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**THE EFFECTS OF LANGUAGE TEACHERS'  
ATTITUDES, BARRIERS AND ENABLERS IN  
TEACHING 21<sup>ST</sup> CENTURY SKILLS AT CHINESE  
VERNACULAR SCHOOLS**

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**ABSTRACT**

**Purpose** – The study explored the barriers and enablers faced by language teachers in teaching 21<sup>st</sup> century skills at Chinese vernacular schools. It aimed to determine the effects of teachers' attitudes, barriers, and enablers in teaching the skills during language lessons.

**Method** – A mixed-method design was used to achieve the two objectives of this study. Quantitative data were collected from 400 language teachers from Chinese vernacular schools, and semi-structured interviews were carried out with nine of the teachers. Barriers and enablers faced by teachers were identified through literature review, semi-structured interviews, and questionnaire

surveys. Triangulation was carried out for analysis purposes. The effects among the variables were analysed through partial least squares structural equation modelling via Smart PLS 3.0.

**Findings** – The major barriers and enablers faced by language teachers in teaching 21<sup>st</sup> century skills at Chinese vernacular schools were uncovered. Direct effects of teachers’ attitudes, barriers, and enablers on the teaching of 21<sup>st</sup> century skills were found. However, there were no significant moderating effects of barriers and enablers on their teaching. Both of these variables had stronger effects on teachers’ attitudes.

**Significance** – With the identifications of barriers and enablers faced by language teachers at Chinese vernacular schools, more effective support and interventions can be provided to these teachers. Teacher training and professional development programmes on 21<sup>st</sup> century language teaching can also be improved by incorporating the influencing factors identified in this study.

**Keywords:** 21<sup>st</sup> century skills, attitudes, barriers, enablers, vernacular schools.

## INTRODUCTION

According to Partnership for 21<sup>st</sup> Century Skills (2007), 21<sup>st</sup> century skills refer to a range of competencies taught across all levels of education. According to the Organisation for Economic Co-operation and Development (OECD) (2017), these skills are critical in transforming students into versatile learners who can apply a depth of skills to progressively gain new competencies in the fast-changing 21<sup>st</sup> century world. In Malaysia, the emphasis on the development of competencies needed for 21<sup>st</sup> century, such as collaboration skills, application of critical thinking skills in problem-solving, creativity to seek solutions, communication skills, and technology literacy, can be seen in the Standard Curriculum for Primary Schools (KSSR) (2011) and the National Educational Technology Standards (2009) (Zakaria, Lee, & Yunus, 2017). It is crucial to lay a strong foundation for the development of critical skills at the primary school level (Said & Yunus, 2008). Primary school teachers play important roles in nurturing the development of 21<sup>st</sup> century skills (Chin & Chin, 2012; Othman & Kassim, 2017). The teaching of 21<sup>st</sup> century skills may be related to a number of factors.

## **LITERATURE REVIEW**

### **Teachers' Attitudes towards the Teaching of 21<sup>st</sup> Century Skills**

Teachers are important change agents; their attitudes towards the teaching of 21<sup>st</sup> century skills can have direct effects on how they teach in language classrooms (Tsourapa, 2018). In fact, teachers' attitudes act as a crucial catalyst for the successful teaching of 21<sup>st</sup> century skills (Jansen & Merwe, 2015). Attitudes can be divided into cognitive, affective, and behavioural dimensions (Maio & Haddock, 2010). For example, if language teachers' attitudes are positive, it is likely that they understand the importance of teaching 21<sup>st</sup> century skills, are aware of the instructional practices involved, as well as are more motivated and committed in teaching the skills (Lau & Sim, 2008; Nurzarina & Roslinda, 2017; Sukiman, Noor, & Mohd, 2013; Tajularipin, Vickneswary, Diwiyah, Raidah, & Suzieleez, 2017). This is supported by research in the context of English language lessons (e.g., Azian, Fauziah, Noor, & Norhanim, 2017; Celik, Aytin, & Bayram, 2012; Li, 2016; Tuzlukova, Busaidi, Burns, & Bugon, 2018). However, most past studies focused on the implementation and teaching of 21<sup>st</sup> century skills in a general context (e.g., Rosdiana, Sumarni, Siswanto & Waluyo, 2020; Voogt & Roblin, 2012). The few local studies suggested that teachers from vernacular schools faced greater barriers when teaching 21<sup>st</sup> century skills (Fairuz, 2017; Shaari et al., 2007; The United Chinese School Teachers' Association of Malaysia, 2018). However, not much is known about specific interactions between teachers' attitudes, barriers, enablers, and their teaching of 21<sup>st</sup> century skills. These research gaps should be addressed to shed more light on factors that could influence language teachers' attitudes and teaching of 21<sup>st</sup> century skills.

### **Barriers and Enablers in Teaching 21<sup>st</sup> Century Skills**

According to Schoepp (2005), the term "barrier" is understood as "any condition that makes it difficult to make progress or to achieve an objective." Barriers in teaching 21<sup>st</sup> century skill refer to hindrances or challenges encountered by teachers when teaching 21<sup>st</sup> century skills in classrooms. Language teachers, particularly teachers from Chinese vernacular schools in Malaysia, seem to face many barriers when teaching 21<sup>st</sup> century skills (Lim, 2017; Shaari et al., 2006; Shahar, 2017; The United Chinese School Teachers' Association of Malaysia, 2018; Zakaria et al., 2017). It is challenging for teachers to deliver effective teaching at Chinese vernacular schools due to persistent and unresolved problems of large class size, uneven distribution of

teaching time for language subjects, time constraints, and overload administrative tasks (Abdul et al., 2017; Bavani et al., 2016; Celik et al., 2012; Joseph, 2016; Kua, 2019; Rosnani, 2003; Seman et al., 2017; Shaari et al., 2006; Yeung, 2015). In addition, a study by Sivapakkiam et al. (2016) revealed that language teachers have limited opportunities to take part in in-service training, particularly in 21<sup>st</sup> century teaching, as priority is always given to Science and Mathematics teachers (Sivapakkiam et al., 2016; Jazuli & Yamat, 2020). The lack of opportunities to attend professional development workshops and training could limit teachers' knowledge and skills enhancement in teaching 21<sup>st</sup> century skills. Overall, research that focus on barriers in teaching 21<sup>st</sup> century skills at the primary school level and in language teaching specifically are still very limited. Contextual factors, such as school type and environment, are also seldom taken into account in past studies. There are needs to fill in the literature gaps.

On the other hand, the term “enabler” refers to “something or someone that possibly makes a particular thing happen” (Cambridge University Press, n.d.). Specifically, enablers refer to the factors that could promote the teaching of 21<sup>st</sup> century skills. Past studies showed that enablers that promote the teaching of 21<sup>st</sup> century skills included teachers' passion and grit, adequate provision of information and communications technology (ICT) facilities, cooperation between school authorities and related stakeholders, and rules and regulations. Enablers serve as supporting factors that could promote the teaching of 21<sup>st</sup> century skills (Alexander, 2015). In other words, enablers are factors that could enhance the teaching of 21<sup>st</sup> century skills and help teachers overcome the challenges that they face (Lemley et al., 2014; Razak et al., 2018). Nevertheless, studies that examined enabling factors are still very limited; most studies tend to focus on barriers that hinder the teaching of 21<sup>st</sup> century skills. Therefore, enablers that support language teachers' teaching of 21<sup>st</sup> century skills in the Chinese vernacular school context are still uncertain.

### **Teachers' Teaching of 21<sup>st</sup> Century Skills**

Teachers' teaching refers to how teachers apply pedagogical methods in their classrooms for instructional purposes. Most studies on the teaching of 21<sup>st</sup> century skills focused on Science, Technology, Engineering, and Mathematics (STEM) subjects (Mohd et al., 2017; Yousef, 2016). A study by Stehle and Peters-Burton (2019), for instance, showed that nearly 75 percent of STEM lesson plans included at least one 21<sup>st</sup> century skill in the lesson, and 67 percent of them addressed

two or more 21<sup>st</sup> century skills. These findings reflected a positive development in teaching practices of STEM subjects. However, there is still a lack of empirical studies on the teaching of 21<sup>st</sup> century skills in language classrooms (Rhashvinder et al., 2018). Furthermore, most studies were conducted at the secondary school level (e.g., Abdul et al., 2017; Anat et al., 2001; Naeema & Abdo, 2017; Najua et al., 2017; Tee et al., 2012). More studies are needed to examine the teaching of 21<sup>st</sup> century skills at the primary school level.

The teaching of 21<sup>st</sup> century skills can be carried out through five main approaches, namely problem-centred instructional approach (Malini, 2017; Živković, 2016), inquiry-based instructional approach (Chiew et al., 2016), communicative language teaching approach (Gunawardenaa et al., 2017; Kasumi, 2015; Mohammad, 2015; Teo, 2019), constructivist learning approach (Joseph, 2016; Sandhya & Rahma, 2015; Setyarini et al., 2018; Wilson, 2016), and technological-based instructional approach (Alghasab, et al., 2019; Arumugam & Abdul, 2013; Melor & Ashairi, 2014). According to Kim, Raza, and Seidman's (2019) study, there is a lack of context-specific understanding on teachers' teaching of 21<sup>st</sup> century skills. The lack of understanding on this matter is recognised as a key challenge across teacher education programmes (Devlin-Foltz, 2010). For that reason, there are needs to carry out a context-specific study to investigate language teachers' teaching of 21<sup>st</sup> century skills at Chinese vernacular schools in Malaysia.

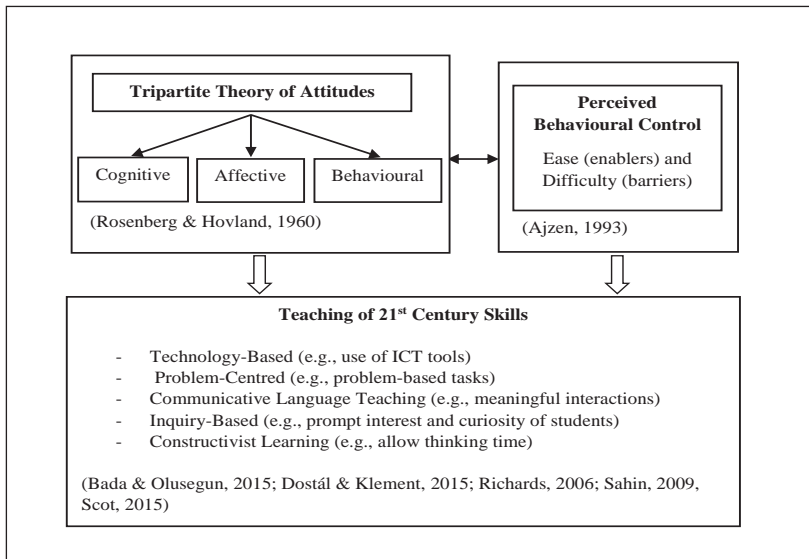
## **Theoretical Framework**

The theoretical framework (Figure 1) underpinned in the present study was based on the Tripartite Theory of Attitude proposed by Rosenberg and Hovland (1960), Hierarchical Model of Attitude, and Ajzen's (1993) Theory of Planned Behaviour. Attitude is defined as a construct that consists of three dimensions: cognitive, affective, and behavioural (Maio & Haddock, 2010; Rosenberg & Hovland, 1960). First, the cognitive dimension of attitude refers to an individual's knowledge and beliefs on a discussed object. Second, the affective dimension explains how an individual's feeling (positive or negative) changes according to the thing, people, topic, and incident. Third, the behavioural dimension describes the influences of attitude that change the ways or actions an individual behaves (Cherry, 2018). Although attitudes are influenced by an individual's cognition, affect, and behaviour, there is no consistent pattern in terms of people's attitudes towards the same object (Rajiv & Tarry, 2014). In addition, the current framework adopted and adapted the concepts from Ajzen's Theory

of Planned Behaviour, including perceived behavioural control, by linking the difficulty that hinders and the ease that promotes the teaching of 21<sup>st</sup> century skills at primary schools. The present study aims to fill the gap by including enablers to determine their effects on teachers' teaching of 21<sup>st</sup> century skills.

**Figure 1**

*Theoretical Framework*



## METHODOLOGY

### Research Design

Mixed-method design was used to achieve the two objectives of the study. In view that barriers and enablers faced by language teachers at Chinese vernacular schools are still unknown due to the lack of research in the area, there are needs to explore it through a mixed-method approach. In this study, barriers and enablers in teaching 21<sup>st</sup> century skills at vernacular schools were identified through systematic literature review, semi-structured interviews, and questionnaire surveys. The scope of the literature review covered studies published from 2006 to 2020. The relevant studies were searched from the Google Scholar database. Semi-structured interviews and data collection

through questionnaire surveys were also carried out to obtain data on barriers and enablers in teaching 21<sup>st</sup> century skills. Thematic analysis and triangulation of the data obtained from different sources were conducted. To answer research question two, data on teachers' attitudes and teaching of 21<sup>st</sup> century skills were also collected through questionnaire surveys. The effects of attitudes, barriers, and enablers on the teaching of 21<sup>st</sup> century skills were analysed quantitatively through partial least squares structural equation modelling (PLS-SEM). The purpose is to develop a model that explains the teaching of 21<sup>st</sup> century skills in the Chinese vernacular school context.

### **Sample**

The population for this study, which was recorded at 3,176 teachers, comprised language teachers at Chinese vernacular schools in Penang, Malaysia (Ministry of Education, 2018). The samples consisted of 400 Chinese vernacular school teachers, who were selected through stratified sampling technique from five zones in the state. This sample size was adequate for generalisation purposes (Krejcie & Morgan, 1970). From each zone, teachers were sampled from eight Chinese vernacular schools randomly through drawing lots to ensure that all the schools had the same probability of being included in the sampling (Cohen et al., 2007). For the semi-structured interviews, purposeful sampling was employed to choose nine interview participants. The inclusion criteria included participants who were: (a) language teachers working at Chinese vernacular schools; (b) currently teaching language subjects; and (c) had at least five years of teaching experience in the language field. The participants were teaching English (n=3), Malay (n=3), and Chinese (n=3), respectively. Approvals to carry out the study were obtained from the Ministry of Education, State Education Department, and the chosen schools prior to data collection.

### **Instrument**

Barriers and enablers in teaching 21<sup>st</sup> century skills were measured through interview protocol and quantitative questionnaire. For the qualitative instrument, the interview protocol was adapted from the study by Coffman (2013) to explore the barriers and enablers experienced by language teachers at Chinese vernacular schools. The original Barriers and Enables Scale has 24 items (Ghamrawi & Shal, 2017; Nooraini & Abdul, 2017; Sukiman et al., 2012). The number of items was reduced to eight after the SEM analysis was run. These items were the strongest indicators that measured barriers and

enablers. Specifically, four items measuring barriers and four items measuring enablers were retained after the analysis. The Teachers' Attitudes Scale (35 items), adapted from Nooraini and Abdul (2017), was employed to measure teachers' attitudes in terms of cognitive, affective, and behavioural dimensions towards the teaching of 21<sup>st</sup> century skills in primary language subjects. The 21<sup>st</sup> Century Teaching Scale (37 items), adapted from Ghamrawi et al. (2017), was used to gauge teachers' teaching of 21<sup>st</sup> century skills. Five major practices (e.g., technology-based, problem-centred, communicative language teaching, inquiry-based, and constructivist learning) were measured. The items in this scale were adapted with references to relevant research (Bada & Olusegun, 2015; Dostál & Klement, 2015; Richards, 2006; Sahin, 2009; Scot, 2015). All the instruments were in English language with a six-point Likert scale (strongly agree, agree, slightly agree, slightly disagree, disagree, strongly disagree). To avoid social desirability bias, the mid-point response was omitted (Kulas & Stachowski, 2009). Quantitative data were entered into Statistical Package for the Social Sciences (SPSS) version 26.0 and Smart-PLS 3 for analysis purposes. Assumptions for inferential analysis were fulfilled prior to data analysis. The qualitative data were transcribed into text format and interpreted through Braun and Clarke's (2006) thematic analysis after detecting the patterns, themes, and frequencies of the data.

## **RESULTS**

### **Barriers Hindering the Teaching of 21<sup>st</sup> Century Skills**

Table 1 illustrates the themes related to the barriers and enablers of teaching 21<sup>st</sup> century skills at Chinese vernacular schools, which were identified through systematic literature review, semi-structured interviews, and questionnaire surveys. The results showed that language teachers faced ten barriers in the teaching of 21<sup>st</sup> century skills at Chinese vernacular schools. After the triangulation, four barriers, namely (a) time constraints, (b) teachers' limited knowledge, (c) lack of guidelines and references, and (d) heavy administrative tasks, were identified.



**Table 1**

*Triangulations of Literature Reviews, Semi-Structured Interviews, and Questionnaire Data on Barriers and Enablers.*

Key findings	Literature review	Semi-structured interviews	Questionnaire*	Triangulated findings
<b>Barriers in teaching 21<sup>st</sup> century skills</b>				
Time constraints	x	x	x	x
Large class size	x	x		
Teachers' limited knowledge	x	x	x	x
Unsupportive learning environment	x	x		
Lack of guidelines and references	x	x	x	x
Heavy syllabus	x	x		
Heavy administrative tasks	x	x	x	x
Negative student attributes	x	x		
Students' learning style	x			
Insufficient training for teachers	x	x		
<b>Enablers in teaching 21<sup>st</sup> century skills</b>				
In-service training		x	x	x
Teachers' passion		x	x	x
Teachers' efforts		x	x	x
Students' interest		x	x	x
Knowledge sharing		x	x	
Modelling		x	x	

*Note.* \* Strong indicators of barriers and enablers (factor loading > .80) based on results of measurement model

The findings showed that time constraint was identified as the major barrier of teaching 21<sup>st</sup> century skills in primary language classrooms. The interviewees pointed out that teaching students 21<sup>st</sup> century skills in their lessons consumed more time. Lessons that infused the elements of 21<sup>st</sup> century skills took a longer time to conduct in the classrooms

because more efforts were required to stimulate the communication and interaction between teachers and students. Next, the findings indicated that the heavy syllabus caused time constraint for the teaching of 21<sup>st</sup> century skills in language classrooms. The interviewees had limited time to finish the syllabus because of its dense coverage and content. The responses in the questionnaires were aligned with the data gathered from the interviews and literature review. Similar findings were also identified in the systematic review in which time constraint posed a great difficulty for teachers to teach 21<sup>st</sup> century skills in their lessons (Arumugam & Abdul, 2013; Mohammad & Akram, 2013; Seman et al., 2017; Yeung, 2015). Mohammad and Akram (2013) discovered that 100 English teachers did not have enough time to design critical thinking activities that stimulated the students' learning of 21<sup>st</sup> century skills. Another major barrier presented in all three findings was the lack of references and guidelines. The interviewees explained that they had to plan and add the elements of 21<sup>st</sup> century skills into their lessons because not much information could be obtained from the existing curriculum and syllabus. Additionally, they highlighted the limited availability of reference books that explained the teaching of 21<sup>st</sup> century skills, particularly in the context of primary language lessons. The responses in the questionnaires were aligned with the data gathered from the interviews and literature review. The inadequacy of references imposed negative effects on the motivation of primary school teachers in promoting 21<sup>st</sup> century skills in the classrooms (Sivapakkiam et al., 2016). This similar barrier was also emphasised by Seman et al. (2017), who concluded that teachers' failure to design lessons incorporated with 21<sup>st</sup> century skills was caused by the limited guidelines on how to do it.

The interviewees disclosed that they faced difficulties in teaching 21<sup>st</sup> century skills in their language classrooms due to heavy administrative work. Based on the analysis, the participants expressed frustration over the overwhelming amount of paperwork and administrative tasks at school. They had to spend more time and efforts on the tasks that were supposedly handled by staff with administrative positions. Consequently, the time given to them was undoubtedly not enough to focus on teaching students 21<sup>st</sup> century skills as the lessons required careful planning and longer time for preparation. The findings were consistent with the questionnaire responses and the review of previous literature that postulated the issue of additional administrative work assigned to teachers exerting negative impacts on the teaching process and stress level (Hashim et al., 2010; Shaari et al., 2006; Shahar, 2017). Next, teachers' limited knowledge was another major barrier to the teaching of 21<sup>st</sup> century skills in primary language classrooms.

The interview findings showed that teachers' limited abilities and ICT mastery could hinder the teaching of 21<sup>st</sup> century skills in their language classrooms. As one participant claimed, "For teachers who are near to retirement like us maybe in terms of ICT mastery... we know the normal things but those [that are] more difficult might be a problem to us". These included teachers' deficient knowledge, particularly some senior teachers who refused to use ICT gadgets in their classrooms because they thought that those things were troublesome and did not work properly. They had the withdrawing mindset on using ICT to facilitate learning because they were too comfortable with traditional methods such as using textbooks or "chalk and talk". Similar findings could be seen in the review of literature and questionnaires. It was supported by Seman et al. (2017) who discovered that teachers did not have sufficient knowledge about 21<sup>st</sup> century skills. Another study by Mohd et al. (2017) also agreed with the findings, whereby some teachers had poor understanding of 21<sup>st</sup> century thinking skills. Teachers' metacognitive knowledge and learning skills were of low level, which made them more difficult in teaching thinking skills to students (Hisham et al., 2017; Sivappakiam et al., 2016). Consequently, most participants did not possess sufficient knowledge in terms of the teaching methods that could promote students' development of 21<sup>st</sup> century skills in language classrooms.

In addition, both systematic review and interviews revealed that large class size contributed to the barrier of teaching 21<sup>st</sup> century skills. A majority of the interviewees highlighted an approximation of 30 or more students in their classes, leading to a great challenge in teaching 21<sup>st</sup> century skills. The literature review also indicated the similar finding; teachers faced many hurdles in promoting students' 21<sup>st</sup> century skills in classrooms overly crowded with students (Jazuli & Yamat, 2020; Joseph, 2016). The findings showed that some interviewees expressed a similar opinion regarding students' abilities. Besides poor language proficiency, the interviewees also highlighted that students' low motivation and passiveness added to the difficulty of teaching 21<sup>st</sup> century skills in the classrooms. The interview findings explained that the students were shy and passive to speak in the classrooms. Besides, unsupportive learning environments, such as uncondusive classrooms, increased the difficulty of teaching 21<sup>st</sup> century skills. Instead of teaching 21<sup>st</sup> century skills, some teachers resorted to traditional lessons by prioritising model papers to prepare students for examinations. Students' different learning styles were mentioned in a study by Seman et al. (2017), which explained that most students relied heavily on teachers; thus, it became a challenge to change their nature of dependency, leading to limited development

of cognitive abilities. Another barrier that teachers faced was the lack of training. The insufficiency of extensive training on 21<sup>st</sup> century skills limited teachers' knowledge and strategies to teach 21<sup>st</sup> century skills in their lessons.

### **Enablers Promoting the Teaching of 21<sup>st</sup> Century Skills**

The analysis from systematic literature review, semi-structured interviews, and questionnaire surveys showed that there were four major enablers in the teaching of 21<sup>st</sup> century skills in Chinese vernacular schools, namely (a) in-service training, (b) students' interest, (c) teachers' passion, and (d) teachers' efforts. First and foremost, all three findings mentioned the importance of in-service training, which promoted the teaching of 21<sup>st</sup> century skills in primary language classrooms. The interview data highlighted that the training provided by the Ministry of Education could share some effective ways and strategies of teaching 21<sup>st</sup> century skills in classrooms. The findings indicated that such training programmes further facilitated the teaching of 21<sup>st</sup> century skills in language lessons within the primary vernacular school context. The literature supported the importance of providing teachers with training with relevance to the development of 21<sup>st</sup> century skills in Malaysian primary schools (Jazuli & Yamat, 2020; Seman et al., 2017). Second, the passion for teaching 21<sup>st</sup> century skills could be seen through the responses of some of the interviewees. Most interviewees highlighted that passion was crucial in making them determined to teach 21<sup>st</sup> century skills in language classrooms despite some unresolved hurdles. They mentioned that having passion could maintain teachers' motivation in enhancing students' learning more effectively. The notion of having passion was also evident and supported by the systematic review and questionnaire data. In this case, teachers' passion was regarded as an important enabler in promoting students' learning of 21<sup>st</sup> century skills in Chinese vernacular schools. Teachers' passion for their teaching enhanced the effectiveness of learning among students (Gurney, 2007). The results of the present study showed consistency with the findings reported by Jansen and Merwe (2015). When teachers viewed the teaching of 21<sup>st</sup> century skills positively and passionately, it increased the likelihood of effective teaching that could stimulate students' 21<sup>st</sup> century skills in their language classrooms.

In addition, teachers' efforts were a major enabler in promoting the teaching of 21<sup>st</sup> century skills in language classrooms. According to the analyses, the participants explained that more efforts were required to successfully teach 21<sup>st</sup> century skills in classrooms. They were willing

to put extra efforts into designing lessons incorporated with 21<sup>st</sup> century skills for the sake of students. Furthermore, when they combined forces with other teachers of the same subject or field, it became more likely for them to conduct lessons infused with 21<sup>st</sup> century skills. The results were supported by the questionnaire responses and past studies. A study by Kabilan and Veratharaju (2013) highlighted that efforts were required from teachers to foster meaningful collaborative practices with other teachers for more effective teaching in the field of language teaching. Lastly, students' interest in learning 21<sup>st</sup> century skills was regarded as another major enabler for the successful teaching of 21<sup>st</sup> century skills in primary language classrooms. Based on the responses extracted from the interviews, teachers became more likely to teach 21<sup>st</sup> century skills in classrooms when students showed interest during the learning process. The analyses from systematic review, interviews, and questionnaire responses shared a common theme, stating that it is important to acknowledge students' interest as it increased the likeliness for the success of teaching 21<sup>st</sup> century skills (Baeten et al., 2010). When students showed interest, they would engage actively in the process (Hidi & Harackiewicz, 2000). Indirectly, this could possibly encourage teachers to think of interesting and creative ways to teach students 21<sup>st</sup> century skills in the lessons.

Sharing of knowledge and modelling among teachers could possibly enhance the teaching of 21<sup>st</sup> century skills in primary language lessons. The interviewees believed that through the sharing of knowledge, teachers could understand the appropriate methods to teach 21<sup>st</sup> century skills in their lessons. In that case, it could help teachers generate more ideas to make 21<sup>st</sup> century skills learning feasible in lessons. Furthermore, the participants mentioned seeing successful teachers as the modelling role was useful in learning how to teach 21<sup>st</sup> century skills. They could learn through observing the classroom practices demonstrated by experienced and knowledgeable teachers in conducting activities related to 21<sup>st</sup> century skills in the classrooms.

### **Effects of Teachers' Attitudes, Barriers and Enablers on the Teaching of 21<sup>st</sup> Century Skills**

Structural equation modelling (SEM) is a multivariate analysis that is suitable for exploring less developed or developing theories (Hair et al., 2017). In this study, PLS-SEM was applied to explore and explain the variance in the dependent variables and test the relationships among teachers' attitudes, barriers, enablers, and their teaching of 21<sup>st</sup> century skills. The PLS-SEM results were reported in terms of:

(1) evaluation of measurement model and (2) evaluation of structural model. The descriptive statistics were demonstrated in Table 2. The construct ‘Teachers’ Attitudes’ recorded the highest mean score (M = 4.70, SD = .60), followed by ‘Teachers’ Teaching’ (M = 4.54, SD = .59), ‘Enablers’ (M = 4.40, SD = 0.68), and ‘Barriers’ (M = 4.11, SD = 1.01).

**Table 2**

*Descriptive Statistics*

Construct		Mean (M)	Standard deviation (SD)
<b>Teachers’ Attitudes</b>		4.70	.60
Tatt1	I encourage students to practise their 21 <sup>st</sup> century skills in classrooms.	4.73	.70
Tatt2	I understand the importance of teaching communication in the 21 <sup>st</sup> century learning environment.	4.81	.72
Tatt3	I understand the importance of teaching technology literacy in the 21 <sup>st</sup> century learning environment.	4.70	.73
Tatt4	I provide support when students learn 21 <sup>st</sup> century skills in my language classrooms.	4.66	.69
Tatt5	I like to encourage students to be more confident during the process of 21 <sup>st</sup> century learning.	4.70	.70
Tatt6	I feel that teaching 21 <sup>st</sup> century skills facilitate the learning of language in classrooms.	4.66	.73
<b>Barriers</b>		4.11	1.01
Barr1	The curriculum does not contain adequate guideline on how to teach 21 <sup>st</sup> century skills through language subjects.	4.03	1.15
Barr2	There is no extra time to teach students 21 <sup>st</sup> century skills in language lessons.	4.21	1.19
Barr3	There is not enough time to design lessons that teach 21 <sup>st</sup> century skills in language lessons due to heavy administrative tasks.	4.32	1.19

(continued)

Construct		Mean (M)	Standard deviation (SD)
Barr4	I have insufficient knowledge about the methods that promote students' 21 <sup>st</sup> century skills in language lessons.	3.89	1.18
<b>Enablers</b>		4.40	.68
Enb1	In-service training has taught me adequate skills of promoting 21 <sup>st</sup> century learning in language classrooms.	4.56	.74
Enb2	Students show interest in learning 21 <sup>st</sup> century skills in my language classrooms.	4.37	.82
Enb3	I remain passionate when teaching 21 <sup>st</sup> century skills in my language classrooms.	4.49	.85
Enb4	I put in consistent effort to ensure better teaching of 21 <sup>st</sup> century skills in my language classrooms.	4.18	.86
<b>Teachers' Teaching</b>		4.54	.59
TT1	I include the use of ICT tools (computer, projector, etc.) for the teaching of 21 <sup>st</sup> century skills in my language lessons.	4.53	.75
TT2	I allocate students into groups for better discussion to complete the problem-based tasks in my language lessons.	4.58	.73
TT3	I allow waiting time for students to think before providing them answers in my language lessons.	4.57	.73
TT4	I conduct meaningful interaction with students to promote their 21 <sup>st</sup> century skills in my language lessons.	4.56	.69
TT5	I allocate time for students to engage in group activities to promote 21 <sup>st</sup> century skills during my language lessons.	4.54	.68
TT6	I display videos related to the topic of the day during my language lessons.	4.52	.75

*Note.* Tatt = Teachers' Attitudes; Barr = Barriers; Enb = Enablers; TT = Teachers' Teaching of 21<sup>st</sup> Century Skills

## Assessment of Measurement Model

As suggested by Henseler et al. (2012), a reflective model is recommended to have the value of path loadings of .70 and higher. Based on the results in Table 3, the size of factor loadings of all the indicators ranged from .79 to .91, which meant the latent variables were reliable.

**Table 3**

### *Results of Measurement Model*

Latent variable	Factor loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
<b>Teachers' Attitudes</b>				
Tatt1	.86			
Tatt2	.85			
Tatt3	.85	.92	.94	.73
Tatt4	.85			
Tatt5	.88			
Tatt6	.84			
<b>Teachers' Teaching</b>				
TT1	.79			
TT2	.85			
TT3	.84			
TT4	.87	.91	.93	.70
TT5	.86			
TT6	.79			
<b>Barriers</b>				
Barr1	.89			
Barr2	.83			
Barr3	.80	.88	.91	.73
Barr4	.91			
<b>Enablers</b>				
Enb1	.83			
Enb2	.89			
Enb3	.88	.89	.92	.76
Enb4	.89			

Note. Tatt = Teachers' Attitudes; Barr = Barriers; Enb = Enablers; TT = Teachers' teaching of 21<sup>st</sup> Century Skills



To ensure a well establishment of discriminant validity under the rule of Fornell-Larcker Criterion, the value of the square root of average variance extracted (AVE) needs to be greater than its correlation with any other latent variables (Garson, 2016). In the present study, the values of the square root of AVE of the variables were ranged from .84 to .87. Therefore, it can be said that all the indicators fulfilled the standard value of discriminant validity.

### Assessment of Structural Model

For the first step of assessing a structural model, the values of variance inflation factors (VIF) in the constructs were examined for the collinearity issue (Sarstedt et al., 2014). The values of VIF were ranged between 1.03 and 1.71 as shown in Table 4. As all the values of VIF were below the critical value of 5, the model showed no issue of collinearity.

**Table 4**

*Inner VIF Values for Collinearity Assessment*

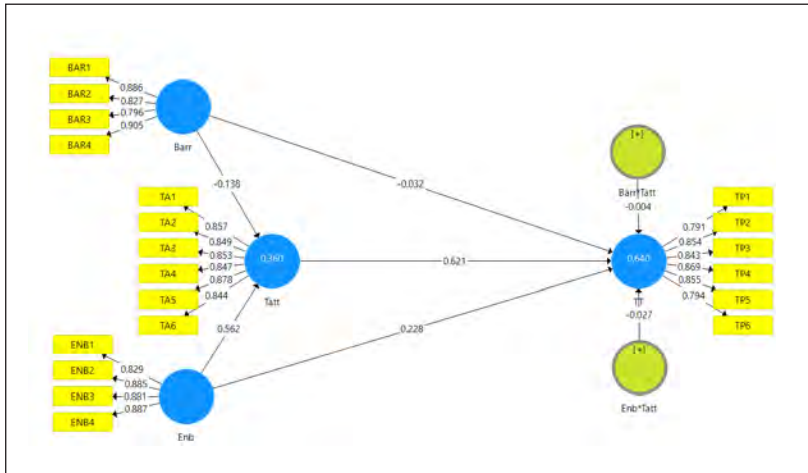
	Barr	Barr * Att	Enb	Enb * Att	Tatt	TT
Barr					1.03	1.16
Barr * Tatt						1.38
Enb					1.03	1.53
Enb * Tatt						1.46
Tatt						1.71
TT						

*Note.* Tatt = Teachers' Attitudes; Barr = Barriers; Enb = Enablers; TT = Teachers' Teaching of 21<sup>st</sup> Century Skills

'Teachers' Attitudes' (Tatt) had a moderate R<sup>2</sup> value of .36, whereas 'Teachers' Teaching' (TT) obtained an R<sup>2</sup> value of .64, which was considered close to the substantial value of 0.67. In other words, it meant that the three latent variables (Tatt, Barr, Enb) substantially explained 64% of the variance in TT. The two exogenous latent variables, 'Barriers' (Barr) and 'Enablers' (Enb), explained 36% of the variance of Tatt. Next, the analysis continued with the inner model path coefficient. Bootstrapping was applied to determine the confidence intervals of path coefficient and statistical inference. Figure 2 presented the results of the structural model after running the PLS algorithm.

**Figure 2**

*Results of Structural Model*



The inner model suggested that the construct ‘Teachers’ Attitudes’ ( $\beta = .62, p < .05$ ) had the strongest effect on ‘Teachers’ Teaching’, followed by the effects of ‘Enablers’ ( $\beta = .56, p < .05$ ) on ‘Teachers’ Attitudes’, and lastly ‘Enablers’ ( $\beta = .23, p < .05$ ) on ‘Teachers’ Teaching’. Next, the construct ‘Barriers’ ( $\beta = -0.14, p < .05$ ) had a significant but relatively small negative effect on ‘Teachers’ Attitudes’, whereas the construct ‘Enablers’ ( $\beta = .56$ ) had the strongest effect on ‘Teachers’ Attitudes’. Furthermore, the findings revealed that ‘Enablers’ ( $\beta = .23$ ) contributed a significant effect on ‘Teachers’ Teaching’. On the other hand, the construct ‘Barriers’ ( $\beta = -.03$ ) did not have a significant effect on ‘Teachers’ Teaching’. Furthermore, the analysis indicated that ‘Barriers’ ( $\beta = -.09, p < .01$ ) and ‘Enablers’ ( $\beta = .35, p < .01$ ) exerted a significant indirect effect on ‘Teachers’ Teaching’ via ‘Teachers’ Attitudes’. However, the analysis showed that ‘Barriers’ ( $\beta = -.04, p > .01$ ) and ‘Enablers’ ( $\beta = -.03, p > .01$ ) had a very slight moderating effect on the relationship between ‘Teachers’ Attitudes’ and ‘Teachers’ Teaching’. Table 5 shows the results of hypotheses testing.

**Table 5**

*Results of Each Hypothesised Path in the Structural Model*

Hypothesis	Relationship	Beta	t value	p value	95% confidence interval	Result
H <sub>1</sub>	Barr à Tatt	-.14	3.44	.00	[-.22, -.06]	Supported
H <sub>2</sub>	Barr à TT	-.03	.97	.33	[-.10, .03]	Unsupported
H <sub>3</sub>	Barr*Tatt à TT	-.04	.13	.90	[-.07, .06]	Unsupported
H <sub>4</sub>	Enb à TT	.56	12.78	.00	[.47, .64]	Supported
H <sub>5</sub>	Enb à TT	.23	5.11	.00	[.14, .31]	Supported
H <sub>6</sub>	Enb*Tatt à TT	.03	1.06	.29	[-.08, .02]	Unsupported
H <sub>7</sub>	Tatt à TT	.62	14.98	.00	[.54, .70]	Supported
H <sub>8</sub>	Barr à Tatt à TT	-.09	3.03	.00	[-.14, -.04]	Supported
H <sub>9</sub>	Enb à Tattà TT	.35	9.73	.00	[.29, .42]	Supported

Note. Tatt = Teachers' Attitudes; Barr = Barriers; Enb = Enablers; TT = Teachers' Teaching of 21<sup>st</sup> Century Skills

## DISCUSSION

The triangulation process from the literature review, semi-structured interviews, and questionnaire surveys had identified four major barriers in teaching 21<sup>st</sup> century skills in language lessons at Chinese vernacular schools. These barriers were time constraints, teachers' limited knowledge, lack of guidelines and references, and heavy administrative tasks. The result was consistent with a study by Seman et al. (2017), which pointed out that time constraint posed a great barrier to the teaching of 21<sup>st</sup> century skills in primary language lessons. The second major barrier identified was teachers' limited knowledge in teaching 21<sup>st</sup> century skills in their lessons. Due to the lack of understanding of 21<sup>st</sup> century skills and ICT knowledge, teachers resorted to conventional teaching methods in their classrooms, which rarely emphasised the development of students' 21<sup>st</sup> century skills. The findings were supported by previous studies (Hisham et al., 2017; Mohad et al., 2017; Seman et al., 2017; Sivapakkiam et al., 2016). Next, the lack of guidelines and references was also found to be a major barrier for vernacular school teachers to teach 21<sup>st</sup> century

skills. Teachers were not given sufficient materials and proper models in teaching 21<sup>st</sup> century skills in their lessons; therefore, it hindered the process of students' development of 21<sup>st</sup> century skills in language classrooms (Sivapakkiam et al., 2016). In addition, the study revealed that heavy administrative tasks were a hurdle for them to teach 21<sup>st</sup> century skills at Chinese vernacular schools. They displayed dissatisfaction over the problem of having a great deal of paperwork and administrative tasks to complete at school. The findings were consistent with previous studies highlighting that the strenuous paperwork hindered the teaching process (Hashim et al., 2010, Shaari et al., 2006).

On the other hand, the triangulation of findings unveiled four enablers such as in-service training, students' interest, teachers' passion, and teachers' efforts that could enhance teachers' teaching of 21<sup>st</sup> century skills in primary language classrooms. The four strongest indicators of enablers in the quantitative data further complemented the qualitative data. First, the findings indicated that in-service training provided teachers with appropriate inputs on teaching 21<sup>st</sup> century skills in primary language lessons. The results were consistent with studies by Jazuli and Yamat (2020) and Seman et al. (2017), which pointed to the importance of training for teachers' teaching of 21<sup>st</sup> century skills. In addition to in-service training, the findings put forth students' interest as another major enabler for the teaching of 21<sup>st</sup> century skills. Teachers agreed that when students showed interest in learning 21<sup>st</sup> century skills, it became a motivator for teachers to incorporate 21<sup>st</sup> century skills into their lessons. Therefore, they were more likely to conduct practices that developed students' 21<sup>st</sup> century skills in primary language classrooms. Other than that, teachers' passion and efforts were regarded as the most important enablers for the teaching of 21<sup>st</sup> century skills in Chinese vernacular schools. The findings suggested that teachers maintained a great extent of passion and positive attitudes when they were committed to teaching students 21<sup>st</sup> century skills. Besides, the participants agreed that they made consistent efforts to teach 21<sup>st</sup> century skills when students began to improve. Previous studies supported the view that teachers' positive attitudes successfully enhanced the teaching of 21<sup>st</sup> century skills (Baeten et al., 2010; Jansen & Merwe, 2015).

Both quantitative and qualitative data established that enablers postulated significant positive effects on language teachers' attitudes and teaching of 21<sup>st</sup> century skills in Chinese vernacular schools. The quantitative findings explained that enablers exerted significant direct and indirect effects towards teachers' teaching of 21<sup>st</sup> century skills.

Furthermore, the qualitative findings supported the effects of enablers on teachers' attitudes and teachers' teaching of 21<sup>st</sup> century skills. When teachers were passionate enough, they would still find some ways and put effort to teach 21<sup>st</sup> century skills in their language classrooms. This result was supported by Rosma et al. (2012), who revealed that teachers displayed high enthusiasm in teaching 21<sup>st</sup> century skills in primary classrooms despite difficulties. Furthermore, this current study investigated the influence of barriers and enablers that language teachers faced towards their attitudes and practices in teaching 21<sup>st</sup> century skills at Chinese vernacular schools in Malaysia. The findings suggested that barriers had negative effects on teachers' attitudes. In other words, the barriers faced by language teachers at Chinese vernacular schools such as inadequate references and guidelines, time constraints, and insufficient knowledge on pedagogical methods only affected their attitudes, and not the way they implemented pedagogical practices to teach 21<sup>st</sup> century skills. The findings are generalisable to schools that share similar characteristics. For example, it can be generalised across primary schools with a large number of students (Hashim, 2003; Kenayathulla et al., 2019). This is a positive finding in which teachers with positive attitudes were inclined to persist in teaching 21<sup>st</sup> century skills despite the barriers faced (Jansen & Merwe, 2015; Razak et al., 2018). This is supported by the findings that the effects of attitudes on teachers' teaching were stronger than those of barriers. Teachers can overcome the barriers that they face if they have positive attitudes, such as understanding the importance of teaching 21<sup>st</sup> century skills, feeling confident and passionate about it, and taking actions to teach the skills effectively (Gurney, 2007; Petko et al., 2018).

Among these variables, teachers' attitudes had the strongest effect on teachers' teaching, followed by that of enablers and barriers. This implied that in order to enhance language teachers' competence in teaching 21<sup>st</sup> century skills at the primary school level, more attention should be given to their attitudes as compared to enablers or barriers. Attitude was found to have a significant positive direct effect on teaching. In other words, when language teachers' attitudes towards the teaching of 21<sup>st</sup> century skills are positive, they are more likely to implement instructional practices that can deliver effective lessons to teach the skills. As found by past studies, attitudes played a significant role in determining teachers' classroom practices (Jansen & Merwe, 2015; Razak et al., 2018). In fact, it is regarded as the driving force in determining the successful implementation of 21<sup>st</sup> century education (Jansen & Merwe, 2015; Razak et al., 2018; Şahin & Han, 2020). Teachers' practices in using ICT tools (computer, projector, etc.),

conducting group activities, providing problem-based tasks, allocating thinking time, engaging students in meaningful interactions, and using teaching aids (e.g., videos) to prompt students' curiosity to learn 21<sup>st</sup> century skills are directly influenced by their attitudes. This result was supported by Abdul et al. (2017) study that the teachers' attitudes had significant positive effects on 21<sup>st</sup> century skills learning at schools.

Enablers, namely in-service training, students' interest, teachers' passion, and consistent efforts had significant positive effects on teachers' attitudes and teaching of 21<sup>st</sup> century skills. Its effects on attitudes were stronger than teaching, which meant that enablers that supported the teaching of 21<sup>st</sup> century skills influenced teachers' attitudes more than how they taught. Strengthening enablers alone may not be enough to improve teachers' teaching of 21<sup>st</sup> century skills. In fact, the result of the path model found that both enablers and barriers did not moderate the relationship between teachers' attitudes and their teaching. This suggested that with or without the presence of barriers and enablers, the relationship between language teachers' attitudes and teaching remained unaffected. Teachers' attitudes exerted direct impact on their teaching. Any initiatives to enhance teachers' teaching of 21<sup>st</sup> century skills should pay more attention to this variable.

## **CONCLUSION**

In conclusion, this study has filled in the literature gaps on language teachers' attitudes and their teaching of 21<sup>st</sup> century skills at Chinese vernacular schools at the primary school level. It is believed that the findings of the present study provided in-depth insights and understanding regarding the barriers and enablers experienced by language teachers when teaching 21<sup>st</sup> century skills specifically at Chinese vernacular schools. Likewise, the information can be used as references to come out with remedial measures to overcome the major barriers that hinder teachers' teaching of 21<sup>st</sup> century skills, particularly within the context of Chinese vernacular schools. The development of the structural model in the current study via PLS-SEM offered a deeper understanding of the relationships among teachers' attitudes, barriers, and enablers in the teaching of 21<sup>st</sup> century skills. Teachers' attitude was found to have a direct effect on their teaching. It had a decisive influence on the implementation of instructional practices to teach 21<sup>st</sup> century skills in language classrooms. According to the Tripartite Theory (Rosenberg & Hovland, 1960), attitude is shaped by three dimensions: affective, cognitive, and behavioural. This shows that teacher's attribute has a decisive influence on their decisions

to teach 21<sup>st</sup> century skills. It is, therefore, important for teacher training institutions (e.g., Teacher Training Colleges, universities) to ensure that trainee teachers understand the importance of 21<sup>st</sup> century education, feel passionate in teaching the skills, and are skilful enough to implement various pedagogical practices to foster students' learning of 21<sup>st</sup> century skills in classrooms. In-service training, such as short courses, workshops, and continuous professional development (CPD), can also be provided to in-service teachers to improve their cognitive, affective, and behavioural attitudes towards the teaching of 21<sup>st</sup> century skills.

Language teachers must understand the concept of 21<sup>st</sup> century education and believe that it is important for them to teach students skills like collaboration, critical thinking, creativity, communication skills, and technology literacy skills starting from the primary school level. Language teachers should get more training opportunities, just like STEM subject teachers, to learn the various pedagogical methods that can be applied in 21<sup>st</sup> century education (e.g., technology-based instructional practices, problem-based teaching, communicative language teaching, inquiry-based teaching and learning, and constructivism) (Bada & Olusegun, 2015; Dostál & Klement, 2015; Sahin, 2009; Scot, 2015; Richards, 2006). Apart from that, teachers should be encouraged by the stakeholders (e.g., Ministry of Education, Teacher Education Division, schools, language course leaders, and follows colleagues) to teach 21<sup>st</sup> century skills in language classrooms. A positive affective attitude will drive them to become more effective teachers even when encountering barriers. Finally, teachers need to gain more experience through hands-on training and mentoring to apply pedagogical practices in teaching 21<sup>st</sup> century skills to primary school children, especially pre-service language teachers. In short, to enhance language teachers' teaching of 21<sup>st</sup> century skills at the primary school level, all dimensions of teachers' attitudes (cognitive, affective, and behaviour) should be given attention. Apart from teacher factors, this study also found that student factors, particularly their interest in learning 21<sup>st</sup> century skills, is an enabler that promotes teachers' attitudes and teaching. More efforts should be placed in planning and designing the learning activities and teaching aids that can capture students' interest in learning 21<sup>st</sup> century skills. Overall, the findings of this study have significant implications on the training and professional development of language teachers. The limitations were taken into consideration as the findings and conclusions of this study were specifically referred to the context of Chinese vernacular schools. Therefore, generalisation of the findings may not be made across international and private primary schools. Future studies

may cover a wider scope of samples as language teachers from both vernacular and national type schools can be included. As this study solely emphasised the teaching of five types of 21<sup>st</sup> century skills in language subjects, future studies should consider other components of 21<sup>st</sup> century skills and subjects. Moreover, in-depth qualitative studies can also be carried out to assess and compare how attitudes of language teachers influence their applications of pedagogical practices in different learning contexts, such as online learning environment, schools with limited ICT facilities and so on. In other words, more context-specific studies should be carried out in the future.

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