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ปีที่ 21 ฉบับที่ 2 พฤษภาคม–สิงหาคม 2563 | Vol. 21 No. 2 May–August 2020

Factors Affecting the Failure of Thai Education to Equip Thai Students with 21st Century Skills

ปัจจัยที่ส่งผลต่อความล้มเหลวของการศึกษาไทยที่ไม่สามารถพัฒนาผู้เรียนสำหรับทักษะแห่งศตวรรษที่ 21

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บทคัดย่อ

   การวิจัยนี้ได้ศึกษาปัจจัยที่ส่งผลต่อความล้มเหลวของการศึกษาไทยที่ไม่สามารถพัฒนาผู้เรียนสำหรับทักษะแห่งศตวรรษที่ 21 โดยเก็บข้อมูลกับครูผู้สอน จำนวน 40 คนและผู้บริหาร จำนวน 10 คนในโรงเรียนประถมศึกษาและมัธยมศึกษาที่มีโครงสร้างพื้นฐานด้านเทคโนโลยีสารสนเทศและสิ่งอำนวยความสะดวกคอมพิวเตอร์ในจังหวัดเชียงใหม่ งานวิจัยได้ทำขึ้นโดยเก็บข้อมูลโดยการสุ่มกลุ่มตัวอย่างแบบชั้นภูมิ และการสุ่มแบบเจาะจง เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลประกอบไปด้วยการสัมภาษณ์ แบบสอบถาม และการสังเกตการสอน ในช่วงปีการศึกษา 2018 ข้อมูลทางด้านปริมานถูก วิเคราะห์ด้วยสถิติเชิงบรรยาย ส่วนข้อมูลทางด้านคุณภาพถูกวิเคราะห์เชิงเนื้อหาโดยโปรแกรม Hyper research ผลของการวิจัยแสดงให้เห็นว่าประเทศไทยมีหลักสูตรที่มีคุณภาพ แต่ปัจจัยที่อาจส่งผลต่อความล้มเหลวของการศึกษาไทยในปัจจุบันที่ไม่สามารถพัฒนาผู้เรียนสำหรับทักษะศตวรรษที่ 21 คือ 1) การจัดการเรียนการสอนตลอดจนการวัดผลประเมินผลและการบริหารการศึกษาไม่สอดคล้องกับหลักการและความต้องการของหลักสูตร 2) ครูผู้สอนและ ผู้บริหารยังขาดความเข้าใจที่แท้จริงในจุดประสงค์ของหลักสูตร การเรียนการสอนและการวัดผลที่มีคุณภาพตลอดจนทักษะศตวรรษที่ 21 3) ครูผู้สอนและผู้บริหารเข้าใจว่านักเรียนไทยยังไม่สามารถเรียนรู้ด้วยตนเองได้โดยปราศจากครูผู้สอน และนวัตกรรมการเรียนการสอนยังไม่เหมาะกับบริบทของการศึกษาไทย สิ่งที่น่าสนใจอีกประการหนึ่งคือ ผลการวิจัยพบว่าวัฒนธรรมและความเชื่อของครูผู้สอนมีความสัมพันธ์กันและมีอิทธิพลต่อแนวทางการสอนของพวกเขา

คำสำคัญ: ความล้มเหลว ความเชื่อและวัฒนธรรม ผลสัมฤทธิ์ทางการเรียน การศึกษา

Abstract

This study investigated the factors affecting the failure of Thai education to equip Thai students with 21st century skills. Participants in the study were forty teachers and ten principals in primary and secondary schools with ICT infrastructure and computing facilities in Chiang Mai, Thailand. The data were obtained using both stratified random sampling as well as purposive sampling methods. Data were complied through interviews, questionnaires, and teaching observations during 2018 academic year. The quantitative data were analyzed by means of descriptive statistics while the qualitative data were analyzed by content analysis using Hyper Research Program. The findings illustrate that desired learners' key competencies indicated in the basic Thai education core curriculum were effective and met 21st century education. However, those factors that could affect the failure of Thai education to equip Thai students with 21st century skills include: 1) no inclusive evidence that there is a close link between desired learners' key competencies and policy implementers' practices including school administrators and teachers, 2) teachers' and principals' lack of understanding regarding the curriculum's expectations and goals, as well as innovative teaching approaches and 21st century education in general 3) teachers' and principals' perception of students being dependent learners, and the idea that innovative teaching methods did not suit the contexts. Interestingly, the findings reveal that the teachers' cultures and beliefs had a correlation influencing their teaching practices.

Keywords: Failure, Belief and culture, Learning achievement, Education

Introduction

The world is changing fast into the digital revolution from the industrial revolution. The rapid growth of information and technology has enhanced global trade and communication, and updated information and knowledge so we currently inevitably live in the era of information-based economy. Knowledge today is out of update for tomorrow life. Also, today employment requirement is different form the past. One who is employed holds comparative knowledge and skills of the 21st century survivors with at least creativity and technology literacy and innovation. 21st century skills not only offer students a guideline for successful learning but also prepare them for careers and technologies, which allow them to excel in

this ever-changing and competitive world. Factors that affect to the 21st century skills are students, teachers and other supporting factors, namely: Ease of access to information, collaboration in action, students' applying hand-on experience, educators' mindset, use of technology, learning communities, innovative teaching strategies and adaptability and global connectivity (Paladhi, 2017).

The awareness of the changes has forced a country's ministry of education to reconsider its education system to cater to the changes. Accordingly, education in all level may need to be revised or reformed in order to drive its mission preparing learners and students to be qualified for real-world changing challenges. Policy makers together with school staff seem to be the key factors that can call for the success. The teachers and educators should be the most important persons who drive the change. (Ministry of education, 2008)

To date, there is the organization of the Program for International Students Assessment (PISA) by organization for Economic Cooperation and Development, which aims to evaluate education systems worldwide for any country, who wants to investigate the quantity level of its educational system to join. The PISA assessment includes maths, sciences and reading together with competencies, mindsets and a range of skills including critical thinking, problem-solving, creativity and collaboration which are necessary for in real-world contexts. Thailand participates in this. According to 2018 assessment results, Thai participants' performance was not satisfactory and way below expectation, and far behind their peers in neighboring countries (66th place among 79 countries). The test scores were below the OECD average despite the fact that Thai government budget for education has been increased (Tangkitvanich,2013). Moreover, the Ordinary National Education Test scores of 2018 academic year were disappointing with an average of 33.23 for the overall scores of 5 core subjects (Thai language 49.25 , social studies 34.70 , the English language 28.31, mathematics 24.53, and science 29.37) as pointed out by The National Institute of Educational Testing Service (NIETS, 2017). Based to the national and international assessment results, it can be assumed that many Thai students are still not attending expected required 21st century skills including critical thinking, problem-solving, creativity and collaboration. Besides the attractive supporting budget, Thailand has continuously imposed Thai education system evaluation by the Office of National Education Standards and Quality Assessment, National Institute of Educational Testing Service and Test & Evaluation Planning Committee (OECD/UNESCO, 2016). However, Thai government tried to solve the problem providing coaching strategy to boost Pisa scores but that does not seem to be able to equip its students with 21st century survival

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skills. Education reform may be the only way out for the Thai education success and one the most important key factors is to know factors that might affect the failure of Thai education especially for factors that are found in schools or universities. Those factors may include teachers, teaching materials, school administrative staff and school facilities and equipment, which facilitate learners' learning. These factors are crucial for learning success as they are keys that primarily work with learners. Several educators have mentioned the needs for the local educational institutes to conduct some research so that they can help identify the possible factors that inhibit students' learning success. As an one of the local educators, it is worth investigating factors affecting the failure of Thai education.

Research Objectives

The objectives of the study are:

1. To investigate similar core features of education systems of ten top-rated countries in educational PISA rankings.

2. To investigate factors affecting the failure of current Thai education to prepare and equip Thai students with 21st Century skills.

2.1. investigating teachers' teaching.

2.2. examining teachers and principals' opinions of teaching and learning, their students and education management.

2.3. investigating the extend of key features of Thai education system which match with key features of education system of top-rated countries.

Methodology

This research study utilized a mixed method and was conducted in 2018 academic year. Forty teachers and ten principals from selected schools with ICT infrastructure and computing facilities in Chiang Mai, participated in this research, and the data were obtained using a stratified random sampling method, and further using a purposive sampling method. For the purpose of data collection, documentary study, questionnaires, teaching observations, and interviews were applied.

1. Documentary study of four of ten top-rated countries in educational PISA rankings, which were Shanghai, Canada, Finland and Singapore, were studied regarding curriculum, ways of teaching and learning, methods of testing and evaluation and education management. The information of guidelines about the ways they manage their effective education were expected to achieved. After gathering the needed data from four sources, data from documentary study was analyzed by means of content analysis using Hyper Research Program to find the descriptive content domains according to main characteristics of each topic

2. A set of questionnaires was employed twenty primary school teachers and twenty Secondary school teachers who were teaching in Chiang Mai to obtain the quantitative data concerning their teaching behaviors and attitudes towards their students. The items in the questionnaire were designed to ask the participants about teaching approaches, teaching materials used, student learning evaluation and perception towards their students. The questionnaire was designed in a Likert-type scale with five gradations. Data from questionnaire was analyzed using descriptive analysis

3. Five primary school teachers and five secondary school teachers were purposively selected for teaching observation and field notes. The observation checklist was used to obtain quantitative data concerning their teaching practices regarding teaching methods and materials used while teaching. The criteria for selection were teachers in schools where digital and ICT technologies were available and in use. The checklist was used to collect the data once for each selected participant. Data from teaching observation was analyzed by means of content analysis using Hyper Research Program.

4. A semi-structured interview was administered with ten school teachers and ten school principles, five from primary schools, the other five from secondary schools. The scope of data collection and analysis were curriculum, teaching and learning, testing and evaluation and education management. The data from the semi-structured interviews was coded and analyzed by means of content analysis using Hyper Research Computer Program.

Results

1. **Similar key features of education systems of top-rated countries in educational education Pisa rankings.**

   The result of the documentary study showed that almost of these top-rated countries emphasized on each individual learner capacity and learning preferences. Education systems are organized according to students' abilities and interests. Learning assessment and evaluation were based on functional assessment with self-assessment and evaluation. 21st century skills, boarder knowledge and together with effective education management were perfectly included in the curriculum and education policy. The result of the study pointed to the harmonized inter-correlation among all aspects.

Table 1 Key features of effective education systems of top-rated countries

Curriculum	Teaching and learning	Testing and evaluation	Education management
- Development of learners' capability& individual choices - Broader knowledge base and real life problem tackle - Education to the abilities and interests of students, - Individual study plan-based & individual choices - 21 st century core subjects & skills - Subjects with human and social issues	- Research driven - Self-direction - Capacity-building approach - Innovative &effective teaching approaches - Innate curiosity focus - ICT based - Local & global collaboration classroom - Designing learners' own learning activities	-Tests on students' capacity to apply their knowledge to real-life problems - Emphasis on student self-assessment - No longer a grade structure - Self & Team work assessment - Feedback focus - Assessment changes put greater emphasis on project work and creative thinking	- Heterogeneous classrooms - Students grouped by ability - Support of learning environment and students' health - Exceptional teacher quality - More autonomy - Close links between policy implementers, researchers and educators - Information and communication technology (ICT) based

Table 1 shows that these top-rated countries emphasized on each individual learner capacity and learning preferences, 21st century education, boarder knowledge and functional assessment and evaluation and self-assessment together with effective education management.

1) Curriculum: Regarding curriculum, development of individual learner'capacity and Individual learning preferences are very important for education in these countries. Broader knowledge is increasingly included in the education system of the countries with high learning achievements. Students in these countries learnt to point out to questions of their interests and explored the relevant knowledge to answer those questions independently. Accordingly, they were generally exposed to a much broader knowledge-base and were guided to integrate their knowledge and challenge real-life problems. Teachers and educators perceived that students could take care of their responsibilities and their learning. Students were given the opportunity to create and develop their own learning environment. Schools offered individual study plans according to student's individual choices, abilities and interests. Education system addressed 21st century core subjects & skills including subjects with human and social issues.

2) Teaching and learning: As it can be seen in the table above, 21st education system was applied. It appears that most of the countries applied research-driven learning strategy rather than text-driven learning lot. Students made use of media for learning. ICT literacy for learninghas was emphasized. Teachers usually incorporated class learning with local and global communities in order to offer their students real-world experiences. Learning activities were about learning to learn and life- long learning and students' innate curiosity was the focus. Teachers and educators valued self-direction and collaborative learning with con-construction knowledge building. In higher level of education, students took care of their own learning planning their own curriculums. Innovative teaching methods, such as project-based learning were in use.

3) Testing and evaluation: Regarding to testing and evaluation, functional assessment and evaluation were valued. Main aims of assessment and evaluation were to assess students' abilities to apply their knowledge to real-life problems. Assessment and evaluation could be done by a group of students. Self- assessment was perceived to be valuable and informative to students themselves. Alternative assessment platforms such as presentation, project work and discussion were employed. Moreover, 21st century skills such as creativities, critical

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thinking, problem-solving, collaboration and ICT literacy were focused in learning assessment and evaluation. These evaluation platforms denied a grade structure.

4) Education and management: Regarding education and management, teachers were exceptional qualified with strong accountability. They were well-trained and demonstrated ability to manage their classrooms and helped their students to become successful learners. Education system showed close link between policy implementers, researchers and educators. Teachers, principals and policy makers had strong commitment to education and to students. Heterogeneous classrooms were emphasized. Also, students were grouped by ability. They provided full support of learning environment and students' health. School management was autonomous. Most schools were equipped with ICT infrastructure with innovative learning devices.

2. Factors affecting the failure of current Thai education to prepare and equip Thai students with 21st Century skills.

2.1 Teachers' teaching practices

2.1.1 Teaching methods

The results of content analysis of the participants are reported as follows.

1) The teacher centered: Most of the participants selected the topic and information, and provided teaching materials for students to learn. They retained full control of the classroom. Teachers talked all the time to deliver knowledge. They presented information in a quick manner. Learners sat passively and needed to listen to the teacher.

2) Recital teaching method: Teachers read out loud the passage and students repeated after the teachers sentence by sentence. Students were expected to repeat exactly the same tone and voice of their teachers'. The famous strategy included picking one or two smart students to read the teaching materials in front of the class. In one of the language classes, the teacher asked her students to repeat after her during her demonstration to use the language. The recital teaching method was usually used almost the whole class followed by task sheet assessing students' comprehension of the knowledge.

3) Bodily-kinesthetic teaching: Teachers often used their bodies while teaching. They loved to make use of their gestures along with their vocal instructions. They usually showed gestures with the new or difficult vocabulary to enhance the meaning and to attack students' attention. Some of them carried a long stick and used it with their gestures to address students or to indicate to the points of learning materials. Body movement along with

the songs was frequently observed in both before, during and after class. Touching was also observed, teachers also made use of their touching students' body to drive them the finish the assigned work in class. It seemed that the main purpose to use their gestures while teaching was to enhance students' vocabulary understanding and memorization.

4) Questioning technique: Most of the teacher asked questions during their teaching all the times. The questions asked did not seem to be real questions but they are questions that call for the answers to finish the teachers' utterances, to catch students' attention and to recall the knowledge that had been taught earlier. The real questions were also asked to assess if students understand what had been taught and memorize it.

5) Role-play simulation: Role-play simulations were occasionally used. However, the role-play simulation did not seem to foster each student's learning achievement. One teacher in primary school asked students to do the role-play simulation in Thai language class. She asked each group of students to composed a story using the words taught and acted out in front of the class. One student read a story and the other members acted accordingly.

6) Translation method: Translation method of teaching was observed in English class. During the class, the teacher tried to use English as much as possible. She mostly used short single sentences and words along with Thai translation at all times.

7) Assessment and evaluation: Most of the teachers employed paper-based test with multiple choice and assignment task sheets to evaluate their students learning abilities. The platforms of evaluation focused on test scores of formative and summative tests and vocal rewarding appraisal of the teachers

2.1.2 Teaching materials

The main teaching materials observed were commercial text book, written paper cards, pictures, supplementary task sheet and teachers' experiences. 90% of the teaching observations indicated that teachers used commercial text books and supplementary task sheet as main means of teaching. Every student had a text book on the table in front of him. The teachers mostly followed the prescribed topics step by steps indicated in the text book then asked their students to finish supplementary task sheets. 80% of them written paper cards, pictures and written tracing paper especially in primary level classes. One Thai language class used different teaching material compared to the rest. She made use of YouTube clip video with a song that contain Thai language features that she was going to teach at that time. She used it to replace the passage in the text book. Then she asked her students to copy the taught words in their notebooks. Vocabulary and grammar were the locus of teaching.

2.1.3. Teacher's role

Teacher's role focused on a teacher-centered approach. Teachers alone delivered the knowledge and retained full control of the classroom. Teachers presented the information in a quick manner and selected topics and areas that they felt were appropriate to student's learning, and provided the learning material for students.

In addition, the results from the analysis of the questionnaires applied to forty teachers showed some similarities and differences compared with the results obtained from teaching observations. Regarding teaching and learning, the teachers indicated that they sometimes focused on commercial textbooks (57.5%) and sometimes followed steps indicated in the textbooks for their teaching (42.5%). Regarding the teachers' roles, the majority of them (67.5%) indicated that their responsibility was to offer knowledge and they sometimes spoke a lot in class (52.5%). In terms of students' roles, the teachers indicated that their students were not only message receivers (57.5%), they often answered teachers' questions (70%) and sometimes did exercises in the textbook (52.5%). On the contrary, the teachers indicated that their students often searched for new knowledge online (65%) in the computer rooms (42.5%) while studying in school, and presented information they had searched (52%). Students often worked in group (85%) and shared knowledge and information (70%) and had a group discussion. Moreover, the results showed that students did their original project works (52%) and conducted few projects with the local community. Regarding learning assessment and evaluation, it was found that teachers often utilized paper-based test (67.5%) and group assessment (45%). to assess students' learning achievements. However, they indicated that they sometimes applied alternative assessment such as, presentation, project work and portfolio (45%). Moreover, they sometimes used self- assessment in their teaching (22.5%). Interestingly, the teachers insisted that they often assessed and evaluated students' learning by providing feedback (45.5%) , and they often assessed and evaluated their students' other skills than academic skills such as critical thinking, problem solving or communication. (62.5%)

2.2 Educators' attitude and opinions of teaching and learning, their students and education management.

1) Result from Results form the analysis of the questionnaire

Table 2 Educators' attitude and opinions of teaching and learning, their students and education management obtained from the questionnaire

Items	%
Students were still unable to learn by themselves	67.5
Teachers were the ones who enhanced student learning	72
Teachers were the most knowledgeable persons to prepare teaching materials	80
Students learned what was being taught by teachers was the appropriate way	45
Teachers believed in the effectiveness of group work	72
Teachers believed in the effectiveness of ICT technologies	80
Teachers believed in the significances of students' curiosity	85
Teachers agreed to be facilitators rather than being teachers	92
Equipping students with 21 st century skills and alternative assessments were helpful	100

Table 2 shows that 90% of them or more indicated that equipping students with 21st century skills and alternative assessments were helpful and agreed agreed to be facilitators rather than being teachers. 80 % or more considered themselves as the most knowledgeable persons to prepare teaching materials and believed in the significances of ICT technologies and students' curiosity. 72% perceived themselves as the ones who enhanced student learning. More than half of them believed that students were unable to learn by themselves.

2) Results form the analysis of twenty teachers' and principals' interviews

Table 3 Educators' attitude and opinions of teaching and learning, their students and education management obtained from the interviews

Items	%
Teaching practices were appropriate and best suited best with their students	100
The students often needed teachers and were not be able to learn by themselves	85
Teaching facilities and equipment were not sufficient for all students	100
They roughly explored the basic education core curriculum	80
They made use of ready-made lesson plans	80
They did not much understand what the 21st century skills were	80
They perceived that they were qualified teachers and worked hard enough	100
Innovative teaching methods might be too complicate for their students and they were time consuming tasks	100

Table 3 indicated that all of teachers believed that they were qualified teachers and worked hard enough and their teaching practices were appropriate and suited best with their students but teaching facilities and equipment were not sufficient for all students. Moreover, Innovative teaching methods might be too complicate for their students and they were time consuming tasks. 80% of them or more said that their students often needed help from them and were not be able to learn by themselves. The basic education core curriculum was something they had explored roughly as they made use of ready-made lesson plans. Also, they did not much understand what the 21st century skills were and how to assess them

2.3. The extend of key features of Thai education system which match key features of education system of top-rated countries

Results from the analysis of the features of effective education systems of top-rated countries compared to Thai education systems revealed that Thai Basic Education Core Curriculum 2008, which is the current curriculum, mostly matched with that of effective education systems of the top-rated countries by PISA. The match states that Thai Basic Education Core Curriculum seemed to be an effective curriculum. The current curriculum aimed to develop learners' capabilities and to engage students in their learning. The required subjects focused on human and social issues, and the curriculum was flexible in respect to regional management to meet the regional needs and context. The curriculum expected students to be equipped with 21st century skills and knowledge and aimed to increase students' curiosity and motivation to learn. The curriculum expected students' learning to reflect 'learning to learn' and aimed to enhance students' life-long learning skills. However, the Thai Basic Education Core Curriculum 2008 lacked some important key features as an effective curriculum. It did not emphasize on broader knowledge base and ways to tackle real-life problems. In addition, there was no indication about individual study plans and also, it failed to address individual choices that ought to be included in the curriculum principles. Moreover, the curriculum did not have any guidelines to provide different courses in various subjects according to each student's individual choices and no grade structures. Finally, the curriculum did not focus on education that caters to abilities and interests of students, and failed to reflect on students' self-assessment.

Regarding teaching and learning, the results of the study indicated that the only factor which was effective was collaboration and teamwork. Teachers often made use of group work activities in their teachings. They often put their students in groups and asked them to help

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each other to finish the assigned tasks. However, the study results from the teaching observation revealed that the teachers and students did not seem to understand the concept and principles of collaborative learning. It was evident that only few students, who were smart did the work while others sat around and watched, and gave the working students moral support. Regarding testing and evaluation aspect, there was no matching between the effective education systems of top-rated countries and the Thai education systems. Regarding education management issue, heterogeneous classrooms was the only match found.

Discussions

The present study aimed to investigate the factors affecting the failure of Thai education. Some distinguishing features of the study include:

1. The discrepancy between the information regarding teachers' teaching practices obtained from the teaching observation and the questionnaire.

The information obtained from the teaching observations indicated that the participants used a teacher-centered approach, traditional teaching methods as well as traditional teaching materials. Furthermore, they used, traditional means for assessing and evaluating their learners. However, the information obtained from the questionnaires revealed that students often searched for new knowledge online while in school, and presented this information, which they obtained from online sources instead of those acquired in classroom. Students often worked in groups and shared knowledge and information, and participated in group discussions. The teachers stated that their students did their original project work, and that they often used self- assessment and group assessment to assess students' learning achievements. They sometimes applied alternative assessment methods such as presentations, project works and portfolios. Interestingly, the results from the questionnaires also indicated that teachers often assessed and evaluated students' learning by providing feedback, and they often assessed and evaluated students' other skills rather than academic skills such as critical thinking, problem solving or communication.

Comparative information obtained from different sources has revealed areas of diversity. Thus, there was a need to gather more information from other sources in order to triangulate and confirm these findings. As a result, the researcher decided to turn to informal interviews of a number of participating teachers regarding the concepts of innovative teaching methods such as working in groups, sharing of knowledge and information, group discussions

and project-based learning. Moreover, the ideas of self- and group assessments, and assessment through presentations were discussed. Evaluation of students' learning through feedback along with assessment of students' other skills, not including those academic skills (critical thinking, problem solving or communication), were also investigated.

The outcome of these interviews revealed that the teachers understood that using video clips from YouTube and Web browsers were innovative approaches to teaching. They shared a common perception which assumed that innovative methods only included working in groups to finish the assignments from lessons in commercial textbooks or worksheets, and students presenting their work in front of the class as part of project-based learning methods. The teachers perceived these activities associated with knowledge sharing, critical thinking, and problem solving or communication skills. Furthermore, the teachers also assumed that grading students' assignments meant that they provided feedback and conducted self- and group assessments. However, these are not correct assumptions to be made. Innovative methods include many other factors including direct and immediate feedback in order to pinpoint students' shortcomings and to improve their skills, amongst others. As a result, it can be inferred that the teachers and principals seemed to lack a good understanding of the curriculum's expectations and goals, innovative teaching and evaluation methods, and 21st century educations.The aforementioned assumptions are supported by Haruthaithanasan's (2018) research results which indicated that Thai school administrators lacked instructional leadership. In addition, the study conducted by Hallinger & Bryant (2013) pointed out that school principals lacked knowledge and skills for change management, decision making based on immediate data and they needed coaching to develop appropriate new methods of teaching and learning including the use of technology to support both instructional leadership and teaching. Also despite Thailand's investment in ICT for education, a recent major International Computer and Information Literacy Study found that Thai teachers and students have not yet fully attained the level of computer, information processing, and communication skills required for the 21st century skills. (Fraillon et al., 2014)

2. Cultures and beliefs may have been one of the main factors affecting the failure of Thai education regarding learners' learning achievements and their mastering of 21st century skills.

The Thai culture has its own specific ways of honoring elders especially teachers and educators. This practice is believed to be a duty and the basis of a good manners, and it is a cultural heritage and a complex social hierarchy. Related Thai proverbs of '*The trodden path*

is the safest' and *'You can not teach old dogs new tricks'* have been said to every Thai born for decades. Thais love and respect their parents, and their parents are always with them for all of their lives helping and taking care of them. In addition, the teachers and educators are believed to be their second parents. The Thais always trust and do what their parents and teachers tell them to do without reservations. Accordingly, the teaching and learning practices have been in a way similar to the way they treat their sons and daughters. From the interviews, the participants mentioned that they needed to follow the school heads' instructions since they were the ones who knew what was best and received the education policies from the government. It was safe to follow the school routines and teaching students day by day.

Regarding the participants' beliefs, they claimed that they had been studying with their kind teachers and they took care of them like they were their children. They trusted their teachers and did what they were told to do, and they were turned to be fine. They had good jobs and led good lives with happy families because they followed their teachers and parents' instructions. They added that the Thai proverb of *'The trodden path is the safest'* worked perfectly for them. They also believed that their students needed to follow what they did and they would be fine in their lives. They added that the students were those who needed to study and do what the teachers told them to do. They were unable to study by themselves and the best way for them to study was to cover the books' contents and to finish the exercises. They insisted that the students needed to pay full attention in classes and listen to what was being taught by the teachers, and to complete the assigned homework to pass the tests. Interestingly, the participants said that the teachers' primary duty was to teach students and to deliver knowledge to them, and to treat them like they were their sons and daughters. They also expected their students to behave like their children and always follow their instructions.

3. The teachers' cultures and beliefs have a correlation influencing their teaching practices.

The data analysis of date revealed that the teachers' cultures and beliefs had a correlation, which influence their teaching practices. The analysis of the lesson plans and teaching observations showed that all the participants used traditional ways of teaching. The findings of this study indicated that the cultures and beliefs might be the main factors effecting the failure of Thai education regarding learners' learning achievements and their mastering of 21st century skills. In addition, the teachers' cultures and beliefs had a significant correlation which influences their teaching practices. The assumptions are supported by Richardson et. al

(1991) who stated that the beliefs of the teachers in their study related to their classroom practices in their teaching of reading comprehension. OECD (2009) who pointed out that teachers' beliefs, practices and attitudes are important and closely linked to their working strategies and they shape students' learning environment and influence student motivation and achievement. According to Pajaras (1992), teachers' culture and beliefs play crucial roles for learners' knowledge and skills mastering, attitude, and motivation. Among other related factors affecting learning, teacher belief is the most significant factor. Beliefs of teachers ultimately affect their views of education. According to Levitt (2001), "Educational beliefs involve beliefs about students and their learning process and teachers and their teaching. Many studies have pointed out that content educators' beliefs influence their teaching behaviors (Levitt, 2001; Roehrig & Kurse, 2005; Tobin & Gallagher, 1987; Tsai, 2002). Teachers' beliefs concern how they teach the taught content. Beliefs determine if a teacher uses more conventional instruction with a substantial focus on rote memorization and textbook reading or more with innovative teaching methods (Levitt, 2001; Roehrig & Kruse, 2005; Tsai, 2002). Likewise, the beliefs held by teachers of students with visual impairments have an impression on the way in which they see their students and how they provide their students with access to the particular curriculum. These beliefs also determine the amount of time and energy consumed on lessons and different kinds of concepts as well as how student learning is evaluated.

Conclusion and Suggestions

Individual learner's capacity and learning preferences, 21st century education, broader knowledge, functional assessment and evaluation and effective education management were found to be the core features of the education systems of the top-rated countries by PISA. Thai Basic Education Core Curriculum 2008, which is the current curriculum, has been found to be mostly matched with that of effective education systems of the top-rated countries by PISA. However, it lacks some important key features of effective curriculum regarding individual choice focus and assessment. Regarding teaching practices, traditional ways of teaching and learning were focused on teachers' teaching practices. Students were perceived as dependent learners. Innovative teaching methods were understood as being too complicate and time-consuming tasks. Teaching facilities and equipment were seen to be insufficient and were not

ready to be used. Teachers and principles may therefore need more deep understanding of the curriculum goals and innovative teaching approaches.

It is worth investigating teachers' and principals' beliefs and other related factors such as the culture that shape their perceptions. There are several means for the investigation including the interview, open discussion, or conduction a related research. The consequence suggested here is to find the strategies to change teachers' beliefs and perceptions. The case study of Richardson et. al (1991) showed that the teacher's belief could be changed. One of the alternative ways is to offer the Thai teachers some development courses, which provide them the opportunity to share and discuss their beliefs. The teachers' development courses, which give participants the opportunity to reflect on their beliefs and make those beliefs explicit, will likely encourage professional development. Moreover, the government may need to revise or reform the curriculum and to impose a policy to provide individual study plan-based approach, no-grade structures and different courses in various subjects according to each student's individual choices that caters to abilities and interests of students in the curriculum principles. In addition, the government may need to provide sufficient teaching facilities and equipment to its schools and find effective strategies to investigate if teachers clearly understand the curriculum goals and ways to manage their teaching practices as such to meet indicated goals.

New knowledge and the effects on society and local communities

This study investigated similar key features of education systems of ten top-rated countries and the impact on their the Pisa rankings. Furthermore, the key features of Thai education system were explored and compared with those of ten top-rated countries. The study also confirms that teachers' culture and beliefs have a direct correlation and influence their teaching practices. This may therefore be an important factor to affect the success of Thai education system when it comes to learners' learning achievements and their mastering of 21st century skills. Thus, the results of this study could be beneficial to educators and policy makers to design better teaching approaches in order to equip students with 21st Century Skills. Moreover, the results of this study may be used as a guideline to overhaul the education system as well as to bring about reform to the education system.

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