

Decreasing Anxiety among Communication Arts EFL Students Through Peer Teaching and Activities

Jeffrey Dawala Wilang and Atita Satitdee

Abstract

This paper reports the results of a longitudinal study aimed to create classroom activities that can lead to the reduction of speaking, listening, reading, and writing anxieties in English language learning of Thai undergraduates major in Communication Arts in a university in Thailand. Four widely-used anxiety scales were utilized such as Foreign Language Listening Anxiety Scale (FLLAS) by Kim (2000) for listening anxiety, Personal Report of Communication Apprehension (PRCA) by McCroskey (1982) for speaking anxiety, Foreign Language Reading Anxiety Scale (FLRAS) by Saito et al. (2009) for reading anxiety, and Second Language Writing Anxiety Inventory (SLWAI) by Cheng (2004) for writing anxiety. Results of the study reveal that the participants are more anxious with their receptive skills (listening and reading, $M=3.49$ and $M=3.39$ respectively) as compared with their productive skills (speaking and writing, $M=3.35$ and $M=3.38$ respectively). Moreover, the highest anxiety provoking situations in each language skill include inability to differentiate words in listening ($M=3.73$), inability to understand what is being read ($M=3.62$), using English in writing a composition ($M=3.67$), and forgetting facts while speaking ($M=3.57$). The above findings are crucial on how language teaching is designed this ongoing semester.

Keywords: Communication Arts, English language, reduction activities, skill-specific anxiety

Introduction

For more than a semester of teaching English to mass communication students, students have cited language anxiety when using English, which in turn inhibits their participation to most activities designed for their classes. Some of the common comments are: I don't like English, English is hard, I'm shy to speak English, I always think I'm not good in English, English grammar is my weakness, I cannot listen, etcetera. Most of the students, however, accepts the importance of English in their future careers, especially in the upcoming full economic integration of the Association of Southeast Asian Nations (ASEAN). The above comments stimulate our desire to conduct a classroom-based study on anxiety in our classes. To date, research on anxiety has become language skill-specific, for example, speaking skill. However, the actual language learning in our foundation English classes is not skill-specific, rather it is an interdependence of four language skills – speaking, listening, writing and reading. While it is possible to isolate teaching a particular skill or sub-skill, the design of the curriculum encourages the teaching of various skills in one setting – a 3-hour class. Thus, this classroom-based study aim to understand the anxiety experiences of the language learners in our classes and to design in-class activities that may decrease their language apprehensions.

Debilitating effects of anxiety

Factors affecting anxiety and its debilitating effects to language learning has been established since the 70's. Accordingly, anxiety is the "distinct complex self-perceptions, beliefs, feelings and behavior related to classroom language and learning arising from the uniqueness of language learning process" (Horwitz, Horwitz, and Cope, 1986: p. 128). The designed measurement scale, Foreign Language Classroom Anxiety Scale (FLCAS), after statistical analysis deduced three factors provoking anxiety such as communication apprehension, fear of failure, and fear of negative evaluation generally found in a foreign language class. Although FLCAS is widely

used, revisions are being done to suit the context under study. The generalizability of the listed anxiety provoking situations may not be applicable to a learning a particular language skill. Overtime, research on foreign language anxiety identified language learning aspects where debilitating effects were established to specific language's macro-skills such as reading, speaking, writing and listening coupled with various skill-specific measurements.

In listening, Kim (2000) in her extensive research on listening anxiety generated Foreign Language Listening Anxiety Scale (FLLAS) specific for listening anxiety. Using Kim's FLLAS, Golchi (2012) found negative correlation between listening anxiety and listening comprehension. Similar to Golchi, Zhang (2013) concluded that foreign language listening anxiety could have a direct impact onto learners' listening performance. Similar to the above debilitating effects of anxiety, Elkhafaifi (2005) further found out that demographic variables may affect the listening anxiety as experienced by students in an Arabic language classroom. Accordingly, year in school and level of Arabic course are negatively correlated with listening anxiety.

In speaking, McCroskey in 1982 constructed the Personal Report of Communication Apprehension (PRCA-24) to measure four communication contexts such as speaking in public, small groups, meetings and in dyads. Mak (2011) collaborated such anxiety situations among Hong Kong university students including lack of preparation in speaking in-front of the class, corrections while speaking, and prohibition of native language use in the classroom. While Gregersen and Horwitz (2002) found negative effects of anxiety on oral performance, the authors by using video-taped oral interviews indicated that perceptions regarding errors and individual performance standards differ individually.

Saito et al. (1999) designed the Foreign Language Reading Anxiety Scale (FLRAS) to alienate reading anxiety from general foreign language classroom anxiety measured by, for example, Foreign Language Classroom Anxiety Scale. Joo and Damron's (2015) study concluded that foreign language reading anxiety varies depending on course levels, gender and exposure to the target language. Shi and Liu (2006) found out that Chinese are more anxious than their American counterparts. In addition, low language proficiency, lack of cultural knowledge, unfamiliarity of the learning context and teacher diversity affected the level of anxiety of Chinese male and female students abroad (Zhang, 2000).

Cheng (2004) elaborated writing anxiety by conceptualizing three dimensions including Somatic Anxiety – psychological effects; Cognitive Anxiety – concerns about perceptions, expectations and performance; and, Avoidance Behavior – aspects related to behaviors of the learners. Since then, the negative effect of writing anxiety to writing task or performance has been clearly established (Chen & Lin, 2009; Saito & Samimy, 1996). Kurt and Atay (2007) demonstrated that students who received peer feedback experienced less writing anxiety than those who got feedback from their teacher.

Revisiting the interdependence of four skill-based anxieties, Pae (2013) suggested that listening, writing, speaking and reading contribute to the general classroom anxiety experienced by the language learners. Furthermore, diminished language performance of the students has been credited to their anxiety experiences (MacIntyre & Gardner, 1995b). In a Spanish class, Casado and Dereshiwsky (2001) indicated that the apprehension levels of the students do not necessarily decrease or increase over time. The authors suggested group activities, the use of native language, creation of support groups and having smaller classes to teach the students.

In-class situations such as negative feedback, peer feedback, and negative thoughts have been documented to have debilitating effects on the language process. Loreto and McDonough (2013) found out that students who perceived feedback positively possessed lower level of anxiety. Among Korean students, Yim (2004) indicated that negative thoughts on their own English ability generates anxiety. With regards to peer feedback in writing, Yastibas and Yastibas (2015) pointed that it has positive results such as the decrease of writing anxiety, increase of self-confidence and improvement of peer collaboration in the classroom. Burden (2004) endorsed teacher's role to act as facilitator in the classroom assessing their performance in a positive way.

Much research on anxiety have focused on its relationship with language performances by administering survey questionnaires. And most studies employed one-time survey method and statistical correlations with grades or language performances were computed afterwards. And while previous research were able to identify variables that incite students' anxiety in language learning, limited studies have conducted twofold surveys to the same population in order to find out which activities or teaching methods could be adapted to decrease or abate anxiety in the language learning process. Moreover, the complex interplay of variables, of which some are mentioned above, are needed to be investigated in a Thai classroom of EFL students majoring in Mass Communication. This will contribute to the paucity of classroom-based studies specifically on the practical recommendations and techniques to address sources of foreign language anxiety in the classroom.

Design of the study

The study is longitudinal, which started in the second semester (January - May 2015) of School Year 2014-2015 until September 2015, the second month of the first semester (August – December 2015) of School Year 2015-2016 in a medium-sized university in Thailand.

This study aim (1) to identify the most anxiety provoking situations in English language learning among undergraduate Communication Arts students and (2) to find ways to decrease their anxiety through peer teaching and activities by using action research approach to understand and resolve the phenomenon under study (Brydon-Miller, 2003).

Participants of the study

The survey was distributed to 160 first year undergraduate students majoring in Mass Communication at the start of the semester in January 2015. On September 2015, the survey was administered to the same population. However, twenty students left the university. Thus, only 140 responses were considered in the final analysis of data.

First phase of the study

Last semester, we have administered four widely-used anxiety scales such as Foreign Language Listening Anxiety Scale (FLLAS) by Kim (2000) for listening anxiety, Personal Report of Communication Apprehension (PRCA) by McCroskey (1982) for speaking anxiety, Foreign Language Reading Anxiety Scale (FLRAS) by Saito et al. (2009) for reading anxiety, and Second Language Writing Anxiety Inventory (SLWAI) by Cheng (2004) for writing anxiety. About one hundred and sixty students participated from our classes. The anxiety scales were found to be highly reliable: 33 items, $\alpha = .91$ for listening; 20 items, $\alpha = .89$ for reading; 24 items, $\alpha = .86$ for speaking; and 22 items, $\alpha = .86$ for writing.

Second phase of the study

Knowing the anxiety levels experienced by our students last semester, we intentionally included peer teaching, a classroom-based activity where students become the central figures in the classroom as compared to their lecturer. It is assumed that such practice reduces their anxiety considerably as recommended by previous studies (Casado & Dereshiwsky, 2001; Kurt & Atay, 2007). Peer teachers are given options to choose the lessons in the textbook to 'teach' to their classmates. They are expected to prepare activities of their choice. However, they are required to discuss such activities to their lecturer a week ahead of their schedule. Guidelines for peer-teachers and teaching techniques were adapted from previous research's recommendations to aid on how anxiety can be reduced. At the end of at least four lessons, we administered an adapted scale which collated only the top 5 highest anxiety situations from the four surveys experienced by the students. The students were instructed to think of their peers as teachers while they filled-out the survey forms.

The instruments

SLWAI is a 27-item questionnaire designed by Cheng (2004) and was generated to measure the second language writing anxiety of undergraduate Chinese students. Example of anxiety situations are writing under pressure, writing under time constraints, worry about evaluation, among others.

FLRAS is a 20-item scale created by Saito et al. (1999). Here are the examples: getting upset when the reading material is not understood, getting confused when the some text are forgotten, getting nervous when the words cannot be vocalized, and feeling uncomfortable in reading aloud, etcetera.

FLLAS consists of 33 items developed by Kim (2000) to measure the listening anxiety of Korean second language learners of English. Sample listening anxiety situations are when the listening passage is read once, people talk fast, unfamiliar topic, difficulty in the understanding spoken instructions, word by word translation of the listening text, inability to understand the content, among others.

PRCA is developed by McCroskey (1982) to measure the anxiety within the contexts of speaking situations listed where the learners feel anxiety are in group discussions, meetings, getting into conversations, and

giving speeches. Instances include participating in group discussions, expressing an opinion in a meeting, conversing with a new acquaintance, fear of giving a speech, forgetting facts while giving a speech, among others.

In all surveys, the students were asked to indicate their level of agreement or disagreement of each item by using a 5-point Likert Scale. Score in the surveys fall into five categories such as 1.0-1.7 – Strongly Disagree, 1.8-2.5 – Disagree; 2.6-3.4 – Neutral, 3.5-4.2 – Agree, and 4.2-5.0 – Strong Agree. Negative statements were turned into positive in the data analysis.

Data analysis

The data were analyzed using descriptive statistics. The means of scores of the items in the first phase of the survey were computed to know the most anxiety provoking situations experienced by the students in the classroom. After adjusting our teaching practices through focusing on peer teaching and classroom activities, the second survey was administered and the means of scores of the top 5 most anxiety-provoking situations were compared to the former.

Findings and discussions

In this section, we discuss the findings of our study focusing on the indicators of anxiety provoking situations in all four skills, the changes that we have introduced after the results of the first phase of study were collated, and the comparison of the results from the first and second phases of the study were discussed.

Highest anxiety provoking situations

Results of the first phase of the study revealed that receptive skills, listening (M=3.49) and reading (M=3.39), have slightly higher mean scores as compared to productive skills, writing, (M= 3.38) and speaking (M=3.35). The above results suggest that a myriad of factors, i.e., the numerous activities held in the classroom, affected the students' uncertainties of what to measure based on the means of scores indicating their neutrality in all four skills as compared to specific-item analysis where the students decisively agreed that such situations in the succeeding sentence are anxiety-provoking.

The highest anxiety provoking situations in each language skill include inability to differentiate words in listening (M=3.73), inability to understand what is being read (M=3.62), using English in writing a composition (M=3.67), and forgetting facts while speaking (M=3.57). The above results indicate the weakness of the students in listening to use cues in the segmentation of spoken words in order to identify the words, which is needed in order to understand the meaning of word or the text as a whole. In reading, the results is alarming as the students may lack of lexical knowledge, even though the readings topic provided were selected from general topics. In writing, the students partially agreed that writing in English arouses their anxiety. It could be result of higher language competence where correctness of language matters as compared to speaking where errors are often permitted and can be self-corrected at the same moment. Since our students are mass communication who are exposed to various communication settings, their speaking anxiety is the lowest among all four-skills measured.

Comparison of highest anxiety provoking situations

In listening, the top 5 anxiety situations (refer to Table 1, first phase) include difficulty in differentiating spoken words (M=3.73), listening to a lecture (M=3.68), fast delivery of speech (M=3.67), familiarity with the topic (M=3.66) and a noisy environment (M=3.62). Most of the students agreed that receptive ability including lexical segmentation and speech rate, and schema affect listening comprehension. It is interesting to note that it is necessary to maintain an orderly classroom as it may affect the input of the text to the hearer. It may also intervene in the process of differentiating words as other sounds interfere in the hearing process. Another interesting point indicated is that lecture may actually stimulate tensions within the students' minds. This situation heavily influenced our decision to initiate an assisted peer teaching activities in our classes this on-going semester reducing our lecture hours.

Table 1. Listening anxiety

Indicators of listening anxiety situations (Kim, 2000)	Means of scores	
	First phase	Second phase
It is difficult to differentiate words.	3.73	3.39
I feel tense when listening to, or imagining myself listening to a lecture.	3.68	2.97
I worry I might not be able to understand when people talk too fast.	3.67	3.58
I am nervous when I'm not familiar with the topic.	3.66	3.37
I have difficulty when the environment around me is noisy.	3.62	3.49

With regards to reading (see Table 2, phase one), the common problem is comprehension-based. As it is a receptive skill, like that of listening, lack of understanding the reading in word-level could lead to a myriad of problems, for example, the need to answer comprehension and inferential questions about the reading text. Such challenges requires an enormous aid from the lecturer on how to help students to read *per se* what the reading passage is all about.

Table 2. Reading anxiety

Indicators of reading anxiety situations (Saito et al, 2009)	Means of scores	
	First phase	Second phase
I get upset when I'm not sure whether I understand what I am reading in English.	3.62	3.50
I am nervous when I am reading a passage in English when I am not familiar with the topic.	3.60	3.53
When reading English, I get nervous and confused when I don't understand every word.	3.59	3.56
I would be happy to learn to speak English rather than having to read as well.	3.58	3.26
When reading English, I often understand the words but can't quite understand what the author is saying.	3.55	3.36

Writing a composition in English is the least activity the students would like to do in their classes. This could be explained by the negative thoughts of the students, their fear of being evaluated negatively, and loss of face. Feedback strategy, therefore, has to be considered to gradually increase the students' self-esteem to be able to take risks in writing the required composition.

Table 3. Writing anxiety

Indicators of writing anxiety situations (Cheng, 2004)	Means of scores	
	First phase	Second phase
Unless I have no choice, I would use English to write a composition.	3.67	3.25
If my English composition is to be evaluated, I would worry about getting a very poor grade.	3.59	2.91
I'm afraid that all my English compositions would always be as very poor.	3.52	3.31
I'm afraid that other students would deride my English composition if they read it.	3.51	3.13

I'm afraid that other students would deride my English as very poor.	3.51	3.13
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In speaking, there is a heavy emphasis on students' uneasiness to get involved in group discussions (refer to Table 4, phase one). This could be due to the fact that every group member during discussions are required to provide an input of the topic at hand. Others might feel pressured by their peers as compared to their lecturer's pressure, which is often disregarded as students may opt to stay quiet.

Table 4. Speaking anxiety

Indicators of speaking anxiety situations (McCroskey, 1982)	Means of scores	
	First phase	Second phase
Getting involved in group discussions	3.57	3.26
While giving a speech, I get so nervous I forget the facts I really know	3.57	3.26
Not comfortable while participating in group discussions	3.52	2.52
Not calm and relaxed while participating in group discussions	3.49	2.55
I dislike participating in group discussions	3.46	3.83

Upon considering the situations where the students feel apprehension, discomfort, or uneasiness, assisted peer-led lessons and activities in the classroom were adopted. This complemented the new directive of the university to consider communicative approaches in language teaching. The guidelines enumerated in Table 5 were given to our students to support peer teaching and activities and were considered as ways to decrease the high levels of anxiety on the items found in the first phase of study. It is believed that teacher-centered classroom in language teaching ease the students' listening anxiety as their peers are expected to speak slower, use simpler vocabulary, among others. In most peer-led activities, more proficient students were expected to act as peer-teachers resulting to a less stressful learning environment (Merc, 2011) may it be in reading, listening, writing and speaking.

Since it was anticipated that our students will have difficulty in planning the lesson, each group were required to prepare and consult their respective lecturers at least one week prior to their scheduled presentation. The assigned group has to create practice-based activities such as games. Where individual participation is needed, the group presenters were asked to anoint their own representative to do the required task. The group presenters were also asked to encourage in-group discussions. To abate their anxiety about lack of topic familiarity and unpreparedness, the group presenters were required to inform their classmates of the lesson beforehand by posting updates in our class's social media account. Lastly, the use of Thai language was permitted whenever necessary.

Table 5. Guidelines in peer teaching and activities

Key points

Prepare lessons and consult the lecturer at least one week ahead of the schedule

Design practice-based activities in groups

Give opportunity for individual participation but as a representative of their respective group

Promote discussion in groups

Inform the students beforehand about the lessons

The use of native language is okay whenever necessary

Aside from the listed guidelines above, some key areas in our teaching were listed to be improved (refer to Table 6). The following were agreed: photocopy the timetable of lessons and activities for all the students before the start of the semester to keep them up-to-date, allow the use of paper-based dictionaries in the classroom to minimize classroom nuances, creation of our class's social media account to post announcements, to select general topics for all four skills, to do individual feedback rather than in-class to avoid loss of face, to give time for the students to prepare, to encourage group or individual consultations with their respective

lecturers, and to do pre-presentations with their lecturer ahead of the scheduled activity. Based on previous recommendations from previous studies, specific points to be considered in listening are to use pause and play technique to make sense of the listening text in phrasal or sentence levels; in speaking, to allow the use of native language during group discussions as comprehension of the topic is paramount, and to allow notes during presentations but reading of notes is ultimately discouraged.

Table 6. Techniques adapted

Key points listed

Providing students with the timetable containing lessons and activities

Pause and play technique in listening

Use of paper-based dictionaries

Use of native language is permitted during group discussions

Creation of a social media account to post announcements, etcetera

Selection of general topics for all four-skills

Individual feedback is encouraged

Giving time for students to prepare for all four-skills

Allowing notes in presentations but not reading

Encouraging group consultations with the lecturer

Do pre-presentation with the teacher ahead of the scheduled activity

The results of the second phase of the study (see Tables 1 – 4, second phase) produced interesting points to be considered. In listening, the students' anxiety while listening to their classmates – the assigned group to teach the lesson has decreased. This could be explained by the fact that similarity of accent – Thai accent between the presenters and listeners do exist. The word stress of the word /computer/ in a Standard English might be incomprehensible to some students as they are used to hearing the word stress at the last syllable. Thus, accented words familiar to the students were recognized easier. This is an affirmation of Casado and Dereshiwsky's (2001) recommendations that group activities and the use of native language may actually decrease anxiety in the language classroom. Moreover, the pause and play techniques in listening may have given more time for the students to recognize the words.

It is also indicated that students prefer speaking activities rather than reading. *I would be happy to learn to speak English rather than having to read* shows the largest difference of the means of scores of the students under reading anxiety. Understanding a reading text would be more laborious as students may need to use certain conventions and techniques to understand the meaning of the text. In speaking as it is done face to face, the listener or teacher can ask questions when the idea is unclear. Also, this could be the result of giving less attention to reading in-class as compared to the previous semester.

In writing, much of the students' worries are related to negative evaluation, for examples, poor grade and negative feedback. This is consistent with the debilitating effects of anxiety onto writing performance (Chen & Lin, 2009). The apprehensions in writing could be attributed to the complexity of the writing process in which cohesion and coherence are highly considered. At times, students may need to write a new topic where they have very limited knowledge about it. So it is not surprising when students negotiate to have the writing activity as a take home assignment. Nevertheless, giving more time for the students to write and allowing them to use paper-based dictionaries may actually help in decreasing writing anxiety. Moreover, as students may have to avoid *loss of face* in the classroom, individual feedback may help students feel at ease in the writing process.

Lastly, one indicator has actually increased in speaking - dislike of participating in group discussions. Similar to Mak's (2001) study, students might feel pressured during group consultations with their respective lecturers as all group members must individually take part in the pre-presentation activities and while- presentation activities. While students may not pay attention to the lecturer, students often cannot neglect peer pressure to undertake a speaking act especially when individual contribution is a factor to compute group grades. Also, immediate feedback during the pre-presentation activity could also be a contributing factor. Hence, the teacher has to provide a well-thought feedback in a timely manner. Contrary to the above indicator, the teaching techniques such as encouraging group consultations and pre-presentations may have help students to become better prepared. Allowing notes during presentations is a relief for the students whenever they forget the facts. The above ways support the reported strategies or techniques on how anxiety can be reduced in the classroom.

Overall, the unpredictability of results affirm the very nature of foreign language anxiety in which it may increase or decrease based on the students' feelings or perceptions during the language learning process (Casado and Dereshiwsky, 2001). While the results are not new, the use of twofold survey and action research approach may help a classroom phenomenon better understood.

Recommendations

Although previous research on anxiety indicated its debilitating effects to language learners by administering a one-time survey, administering twofold surveys where fairly similar conditions occur maybe more beneficial on how a phenomenon under study could be understood. And though action research in the classroom could be adapted, there is a need to reinforce it with other methodologies to claim significant effects, for example, of peer teaching and classroom activities as ways to decrease the students' anxiety in foreign language learning. Longitudinal studies which include classroom observations, student journals, among others can also be considered. As it is convenient to conduct classroom-based research, students' voices by doing focus group or individual interviews should be included to gain deeper insights on the students' experiences and to utilize it to support the limitations of a survey method. By doing so, the results may become more reliable as students are given opportunities to share their own personal interpretations of the study.

Conclusion

This research is situated in a classroom of communication arts students in Thailand. So far we have reported general guidelines for peer 'teachers' and the lecturers after administering the four different skill-specific language anxiety surveys. Although anxiety could happen at any time due to varying factors such as the learner, the teacher, environment, the task, among others, we have found out that peer teaching and activities may help decrease the most-provoking anxiety indicators in all English skill-specific surveys except in group discussions.

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About the Authors

Jeffrey Dawala Wilang and Atita Satitdee are both lecturers at the Faculty of Humanities and Social Sciences, Nation University, Thailand. They co-teach some English foundation courses for Communication Arts students.

Integrating English to Science Teacher Training Classroom

Supat Sairattanain

Abstract

This study was aimed determining the attitudes of student-teachers towards the integration of English in science education. With the impending ASEAN Community of 2015, the Institute for the Promotion of Teaching Science and Technology in Thailand initiated the campaign of combining English usage with scientific tasks. The subjects of this study were forty students, enrolled in the faculty of education, majoring in Science education at Sisaket Rajabhat University, a teacher training institution in the Northeastern part of Thailand. The subjects were assigned to do projects related to science experimentation, and also present their experiments in English. Prior to their presentations, they were trained how to present projects in English. Data were collected by questionnaires, which aimed to determine their attitudes towards the integration of English into their science project presentations, and to compare different strategies used to complete the task. Students were also interviewed after completing the questionnaire. The results stated that the majority of student-teachers considered integrating English in science as very challenging as they needed to practice how to deliver both accurate science content and comprehensible English. Nonetheless, all of the subjects realized how important it is for them as future science teachers to teach in English. Hence, they were willing to practice more with a positive attitude. These findings can be used as guidelines for a teacher training institution to further enhance the integration of English in subject matters.

Keywords: Content-based instruction, teacher training, English use

Introduction

English is important for educational sectors as it gives access to a vast pool of knowledge. In Thailand, English has become an important element in education at all levels, including teacher education. This need is becoming even more urgent as Thailand prepares to join the ASEAN Community in 2015. As an effect, English has been integrated as part of science education since 2013 with seminars and workshops initiated by The Institute for the Promotion of Teaching Science and Technology (IPST) for the purpose of educating science instructors to be aware of the use of English. This can be seen as an indicator that Thailand is readying itself for use of English as a medium of instruction.

Nonetheless, there is a limited amount of research with regards to science teacher training. To bridge this gap and promote the use of English in future science classroom, this present study was conducted to explore the attitudes of student-teachers towards the assimilation of English use in the teaching of science subjects. Specifically, this mainly focuses on the attitudes of science teacher trainees when tasked with delivering teaching and presentations in English. A side issue worth investigating is also the application of oral presentation strategies used by science teacher trainees.

Investigating student teachers' attitudes towards the use of English as a medium of instruction should be a key in defining the success of further integration of English into the subject matter. Teachers in the 21st century should not be well-versed only in knowledge about subject content, but they also need to be aware of how to achieve the level of competence suitable for promoting learners to learn in the current world where English is a crucial tool for functions of everyday life.

Literature Review

English in Thailand

Wiriyaichitra (2002) pointed out the role of English as important factor in the progress of business, education, science, and technological development in Thailand. In particular, with the upcoming ASEAN community campaign in 2015 where English has been promoted as a medium of communication for people of the region, the mastery of the language becomes even more important for Thailand. Billions of baht has been spent to raise the awareness and preparedness of Thailand and the Thai people for the AEC (Chonkittavorn, 2014).

Regardless of the budgets spent for improving Thai students' ability to be compatible with the ASEAN community, the relatively low proficiency of English in Thailand as compared to other neighbouring countries cannot be denied. Noom-ura's (2013) study found that under-qualified teachers seemed to be the main point of this issue. She mentioned that from a survey conducted with four hundred Thai teachers of English, 60% of the respondents report to having very limited knowledge of both English subject content and teaching methodology for the subjects. This result is echoed in Foley's (2005) study and de Segovia and Hardison's (2009) study where English teachers have reported using the Thai language to teach their English classes. Further subjects had reported a very traditional approach in language teaching, where structure is emphasized, instead of communication.

Attitudes towards English

Exploring participants' attitude towards English was done for three purposes to support the objective of the present study. First, as a means to examine the language situation in the target participants' context, and second, to analyze for any correlation between attitude and strategies used while attempting to complete the English presentation task. The final purpose was to see the willingness of student-teachers in using English in teaching science content. Attitude is considered pivotal as it is one of the key factors in implementing English as a medium of instruction in higher education (Tatzl, 2011).

A fair amount of studies has been done to look at the correlation of student's learning attitude with performance. One of such studies conducted in a Thai context was done among undergraduate students (Hengsadeeikul, et al., 2013). The study found that Thai students possessed an instrumental attitude towards the use of English, as they perceived English as useful for task completion and material comprehension. Aside from that, the study also pointed out that the students also viewed English integratively, as the language gave them insights into understanding different people who spoke the language. This study will serve as a baseline for the present study.

Speaking strategies

Speaking skill is an important facet for teachers because it involves the aspects of explaining, telling, and providing knowledge verbally. For the Thai context, one important teacher role is that he or she is a knowledge transmitter, which may give rise to the assumption that teachers who do not talk are not doing their jobs well (Sanprasert, 2010). Nonetheless, as reported earlier, Thai teachers are found to emphasize structural knowledge in their English language pedagogy (Foley, 2005; de Segovia & Hardison, 2009). This may not bode well with the communicative idea that is integral in task-based teaching and learning. With this as a cornerstone, it is necessary that speaking skills of both experienced and novice teachers are at an acceptable level. For second language learners of English, this may be a challenge that may be attended to through the development of strategies. Cohen and Dornyei (2002) and O'Malley and Chamot (1990) summarized that learner strategies in learning new languages include learning strategies, language use and communication strategies. According to Cohen (1988), language strategies is divided into four categories which is also used in this study as a guideline.

In Adamson's (2004) study on Thai language learners' strategies, Thai students were viewed by western lecturers as having limited learning strategies due to the familiarity with rote learning study. In the review of literature of Adamson's (2004) study, it was mentioned by previous research such as Holmes and Tangtongtavy (1995) who offered an alternative explanation for this matter that Thai learners have the concept of *Krengjai*, which means being considerate to pose direct questions to adults, or figures of authority, including teachers. This may be cultural issue that may hinder Thai learners from developing an openly communicative use of English. Nevertheless, the results from Adamson's (2004) study did not draw the conclusion that Thai learners' strategies were limited. Instead, he suggested that strategy training should be introduced appropriately in

light of the local culture. Furthermore, the training of strategies may be necessary for new students entering university.

Integrating English into science education

There is a quite a limited number of studies that deal with the integration of English into science education in Thailand context. Therefore, the researcher reviewed most of the literature of this topic from similar educational context where English is not the mother tongue of the students. A lot of literature came from the Malaysian context where English is promoted as a medium of instruction for both Mathematics and Science. There is a belief that mastering the language will lead to successful learning of mathematics and science (Lemke, 1990). However, some studies found that English can be a great hindrance for learning the subjects' content since many scientific texts use far too complicated language, resulting in learners who are not proficient language learners experiencing difficulty in grasping the concepts (Brown & Kelly, 2009; Sherer et al., 2009).

These previous studies helped in the realization that integrating English into science content is not an easy matter. Therefore, an appropriate level of language added to the lesson should be suitable for level of the students. Language that is too complicated might lead to frustration in trying to link the two subjects. With this in mind, the researcher take decided to begin with a basic experiment, which involved the subjects being recruited for this study. In preparing student-teachers for the in-service experience, it is very helpful for them to be involved in an empirical study so as to promote the conceptualization of learner-centeredness and learner autonomy (Isarasena, 2007).

Though studies into students' attitudes towards the use of English, as well as the related strategies in a classroom setting have been done, the topic has yet dealt with student-teachers. This is of high importance, especially with the paradigm shift in determining the qualification of non-English speaking subject teachers teaching in English. Results may divulge the teaching competences of the future student-teachers, which subsequently may provide a platform for teacher training improvement (Hayes, 2009).

Methodology

This research was undertaken with a group of forty science student teachers taking a Physics Laboratory class. They were all in the third year of a five-year teaching program. At the time of the study, they had completed two fundamental English courses taken at their sophomore year.

The basis of this course was partially aimed at promoting students to produce experimental projects that would be beneficial for their future teaching career. The participants' experiences with English were quite limited as observed from their performance of English courses taken in university. Their English proficiency levels were varied ranging from beginner to pre-intermediate, according to English standardized test administered by faculty of Education.

The study was carried out in three phase:

1. Pre-presentation phase where participants were asked to complete a questionnaire to see their general attitude towards English. The data from this survey was calculated for the mean score to differentiate the groups of the students into those with a positive attitude (mean score over 2.55), and those with a less positive attitude (mean score lower than 2.55).
2. While-presentation phase was done by assigning the participants to present their science experiments in groups. These presentations were graded by English lecturers. During the presentation, they also reported their strategies used for preparing for the presentation. The data was calculated for the mean score of each item to see if there was any significant difference between two groups of students.
3. Post-presentation phase was the qualitative phase where the participants who were grouped according to the results from the attitude survey, as well as the observed speaking strategies in the different groups were interviewed. During the interview, the subjects were asked to freely articulate what they thought about the project, giving chances for the researcher to probe for more information.

Given that the goal of this study is to investigate the actual practice of integrating English into the science classroom, the mixed-method approach was considered advantageous in gleaning more specific and in-depth information.

Results

Attitudes of the subjects towards English

By differentiating subjects according to the mean score obtained from the survey results, eight subjects were categorized as having less positive attitude towards English while the other nine were grouped as those have a positive attitude towards English subject.

The item ranked the lowest in the questionnaire was item 29 (Fluent in English is one of my life goals). This served as a basis for the interview, which yielded interesting results.

According to the interview with the students with less positive attitude about English, they reported that they have never thought of themselves as English-proficient students. For them, as students majoring in science, they prioritize their mastery of science content and the ability to carry out experiments. However, even without imagining themselves as fluent language users, the subjects in this group articulated that they realized that knowing English is vital for their teaching career because some of the scientific terms are in English, which they want to pronounce correctly, and be able to explain the meaning to their future students.

Another item that had a low mean score ($\bar{x}=1.52$) was item 25 (Finding ways to improve English speaking ability). Data from interview presented the correlation between not including being fluent in English with this item. The subjects reported that when they did not picture themselves using English in their lives, and they could not be motivated to have a self-study to further their knowledge. They thought that the English courses provided by the university were enough to let them get through their academic lives. The major cause of less positive attitude is the fact that the subjects felt that their background of using English is not enough to make them speak with confidence.

All of the subjects, who had less positive attitude participated the interview evaluated their language proficiency at low level. They often mentioned about their insufficient time spent in learning English during their secondary and high school period before entering the university. However, their mean score for item 30 (Interested in learning science content by using English as a medium of instruction) was quite high ($\bar{x} = 3.45$) since they realized that English has become an official language for the ASEAN community and they said they want to keep themselves up to date by using the language to search for knowledge within the ASEAN.

What came as a surprise was the subjects' attitude about the use of English for teaching. The attitude about the importance of English for a teaching career was found among both groups of students to be not very important. The group with a positive attitude reported that their English was not very important for being teacher ($\bar{x} = 1.45$) while the group with less positive attitude towards English found that English was not necessary in teaching ($\bar{x} = 1.00$). This trend continued to item 30, which addressed the willingness to learn integrating English to Science content. The group with a less positive attitude pointed out their reluctance in learning how to combine the two subjects, English teaching of science ($\bar{x}=1.58$), since they thought that it would be difficult. They also stated that their limited vocabulary knowledge and their lack of confidence in pronouncing English contributed to this reported opinion. The group with positive attitude, on the other hand, showed more willingness in trying to learn science by using English as medium of instruction ($\bar{x}=2.73$). Regardless their uncertainty about understanding the difficult content in Science, this group of subjects informed that frequent exposure to English can lead to the improvement.

These relatively low mean score for these two items reminded the researcher that there should be more emphasis in combining science with language. The student teachers majoring in science should be frequently reminded that English could be useful for their future teaching career. The first reason for that is to let them be familiar with English-named apparatus. The second reason lies in gaining more knowledge for academic content as numerous amount of information is available in English. They can widen their knowledge about teaching techniques and media facilitating instruction by searching in English content.

After building an overview of the participants' attitude towards learning English, subjects were assigned to make a short video of a science experiment related to physics. The researcher suggested some helpful resources and also asked an expert to comment on the language used. After the clips were made, the second questionnaire was distributed to see how they used different strategies to achieve the goal of making oral presentations.

Table 1. Metacognitive strategies used by the participants during oral presentation

Participants with different attitudes	Positive (<2.55) (12 participants)	Less positive (>2.55) (11 participants)
Item 1: Effective group preparation	3.42	3.18
Item 2: Appropriate duties division	3.58	3.45
Item 3: Connect topics from each member	3.42	3.18
Item 4: Memorization of the content	3.17	3.09
Item 5: Group facilitates English usage	3.25	3.09

The significant differences in using metacognitive strategies could be determined from item 1 (relating to cooperative in preparation stage) and item 3 (gathering information individually). The reasons for distinction between the two groups were explained as following.

The group with less positive attitude towards English reported a higher level of cooperation at the preparation stage. From the interview, they further explained that they realized that their low-level proficiency made them gather together during preparation stage. They felt more confident when they could work side by side with their friends regardless of the time spent for scheduling for a time that suited every group member. The major task that required them to work with each other was selecting relevant content for the experiment. During the very first step of preparation, they had to decide which kind of experiment they would like to do. For the group with a positive attitude towards English, this process had been done individually before taking each preference to the group to decide the most suitable topic while the other group could not continue without members' confirmation. For item 3 (gathering information from each member), the participants with less positive attitude represented a higher level of successfulness due to the fact that they defined the term "individual" based on the section of assigned work rather than counting on each member of the group. These participants viewed their level of accomplishment from peers' assistance. The other group whose attitude towards English was positive viewed their work individually at a lower mean score as some of the group member had sent their work late or selected inappropriate content which could not be used in actual presentation. The latter group tended to work separately before presenting what they had found to the group. As a result, when combining the content from each member, some content were dismissed unlike the previous group who worked and consistently approved the content. Their level of achievement in combining content became higher.

Cognitive Strategies

Table 2. Cognitive Strategies used by the participants during oral presentation

Participants with different attitudes	Positive (<2.55) (12 participants)	Less positive (>2.55) (11 participants)
Item 1: Write down new words	3.08	2.82
Item 2: Compose English notes	3.08	2.73
Item 3: Pronounce correctly	3.33	3.45
Item 4: Look for main ideas	3.08	2.91
Item 5: Make English summary	2.67	2.64

The group with less positive attitude towards English defined the way they wrote the memo for helping them in memorizing as jotting down all the important content in English. They reported that this method made them feel more confident in speaking when they saw the note right beside them during both the practice and actual presentation sessions. On the other hand, the group with a positive attitude did not depend on their notes much. They said they wrote down important ideas and looked at their notes during

practice period. However, they mentioned that the note was not as important as memorizing the content by themselves.

The group with less positive attitude reported more use of Thai language when they struggled in expressing themselves during the presentation. Despite the fact that most of them had notes with them while presenting, they felt nervous and used some Thai words or phrases when they could not think of the English equivalent.

Communicative strategies

Table 3. Communicative strategies used by the participants during oral presentation

Participants with different attitudes	Positive (<2.55) (12 participants)	Less positive (>2.55) (11 participants)
Item 1: Using gestures	3.17	3.00
Item 2: Create new words	2.08	1.91
	2.00	1.64
Item 3: Use Thai	1.58	1.64
Item 4: Skip some parts	2.08	2.18
Item 5: Use phrases to explain terms		

The group with less positive attitude tended not to skip the part that they could not remember, most probably because they had their notes with them. Therefore, they just consistently read from the notes and avoided any pauses. The group with positive attitude attempted to recall the whole presentation and became nervous at the actual presentation. As a result, they reported more frequent times of skipping and pausing.

Rehearsal strategies

Table 4. Rehearsal strategies used by the participants during oral presentation

Participants with different attitudes	Positive (<2.55) (12 participants)	Less positive (>2.55) (11 participants)
Item 1: Remember from the notes	3.08	2.82
	3.67	3.55
Item 2: Several rehearsals	3.67	3.55
	3.58	3.45
Item 3: Group rehearsal	3.25	3.36
Item 4: Giving feedback		
Item 5: Benefit of group pre		

The group with less positive attitude claimed that they tried to memorize the content from their notes. However, they found themselves failing in presenting naturally. They reported that when they looked at themselves in the video presentation, they felt like their oral presentation did not sound as natural as it should be. The other group with a more positive attitude towards English, on the other hand, reported a similar attempt to remember information from the notes they made. However, for them, it was not to remember every single word, but to remember only the steps of the experiments and key words that they had to use during presenting.

Regardless of the fact that the group with less positive attitude preferred working together in the preparation stage, when it came in to presenting, they reported that they had not practiced presenting with their group as many times as they expected. Most of the participants belonging to this group found that they tended to use the notes that they have made during preparation to practice separately. Shyness to speak in front of others became a significant issue at the actual presentation stage. Therefore, they reported a lower mean score in item 5 (practicing in group facilitate memorization and better presentation). On the other hand, the group with positive attitude seemed to be more concerned more about the flow of the presentation. From the interview, they mentioned several times that rehearsal with group members helped a lot in making their presentation sound natural. They had to take turns presenting the steps in the chosen experiment, so the smoothness of moving from each step was needed. Therefore, they mentioned that group work helped a lot to better their presentation.

Conclusions

The issue of attitude not only affected how participants used different strategies in coping with the oral presentation task, but also influenced the way how they viewed themselves as science teachers in the future. Regardless the fact that all participants realized that English became vital in Thailand education, the willingness to try combining the two subjects were varied according to attitudes. Although all of the participants were enrolled in the same major and same faculty in their undergraduate study, their background about English exposure were very different. From the interview, subjects with less positive attitude towards learning English tended to have an unpleasant experience in learning the language since they were in high school. This affected the way how they see themselves as a science teacher, who can integrate English in their classroom, in the future. A lot of participants often mentioned about their reluctance of using English in their future classroom because they felt that they lack knowledge to pass on to learners. They felt hopeless in combining the complex content of science with English. Some of them mentioned that they were willing to try if the faculty provided them with special trainings and support. On the other hand, the students with positive attitude were different significantly in terms of their view of themselves as future science teachers. From the interview, they stated that after conducting the oral presentation project, they realized that they had to try a lot harder in improving their English speaking skills. They asked for more training and solicited suggestions on how to improve their English ability. They even asked if it was possible for teachers to partly give lectures in English to make them familiar with the language. For the strategies used, it seemed clear that the group of participants who have less positive attitude used strategies to help them be able to present their experiment more frequently. Form the interview with them, the researcher have learnt that they depended on various strategies because they thought that only their limited ability of English was not enough to survive this project.

This study concludes that in order to promote science student-teachers to become more aware of integrating English into their lessons. Promoting a positive attitude towards using and learning English is needed. Without the positive attitude, student teachers might be hesitant to use English as the medium of instruction of science content. More importantly, teacher training institutions have to have the awareness that knowledge about the medium of instruction is as important as the content for instruction. In this era, science teachers have to know more than just science concepts and how to conduct experiments. Science education in the ASEAN period will also need to take into account how to make the content accessible and transferable within the wider community.

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About the Author

Supat Sairattanain is lecturer in the Science Program, Faculty of Education, Sisaket Rajabhat University. He has a PhD from Mae Fah Luang University majoring in Computational Science. His interests are Geographic Information System (GIS) and science education.