Learning to Teach Spoken Mandarin toward High-school Students through Technology-based Affective Learning Designs

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Technology provides occasions for language learners to engage in authentic communication with native speakers around the world. However, in order for such language learning to be successful, it must take into account learners' affective or emotional needs. Traditional approaches to language learning have neglected the affective domain. This study reports on the creation and verification of the learning framework. This framework relies on a case study in which pre-service Chinese language teachers use and apply technology to learn how to develop their future Mandarin as a foreign language speaking skills using affective learning strategies. Participants were 30 pre-service Chinese language teachers high-school teachers of spoken Mandarin in a ten-week teaching with technology course. Results showed that the learning framework for affective language learning included six processes, including 1) Remembering, 2) Understanding, 3) Applying, 4) Analyzing, 5) Creating, and 6) Evaluating. In addition, results indicated that the pre-service teachers used the affective strategies in terms of low anxiety and high motivation to design the website the most. The current research suggests the need for applying technology to learn how to develop future students' Mandarin as a foreign language speaking skill using affective learning strategies.

Keywords: spoken mandarin, technology-based, computer-based, affective learning strategies, pre-service Chinese language teachers

INTRODUCTION

The Language learning Social Network Sites (SNSs) provide occasions for language learners to engage in authentic communication with native speakers around the world (Lin & Blake, 2016). They noted that SNSs offer opportunities for socialization for diverse social purposes. The authors cite research to demonstrate the development of students' socio-pragmatic competence through social interaction that occurs in SNSs.

Learners can also make progress in vocabulary use and acquisition, confidence, oral proficiency as well as syntactic complexity (Lin et al., 2016). Game-based apps represent another approach to technology-enhanced language learning (TELL). Berns et al. (2016) found that such Apps can provide opportunities for application of skills to contextualized, real-life-like communication. These opportunities, Berns et al. argue, are necessary to counter the traditional focus in language learning which tends to be about learning the language as opposed to having the chance to use the language to communicate, interact and negotiate in the language. In general, game-based learning (see Lilly & Warnes, 2009) couple entertainment with education to enhance motivation as well as participation (Berns et al.). Mobile-assisted language learning (MALL) (see Shamsi1, Altaha & Gilanlioglu, 2018) provides opportunities for learner-centered, anyplace, anytime language learning that can decrease learners' anxiety. Video-conferencing also offers advantages for foreign language speaking. Coverdale (2017) identified the advantages of video-conferencing in terms of how it affords world-wide low-cost communication, is interactive and students can see with whom they are communicating which can improve their motivation. Morollón-Martí and Fernández (2016) described how they used Skype for online intercultural exchange with language learners in different locations. The authors found that use of these online communication tools offered opportunities for authentic communication and helped develop intercultural communicative competence and pragmatic competence.

Parra (2008) argued that, in general, traditional approaches to language learning have neglected the affective domain. Parra adds that teachers have only incidentally paid attention to factors such as beliefs and attitudes as well as issues related to anxiety and motivation. Yet, Krashen's (1982) affective filter hypothesis argues that emotional factors are very important in language learning. This means that students may or may not learn a language depending on their emotional condition. Krashen (1981) explained that attitudinal factors affect learning such that learners with high motivation, high self-confidence and low anxiety will perform better in language learning. As a result, success or failure in foreign language learning is influenced most by learners' affect (Ubaidillah Karomi Safari and Sri Wuli Fitriati, 2016). Dulay and Burt (1977) first identified the affective filter as a phenomenon that acts like an internal barrier to prevent comprehensible input from being used for language acquisition. Language acquisition works best with learners who have a low affective filter such as low anxiety. Problems with anxiety are frequently observed particularly in speaking contexts (MacIntyre, 1999). Anxiety has been defined as "an unpleasant emotional state or condition that is characterized by subjective feeling of tension, apprehension, and worry, and by activation or arousal of the automatic nervous system" (Spielberger, 1972, p. 482). One of the main sources of anxiety on foreign language learning is Communication apprehension. This latter is conceptualized by McCroskey (2001) as "the fear or anxiety associated with either real or anticipated communication with persons" (p. 40).

One effective way to work with affective factors in EFL classes is the teaching of language learning strategies (LLS) (Yamith José Fandiño Parra, 2008). According to Oxford (1990), language learning strategies are specific actions, behaviours, steps, or

techniques that students (often intentionally) use to improve their progress in developing foreign language (L2) skills and communicative ability. The past three decades have seen a growing interest in studying how language learning strategies help students acquire a second or foreign language (Stawowy, 2004). LLS theorists attribute students' success rate in language learning to the varying use of strategies. Furthermore, they believe that these strategies are teachable skills, meaning that teachers can help in the language learning process by getting students aware of strategies and encouraging their use. LLS represent "powerful learning tools' designed to promote acquisition and use of language (Msuya, 2016). LLS are employed to promote success in learning and are typically specific to the learner and task (Ghani, 2003). They involve "'specifications, behaviours, steps, or techniques --such as seeking out conversation partners, or giving oneself encouragement to tackle a difficult language task -- used by students to enhance their own learning" (Oxford, 2003, p. 63) or "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" (Oxford, 1990,p. 8). Griffiths (2008) described LLS as "activities consciously chosen by learners for the purpose of regulating their own language learning" (p. 78). Strategies that can promote a positive affective filter include the use of games (Water, 2007), music and songs (Beasley & Chuang, 2006), allowing learners to set their own goals, learn from mistakes, collaborate, and take risks (Gurman Kahraman, 2013). Affective strategies include lowering anxiety and providing encouragement (Ubaidillah Karomi Safari and Sri Wuli Fitriati, 2016). Affective strategies that have a positive effect on speaking performance involve creating positive (good) attitudes (Wijirahayu & Dorand, 2018). Another strategy to improve speaking performance involves lowering students' anxiety and boosting their confidence level by helping them relax (Yunus and Singh, 2013). Other affective strategies include self-reinforcement and positive self-talk (Oxford & Crookall, 1989). Affective language learning depends on motivation and motivation is a strong predictor of language learning (Henter, 2014) and may even be considered the main determinant (Dörnyei, 2003). Intrinsic motivation can be promoted by opportunities for relevant learning, for building self-esteem, creating enjoyment, giving students choices (Pintrich and Schunk, 1996). Attitude (Kormos et al. 2011) is also a predictor of performance in a foreign language. A positive attitude can predict effective language learning (Henter, 2014).

Bloom's Taxonomy is a hierarchical structure that indicates the various types of intellectual skills and abilities and also is applied to measure students' the degree of thinking (Anderson, 2006). It comprises of the cognitive and affective domains, divided in six levels of thinking skills (Bloom et al., 1956). The levels can represent students' achievement, from fundamental level to advance level (Anderson, 2006). However, in the present, there are two different version of Bloom's Taxonomy; the levels of original bloom's taxonomy includes knowledge, comprehension, application, analysis, synthesis, evaluation (OBT, 1956). Another version is the revised bloom's taxonomy (RBT, 2001), revised by Anderson, Krathwohl (2001). It encompasses remembering, understanding, applying, analysing, evaluating, creating. Therefore, the revised taxonomy differs from the original in terms of changing part of speech, from noun to verb, e.g., analysis become analysing, and changing the word, i.e., knowledge become remembering,

comprehension turn into understanding, synthesis evolve to creating and rearrange it to the top of hierarchical structure (Ekren & Keskin, 2017). The curriculum builders can use Bloom's taxonomy to design students' learning outcome, experiences and the material for evaluation (Sideeg, 2016). The current study applied the original taxonomy because students need to acquire step by step of thinking skills, starting in knowledge and ending to ecaluation. Churches (2009) insisted that naturally for human, the learning is more suiltable for begining with fundamental level. On the contrary, the revised taxonomy is not compelled follwing the step by step of the levels.

Mainly, this study sought to answer the following questions:

RQ1: What were the appropriateness levels of the learning framework?

RQ2: Which computer-based learning affective strategies have pre-service Chinese language teachers used in the process of designing a sample course with technologies?

The specific objectives of the study are as follows:

1. Verify the framework with 12 experts (learning management, measurement and evaluation, and learning design/curriculum).

2. Modify and finalize the framework.

3. Create a rubric that can be used to assess PsTs' website designs.

4. Test the framework with 30 pre-service Chinese language teachers high-school teachers of spoken Mandarin in a ten-week teaching with technology course. The preservice teachers create computer-based learning designs that rely on affective language learning strategies to help students learn to speak Mandarin.

5 . Evaluate the pre-service Chinese language teachers learning design by 15 experts using the rubric (experts in Mandarin, educational technology, and learning design/curriculum).

METHOD

The qualitative research design was implemented in the current study (Creswell, 2014). This study reports on a case study in which pre-service teachers use and apply technology to learn how to develop their future students' Mandarin as a foreign language speaking skills using affective learning strategies.

Participants

The population of this study consisted of **106** pre-service Chinese language teachers' undergraduate students from a school of creative educational management in Thailand. The sample were 30 pre-service Chinese language teachers enrolled in the subject of teaching Chinese language and they were selected by the purposive sampling. The experiment took place within their 10-week course entitled: Teaching spoken Mandarin using information technology. The course took place six hours per week in two three-hour sessions. The course instructor was also the principal investigator (PI). The PI was enrolled in a Ph.D. program in Learning Innovation and Technology. She held a Masters' degree in Innovative Curriculum and Learning Management. Her Bachelor's degree was in Computer Science. Moreover, the study relied on 27 experts. 12 experts verify the learning framework. They are experts in the field of education, learning management, curriculum and teaching, and measurement and evaluation and have at least 10 years' experience as assistant and associate professors. Another 15 experts, who

are expert in the field of Mandarin, educational technology, and learning design/curriculum, evaluated the website designs, developed by pre-service Chinese language teachers and the students also used the affective language learning strategies.

Instrument and Procedures

1. The close-ended questionnaire with the Likert scale structure was created to be provided to experts for evaluating the appropriateness of skills and process. Rating scale for the rubric are as follow; Extremely high = 5, High = 4, Average = 3, Low = 2, Not applicable = 1. To interpret the scores provided by students, this study relied on Yousef & Mariam (2021)' equation, described the values of the means, i.e., the scores that are lower than 2.33 can be interpreted as the low level, between 2.33 and 3.67 is the average level and higher than 3.67 represent high level.

2. The rubric that evaluated affective strategies for teaching spoken Mandarin was provided to experts to evaluate the pre-service Chinese language teachers learning design. Rating scale for the rubric are as follow; Always = 4, Often = 3, Sometimes = 2, Almost never = 1, and Never = 0.

Table 1
Schedule of activities

Weeks	Topic
1	Pre-service Chinese language teachers compete a survey of their own affective language learning strategies. Theory of language learning (cognitive and affective strategies).
2	Teaching media to develop cognitive and affective strategies.
3-6	Pre-service Chinese language teachers practice designing websites for teaching spoken Mandarin with emphasis on cognitive and affective strategies.
7	Pre-service Chinese language teachers go into schools and use websites with students.
8-9	After returning to the university, pre-service Chinese language teachers should revise their websites before applying them again.
10	Pre-service Chinese language teachers return to schools and use revised websites with students. Instructor evaluates websites of students using rubric listing cognitive and affective strategies.

Data Collection and Analysis

The results in this study were analyzed by SPSS and on descriptive statistic, e.g., mean and standard deviation, to assess appropriateness of skills and procedures for designing lesson plan. Moreover, the frequency was used to count how many each learning strategy for students' teaching spoken Mandarin was applied in designing the websites and the number of counting was transform into percentage.

FINDINGS

Create a learning framework for affective language learning.

Figure 1 illustrates the learning framework for affective language learning. The framework incorporated six processes. Firstly, Remembering refers to identifying what pre-service Chinese language teachers already know about the affective dimensions of teaching and learning a foreign language. Secondly, Understanding relates to plan designs and identifying from the literature current affective approaches to using technology for language learning. The third process is Applying, mentioned as applying knowledge from previous phase (understanding) to define requirements for the design of WbLA for learning Mandarin. Next, Analyzing is analyzing web - based activities existing for learning Mandarin in relation to requirements identified in previous phase (applying). Creating is the fifth process, which includes plan designs and creating a website for learning to speak Mandarin. The last is evaluating, related to revising their designs based on peer and instructor comments.

| Remembering	Understanding	Applying	Analyzing	Creating	Evaluating
• In groups of 3, Pre-service teachers (3PsT) identify how they learned when they were students themselves. • 3PsT identify what they already know about the affective dimensions of teaching and learning a foreign language.	• 3PsT identify from the literature the current affective approaches to foreign language learning. • 3PsT identify from the literature current affective approaches to using technology for language learning.	• 3PsT apply knowledge from previous phase to define requirements for the design of Web-based Learning Affective (WbLA) for learning Mandarin.	• 3PsT analyse existing web-based activities for learning mandarin in relation to requirements identifed in previous phase.	• 3PsT plan designs. • 3 PsT create website for learning to speak mandarin.	• PsT present their creations with others and with instructor. • Pst revise their designs based on peer and instructor comments.

Figure 1
Framework for designing lesson plan of affective language learning (application form Bloom et al., 1956)

Verify the framework with 12 experts.

The skills and process of the learning framework for designing lesson plan are acquired from the Likert scale questionnaire. 12 experts in the field of education, learning management, curriculum, and teaching, and measurement and evaluation with at least 10 years of experience help assess the appropriateness of skills and process. According to the assessment results, all stages of each skill of the designing lesson plans process is required to be at the highly level, as shown in Tables 2 - 7.

Table 2
The appropriateness level of the learning framework in terms of remembering evaluated by the experts

Items	Appropriateness level		
	M	*SD*	Level
Identify how they learned when they were students themselves.	4.75	0.45	High
Identify what they already know about the affective dimensions of teaching and learning a foreign language.	5.00	0.00	High
Total	4.88	0.23	High

Table 2 shows the appropriateness levels of the learning framework in terms of Remembering by the experts. In overall, the mean and the standard deviation score were 4.88 and 0.23, respectively, representing high appropriateness level of the framework. The highest mean value goes to identifying what they already know about the affective dimensions of teaching and learning a foreign language, which the value was at 5.00. The lowest score still revealed high level, describing how they learned when they were students themselves.

Table 3
The appropriateness level of the learning framework in terms of understanding evaluated by the experts

Items	Appropriateness level		
	M	*SD*	Level
Identify from the literature the current affective approaches to foreign language learning.	5.00	0.00	High
Identify from the literature current affective approaches to using technology for language learning.	5.00	0.00	High
Total	5.00	0.00	High

Pertaining to creating shown in Table 3, all of the items represented high appropriateness level of the learning framework (m = 5.00, sd = 0.00)

Table 4
The appropriateness level of the learning framework in terms of Applying evaluated by the experts

Items	Appropriateness level		
	M	*SD*	Level
Apply knowledge from previous phase to define requirements for the design of WbLA for learning Mandarin.	5.00	0.00	High
Total	5.00	0.00	High

Table 4 revealed the high appropriateness level of the learning framework in terms of Applying (m= 5.00, sd = 0.00).

Table 5
The appropriateness level of the learning framework in terms of analysing evaluated by the experts

Items	Appropriateness level		
	M	*SD*	Level
Analyze existing web -based activities for learning Mandarin in relation to requirements identified in previous phase.	4.83	0.39	High
Total	4.83	0.39	High

Table 5 demonsted the high appropriateness level of the learning framework in terms of analyzing with the mean value of 4.83 and the standard deviation of 0.39.

Table 6
The appropriateness level of the learning framework in terms of creating evaluated by the experts

Items	Appropriateness level		
	M	*SD*	Level
Plan designs.	5.00	0.00	High
Create website for learning to speak Mandarin.	5.00	0.00	High
Total	5.00	0.00	High

Pertaining to creating shown in Table 6, all of the items represented high appropriateness level of the learning framework (m = 5.00, sd = 0.00)

Table 7
The appropriateness level of the learning framework in terms of evaluating evaluated by the experts

Items	Appropriateness level		
	M	*SD*	Level
Present their creations with others and with instructor.	4.92	0.29	High
Revise their designs based on peer and instructor comments.	5.00	0.00	High
Total	4.96	0.14	High

From Table 7, the overall appropriateness of the learning framework in terms of Creating is at high level with the mean value of 4.96 and the standard deviation of 0.14 considering each item, the highest mean value goes to revising their designs based on peer and instructor comments at the mean of 5.

Table 8 presents the rubric for evaluating affective strategies for teaching spoken Mandarin. The rubric was adapted from Lee & Cherner (2015); Widjaja, & Chen (2017); Gumop-as, & Juna (2016) and further employed the back-translate method. Beside, the rubrics were assessed content validity by three experts in the field of curriculum, and teaching.

Table 8
The rubric of the websites designs affective language learning strategies for teaching spoken Mandarin

Affective category	Aspects	Website & digital tool features	Students' Frequency Using AC				
			4 Always	3 Often	2 Some times	1 Almost never	0 Never
High motivation	Building self esteem	Offers rewards and positive reinforcement. E.g., Great job! Well done!	12	16	2		
	Enjoyment	Includes games and songs.	21	6	3		
	Choice	Offers different types of activities to choose from.	15	10	5		
High confidence	Building confidence	Correct pronunciation is followed by a clapping sound and icon.	14	10	6		
Collaboration	Social support	Includes social media tools for students to interact & support each other.	15	10	4	1	
Low anxiety	Relaxation	Includes music, laughter or humor.	21	9			
	Learning from mistakes	"Try again" button.	20	10			
	Taking risks	Encouragement	19	11			
	Reducing tension, apprehensio n, & worry.	Colors, pleasing design.	20	10			
		Emoticons that students can choose to express how they are feeling about their learning.	19	11			
Positive attitude	Building a positive attitude	Opportunities for learners to assess their attitude about learning. E.g., attitude survey.	16	9	5		

Test the framework with pre-service Chinese language teachers.

15 experts use the rubric to evaluate the pre-service Chinese language teachers learning design.

Figure 2 shows the results of the frequency of using language learning strategies by pre-service Chinese language teachers evaluated by experts. The experts in Mandarin, educational technology, and learning design/curriculum used the rubric to assess the computer ‑ based learning designs (websites) developed and designed by 30 pre-service Chinese language teachers that rely on affective language learning strategies to help students learn speaking Mandarin. The websites were related to teaching spoken Mandarin in a ten‑week. All experts reported that pre-service Chinese language teachers always utilized affective Category in terms of low anxiety and high motivation the most. The feature of games and songs were always selected to enhance motivation and music,

laughter or humor also were always chosen to relieve anxiety. However, pre-service Chinese language teachers never used affective category regarding collaboration for 3.33% and 20% reported that high confidence was almost never applied in their website design.
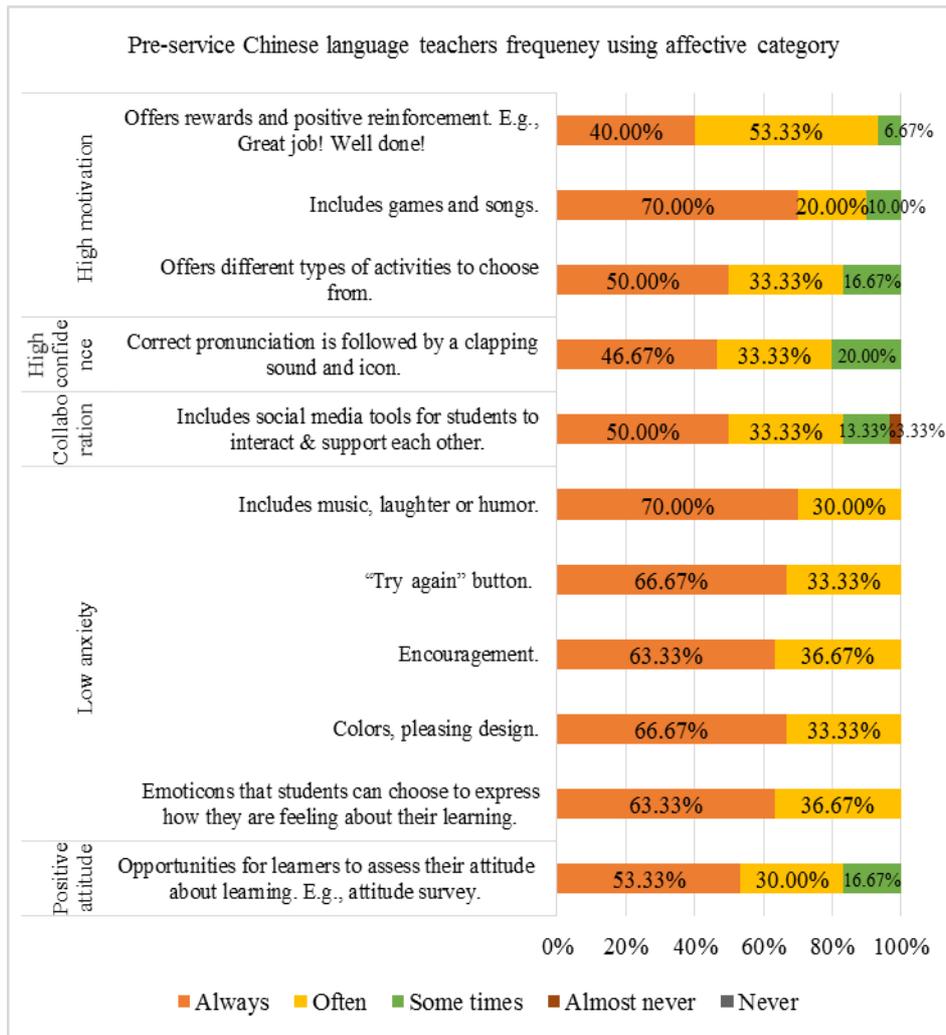

Figure 2
The frequency of using language learning strategies by pre-service Chinese language teachers in designing the website (n=30)

Figures 3-7 illustrate website designs by pre-service Chinese language teachers adaped affective language learning strategies, including affective domain (enjoyment, confidence, social support, positive attitude)
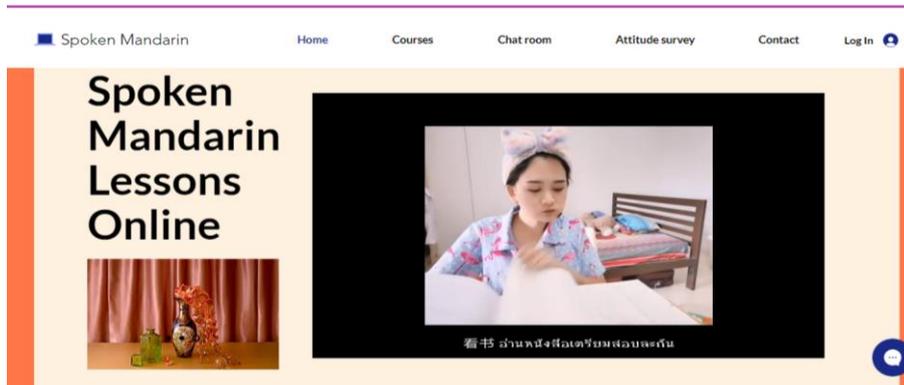
Figure 3
Screenshot of affective category enjoyment
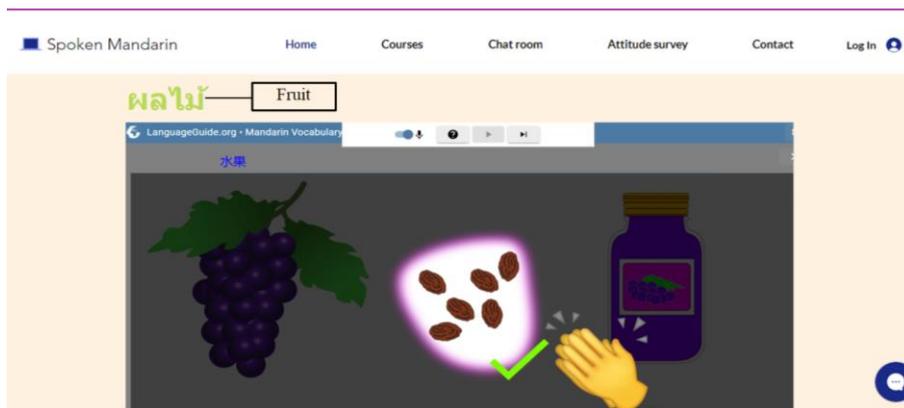
Figure 4
Screenshot of affective category building confidence
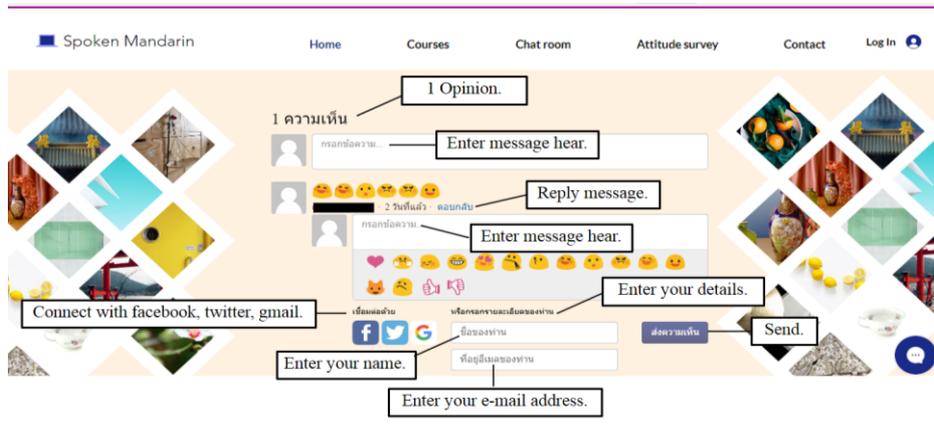
Figure 5
Screenshot of affective category social support
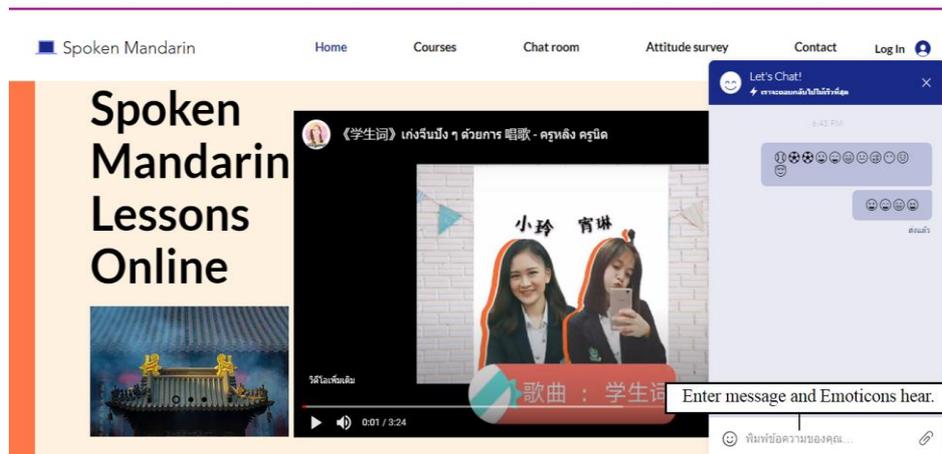
Figure 6
Screenshot of affective category social support
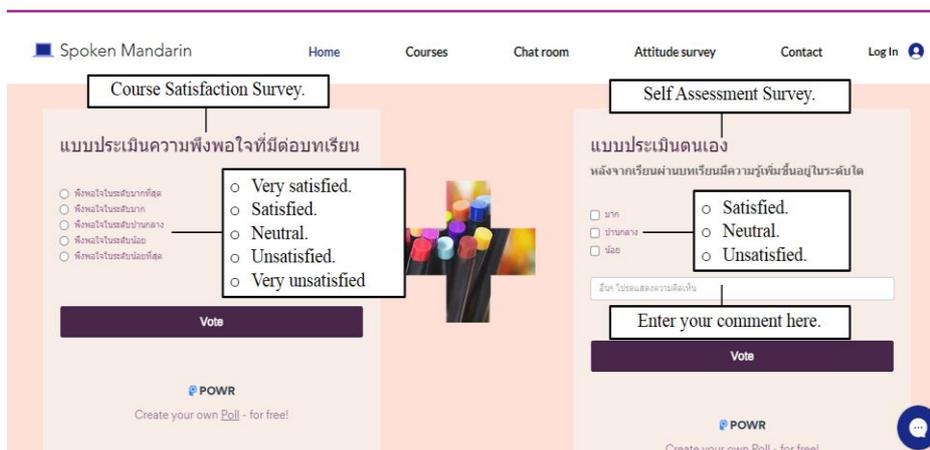
Figure 7
Screenshot of affective category building a positive attitude

DISCUSSIONS

Traditional approaches to language learning have neglected the affective domain. However, past studies claimed that language learning strategies is an effective method that can help students to acquire communicative ability and develop foreign language (Ranjan et al., 2020; Hanh, 2021; Malpartida, 2021). This study, therefore, aimed to create and verify the learning framework that relies on a case study in which pre-service Chinese language teachers use and apply technology to learn how to develop their future students' Mandarin as a foreign language speaking skill using affective learning strategies.

The current results revealed that the learning framework for affective language learning included six processes, including 1) Remembering, 2) Understanding, 3) Applying, 4) Analyzing, 5) Creating, and 6) Evaluating. This result consistent with Wilma Guadalupe Villacís Villacís, 2016; S.Chee Choy& Phaik Kin Cheah, 2009 studies, applied the six levels of the OBT for improving students' critical thinking. The results of Ainor Omar (2016)'s study used the six levels of the OBT found that using OBT was able to improve foreign language learning among students in English as a Second Language. However, the OBT has some limitation to some subject, i.e., science, mathermatics because it cannot arrange the levels of the OBT (Pradubwate, 2017). These processes are similar to reader - response theory and the principles of critical thinking which included six processes revised Bloom's Taxonomy (RBT) (Eliana Garzón1 & Harold Castañeda-Peña, 2015) and they applied in a language class for PsTs. However, the current processes are different from the reader-response theory in process 5 and 6. In their theory, Evaluating is in processes 5, and creating is in process 6.

The 12 experts further assessed the skills and process of designing lesson plans and the results showed it was an extremely appropriate learning framework. The present study uses the original Bloom's taxonomy as the learning framework because students need to acquire step by step of thinking skills, starting in knowledge and ending to ecaluation. Churches (2021) insisted that naturally for human, the learning is more suiltable for begining with fundamental level. On the contrary, the revised taxonomy is not compel follwing the step by step of the levels. Moreover, The finding from investigating which aspect of affective language learning strategies pre-service Chinese language teachers apply in designing the website the most, evaluated by the 15 experts found that pre-service Chinese language teachers used the affective strategies in terms of low anxiety and high motivation the most. The ways to decrease anxiety include Relaxation, Learning from mistakes, Taking risks, Reducing tension, apprehension, & worry. This result is consistent with McCroskey (2000), and Xiaoyan Du (2009). They mentioned that the affective strategies can cope with language anxiety and improve communicative skills.

In addition, the experts revealed that the pre-service Chinese language teachers design the websites in other affective categories, i.e., high motivation, high confidence, positive attitude, and collaboration. Based on the above findings, the study suggests that language instructors should apply affective language learning strategies in their classes to enhance students' communicative ability and foreign language skills. As instructors play an important role in persuading and encouraging students to apply the necessary strategies, the design of pre-service Chinese language teachers' websites should have the necessary knowledge of affective language learning strategies or emotion, and technology -based affective learning designs for teaching spoken Mandarin to students effectively.

CONCLUSION

The present study presented creating and verifying the learning framework that relies on a case study in which pre-service Chinese language teachers use and apply technology to learn how to develop their future students' Mandarin as a foreign language speaking skill using affective learning strategies. The results showed that it was an extremely appropriate learning framework, included six processes, including 1) Remembering, 2) Understanding, 3) Applying, 4) Analyzing, 5) Creating, and 6) Evaluating. The pre-service Chinese language teachers used the affective strategies in terms of low anxiety and high motivation apply in designing the website the most.

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