Advancing Transformative Learning to Develop Competency in Teaching Social Studies Online of Pre-service Teacher Students in Chiang Mai Education Sandbox

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Abstract

The objectives of the research at this time were to 1) study and construct the transformative learning innovation to develop competency in teaching social studies online and 2) study the results of transformative learning to develop competency in teaching social studies online of pre-service teacher students in Chiang Mai education sandbox. For research methodology, participatory action research (PAR) was used. The samples in the research consisted of 1) Staff of teachers teaching social studies (9 people); 2) Experts of learning management (5 people), and 3) Students taking the course of the social studies teaching methodology for Semester 1 of the 2021 academic year (43 people). Purposive sampling was used to get a total of 57 people. The instruments used in the research were 1) unstructured interview forms, 2) assessment forms of the suitability of the approach of organizing innovative transformative learning to develop competency in teaching social studies online, and 3) questions reflecting learning. Qualitative data were analyzed by using content analysis. The presentation was conducted in the form of descriptive analysis. Quantitative data were analyzed by using the statistical package to find the mean and standard deviation. The study results revealed that: 1. Regarding innovative transformative learning to develop competency in social studies online teaching, arrangements should be made for students to learn the methodology of social studies pedagogy in the form of hybrid learning. This will help students have teaching competencies in real classrooms(onsite) and virtual reality classrooms (online) efficiently. The approach to organizing learning innovation called area-based pedagogy had efficiency at the highest level and 2. The developed learning innovation helped develop teaching competencies of pre-service teacher students to be consistent with the Thai Qualifications Framework for Higher Education of digital competencies efficiently.

Keywords: transformative learning, online teaching competencies, social studies pre-service teacher students, education sandbox

1. Introduction

The concept of the fourth goal for sustainable development goals (SDGs), namely the concept of social studies pedagogy, the concept of transformative learning, and the concept of area-based learning approach focuses on building the educational system equally and throughout, promoting lifelong learning of global citizens to reach universal principles for higher education with qualities, and developing learning skills entering one's local community. This relies on the environment as an important lesson in integrating learning into the science of other disciplines. One of the approaches of operation is collecting mass experiences in the community originating from analyzing the model curriculum to design the local curriculum or the learning method using social phenomena as a base to support the national core curriculum. This is the organization of learning experiences in which the locality and the community take part in every dimension and are used as guidelines in organizing schooling to be in line with conditions and the needs of the area-based community and the imaginary community which create the learning process meaningfully to bring about learning for changes towards pro-active citizenship of every learner (Boyd,& Myers, 1988; Mezirow, 2003; United Nation, 2015; Cranton,2016; Mangkhang, & Kaewpanya, 2021; Mangkhang, Yimsawat, Nettip, & Kaewpanya, 2021).

The concept of competency of social studies teachers has been based on orientation towards building abilities in human resources with the belief that if teachers are developed to have the competency, they will use existing abilities to push educational development to achieve the goal and this will be an important key in developing professions continuously. Professional competencies are behavioral characteristics resulting from knowledge, skills, abilities, and other attributes. The way people show any competency usually requires components of knowledge, skills, abilities, and other attributes. Social studies teachers must have the competency of being able to analyze problems and needs, and being able to learn by leading themselves to become aware of necessary conditions in developing themselves. Therefore, analysis according to this form is finding needs required in development for finding differences between existing conditions and what to expect. Teachers use these analysis results to seek knowledge. Learning results make teachers have knowledge and abilities in planning to learn suitably by collecting data to determine learning activities so that students will accomplish the goal determined by the curriculum. Teachers' competency is to be developed so that teachers will have knowledge and abilities, and the potential in changing the process of schooling management. Their attitudes will be changed so that they will have high public consciousness of virtues and ethics according to the principle of the teaching profession. They will also love and be committed to the profession and proud of being a professional teacher. Moreover, the form of developing pre-service teacher students' competency must be changed according to world situations. Moreover, area-based learning innovation should be sought to respond to varieties and changes in the disruptive society in which learning can be managed in real classrooms (onsite) and virtual reality classrooms (online) (McTich & Wiggins, 2004; Ministry of Education, 2010; lleris, 2014; Watcharanimit, S., Pimsan, N., & Tanawutpornpinit, S., 2020; Mangkhang, Yimsawat, Nettip, & Kaewpanya, 2021).

The world is stepping into a fully limitless world without boundaries to access information. Communication is convenient and fast. Media of modern technology have roles in conducting life with people of all ages, especially among adolescents. There has been fast distribution of various media and information technologies. There have been sending and receiving messages through communication devices such as televisions, telephones, tablets, and computers. Using digital technology is part of human behavior becoming more extensive. This has been influenced by belief systems and value directions determined by the majority of society. From the survey results of using technology for the education of the Basic Education Commission, it was found that technology is a thing that increases educational opportunities to become convenient, fast, equal, and thorough for learners of all ages and every educational system for formal education, non-formal education and informal education. With correct use and knowing benefits, technology can be used as an efficient instrument to organize teaching and learning and build equality in receiving news conveniently, fast, and keeping up with world situations regularly with no limits of learning. Moreover, global citizens under the age of 18 at present are born and grow with information technology facilitating life. As a result, conducting life is mostly consistent with the use of information technology a lot such as teaching and learning, communication and good exchanging and services, etc. Among these global citizens, they grow up to be the main power of the future world society which will be a disruption society. In this kind of society, humans try to adapt themselves to the society where there are ongoing drastic changes with traditional beliefs which are declining. Society is facing this in the new phenomena resulting from migration, natural disasters, the environment, and technology. decreasing population, economy and politics, and epidemic. In these situations, humans have changed the form of conducting future life. These phenomena make the educational system return to the revision and prepare students for possibilities in dimensions that will happen with global citizens, namely climatic changes, epidemic situations, artificial intelligence coming to replace human resources in the production system, or changed people's interactions. All of these factors will have an impact on changing the ways of life of people completely in the future (Beck, 2017; Ministry of Education, 2015; Office of National Statistics, 2018; Mangkhang, & Kaewpanya, 2021).

Higher Education Commission made an announcement of B.E. 2561 on guidelines for practices according to the Thai Qualifications Framework for Higher Education regarding digital competency for bachelor's degrees qualifications. The digital competency framework has been determined to be in line with learning skills in the 21st century, the concept of Thailand 4.0-Education, and the framework of production and manpower development for digital, economic, and social support (Higher Education Commission B.E. 2561, 2018). This is in line with the direction of the Education Sandbox Act, B.E. 2562 focusing on developing basic education management which is an important foundation for developing the Thai people to have qualities, to seek knowledge, to be creative, to be able to communicate, live and work together with other people who are differences, to keep up with the knowledge of the world and to have skills for making a living according to aptitudes of each learner (Education Sandbox Act B.E. 2562, 2019). Therefore, developing citizens' competency to support the digital society is an urgent matter to be developed in every system of Thai society.

Therefore, educational management which is an important foundation in producing citizens for the society must be aware of important roles and duties in developing children and the youth to be pro-active citizens with competency and readiness towards changes in the world society in the post-digital age. Social studies teachers are a group of people of great importance because social studies pedagogy focuses on developing student's competency so that students can learn how to live in society and live together with other people appropriately with balance and sustainability. Moreover, it also focuses on making students have skills in several aspects, namely social skills, thinking skills, decision-making skills, and problem-solving skills, and developing students to be good citizens of the society up to citizens of the world. All of these are important skills for students in the next century (Ministry of Education, 2008; Kessunk, Kumyon, Phutthasen, & Kessunk, 2019; Mangkhang,& Chanchumni, 2021; Mangkhang, & Kaewpanya, 2021). Therefore, learning management in the subject of social studies must be a learning methodology that will build and fulfill experiences so that students will learn and change values, themselves, and identities for balanced living among changes in the future world society.

For this reason, there is an urgent necessity which will develop important competency in pre-service social studies to teach students so that they will have skills in learning management which will build the process of developing pro-active citizenship for children and the youth. The objective is to make these children and the youth grow to be the driving force in the future further. Therefore, the researcher views that there should be innovative transformative learning to develop competency in teaching social studies online of pre-service teacher students in the Chiang Mai education sandbox to prepare competency and readiness for pre-service teacher students who will work as a teacher among social, economic, and environmental coming changes in the future.

2. Methodology

2.1 Research Rorm

This research is participatory action research (PAR). The research was conducted by collecting and analyzing data obtained from document analysis, interview forms, assessment forms, and questions reflecting learning. The study results were presented in the form of descriptive analysis by using qualitative data and qualitative data supporting data synthesis and description.

2.2 Population and Samples

The population used in the study consisted of 3 main groups: 1) Staff of social studies teachers; 2) Experts of learning management; and 3) Students taking the course of social studies teaching methodology for Semester 1 of the 2021 academic year, obtained by using purposive sampling accounting for a total of 57 people, consisting of

The sample of the research:

1) The staff of social studies teachers (9 people);

2) Experts in learning management (5 people);

3) Students taking the course on the methodology of social studies pedagogy for Semester 1 of the 2021 academic year (43 people);

2.3 The Instruments Used in the Study

The instruments used for data collection consisted of:

1) Unstructured interview forms on guidelines for organizing innovative transformative learning to develop competency in social studies online teaching

2) Assessment forms of guidelines for organizing innovative transformative learning to develop competency in social studies Online teaching

3) Question items reflecting learning

2.4 Data Collection

1) A documentary study was conducted by collecting data regarding learning management innovation from documents, books, journals, and secondary data sources appearing in the database. The reason for doing this was to collect basic data regarding online social studies learning management. Then, the obtained data were used to support the analysis of education issues further.

2) The situational analysis referred to qualitative data collection, which was conducted by interviewing the sample group in the research, namely staff of social studies teachers who are experts in managing learning and teaching of

higher education social studies. The instruments used were unstructured interview forms on guidelines for organizing innovative transformative learning to develop competency in social studies online teaching.

3) Design and development referred to designing and developing innovative transformative learning to develop competency in social studies online teaching. The efficiency was assessed by experts of learning management to use assessment results and suggestions to develop learning innovation whereby the instruments used were appropriateness assessment forms of guidelines for organizing innovative transformative learning to develop competency in social studies online teaching.

4) Results for informative learning to develop competency in social studies online teaching of pre-service teacher students in the Chiang Mai education sandbox were assessed to revise knowledge and occurring competency of pre-service teacher students through learning reflection. Then, learning results had to go through content analysis and the results of the analysis were used to support a discussion of the research results whereby the instruments used were question items reflecting learning.

2.5 Data Analysis

1) For qualitative data, the research team analyzed the data according to the educational goal by using content analysis, and they have obtained document analysis, interviewing and question items reflecting learning. The objective was to summarize issues according to data groups and to analyze the relationships of the data.

2) For quantitative data, the research team analyzed the data obtained from the assessment form by using the statistical package which was able to analyze the data suitably. Descriptive statistics-based analysis was used whereby results of statistical data analysis were shown as mean and standard deviation.

3. Results

For the research at this time, the research team classified the data obtained from the study and presented research results according to the determined objective. The study results can be summarized as follows:

3.1 Regarding the Results of Studying and Constructing the Transformative Learning Innovation to Develop Competency in Teaching Social Studies Online, It was Found that Arrangements Should be Made for Pre-service Teacher Students to Learn the Social Studies Teaching Methodology in the Hybrid Learning Form

This way will help students have teaching competency in real classrooms (onsite) and virtual reality classrooms (online) efficiently. The development of competency in teaching social studies online must be focused on 5 aspects, namely (1) searching digital data for learning, (2) creativity and learning innovation, (3) digital knowledge and safety in life, (4) application of digital technology for learning, (5) awareness of electronics norms and digital etiquette. The competency must be developed holistically and based on the area-based context of students as the development base

The approach to organizing the developed learning innovation is called Area Based Pedagogy. This approach to organizing learning innovation has been developed from the concept of sustainable development goals (SDGs), the concept of social studies pedagogy, and the concept of area-based learning approach with details as follows:

$$L = Q + A$$

Form 1. Form of Area-Based Pedagogy

Source: Mangkhang et al. (2022)

L (Learning) is learning or competency in teaching social studies online which will occur to students. This consists of 5 aspects, namely (1) searching digital data for learning, (2) creativity and learning innovation, (3) digital knowledge and safety in life, (4) application of digital technology for learning, (5) awareness of electronics norms and digital etiquette, which must be based on trust between teachers and students. Teachers must build learning areas that are safe for students to be able to express their opinions creatively. They should not be excluded from expression under the common belief that "Social studies are correct in every item".

Q (Questions) is social studies intellectual inquiry. It is a matter of building inspiration in learning through questioning in which students are allowed to reflect on their prior knowledge and to experiment with questioning with the knowledge or prior experiences. This is also done together with finding various viewpoints in seeking explanations in new forms that will explain social phenomena through knowledge or experiences in which students have the social studies intellectual process. These experiences with the process will help students review knowledge and learning experiences of their own and focus on seeking new ways in learning and developing learning competencies of their own.

A (Action) is the approach of taking actions for area-based learning whereby teachers determine their own roles so that they will become learning managers with duties in organizing various learning processes for students with classification into 4 roles, namely.

Table 1. Roles and Practice Methods of Learning according to the Form of Area-based Pedagogy

Roles of managing learning	Practice methods of learning
Step 1 Planning learning (Plan: P)	Regarding learning planning, teachers must divide learning planning into 2 parts, namely 2.1) For planning learning content, the content of lessons, exercises, and data supporting the study must be organized in the form of online classrooms, which students can download for studying before attending the class. Students can also review the content at their convenience. 2.2) For planning learning, besides storing the content of learning in the online classroom, teachers must have online platforms where they can correspond, chat and inform students of learning information so that they can know it thoroughly. This platform helps teachers able to communicate or schedule the class in advance with students. Moreover, online platforms help students receive updated occurring information about the world with changes at every moment.
Step 2 Organizing learning Experiences (Experience: E)	Regarding organizing learning experiences, teachers should allow students to participate in organizing the learning process such as building mutual agreements in the classroom, interacting between teachers and students, and opening opportunities for exchanging and criticizing works of students together. Teachers have duties to operate and exchange knowledge together with students. The learning process must be under the belief that "Social studies are correct in every item". Every idea and every opinion are all viewpoints that can be expressed. Teachers can use online platforms in explaining the learning process in advance or let students provide information to be used in organizing the learning process before attending the classroom. This is done to shorten the time used in teaching and increase the time for learning of students.
Step 3 Reflection of learning (Reflection: R)	Regarding reflection on learning, teachers should open opportunities for students to reflect on learning obtained after finishing the learning process. Reflection of learning results can be conducted in the form of speaking, writing, describing, drawing or other expressions creatively. Teachers should not have answers or expect reflection results in a positive way only. However, they should be open-minded and listen to students with respect for their rights and freedom of students to express themselves freely by students. Opening areas for reflection or expressing opinions in the online classroom must begin with building trust with learners and letting students have confidence in answering questions with a variety such as using local languages, using pictures to represent meanings, and using short statements to summarize the main ideas of the subject matter. Writing journals helps learners have areas for expressing opinions and have freedom in showing their existence and their needs for learning creatively.
Step 4 Measuring and assessing learning results (Assessment: A)	Regarding measuring and assessing learning results, the learning process, participation and changes in conducting oneself, and attitudes should be focused on measuring and assessing rather than the test or official assessment forms. For evaluation, there should be a variety, of responses to various styles of learning and situations of online learning. Opportunities should also be opened for participating in determining criteria of measuring and evaluating. Moreover, too many tasks should not be assigned. The tasks which can draw knowledge or competency constructively should be assigned through measuring and outcome assessment such as writing teaching applied articles, writing plans of hybrid learning management, trial teaching in the online classroom, video recording teaching to be used as instructional media, using E-Portfolio, etc. This helps

Roles of managing learning	Practice methods of learning
	students get into real practices under critical situations with limitations in learning management in actual conditions. Moreover, measuring and assessment must be made in terms of changes within the learners for the aspects of values, attitudes, having interactions changing from before, confidence and faith in being a qualified teacher, and importance of things of loving to learn in the course expressing through behaviors in the classroom such as attending the online classroom on time, opening the camera to interact with teachers and online classmates, using digital etiquette, doing the customary greeting or using symbols to show digital etiquette before speaking or asking/answering questions in the classroom. These behaviors are all changing the internal competency of learners which can be measured empirically.

Source: Mangkhang et al. (2022)

From assessing the efficiency of innovative transformative learning to develop competency in teaching social studies online, it was found that

Table 2. Shows Details of the Suitability of the Approach of Organizing Innovative Transformative Learning to Develop Competency in Teaching Social Studies Online (n=5)

No.	Items of assessment	$\bar{x}$	SD	Interpretation
1	Learning innovation responds to critical situations which must manage the study in real classrooms (onsite) together with virtual reality classrooms (online).	4.80	0.45	the most appropriate
2	Learning innovation promotes being aware of the importance of hybrid learning.	4.80	0.45	the most appropriate
3	Learning innovation promotes understanding in the context of various learning management according to situations of the world society.	4.80	0.45	the most appropriate
4	Learning innovation promotes students' competency in teaching social studies online.	4.60	0.55	the most appropriate
5	Learning innovation opens opportunities for students to learn through actual practices.	4.60	0.55	the most appropriate
6	Learning innovation promotes planning skills of hybrid classroom learning management to occur.	4.60	0.55	the most appropriate
7	Learning innovation promotes competency for the aspect of searching digital data for learning.	5.00	0.00	the most appropriate
8	Learning innovation promotes competency for the aspect of creation and learning innovation.	4.60	0.55	the most appropriate
9	Learning innovation promotes competency for the aspect of digital knowledge and safety in life.	4.60	0.55	the most appropriate
10	Learning innovation promotes competency for the aspect of digital technology application for learning.	5.00	0.00	the most appropriate
11	Learning innovation promotes competency for the aspect of awareness of electronics norms, and digital etiquette.	4.80	0.45	the most appropriate
12	Learning innovation has learning activities opening opportunities to bring about discussion and mutual opinion exchanging.	5.00	0.00	the most appropriate
13	Learning innovation uses various media and technology to support learning	5.00	0.00	the most appropriate
14	Learning innovation brings about new knowledge which can be used to create innovation in organizing teaching and learning in a new form.	4.80	0.45	the most appropriate
15	Learning innovation has appropriate period of time in learning and actual practices in the classroom.	4.80	0.45	the most appropriate
	Combined Mean	4.79	0.36	the most appropriate

Source: Mangkhang et al. (2022)

From Table 2, it was found that regarding the appropriateness of the approach of organizing innovative transformative learning to develop competency in teaching social studies online, the appropriateness was at the highest level. From the assessment results of the experts, they viewed an overall picture that learning innovation had appropriateness in terms of learning management in critical conditions whereby learning management focuses on building experiences more than teaching in the normal form and opening opportunities for students to be able to plan to learn together with teachers as well.

3.2 Regarding the Study Results of Transformative Learning to Develop Competency in Teaching Social Studies Online of Pre-service Teacher Students in Chiang Mai Education Sandbox, It was found that

Table 3. Competency Levels of Teaching Social Studies Online through Learning Reflection of Teacher Students

Competency of teaching social studies online	Competency level required according to digital competency for bachelor's degree qualifications (Higher Education Commission B.E. 2561)	Competency level which students reflect through learning results
1. Searching digital data for learning	- Being able to use tools to search-related data and knowing how to use filters to limit outcomes (finding pictures, videos, or other forms of media) - Knowing how to check the reliability of data sources - Knowing how to organize the system and share resources such as bookmarking tools and being aware of issues such as copyrights and plagiarism	- Assigning tasks before attending the online classrooms and using free time to study additional data from E-classroom which the teacher has prepared - Having skills for searching to extend the knowledge learned in the classroom to become the process of lifelong learning - Having skills of exchanging knowledge and attitudes together with online classmates through presenting knowledge in the classroom - Having skills of exchanging knowledge around us in any aspects beyond textbooks and learning supporting documents
2. Creativity and learning innovation	- Being able to produce (and have produced) digital media such clip video graphics or audio clips and recording screenshots etc. - Being able to learn the basic principle, follow instructions, and being able to try doing it	- Having skills in producing digital media, editing teaching video clips, and building instructional media to be used for trial teaching in the online classroom - Having skills of developing plans of hybrid learning management and trying teaching in the online classroom with being able to manage school and solve problems truly - Having skills of criticizing works and using the concept, knowledge obtained to develop works with more qualities - Having skills of thinking reasonably and accepting other people's opinions more - Opening up and learning various surrounding things, reducing biases in judging things, making one optimistic with more reasons - Receiving knowledge and understanding, skills, the thinking process in teaching and learning obtained from direct experiences of teachers
3. Digital knowledge and safety in life	- Being aware of online safety including data protection and personal image - Use safety characteristics such as anti-virus software and setting security and safety values on the equipment including personal data on online social media - Knowing necessities for data protection. Take precautions with contemplation in sharing data	- Receiving suggestions from classmates and teachers in developing teaching skills, one's personality - Learning how to use programs to be applied with schooling management in online classrooms. - Knowing how to make use of media and social media in organizing teaching and

Competency of teaching social studies online	Competency level required according to digital competency for bachelor's degree qualifications (Higher Education Commission B.E. 2561)	Competency level which students reflect through learning results
	with other people and interacting with other people online	learning and facilitating oneself in learning and sharing learning data with other people - Techniques of teaching and communicating in the online classroom, bringing about learning in changing thinking methods, the speaking process, and decision-making for communication
4. Applying digital technology for learning	- Being able to use various technologies conveniently in learning - Being able to install and use software, including useful applications on personal equipment for both mobile phones or tablets to collect and organize data recording for personal use	- Having an opportunity to know how to use online classrooms in organizing schooling in emergencies. - Practicing building online classrooms on one's own - Having applied knowledge to organize activities of participatory online schooling - Making instructional media from programs such as PowerPoint, video editing, etc.
5. Awareness of electronics norms and digital etiquette	Being able to use various tools conveniently and comfortably for having conversations and working together with other people online including sharing documents and/or comments of video-conferencing and attending seminars through website seminars, instruments, and various channels	- There are interactions built between teachers and friends in the online classroom, expanding knowledge networks. - Having skills in preparing electronic boards to present activities or give knowledge to students - Reducing limitations of online teaching and learning, bringing about interactions in the online classroom, and making students feel as if they were in real classrooms (onsite).

Source: Mangkhang et al. (2022)

From Table 3, it was found that students reflected learning through competency levels of teaching social studies online for 5 aspects higher than competency levels required according to digital competency for bachelor's degree qualifications determined by the Higher Education Commission B.E. 2561 (2018). When this was taken into consideration, the competency which students reflected through question items specified prominent points of learning through the learning innovation arranged such as helping prepare readiness in schooling management in critical situations. Innovation helps bring about skills of being professional teachers. Teachers had informality, making teaching and learning proceed happily. The generation gap between teachers and students has decreased. This has made learning interesting and created inspiration in learning.

4. Discussion

4.1 From Studying and Developing Innovative Transformative Learning, it was found that Regarding Innovative Transformative Learning to Develop Competency in Teaching Social Studies Online, There should be an Arrangement for Students to Learn the Methodology of Teaching Social Studies in the Form of Hybrid Learning.

This helps students have teaching competency both in real classrooms and virtual reality classrooms efficiently. The competency of teaching social studies online must be focused on terms of development for 5 aspects, namely (1) searching digital data for learning, (2) creativity and learning innovation, (3) digital knowledge and safety in life, (4) application of digital technology for learning, (5) awareness of electronics norms and digital etiquette whereby competency must be developed holistically and based on the area-based context of students as a development base. The developed guideline for organizing learning innovation is called Area-Based Pedagogy with efficiency at the highest level. This is in line with the research work of Mangkhang, Yimsawat, Nettip, & Kaewpanya (2021) indicating that the important competency in the sandbox consists of (1) content knowledge, (2) learning management, (3) engagement strategies, (4) professional development. This is also in line with the concept of Michaelis (1985) stating that important things in schooling management of social studies teachers consist of (1) selection of teaching materials, (2) searching community data sources, (3) doing group activities of mutual discussion (4) process of

knowledge searching (5) professional characteristics and (6) management and interactions with data. Moreover, McTich & Wiggins (2004) also proposed that social studies teachers must have competency which can analyze problems and needs, and learn self-leading, be aware of necessary conditions in developing themselves. Therefore, analysis according to this form is finding needs required in development to search for differences between current existence and expected things. Teachers use the results of self-analysis t seek knowledge. These results of learning make teachers have knowledge and abilities in planning learning appropriately by collecting data to determine learning activities so that students will achieve the goal according to what is determined by the curriculum. Moreover, developing learning innovation brings about efficient learning innovation. This is consistent with the concept of Dewi (2018) stating that one way to develop education is doing technical innovation in learning through the traditional learning system transforming into a learning system that is an innovation with more efficiency and effectiveness. This is done through supporting methods and infrastructures enough for learning based on data and technology of the tools through the internet. This is an appropriate alternative that can overcome problems of learning even though educational systems are different due to geographical allocation greatly influencing the progress of information technology.

4.2 Results of Transformative Learning of Teacher Students Help Develop Teaching Competency of Pre-service Teacher Students to be Consistent efficiently with the Thai Qualifications Framework for Higher Education.

The pre-service teacher students reflecting through question items specified prominent points of learning through the prepared learning innovation such as assisting in preparing readiness in organizing schooling in critical situations. The innovation helps bring about the skills of professional teachers. Teachers have informalities, making teaching and learning proceed happily. The generation gap between teachers and students decreases. This makes learning efficient, consistent with the work of Nillachaidokkavit et al. (2009) proposing that transformative learning is profound transformative education for students to be aware of their internal world consisting of ideas, feelings, beliefs, attitudes, viewing the world and life, including behaviors in everyday life at each moment. This mentioned awareness will make students step into developing themselves to be a complete people and they will create good interactions towards life conditions and the surrounding environment characterized by lending a hand further. This corresponds to the direction of the transformative learning target proposed by Mezirow (2003). He stated that changing the belief framework, the perception hypothesis, thinking, intention, expectation influencing perception, and giving meanings to experiences are the key to informal learning. Moreover, this is also in line with the concept of Dewi (2018) proposing that learning innovation is the key to education required to be considered because learning activities are changing concepts, values, and integrated learning media are related to demand in the future. This is not only related to competitiveness but also technological progress. Data with various qualities of the learning system should be able to improve weak points fast. This is in line with the work of Watcharanimit, Pimsan, & Tanawutpornpinit (2020) proposing that developing teacher competency makes teachers have knowledge and abilities, the potential in changing the process of schooling management, and changes their attitudes so that teachers will become highly public-minded with virtues and ethics according to the principle of teaching professions. Teachers will also be proud of being qualified teachers. The correct method of development is to develop so that teachers will develop competency in developing themselves in the same direction as the concept of Mangkhang, Yimsawat, Nettip, & Kaewpanya (2021). The concept of this group of people indicates that competency is regarded as an important thing of teacher professions as both standards of operation and goals of the profession. Promoting competency to pre-service teacher students will help drive policies and mechanisms of Thai educational reform and develop the Thai educational system to be equal to other countries qualitatively.

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