EXPLORATION OF TEACHERS' STRATEGIES TO PROMOTE CRITICAL THINKING AMONG STUDENTS IN TWO CHINESE VERNACULAR SCHOOLS, SELANGOR

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Abstract

Critical thinking is one of the essential learning skills in 21st-century education. Critical thinking empowers students to discover the truth; separating and distinguishing facts from opinions. With this skill, students learn how to discover the facts and figures for themselves rather than just learning a set of facts or figures. Teachers' instructional strategies have direct implications and may determine the success or failure of promoting critical thinking skills into their teaching. The purpose of this study is to identify uncover the contextual practices on how teachers promote critical thinking skills in two Chinese Vernacular schools in Selangor, Malaysia. Although Chinese Vernacular schools in Malaysia have adapted to the Malaysian national identity, they are still preserving values and Confucius-style of education culture and system. Also, it intended to discover the challenges faced by the teachers in incorporating critical thinking skills into their teaching. This study employed a qualitative survey research design. A total of 50 respondents from two Chinese Vernacular schools participated in this study. This study used thematic analysis. Findings showed that the teachers faced challenges in a few factors. Implications and suggestions for future studies were discussed.

Keywords: critical thinking; Chinese education; challenges; instructional strategies; Chinese Vernacular schools

INTRODUCTION

Critical thinking has always been discussed and emphasized as a vital skill in 21st-century education (Cairan, Ambigapathy, &Manjet, 2016). It has received a lot of attention because of its widely recognized role in school reality. The term 'critical' originates from the Greek "kritikos" (critic), meaning questioning, understanding the meaning of something, and the ability to analyze, namely the ability of identification or judgment (Fisher &Scriven, 1997). According to Tittle (2010), critical thinking is a thoughtfully crafted learning process, infused with inquiry learning, able to provide the opportunities to collaborate; think critically, and pose questions. He further stated that it is a complex process that requires higher levels of cognitive skills in the processing of information. Generally, a critical thinker can analyze, evaluate, interpret, or synthesize information, and apply creative ideas to form an argument, solve a problem, or reach a conclusion (Campbell, 2015). Bensley (2014) found that this skill is beyond the memorization and recall of information and facts.

In terms of 21st-century education, it has been associated with the use of technology and innovative learning skills. The term 'technology' means electronic learning utilizing ICT such as laptops or tablets (Zulita, 2016). It focuses on 21st-century skills, content knowledge, and expertise as its curriculum builds understanding across and among academic as well as 21st-century interdisciplinary themes which emphasizes deep understanding rather than shallow knowledge (Melor&Parvani, 2017). It enables innovative learning methods that integrate the usage of supportive technologies, inquiry- and problem- based approaches to learning. Students' learning and performance are facilitated by mobile technologies or learning devices (Al-Khasawneh, 2013). Learning engages students with real-world data and tools. Also, students learn their best when they actively engaged in solving meaningful problems (Kolb, 2014).

In the 21st century education, students need to be taught in learning as something fun rather than compulsory, creative, and critical thinking and develop the students as well rounded individuals over students who spout facts from memory. To prepare the youths for the 21stcentury workforce, many education systems have integrated creative and critical thinking elements in the teaching and learning process by instilling higher-order thinking skills (HOTS) (Cheah, 2016). Moreover, critical thinking promotes flexibility in the sense of adjustment to the present situations or problems by involving mechanisms of generating knowledge and supporting the adoption of multiple perspectives (Bahagian Pembangunan Kurikulum, 2014).

According to Choy and Phaik (2009), this skill can be taught and refined by using the right methodology and proper guidance by teachers although students themselves do have a natural ability to think critically. Henceforth, teachers should look into their teaching approaches and practices to make sure that they are practicing, promoting, and cultivating critical thinking with their students regardless of the subjects they are teaching be it Mathematics, English, Science, or others. In 2018, Malaysia scored 440 in Mathematics, 415 in Reading, and 438 in Science literacy- PISA (Programme for International Student Assessment) (Kannan, 2019). The results showed that we are approaching the OECD

(Organization for Economic Cooperation and Development) average. The results, although an indicated improvement from the previous years but still below the international average and well below countries like Singapore. The results show us that our education system is still unable to prepare our children to compete internationally. Also, the PISA 2018's survey on Malaysian students revealed that students do not enjoy reading as a pastime and they only read when they are forced to or for a certain reason, not as an interest (Kannan, 2019).

Therefore, the Malaysian education system is still a long way to produce and prepare a pool of well-educated, skilled, highly motivated, high moral, and ethical values students (Radzuwan et al., 2017). Tremendous effort is required to transform the education system to face the challenges in the millennium world. Critical thinking is significant to the actualization of the above. It prepares students with the essential tools and skills for responding to the stimulus, changes, and new challenges arising. It facilitates the execution of the students' tasks involved.

BACKGROUND OF THE STUDY

Chinese cultural characteristics exert a considerable influence on the strategies and practices of teaching critical thinking skills in Chinese primary schools in Malaysia (Husaina et al., 2019). Although Chinese primary schools in Malaysia have to adapt to the Malaysian national identity, they are still preserving values and Confucius-style of education culture and system where it is very paternalistic (or authoritarian), and the motivation of learning is through the use of 'carrot and stick' (Haarms et al., 2018). There is a systemic and peer pressure for Chinese education to churn out laborious, compliant, and homogenous types of 'good' students (Goh, 2012). While these practices are not totally acceptable or unacceptable, there are cases where the overemphasis on rote learning and relentless pursuits for distinctions (grade A) led teachers in the Chinese school system to place an unhealthy emphasis on test preparation and rote memorization at the expense of critical thinking skills (Ren& Tao, 2014).

In terms of teaching, the teachers in the paternalistic school system enforce a standardized approach to planning and delivering information-packed lessons to students who passively receive information (Abdul et al., 2014). This idyllic setting characterizes learning and teaching methods favored by most Chinese schools in Malaysia and has not to deviate much since the beginning, and teachers are powerful respected figures in their classrooms (Goh, 2012). In other words, classroom teaching and learning are very teacher-centric. The teacher's knowledge and expertise make them the most important person in the classroom and give them a higher status than their students (Ainon et al., 2016). This approach requires few classroom resources and allows for little to no student engagement, group activities, or challenge the knowledge provided. Such in the sense that the teacher knows the best, few students ask questions and some consider group discussion a waste of time (Aliakbari & Sadeghdaghighi, 2013).

Socially, some parents have also known to be 'tiger parents' where there is a strong inclination to compare to see who has the most As to determine who is better (Zou, 2014). While this is not the correct way to gauge student's ability, students should change their mindset and remember that their capabilities are not narrowed down to exam papers. Furthermore, memorization is widely regarded as the primary route to successfully acquiring the large volume of knowledge tested in the exam. Thus, the most common approach for students to learn is by memorizing information supplied through repetition and note taking (Wei et al., 2013).

With a larger student-teacher ratio in a class, the workload in Chinese primary schools is intense and naturally leading to workload and stress. If academic performance is seen as the only yardstick for evaluation, it is no doubt that every student is trying to be the best in their class. Students themselves admitted that the toughest part of Chinese primary schools was the amount of homework they had every day (Lim, 2017).

The Western education system promotes intellectual discussions and scholastic discourse, but for the eastern way of education, there is a strong power distance where the environment does not permit mistakes to be made, or rather punitive to mistakes (Haarms et al., 2018). As such, if these characteristics are evident in the Chinese educational system, it could constraint creativity and innovation where students feel comfortable asking questions, experiment with wild ideas, and even be light-hearted when making mistakes for the sake of learning (Tittle, 2010). In reality, the success of school in teaching critical thinking could mean more innovation among younger generations that would help the economy (Harris et al., 2013).

PROBLEM STATEMENT

In the 21st century, there is a greater demand for the nation to produce quality teachers, yet it is not easy. Primary school teachers do see the values of critical thinking skills and want to use it in conducting their lessons (Aamirah, Lee, &Melor, 2017). However, the teachers are constantly challenged with many new skills and technologies that are believed to enable them to perform their job better (Abdul et al., 2014). They are under growing pressure to perform (Cheah, 2016). To perform effectively in the classroom, teachers are pressured by higher expectations and greater needs (Zulita, 2016)

Gearing students to be well-equipped with 21st-century skills is a challenging responsibility for teachers (Melor&Parvani, 2017). Primary school teachers face many hindrances to make this 21st-century approach in the education system a success. They are constantly brainstorming strategies to accentuate students' 21st-century skills to meet the demands of the globalization era (Burns, 2015). The introduction of new skills such as creativity and critical thinking to be taught in the classroom is mainly related to teachers' attitudes inherent in the traditional deployment of culture in schools (Thock& Tan, 2016). They further stated that these impediments show the school culture and affect a teacher's belief system or self-efficacy and the ultimate effect of applying the skills in the classroom.

While the many initiatives and concerted efforts by the Ministry of Education to embed and infuse critical thinking skills in the syllabi and courses in all levels of education, students are still lacking in this soft skill. A study on the state of critical thinking among Malaysian students revealed that after eleven years of schooling, students are still unable to apply critical thinking in their schools or real-world situation (Rosnah&Suhailah, 2003: Konting et.al, 2007 as cited in Ibrahim et al., 2013). Some studies stated most teachers do not demonstrate sufficient preparedness towards the teaching of thinking skills (Rajendran, 2008). Kho and Jamalludin (2015) conducted a study and the study revealed that the practices of most teachers are still depending heavily on conventional teaching approaches in the Malaysian learning environment. Even if there is a mass study to uncover the extent of preparedness, there are little descriptions in the local context, or what occurred within the classrooms. Thus, there is a need for qualitative in-depth exploration to explain how teachers teach critical thinking in their classrooms.

PURPOSE OF STUDY

This study aims to uncover the contextual practices on how teachers promote critical thinking skills in two Chinese Vernacular schools in Selangor Malaysia. Chinese Vernacular schools are chosen because the rigid and paternalistic school system is still being practiced, for theory also says that critical thinking cannot flourish in a punitive environment (Lu, 2017). Despite the relatively long history of Chinese education in Malaysia, it is beset with numerous problems and constraints that pose serious challenges to the Chinese community (Goh, 2012). Numerous studies on Chinese education in Malaysia have been published in the recent past (Zou, 2014). These have generally emphasized the plight of Chinese education arising from the ethnic and linguistic complexities of Malaysia and the political contestations between the government and the Chinese community (Kanyakumari& Chan, 2015). However, the issue of teaching's challenges in conducting the 21st-century education in Chinese primary schools has barely received any attention.

Also, prior research and much attention have been drawn focusing on the outcome and performance of 21st-century learning (Bates, 2016). Thus, there are empirical findings of the approaches or strategies applied by the teachers in facing the changes and challenges in conducting their roles (Larson & Miller, 2011) to promote critical thinking. Although, there is a lack of contextual study on this issue because most are done and based in other countries (Lim, 2017).

Thus, it is important to explore at a deeper level, particularly in the instructional strategies through purposive sampling on Chinese primary school teachers when teaching critical thinking skills in 21st-century education. For that reason, there is a need for qualitative research in the types of instructional practices employed by the Chinese primary school teachers to uncover and understand what practices the teachers have been using to promote students' development of critical thinking skills in classrooms. Additionally, there is a need to explore how teachers understand and apply new approaches to promote critical thinking and also how they consider this element into teaching while fulfilling the

curriculum simultaneously. This provides comparative information across nations that continue to expand the effectiveness of these approaches and bring out the best of them.

By doing a localized and contextual study in two selected schools, this research could potentially share rich sources of ideas about how Chinese primary school teachers can overcome the challenges, strengthen teaching and student achievement. In particular, perceptions and suggestions may provide targeted and instructional advice for improvement strategies of Chinese primary school principals' leadership practices. Thus, this study will also spur further research in the area of preparation and professional development of leadership among school principals; a good starting point for discussion, further research and brings valuable attention to the potential benefits of conducting 21st-century education in the country. At the core, the purpose of this study is to identify the challenges of the Chinese primary school teachers in promoting and teaching critical thinking skills as in the 21st-century education. It will also look into the current strategies applied by the teachers working in such an environment where it could be restrictive and resistant to change. The findings of this study may be able to suggest effective instructional strategies to be applied.

Objectives of the Study

Regarding the research gap and purpose of this study, the researcher aims to achieve the following research objectives:

1) To explore the instructional strategies that Chinese primary school teachers used to promote critical thinking skills into their teaching

2) To describe the challenges faced by Chinese primary school teachers in promoting critical thinking skills in their teaching

3) To provide qualitative data to facilitate instructional strategies in critical thinking skills for the two Chinese primary school-teachers

Research Questions

With corresponding to the research objectives above, this study will address the following questions:

1. What are the instructional strategies that Chinese primary school teachers used to promote critical thinking skills?

2. What are the challenges faced by Chinese primary school teachers in promoting critical thinking skills in their teaching?

3. What are the suggestions to facilitate instructional strategies in critical thinking skills for the two Chinese primary school teachers?

METHODOLOGY

Research Design

Research design is the backbone of the entire research process (Peshkin, 1993). Commonly, research refers to a search for knowledge (Vanderstoep, 2009). According to Salkind (1978), it can also be defined as a scientific and systematic search for pertinent information on a specific topic. Research is an art of scientific investigation (Neuman, 2011). Research design is the pivotal part of the research as it incorporates all the four important considerations: the strategy, the conceptual framework, the identification of whom and what to study and the tools and procedures to be used for collecting and analyzing the data (Holmes et al., 2005).

For this study, the qualitative case studies are used because the research objectives are meant to critically describe the phenomenon that is occurring in the context of Chinese schools. This method is developed in the social sciences to enable researchers to study social and cultural phenomena such as to observe feelings, thoughts, behaviors, and the belief of the mass society (Babu, 2008). It is also believed that qualitative data give large volumes of quality data from a limited number of people. Also, this approach reinforces an understanding and interpretation of meaning as well as intentions underlying human interaction.

Respondents of the Study

Regarding purposive sampling, this study will be conducted among qualified and willing respondents in two Chinese primary schools. The Chinese primary schools in the Hulu Langat district have an estimated total population of 160 teachers. The teachers are chosen from these schools based on the following criteria :(a) They are teachers with various demographic characteristics and experiences; (b) Their schools are located within the mix of urban and rural settlements in Kuala Lumpur. As a result of several approaches and readiness of the respondents, 25 teachers from each school eventually took part in this study.

The Instrument of the Study

For the instrument of this study, the researcher used semi-structured in-depth interviews, which involved both direct questioning using open-ended questions and also the observations of the teachers as they related their experiences. Besides open-ended questions, there were closed-ended questions that will be used to obtain demographic data on the teachers. The first section of the questionnaire covered the biographical information of the teacher. It also included a brief background history of the teacher of origin. The second section explored the teacher's educational background and the last section looked into the working experience.

Data Collection

In interviewing the teachers, the information obtained helped the researcher to understand the condition or situation of the changes and challenges in teaching and cooperating critical thinking skills in 21st-century education. The interview took 20-30 minutes. It will be audio-recorded and transcribed. This involved personal interviews where the researcher and the participants interact with each other. Items in the interview protocol were drafted in advance based on the assumptions earlier built by the researcher and structured before the interview to generate data that can help researchers to discover the changes and challenges faced by the teachers. From the responses and reactions are given by the participants during the interview sessions, additional key questions were raised and used. Hence, more information and an accurate overview of the study was able to obtain from this in-depth interview. Moreover, interviews are believed to provide a better and deeper understanding of social phenomena (Chen, 2011).

Data analysis

Thematic analysis was used in analyzing the data collected from interviews and observations. The data was sorted out separately and triangulated during the analysis of emerging themes. The data was first transcribed, coded, and tabulated for triangulation. The use of triangulation reduced bias and increases the reliability and validity of the study. All data derived from this study was eventually be analyzed by using mixed methods analyses and aided by software such as Microsoft Excel and ATLAS.ti.

The data analysis involved three types of coding: open coding, axial coding, and selective coding. Open coding involves checking and rechecking data that have been collected and transcribed and in which relevant codes are given to statements that are both meaningful and important, while axial coding is a synthesis of open coding as the codes for categories are connected to each other (Neuman, 2011).

In selective coding, the codes were analyzed and sorted into categories. The categorization of codes reflects themes. The bigger categories are overarching themes while the sub-categories are the supporting themes.

FINDINGS

Demographics of the Interviewees

The analysis and interpretation of the data collected for this study included the demographic information of the respondents are elaborated in this section.

Table 1: *Demographics of Sample*

Factors	Category	Frequency	Percentage %
Gender	Male	12	24%
	Female	38	76%
Age	25-29	5	10%
	30-39	10	20%
	40-49	10	20%
Level of education	Bachelor	50	100%
Years working as Teacher	3-5 years	10	20%
	6-10 years	10	20%
	11-15 years	20	40%
	16-20 years	10	20%
Years working as a teacher at the school	3-5 years	20	40%
	11-15 years	30	60%
Year/ standard	Standard 2	10	20%
	Standard 3	20	40%
	Standard 4	20	40%
	Standard 5	40	80%

From the respondents, there are more female teachers 76% (38) while only 24% (12) male teachers. All of the respondents 100% (50) have only Bachelor qualifications and taught Year/Standard 6 students. None of the respondents were teaching Year/Standard 1. The majority of the 60% (30) has been working at the school for 11 to 15 years.

The following findings will address the research questions resulting from the coding process in sequence.

Research Question 1: What are the instructional strategies that Chinese primary school teachers used to promote critical thinking skills?

Findings showed that all the teachers incorporated critical thinking skills into their lessons. They started immersing and teaching it since it is implemented by the Ministry of Education. The majority of them (40) promote critical thinking skills through questioning techniques. They discussed HOTs (higher-order thinking skills) questions in the class. Some (28) used mind-mapping and i-THINK maps to explain in-depth.

All the teachers (50) thought that 80% of the students were able to understand except those a minority group of weak students. When teaching the students with a lower level of proficiency, the teachers (50) used simpler instructions and sentences. They also used the scaffolding method to make connections with other subjects. Thus, they thought that the instructional strategies they used to promote and incorporate critical thinking skills depend on the students' level of proficiency. Although the majority of the teachers (38) thought that critical thinking skills are needed for 21st-century teaching and learning, a few of the teachers (15) said it should be immersed later:

"It should be implemented in secondary school where students are more mature in giving opinions".

Respondent 5, Line Part2 (i) (I)

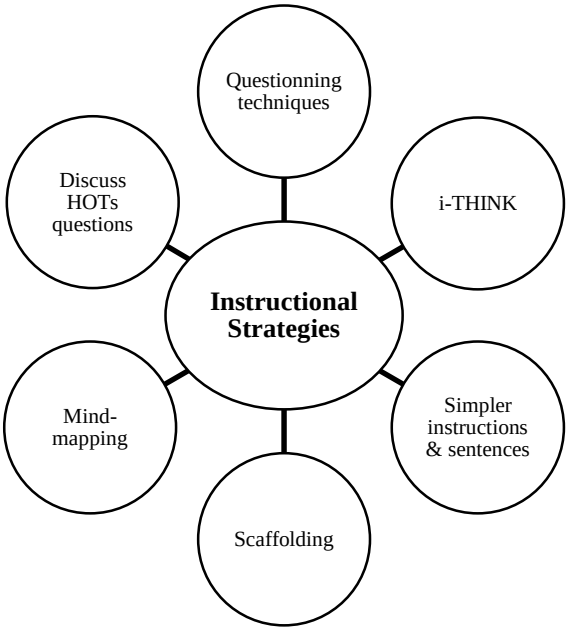

Figure 1: Instructional Strategies Used by Chinese Primary School Teachers to Promote Critical Thinking Skills

Questioning Techniques

Questioning techniques are heavily and commonly used, teaching strategies. One important finding is that questions that focus students' attention on important points of the lesson result in better comprehension than those that focus on unusual or interesting points. This strategy leads students through the process of evaluating evidence. The use of well thought out questions, which seeks to take a student through a process of thought. Therefore, the questions should be structured so that most elicit correct responses. Also, students may need explicit instruction in answering questions which including making references. The

instruction, in conjunction with the use of higher cognitive questions, can positively impact students' achievement (Yue Yi, 2016).

i-THINK

i-THINK is a program that emphasizes developing, implementing, documenting, and openly sharing the practices of explicitly improving all students' thinking abilities (Hassan, Rosli, &Zakaria, 2016). Eight visual patterns (circle map, flow map, bubble map, double bubble map, treemap, brace map, multi-flow map, and bridge map) are designed for students to use to learn and retain information, through the process of gathering and packaging that information in a visual, memorable and concise way.

Simpler Instructions and Sentences

Teacher simplify their language to give students a much higher chance of understanding the intended message, which leads to positive constructive communication and foster teacher-student communication. Besides, simple instructions and sentences are much easier to understand than instructions and sentences with complex subordinate clause structures. Once the students can understand, it indicates that the messages are properly delivered.

Scaffolding

This strategy is when teachers provide successive levels of temporary support that help students reach higher levels of comprehension and skill acquisition that they would not be able to achieve without assistance (Longo, 2016). In other words, scaffolding is commonly used to bridge the learning gap; the difference between what students have learned, and what they are expected to know and be able to do at a certain point in their studies. Teachers usually start with a simplified version of a lesson, reading, task, or project and then gradually increase the difficulty and complexity over time. Students are allowed to complete as much of the task as possible, unassisted. The teacher only attempts to offer guidance to the student with tasks that are just beyond a student's capability.

Mind-mapping

Mind mapping is a technique of organizing information visually. The teacher will teach students to start with a broad concept that branches out into other topics and terms that are related to it. Mind maps are effective learning tools because they are interactive and visual; easier to remember. This strategy can be done at any time, allowing students to take notes, brainstorm on the spot, and collaborate. Moreover, by using mind-mapping, students learn to think, reason, and solve problems in ways that make sense to them.

Discuss HOTs Questions

Teachers discuss HOTs questions with students so that students can think at a higher level rather than just restating the facts. In answering HOTs questions, students have to understand them, infer from them, connect and manipulate them with other facts, and apply new solutions to solve them (Yoke, et al., 2016). Concurrently, teachers should also encourage students to engage in the elaboration of facts and ideas rather than rote repetition.

It can be concluded that the teachers were all aware of the importance of critical thinking skills in the 21st-century teaching and learning. They seemed to work closely to achieve the objectives and aims in the curriculum. The most common instructional strategies are by using simple instructions and sentences followed by questioning techniques and finally mind-mapping and i-THINK. It is evident that teachers do not teach critical thinking directly as a subject, but they draw out critical thinking among their students through indirect ways.

Research Question 2: What are the challenges faced by Chinese primary school teachers in teaching critical thinking skills?

All of the teachers (50) mentioned that they faced challenges in teaching critical thinking skills. They described their way of teaching critical thinking skills as challenging. The teachers (50) thought that the challenges which were time, workload, student's low proficiency, teaching materials, conventional teaching, teacher's role, and student's style of learning made them felt distressed and difficult to teach critical thinking skills. Those challenges were discouraging them to teach critical thinking skills:

"I feel discouraged and depressed whenever I face challenges in teaching critical thinking skills because I can't get help from other teachers or the school".

Respondent 2, Part 2 (ii) (A)

At the same time, they (36) thought other teachers faced the same problems too. The problems which they encountered were ICT problems and lack of teaching materials that can be used as tools and resources to promote critical thinking among their students:

"Lack of resources- I couldn't access the search engine freely to show pupils' examples".

Respondent 10, Part 2 (ii) (E)

Other factors were from the students themselves:

"Some students are unwilling to learn harder skills".

Respondent 20, Part 2 (ii) (C)

"The pupils are not ready for the skills yet".

Respondent 50, Part 2 (ii) (C)

There were also factors from other sectors which cause the teachers to have difficulty in teaching critical thinking skills:

"Yes, there is a factor in other sectors. The constraint of time in daily lessons".

Respondent 12, Part 2 (ii) (E)

However, the teachers (42) agreed that they said that they did collaborate with other teachers to overcome the challenges. It can be concluded that the teachers were facing challenges and problems in promoting, immersing, and teaching critical thinking skills in teaching and learning even though they know that it is important. Yet, they were trying their very best to make the fullest effort in collaborating with other teachers.

Thematic analysis was also done after the coding process, and this section presents the themes and sub-themes of findings in Table 2 as and it was developed from open coding, axial coding, and selective coding (Neuman, 2011).

Table 2: *Challenges faced by Chinese primary school teachers in teaching critical thinking skills*

Themes	Definition	Sub-themes	Codes grouped under the sub-themes
Time	Teachers often face time constraints as they need to prepare, plan, and execute all the tasks that are demanded of them. Updating content presentations and documents, correcting older material, and adapting subjects to a new cohort of students are some of the tasks that teachers would like more time for. With less teaching time, students make less progress. For example, teachers have to key in students' marks and this requires additional time and the fact that it takes precious time away from preparing content for their students.	Lack of time	Time used to attend talk/seminar (9) Time used to join extra co-curriculum (18) Time used to prepare lesson (11) Time used to mark students' work (12)
Workload	Bailey (Bennard, 1990) defined a teacher's workload as the number of times the task has to be completed multiplied by the amount of time taken to complete the task. The total teacher's workload can be defined as the sum of all workloads for the individual task. He also mentioned that a teacher's job in monitoring; preparing the assessment, assessing, recording, reporting and accountability are considered as teacher's workload because they are being overburdened by the volume of unnecessary works to be completed despite the	Heavy workload	The workload in keying students' marks online (23) The workload in handling more than two subjects (15) Workload to do other tasks (12)

	lack of time to do such jobs. To exemplify, besides teaching, teachers also have to manage the class, collect the fees, enter students' marks and filling in forms, plan extra-co curricular activities, etc.		
Low proficiency	In Malaysia education, the term proficiency is used commonly about proficiency levels, marks, and grades on standardized tests and other forms of assessments.	Student's level of proficiency	Low proficiency in answering HOTs questions (18) Low proficiency in critical thinking (11) Low proficiency as an independent learner (14) Low proficiency in speaking and discussing opinions (7)
Teaching materials	Teaching materials refer to some teacher resources such as worksheets or learning tools that students can handle to help them gain and practice facility with new knowledge. The materials are important because they can significantly increase student achievement by supporting student learning. For example, a worksheet may provide a student with important opportunities to practice a new skill gained in class. This process aids in the learning process by allowing the student to explore the knowledge independently as well as providing repetition. Learning materials, regardless of what kind, all have some function in student learning. Lack of classroom materials is one of the problems that our public school has. Due to it, teachers are spending their	Lack of teaching material	Not many resources online (16) Lack of critical thinking teaching resources provided by the school (12) Lack of instructional materials(12) Teaching materials are expensive (10)

	own money on buying materials that will sustain the productivity of the classroom.		
Conventional teaching	Conventional teaching refers to the traditional way of teaching wherein most of the time the lecture method is used. This method of teaching is textbook centered, teacher dominant, exam-oriented. To elaborate, the teachers initiate discussions in the classroom and focus exclusively on knowing content in textbooks and notes. Students receive the information passively and reiterate the information memorized in the exams.	Emphasis on conventional teaching	Teachers emphasis grades in examination (25) Students practice merely to score in the examination (18) Implemented too many extra-classes before the examination (7)
Teacher's role	Teachers should have the knowledge that they will be required to teach. Also, teachers should be capable of imparting and transmitting such knowledge along the pedagogical lines.	Teacher's proficiency in critical thinking	Teachers are not up-to-date to ICT (15) Teachers do not know ICT well (14) Teachers think that critical thinking skills are inborn (8) Teachers are not critical thinker (13)

Style of learning	Teacher-centered learning is a way of teaching-learning whereby the teacher is the main focus. The teacher retains full control of the classroom and its activities. The teacher does all the talking while the students exclusively remain silent and listen. Teacher-centered instruction does not allow students to express themselves, ask questions, and direct their learning.	Teacher-centered learning	Too teacher-centric (33) Lack of question and answer session or discussion during the lesson (17)

Research Question 3: What are the suggestions to facilitate instructional strategies in critical thinking skills for the two Chinese primary school teachers?

From the findings, teachers (27) had their instructional strategies to incorporate critical thinking skills into their teaching. Some (18) suggested a few strategies to be shared with other teachers:

"I usually do a reflection on my teaching and read to improve myself".

Respondent 41, Part 2 (ii) (A)

"I do a checklist to evaluate my teaching and to make sure my students understand the lessons".

Respondent 21, Part 2 (ii) (B)

"Firstly, I need to enhance students' thinking skills and interest in learning".

Respondent 31, Part 2 (ii) (C)

"I get well-prepared beforehand".

Respondent 45, Part 2 (ii) (C)

To conclude the findings, all the teachers viewed their school as a setting where children spend a lot of time in, thus all of them felt responsible to help them become critical thinkers as it is part of the regular classroom practices. There is still room for improvement and improvisation for the teachers to promote and immerse critical thinking skills in their teaching through the effective management of time, collaboration with other teachers, student-centered teaching style, and teacher's development. It is time for teachers to play a decisive role in changing the spoon-feeding education paradigm and help students develop and foster critical thinking skills. The teachers themselves must be prepared to be

able to carry out the best instructional to promote critical thinking skills in the lessons. The schools should provide adequate teaching resources and organize meaningful professional development for the teachers. This may enhance their teaching and learning skills, resulting in more learning possibilities to support students' learning.

DISCUSSIONS

Instructional Strategies

Based on the results gained in the analysis, there are a few instructional strategies that are beneficial to be applied and used to promote the teaching and learning of critical thinking skills. From the perspective of teachers' attitude, it is viewed that if the teachers are inclined to be critical thinkers in their daily life, it becomes easier for them to accept critical thinking teaching in the classroom (Rahmy, 2018). Teachers must be provided with necessary resources. For instance, e-learning; teachers acknowledge that e-learning provides opportunities to build students' critical thinking skills beyond what they can offer in their traditional classroom.

Also, over time, teachers should develop sufficient confidence and competence in their critical thinking skills, knowledge, and understanding of the skill to be able to define their questions for inquiry. Communication and collaboration with other teachers will surely show positive outcomes. By understanding the challenges faced by the teachers, the principal should also decide how these barriers can be tackled. More technical support, facilitate the classroom with various resources and effective training can be implemented to achieve the aims.

Students must be convinced of the importance of critical thinking skills in the 21st century. At the same time, they should be provided with access to resources and be trained to use the resources effectively. For example, the e-learning platform from the Internet is one of the vital tools to promote critical thinking skills, where students are required to complete tasks by answering and thinking out-of-the-box (Melor&Ashairi, 2014).

Challenges

Based on the analysis, there are observable challenges faced by Chinese school teachers in promoting and teaching critical thinking. Corresponding, all of them admitted that they are attempting different instructional strategies to overcome the obstacles faced. The limitation accessibility and resources make the teachers having difficulties to teach the skill. Moreover, teachers are unable to access certain platforms freely. Teachers feel management should be working on this aspect to ease the teaching and learning of critical thinking skills. To elaborate, some teachers are crying out for better access to the Internet and other ICT devices which will facilitate the teaching (Melor, 2014).

Insufficient time means teachers are not having a sufficient amount of time to prepare his or her teaching and learning resources for use with his or her learners (Thock, 2014). According to (Lim, 2017), some teachers viewed lack of time as the key concern in teaching critical thinking skills. Teachers claimed lack of time and the workload in the vernacular school prevented them from exploring and mastering the teaching and learning of critical thinking. Thus, they prefer using the activities or lesson plans from the textbooks and revision books. Rote-learning and memorization which are strongly used in Chinese school lay an effect on students' learning (Goh, 2012). Likewise, the existence of the challenges seems to be similar to previous studies conducted (Wei, 2013).

After all, based on the analysis, the obstacles do not affect teachers' effort and intention to continue promoting and teaching the skill.

Suggestions for Instructional Strategies to Promote Critical Thinking

Principals need to encourage teachers to promote critical thinking in teaching and learning. Training and professional development courses can be arranged and planned to aid in the effort of success. Also, principals have the responsibility to plan curriculum programs, supervise and evaluate classroom instructions, implement remedial on problematic aspects and make certain that classroom instructions are done by realizing the concept of inculcating critical thinking through various instructional strategies (Kho, 2015). Moreover, classrooms should be equipped with various facilities for the enhancement of the teaching and learning process.

Teachers are encouraged to create a classroom environment in which students feel free to take part in a challenging task as well as introducing different ways of teaching and learning; critical thinking needs to be nurtured. Although the suggested instructional strategies for promoting critical thinking in teaching and learning are theoretically sound and research-based, no specific approach seems to be the best. In designing critical thinking activities, teachers need flexibility and creativity. They may use and incorporate diverse strategies in a new way or develop unconventional methods appropriate to their classes and students. Effective critical thinking instruction in the classroom depends on teachers' deliberate and persistent efforts.

IMPLICATION

The findings for this study are speculated to help Chinese primary teachers to relate the challenges and instructional strategies applied by the teachers in teaching critical thinking skills. While understanding the issues related to promoting and teaching critical thinking skills as implemented in the 21st-century education, this study could add to the existing knowledge base by illuminating the connections between teachers' and students' acceptance of critical thinking skills to be immersed and taught as it relates to the 21stcentury skills. Moreover, the results could also help administrators and educators to better understand their role as teachers and facilitators of 21st-century skills with their students and as their considerations for professional development courses and workshops. Educational leaders could have the information necessary to help bridge the gap in

teachers' willingness to embrace and implement the necessary changes in their instructional content and methodologies and a better understanding of the obstacles and barriers they face in teaching critical thinking skills.

The importance of this case study can offer insights into the teaching and learning of Chinese schools. The result of the study may help teachers, principals, or educators in designing and developing teacher education programs to enhance the teaching and learning of critical thinking. It also brings the teachers' suggestions and ideas to improve education and teaching the skill as it is a crucial skill in the 21st century. Finally, critical thinking is a skill that is inborn yet able to be promoted, learned, and polished by appropriate instructional strategies.

CONCLUSION

This case study proves that by overcoming the challenges faced by the teachers, the teaching and learning conducted can increase students' critical thinking skills. The findings of this study have important implications for not only Chinese school teachers but teachers from other types of schools and also the principals. Students can no longer learn in the conventional and traditional paper-pencil way. Instead, the instructional strategies in promoting critical thinking skills can be varied by applying more effective and suitable approaches that are suited to the level and understanding of the students. The instructional strategies have found to inculcate critical thinking especially the students in Chinese schools are using questioning techniques, i-THINK, simpler instruction and sentences, scaffolding, mind-mapping, and discussion of HOTs questions. The teachers' responsibilities and roles should be more focused on teaching the students, who are the future leaders of the world. Crucially, students need to be equipped with thinking skills to function and cope successfully in a highly technical society that is rapidly changing. Teachers should consistently and continuously encourage students to organize their thoughts and discover the relationships between their ideas. Students will learn to argue with their logic ad find weaknesses in those of others among other things. Also, students brainstorm to exploit their thinking, create their ideas, and work out the ideas.

Suggestions for future studies

One of the most important outcomes of this research is the identification of instructional strategies to be applied by a primary school teacher in promoting critical thinking skills in 21st-century teaching and learning. As to improve the study, more schools should be joining in the study. Researchers may also look into the different instructional strategies applied for the different educational subjects taught. To exemplify, teaching Mathematics and English may opt for different instructional approaches. To add-on, students' level of proficiency should also look into it. This may provide insight for the teachers to teach and guide the students to achieve their best performance.

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