 2022; Nahavandi, 2019). It is now an interesting future

tendency with the initiative of humans working well with robots. Robots will be utilized for repetitive, tedious jobs, whereas humans will be responsible for creative tasks (European Commission, n.d.).

In terms of Industry 5.0, automation will be more advanced and not only limited to computer programs. New discoveries and learning will be faster, more secure, and low risk. Industry 5.0 will offer a new dimension of industry aiming for efficiency and productivity, contributing a higher impact to society. It will emphasize more on wellbeing condition of workforces as the core value of the process of production together with the natural resources concern to promote sustainability, human-center, and industry (Demir et al., 2019; European Commission, n.d.).

In terms of Industry 5.0's impacts on Thailand's educational system, this research found that Industry 5.0 will provide a fresh perspective on the educational sector, with a focus on productivity and efficiency of educational institutions as well as their ability to create greater social impacts. The primary focus of the educational process in Thailand will be redefining skill requirements of students, integrating innovative technology with a human-oriented approach, and supplying competent students who meet future workforce demand.

4.2 Society 5.0 and Its Impact on Thailand's Educational System

In the era of Society 1.0, where people started to learn about the process of uniting a group into a community at this point. To survive, humans hunt for food and migrate around to defend themselves. Humans use fire and other natural resources to cook and defend themselves, as well as to create a variety of basic tools. In Society 2.0, it is referred to as the revolution or agricultural era. Humans concentrate on knowledge acquisition because farming eliminates the need for hunting and foraging for a place to live with a food supply. Humans started to settle down and create a more sophisticated society during this time, leading to the rise of numerous kingdoms, the invention of writing, and the establishment of big cities. Then, when society moved forwards to Society 3.0, where it was an industrial society, it involved food and clothing products which were becoming much more necessary in a community. With the knowledge at hand, people started creating factories by manufacturing goods to fulfill their own needs. Human workers with

set wages were employed in factories. Regarding Society 4.0, people are becoming more accustomed to computers and the internet thanks to advances in science and technology, which allows them to quickly obtain information. Human lives were made to seem as though there is no distance in space or time due to the rapid flow of data. In this technological age, businesses strive to create products that make it easier for consumers to get information (Sandi, 2020).

Whereas Society 4.0 helped generate the equilibrium of socio-economy for consolidation, wealth, and sustainability (Helbing, 2016), Society 5.0 is the amalgamation of the physical world (Physical Space), which is the world where humans live through the five senses and the virtual world (Cyber Space) where technology (e.g., AI and robots) plays an important role in all aspects of human life to meet intelligent living (Deguchi et al., 2020). Deguchi et al. (2020) also provided some significant characteristics of Society 5.0 as follows:

1) Social network for communication

People can talk, see faces, and share stories from all over the world through the internet system. Social networks are now; thus, considered an important factor in people's lives.

2) Technology in residential properties

Smart Home technology is used to control home systems with the internet through voice commands (Smart Speaker) or face scanning to help enhance safety in terms of prevention of crime, disasters, and health.

3) Technology in automobile industries

Auto-driving technology, in addition to creating convenience, can also help the elderly, visually impaired, or patients who cannot use their own cars to arrive at the destination safely with a system for analyzing route information or with a warning system for obstacles to reduce accidents, including the use of electric vehicles to reduce energy consumption.

4) Technology in the financial industries

People can apply a cashless payment for their spending and can exchange money through the internet.

5) Technology in the medical field

Big Data is connected between different hospitals to increase the efficiency of treatment. Because of this, people can access initial health checkups through the application. Besides, the use of automates to assist in hospital surgery is increasing, including the development of patient care robots with a system for directly reporting patient health to physicians.

Figure 2. Society 5.0.

Note. Cabinet Office, Government of Japan (CAO) (n.d.).

In Society 5.0, Thailand's educational institutions will have to quickly adjust to new technological trends. These trends include using Big Data to power an organization, integrating Internet of Things (IoT) technology into a variety of teaching and instruction, and leveraging artificial intelligence (AI) to boost and expand classroom agility. Educational institutions in Thailand would gain a competitive edge if they could quickly adapt and use technology well. They can therefore endure any crisis. They would be able to experience economic development while addressing significant social issues by reaching Society 5.0 with these features. It would also contribute to the accomplishment of the Sustainable Development Goals.

4.3 Education 5.0 and Its Impact on Thailand's Educational System

Education 1.0 was initiated in the era of agricultural society to transfer knowledge from teachers to learners by depicting the concepts, notions, and studies. Teacher-oriented teaching method was the foundation of Education 1.0. Learning interaction was on a one-to-one basis. Education 2.0 was established to enhance the need of industrial society based upon the concept of how to teach students to learn. Technology was more used to improve the learning and teaching process. Many national citizens could be accessible to basic education. Education 3.0 emerged in the era of technological society with the concept of self-learning. Interactive learning from teachers and peers was more emphasized. Teaching materials included both digital and social media. The Internet and ICT altered the ways of learning and teaching. The teachers' role was transformed to facilitators or commentators. Technology acted as a main character for students' instructions both in-class activities and distance learning. Education 4.0 learner-oriented teaching method is established with a focus on collaboration between business and public sectors in terms of innovation and financial support (Thai PBS World, 2018). Education 4.0 activates educational institutions in Thailand to revise and reform their management of curriculum and instruction.

Moreover, The Office of the Education Council (2017) states that Thai education can avoid traps by taking the following steps: 1) using creativity, innovation, knowledge, and technology to create economic prosperity. In doing so, a competitive growth engine is created that helps people escape the middle-income trap. 2) creating social security for Thai citizens by distributing income, opportunities, and wealth fairly and acting on the tenet that everyone must advance together, leaving no one behind, to free them from the cycle of inequality. 3) developing sustainability via green growth—a growth engine that is environmentally friendly—to free Thai people from the cycle of imbalance. The educational sector is impacted by the teaching and learning process that is supported by technology. Thailand's educational system needs to be strengthened to equip students with the skills necessary to compete in the global economy of the twenty-first century and to develop the nation. (The Office of the Education Council, 2017). The 21st century learning skills are considered a strategic framework for learning management that places an emphasis on the knowledge, skills, competence, and competency of learners for day-to-day life in a changing

global environment These difficulties, which arise both domestically and abroad, have a big influence on the practices and policies involved in providing educational services. It is necessary to update or create educational policies and practices to equip Thais with the knowledge and abilities necessary to thrive in the twenty-first century (The Office of the Education Council, 2017).

Education 5.0 will not be all about technology but humans. Its main objective will focus on outcomes accomplished by human learning experience. Technology will be only a driver for accumulating value and effectiveness. Education 5.0 will encompass consciousness, privacy, ethics, technological mind, social and psychological concern, health and individual improvement (Ingart, 2020).

In Thailand, Education 5.0 will drive Thailand's educational institutions to focus more on developing students with human skills and roles, creativity, innovativeness, and analytical and synthesis thinking. Education 5.0 will reshape a comprehensive view of Thailand's education by focusing exclusively on preparing students for lifelong learning. It will involve tackling educational reform from all angles. This cannot succeed without the cooperation between the Thai government, educational institutions, communities, businesses, and other related stakeholders.

5. Discussion

Industry 5.0 involves the combination between advanced technologies and educational personnel such as education policy makers, teachers, students, and stakeholders for the betterment of learning and instruction, and this phenomenon dramatically transforms the models of education (Emran & Sharafi, 2022). This will shape Thailand's education, especially redefining student skill requirements, blending innovative technology with a human-centered approach, and supplying students who meet future workforce demand and are true global citizens.

Furthermore, this research found that in the era of Society 5.0, the roles of educational system in Thailand are required to perform in certain perspectives. For instance, it is necessary for Thailand's educational institutions to change their infrastructure to correspond to AI breakthrough, offer technology application programs, provide human resources development

plans, and promote international collaboration. This is consistent with Herabudin (2022) who found that Society 5.0 has had an impact on Indonesian educational curriculum as well.

The results of this study indicated that Thailand is now facing with the sensitivity situations like political and economic issues which also have a high impact on the educational system in Thailand in certain ways. Education 5.0 is recommended for educational system in Thailand to connect the gap between the market need and the provision of academic knowledge, such as entrepreneurial mindset and startup initiatives. These results are consistent with Alharbi (2023) who suggested that Education 5.0 will provide many advantages for developing counties, especially maximizing benefits of the modern technological tools in their education sector.

Interestingly, this research found that there are some challenges having a direct impact on Thailand's educational system, especially in achieving the United Nations Sustainable Development Goal 4 (SDG 4): Quality Education. These challenges include the need for workforce preparation, middle-income disparity, population aging, deterioration of natural resources due to unsustainable economic growth, and the development of educational quality and management systems. This research can categorize these challenges into three key aspects: the imbalanced trap, the inequality trap, and the middle-income trap.

6. Policy and Practical Recommendations

Based on the research findings, the author provides several recommendations for developing the educational system of Thailand to meet future world challenges.

Firstly, Thailand's educational institutions should redefine the concept of learning. Specifically, the learning concept in the future would be categorized into three main skills, namely learning, literacy, and life-orientation skills. For learning skills, innovative thinking skills, critical thinking skills, and interpersonal skills are predominant. Regarding literacy skills, these include competence in the domains of technology, media, and information, specifically the capacity to analyze network activities, while life skills are a person's aptitude or professionalism in carrying out a task, they can be summarized as follows: 1) adaptability and flexibility 2) Initiative and self-direction 3) leadership 4) accountability and productivity; and 5) social skills (Eliwatis et al., 2022).

Secondly, Thailand's educational institutions should prepare students to understand and be ready for challenges and future tendencies on Thai educational system towards Industrial Revolution 5.0, Society 5.0, and Education 5.0 by providing them with related projects or activities. Moreover, Thai educational policy makers, educational institutions may initiate and plan the educational policies and administration for challenges and future tendencies.

Finally, Thai educational institutions may encourage educational personnel to create new ideas in developing teaching and learning methods to correspond with Industrial Revolution 5.0, Society 5.0, and Education 5.0. Some incentives may be utilized to drive the success of this recommendation.

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