Kasetsart Journal of Social Sciences 43 (2022) 509–516

Kasetsart Journal of Social Sciences

journal homepage: http://kjss.kasetsart.org

Policy design for transforming learning systems responsive to future global changes in Thailand 2040

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Article Info

Article history:
Received 22 April 2021
Revised 29 June 2021
Accepted 4 July 2021
Available online 30 April 2022

Keywords:
education vision,
future global change,
policy design,
Thai people's qualities,
transforming learning systems

Abstract

In the disruptive world, preparing young people for future global changes is a crucial role for a country. In line with the 20–year National Strategy of Thailand, a policy design on transforming learning systems is significant. The objectives of this research were to design a Thai education vision, Thai people's qualities; a desired learning system; and a policy on transforming the learning system that will be responsive to the changing world of the future in 2040 using a five-step design thinking process as a research method that was carried out in three main phases. This study employed a qualitative approach. Purposive sampling was used for selecting 30 participants for the interview using the semi-structured interview and 15 participants for a focus group discussion. Observation was conducted for a field study at four case-study schools. The results indicated that a Thai education vision was that the "*Thai education system is the leader in changing the lives of learners to be happy and valued, creating a new desired economy and society.*" Thai people's qualities consisted of general and specific learning outcomes. A desired learning system and policy on that learning system focused on creating a new social and economic life that is happy and valued. Implications from this study allow policy makers and practitioners to adopt a new designed policy in implementation at the basic education level. This study will contribute to better insight on how a policy is designed before implementation and how it should be implemented into educational institutions.

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https://doi.org/10.34044/j.kjss.2022.43.2.32
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Introduction

Disruptive change has rapidly increased, characterized as Volatility, Uncertainty, Complexity, Ambiguity [VUCA]. In a VUCA world, it is difficult to predict what will happen in the future. In addition to technological advancement, artificial intelligence or AI is the use of machines to simulate human intelligence processes. AI is replacing humans in almost every industry and performs human routine work, which brings more convenience to humans. However, at the same time, it increases unemployment (Makridakis, 2017). Currently, Freeman (2018) stated that AI can complete the tasks associated with the human mind by recognizing the pattern of information, acting appropriately in different situations, and developing new ways to solve problems related to the digital world. Therefore, humans need to develop new skills. Accordingly, the national education system is responsible for developing new learning outcomes for learners to respond to future global changes.

According to the changing conditions, Thailand has developed the National Strategy (2018–2037) as mentioned in the 12th National Economic and Social Development Plan and the national reform by Office of The National Economic and Social Development Council [NESDC] in order to respond to future global changes in social, technological, economic, environmental, and political aspects (Office of The National Economic and Social Development Council [NESDC], 2018). The summary of the situations and tendencies in Thailand consists of low economic growth, high inequality and its increasing tendency, population structure of the aging society, natural resources and environmental degradation, low quality of country governance and management, and complicated national security issues. The mentioned situations and tendencies are the challenges for education management to develop the country. Moreover, the education system needs to be designed for future global changes.

Literature Review

The studies of countries' development policies that will be responsive to future global changes suggest that the desirable state of future global changes involve five desirable states as follows: the desirable states of social, technological, economic, environmental, and political changes (Baldwin, 2019; Ball, 2012; Ben, 2019; Casoliva, 2019; Century Welfare Association, n.d; Faculty of Public Health, 2020; Kenton, 2020; Rouse, 2014; Setthasiroj, 2012; Siddiqui, 2018; Singh, 2012; Siribanpitak, 2020; Sustainabilitydegrees, 2020; United Nations Conference on Trade and Development [UNCTAD], 2012; United Nations Environment Program [UNEP], 2011; Office of The National Economic and Social Development Council [NESDC], 2011), which are detailed as follows.

The desirable state of social change can be concluded in three issues: well-being society or sustainable society, moral and equal society, and innovative society or 5.0 society.

The desirable state of technological change can be concluded in three issues: digital disruption, AI, and green and environmental-friendly technologies.

The desirable state of economic change can be concluded in three issues: value-based economy or creative economy, green economy or sustainable economy, and trade and service liberalization.

The desirable state of environmental change can be concluded in three issues: the 2030 agenda for sustainable development, international agreement on climate change, and climate change and natural disaster intensity and variability.

The desirable state of political change can be concluded in two issues: quality politics and participatory democracy.

Current Thai education has not prepared students for economic opportunity, labor market, and citizenship (Bellanca & Brandt, 2011). According to Office of the Education Council [ONEC], Thai education does not have a lack of educational resources but has no efficiency in managing them (Office of the Education Council [ONEC], 2015). The budget allocation for education in Thailand was the biggest; however, Program for International Student Assessment [PISA] results of Thailand remained unchanged.

According to the desirable states of the changes mentioned, the development of a country is affected in every aspect. It is important for the Thai education system to specify a clear education vision, define Thai people's qualities, and design a learning system that will be responsive to future global changes in 2040 in adopting a new educational policy that is in line with the National Strategy (2018–2037) as well as adapting itself to future changes. This study addressed three research questions as follows. What are the Thai education vision and Thai people's qualities in 2040? What is the desired learning system that

will be responsive to future global changes? What should the policy on transforming the learning system that will be responsive to future global changes in 2040 look like?

Methodology

This study was a design research that employed a five-step design thinking process as the research method, proposed by d.school, Standford University. "*Empathize*" refers to understanding people, including the way they do things and think about the world, their emotional and physical needs and what is meaningful to them. "*Define*" is synthesizing problems in the empathize step into a clear problem statement. "*Ideate*" involves generating as many ideas as possible to solve the defined problem. "*Prototype*" concerns narrowing down on solutions raised in the Ideate step and generate a prototype of the solution. "*Test*" refers to implementing the prototyped solution with the end users. A qualitative approach was employed and divided into three phases throughout this study. This research focused on the basic education level-general and vocational education.

Phase 1 was to design a desired Thai education vision and Thai people's qualities, as well as a desired learning system through related studies to set a framework for the future global changes in 2040 (Empathize). 30 participants were purposively selected for the interview using the semi-structured interview. The participant criteria were those who are social, technological, economic, environmental and political experts; school principals, teachers, parents, students; and agricultural, industrial, and business entrepreneurs (Define). The research team drafted a desired Thai education vision, Thai people's qualities, and a desired learning system. 15 participants were purposively selected for the focus group discussion at a large university for the evaluation of the suitability and feasibility using the evaluation form (Ideate). The evaluation form consisted of three sections: demographic information; the conceptual framework; and the future global changes, the Thai education vision, Thai people's qualities and the desired learning system with spaces provided for comments and reasons.

Phase 2 was to design a desired learning system using a learning system (Prototype) as a tool to carry out a field study in four schools at the basic education level, which had the required learning management that was consistent with the desired learning system from Phase 1 using an observation form. Then, adjustment of the learning system was made according to general and vocational education contexts (Test). The observation form consisted of the learning outcomes (Thai people's qualities) from phase 1, learning models, learning resources, and learning assessments.

Phase 3 was to design a policy to transform learning systems. 30 participants were purposively selected for the interview using the semi-structure interview. The selection criteria included academics in educational management, school administrators, teachers, parents and entrepreneurs. The instrument comprised four sections: demographic information; policy on transforming learning systems; policy instruments for policy implementation; and policy monitoring and evaluation. Then, the interview results were utilized to draft the policy, and the focus group discussion of 15 participants was conducted at a large university to evaluate the suitability and feasibility before bringing the new designed policy for public discussion from experts and other stakeholders at the Office Education Council for adjustments before the final draft of the policy.

Content analysis was used for data analysis throughout the three phases of the study.

Results

Thai Education Vision and Thai People's Qualities in 2040

The Thai education vision was that the "Thai education system is the leader in changing the lives of learners to be happy and valued, creating a new desired economy and society."Thai people's qualities, indicated as the learning outcomes of the new learning system, consisted of general and specific learning outcomes. General learning outcomes consisted of five learning outcomes and 21 indicators as shown in Table 1.

Specific learning outcomes included five qualities (i.e., social, technological, economic, environmental, and political qualities) – consisting of 14 learning outcomes and 43 indicators, as shown in Table 2.

Table 1 General learning outcomes and indicators

General learning outcomes	Indicators
General qualities	
1) Lifelong expert learner	(1) Have Thai and English communication literacy, reasoning, computing and imagination
	(2) Have self-learning and lifelong learning skills
	(3) Have interdisciplinary skills and apply them to real life
	(4) Have adaptability skills that will be responsive to future global changes
	(5) Have critical thinking skills
2) Valuable life designer	(1) Discover passion and happily and worthily follow it
	(2) Do what the world needs and that is worthy (mission)
	(3) Create value from what they do (vocation)
	(4) Design valuable life and plan pathways into passion professionally (profession)
	(5) Be responsive to changes with agility
3) Change leader make the future	(1) Have a sweeping vision
	(2) Be able to communicate shared vision and create changes with good strategies
	(3) Have growth and outward mindsets
	(4) Have interdisciplinary out-of-the-box thinking skills
	(5) Have negotiation skills
	(6) Have the ability to create disruptive innovation
4) Responsible and competence global citizen	(1) Have morality, ethics and universal consciousness
	(2) Have the courage to express opinions and being open-minded to different opinions
	(3) Make responsible decisions towards self, the public and the world
	(4) Respect cultural diversity
	(5) Be honest, self-disciplined, acknowledge one's duties and respect other people's rights
5) Well-being person	(1) Have health literacy
	(2) Have good mental health
	(3) Have good physical health

Table 2 Specific learning outcomes and indicators

Specific learning outcomes	Indicators
1) Social qualities	
1.1) Emotional and social competencies	(1) Have self-awareness, awareness of others and social etiquette
	(2) Have emotional intelligence and good relationship
	(3) Be able to create values accordingly to good Thai and international cultures
1.2) Social innovation creator	(1) Be able to create social innovation from the understandingof humanity, the world nature, history, nation, religion and internationalization for a sustainable era
	(2) Be able to create a post-innovation society
1.3) Social justice leader	(1) Have ethical courage
	(2) Be the leader in creating equality and equity
	(3) Have public consciousness, share, be grateful, take care of the elderly
	(4) Be able to manage social conflict
2) Technological qualities	
2.1) Digital disruptor	(1) Have digital literacy and data science awareness
	(2) Have computational literacy
	(3) Be able to productively use digital technology for life changes, study and work
	(4) Have knowledge of moral-based robot technology and artificial intelligence
	(5) Be able to use technology to protect and solve disasters
	(6) Be able to design new ecosystems in which humans work with artificial intelligence
2.2) Green-tech innovator	(1) Have the environmentally friendly innovations and technology creation skills
	(2) Have innovation and technology creation skills that are beneficial to humans
	(3) Have the skills in enhancing Thai wisdom to create green innovation
3) Economic qualities	
3.1) Career and job creator	(1) Can work with artificial intelligence
	(2) Have the skill of creating jobs or professions that will be responsive to future global changes
	(3) Have money and economic intelligence
3.2) Agricultural, industrial and business innovation creator	(1) Have the skill needed for creating agricultural innovation according to the context
	(2) Have the required skill for creating industrial innovation according to the context
	(3) Have the skill required for creating business innovation according to the context

Table 2 Continued

Specific learning outcomes	Indicators
3.3) Digital entrepreneur	(1) Have digital economy system literacy
	(2) Have trade and globalization literacy
	(3) Have the required skill for creating an innovative economy
3.4) Innovative and entrepreneurial leader	(1) Have the moral-based innovative leadership skill
	(2) Have a sustainable and responsible entrepreneurial leadership skill
4) Environmental qualities	
4.1) Sustainable lifestyle	(1) Recognize the value, limitations and conservation of natural resources
	(2) Be ready for disasters and natural changes
	(3) Have the environmentally friendly framework
	(4) Use green technology which is friendly for the environment
	(5) Have the skill to create synergy in environmentally friendly lifestyles
4.2) Green environment creator	(1) Have the problem-solving skill and sustainably create the environment
	(2) Have the skill in creating environmentally-friendly innovations
5) Political qualities	
5.1) Quality voter	(1) Have searching skills, be aware of political news and information and national development issues
	(2) Have analytical thinking skills, compare political news and information and national development issues
	(3) Have decision-making skills on thebasis of common interests that independently meet the national development issues
5.2) Quality political actor	(1) Have a quality political working skill
	(2) Have political leadership skills which are moral and ethical.
5.3) Quality political innovation creator	(1) Have the required skill in creating valuable political innovations that meet national development issues
	(2) Have the quality core value which accepts individuals' values

Desired Learning System

A desired learning system was "*the learning system that creates a new social and economic life that is happy and valued.*" The new learning system consisted of four principles: (1) the new learning system is designed based on the backward design principle and learning ecosystem; (2) the new learning system will transform education objectives from content-based to outcome-based; (3) the new learning system will transform the classroom and school learning method into a learning ecosystem; and (4) the new learning system will transform the learner's efficiency from learning, having teachers as learning designers to learning having students as learning designers.

Components of the new learning system included six learning assessment, six learning model and eleven learning resources. The learning assessment consisted of self-assessment, collaborative evaluation, creative feedback, real-life application assessment, formative assessment and outcome-impact assessment.

The learning model comprised purposeful and valuable learning, personalized learning, self-initiated learning or heutagogy, innovation creation learning, real-life application learning and income generating learning. Purposeful and valuable learning consisted of life design learning, transformative learning, humanistic learning, service learning, new values and culture creation learning and happy learning. Personalized learning included passion-based learning, mission-based learning and inclusive learning. Self-initiated learning or heutagogy was comprised of ownership learning, single-loop learning, double-loop learning, open system learning, visible learning, high scope learning and meta learning. Innovation creation learning included transformative learning, triple-loop learning, discovery learning, design thinking learning, imagination learning and innovation learning. Real-life application learning consisted of problem-solving learning, social emotional learning, life skill learning and management learning. Income generation learning comprised work-based learning, co-operative or work-base education and collaborative learning.

Learning resources consisted of student excellence support system, real-world learning space, personalize learning space, online learning space, hands on learning space, co-learning space, socialization learning space, maker space, stimulation learning space, imagination learning space and flexible learning space.

Policy on Transforming the Learning System

The policy on transforming the learning system was "*transforming the learning system to create a new social and economic life that is happy and valued.*"

"*Scope and features of the policy*" consisted of three components: (1) this policy is of critical importance for basic education practice at all levels and affiliations; (2) the policy is a dynamic policy, which sets out broad strategic objectives and guidelines to spark as guidelines for schools to use in designing learning outcomes, learning assessments, learning models and learning resources that are unique, meet sustainable national development and fit the philosophy and the context of educational institutions including the life goals of the learners individually; and (3) this policy is a policy that encourages educational institutions to own the policy (Policy Owner) - there is no need to wait for the Ministry to issue the direction to the educational service area office or the provincial education.

"*Principles of the new learning system*" were comprised of five elements: (1) this new learning system is designed according to the concepts and principles of backward design and the learning ecosystem; (2) the new learning system will transform education goals from content-based to outcome-based; (3) the new learning system will transform the way education is organized from learning in classroom and school. It is the learning from the world with a variety of learning ecosystems; (4) the new learning system will transform the learner's potential by learning content as lecturing to the student as a learning designer; and 5) the new learning system will transform teachers' potential from being a content creator to teachers as learning designers.

"*Strategic objective*" of the new learning system was to transform learning outcomes emphasized as two key areas: (1) the ability to create a new happy and valuable social life at the individual and national levels; and (2) the ability to create a new economic life that is happy and valued at the individual and national level. "*Strategic approach*" of the new learning system is transforming the new learning system in three areas: (1) transforming the learning assessments; (2) transforming the learning models; and (3) transforming the learning resources that can outline a strategic approach framework of the new learning system.

Discussion

The general qualities are in line with the desired outcomes of education (Office of the Education Council [ONEC], 2018), stating that the characteristics of Thai 4.0 people have been identified to meet the vision of national development towards stability, prosperity, and sustainability. Such is being a good person with virtue and stretching the common values of society as a base for developing own self into a person with three characteristics: learner, co-creator of innovation, and strong citizen. As these characteristics at the present are broad and general and do not cover national development in all aspects, the Thai education vision and Thai people's qualities resulting from this study consist of general and specific learning outcomes, which cover and respond to social, technological, economic, environmental, and political (STEEP) changes.

The desired learning system is consistent with Thai education vision in 2040. The learning assessment, learning model and learning resource were then designed based on the learning ecosystem concept, which is the learning from a broad world with a diverse learning ecosystem where the learners are the learning designers by themselves (student as learning designer) (García-Holgado & García-Peñalvo, 2017, as cited in Maneehaet & Wanpirun, 2019). This is an important skill in creating innovation and a key focus of the new learning system that responds to the future changing world, which will be able to enhance the country's innovation competitiveness, as suggested by Cornell University, INSEAD and World Intellectual Property Organization [WIPO]. (Dutta, Lanvin, & Wunsch-Vincent, 2019), reported that in 2019, Thailand was at the 43rd position of world innovative efficiency, inferior to Malaysia and Vietnam.

The new policy is of critical importance for practice in general and vocational education institutions. This is the level of education that aims to develop all learners to be a national force; be balanced humans physically, knowledgeably and morally with a consciousness of being Thai and being global citizens;adhere to democratic rules; and have knowledge, basic skills and attitudes necessary for further education, career and lifelong learning with a focus on learners on the basis of the belief that everyone can learn and develop themselves to their full potential (Ministry of Education, 2010). A new perspective from this study highlights the importance of the policy implementation that needs to be adapted according to the contexts of the educational institutions, and this fills a gap in practice, especially in a developing

country. This is in line with the concept of decentralization under the National Education Act 1999 and amended (No. 3) 2010, Section 9, the structure system and education management process.

Conclusion and Recommendation

From the results of Thai education vision that focuses on developing people to create value to life and live happily, future education must focus on developing learners to have desired learning outcomes for both general and specific learning outcomes. To be successful, a policy should be dynamic allowing practitioners to adapt into their contexts.

This study yields new desired learning outcomes and a new policy. Based on these results, policy makers are recommended to set general and specific learning outcomes as learners' competencies into the core curriculum and promote the implementation of the new policy on through decentralizing academic area to educational institutions in the context of individual learners and educational institutions. It is suggested that administrators at basic education institutions apply the new learning system as a guideline for designing new learning assessments, new learning designs and new learning resources based on general and specific learning outcomes. Teachers should design learning and encourage learners to design learning according to the innovation creation learning, consisting of transformative learning, triple-loop learning, discovery learning, design thinking learning, imagination learning and innovation learning. This encourages learners to develop characteristics and competencies of innovation. The administrators of the teacher education institutions should set guidelines for developing new teachers design learning according to the new learning system, use six new learning assessments, design six new learning designs and manage eleven new learning resources. Further research would extend the current study by conducting a pilot study of the policy on transforming the learning system through Design-Based Implementation Research [DBIR]. A study of teacher preparation and development at the basic education level should be conducted using the new learning outcomes. A study of school administration innovation at the basic education level to promote learners to have the new learning outcomes is recommended.

Conflict of Interest

There is no conflict of interest.

Acknowledgments

This research was funded by Office of the Education Council.

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