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The Effects of the SQ4R in Developing Grade 6 Students' Pronunciation of Consonant Clusters

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Abstract

The ability to pronounce consonant clusters is essential for the communicative processes of a language. The SQ4R teaching model, normally employed in reading comprehension development studies, could be adapted to benefit a speaking classroom. The purposes of the study were 1) to investigate the effects of the SQ4R technique on Thai students' consonant cluster pronunciation and 2) to study student satisfaction with the SQ4R technique in developing consonant cluster pronunciation. The participants were 40 grade 6 students in a public school in Thailand. The participants were chosen using the purposive sampling

method. The criteria emphasize the heterogeneous characteristics of first language, experiences in foreign countries, and dialects. The instruments were 1) a learning management plan designed using the activities of the SQ4R technique in developing the pronunciation of consonant clusters, 2) consonant clusters pronunciation assessment form, and 3) a satisfaction questionnaire. The data were analyzed using percentages, mean scores, standard deviation, and an effective index with the determining criteria of 75/75. The results of the study indicate the benefits of the SQ4R technique to both in-process and end-product outcomes. Moreover, it was also found that the participants were satisfied with the processes provided by the learning management. The results of the study provide academic implications for further research and pedagogical implication for educational personnel seeking to solve problems in developing students' pronunciation.

Keywords: SQ4R, Pronunciation, Consonant clusters

1. Introduction

The majority of the time spent in developing learners' language skills is instructing grammar and vocabulary knowledge in class, particularly in the grammar-translation teaching approach that is practically implicated in the learning context but fails to establish communicative skills among students (Natsir & Sanjaya, 2014). On the other hand, the function of a language is determined by how effectively it enables message senders and receivers to communicate with one another. Because of this, the development of learners' pronunciation must be taken into consideration in the design of activities for language acquisition. According to Gilakjani (2016), the uptake of speakers' pronunciation by the hearers is a crucial component in the process of keeping the communication processes going. Therefore, knowing the phoneme system of a language can involve more than simply being familiar with the sound of the language; this is because knowing the phoneme system of a language can involve phonology. Learning how to integrate individual phonemes or sound segments into phoneme sequences, clusters, syllables, and words is another part of the process.

In developing learners' pronunciation, issues have to be considered. One of the sound systems that might cause problems for learners is consonant clusters. Consonant clusters are defined by Giegerich (1992) as the occurrence of two or more consonant sounds within a single word without any intervening vowel sounds. Additionally, there is the option of having consonant clusters at the beginning, the middle, and the end of the sentence. Additionally, there are initial consonant clusters that are coupled with medial or final ones, as well as medial consonant clusters that are combined with final ones. In addition, there are initial consonant clusters that are combined with final ones (Hasan, 2019). To develop students' pronunciation of consonant clusters, teachers may let learners become familiar with phonemes so that they can employ them in any working setting. The students' ability to enunciate sounds precisely at a level that allows them to continue communicative activities is of the utmost importance. Furthermore, to achieve mutual intelligibility among the speakers, one must be able to correctly hear the sound to be able to appropriately generate the sound. It is important to keep in mind that having proper pronunciation is essential to have proper communication and proper reading.

Nevertheless, acquiring the skills of producing output with proper pronunciation is complicated. Two principles were introduced to explain the difficulty in developing learners' phonology knowledge and practice. Lado (1957) purpose the contrastive analysis hypothesis claiming that the influence of one's mother tongue can have a significant impact on how one pronounces words in a second language. According to this theory, all phonological mistakes can be traced back to something called the "first language effect". This is because people learning a second language rely on the structure of their mother tongue when pronouncing the target language. Hence, transferring one language to another can result in a non-native-sounding pronunciation in the target language. One explanation given for the difficulty in learning to produce pronunciation was presented in the Markedness Analysis Hypothesis (Eckman, 1977; Tarone, 1980). It implies that the target language is going to be significantly more difficult to pronounce due to the differences between the two languages. According to the Markedness theory, the degree of difficulty in pronouncing a word is determined by the differences in the syllable structure of the first language (L1) and the second language (L2). For example, the acquisition of consonant clusters by Korean learners of English adapted the unmarked syllable structure because it is easy and familiar to them. This was the case because English consonant clusters were acquired by Koreans. Therefore, the difficulties in pronouncing words, especially clusters could be explained in both intra-language and interlanguage aspects.

It could be seen that the pronunciation of consonant clusters can cause problems for language learners due to factors of both difficulties of language structures and interference of L1. Therefore, in the development of pronunciation, problems should be taken by an instructional method that could allow learners to comprehend the phonological concept of consonant clusters and provide them an opportunity to practice using it until the skills are acquired. In this case, the SQ4R technique could be an alternative instructional method that could help learners inspect their performances and develop them. The SQ4R method is a way of reading and learning from practical exercises (Rodli, 2015). The term SQ4R is derived from Survey, Question, Read, Respond, Record, and Review. According to Applegate et al. (1994), The SQ4R system can facilitate language learning by utilizing the application of practical performance and notetaking skills. The technique is originally developed to help language learners comprehend texts in reading class. However, with the adaptation of each step of the technique, it could also be beneficial for pronunciation practice.

Survey (S)

In the survey stage, students might be instructed to roughly look at the text components. The survey might include the length of the sentence, words, consonant clusters, intonation, etc.

Question (Q)

The question stage is the most important section of reading comprehension. In this stage, students are expected to ask questions "what", "when", "where", "why", and "how" to make a connection of the text component. In pronunciation practice, the question could be What consonants are used to create the words? how should they sound? "Did I pronounce them correctly", etc.

Read (R1)

The students are asked to try pronouncing consonant clusters in this stage. The pronunciation exercises can be designed and implemented with the consideration of learners' language competency and expected outcomes.

Response (R2)

After practicing pronouncing the words in exercises, students review their performance and answer the questions asked before to make sure that they pronounce all the phonemes, make the right sounds, and convey the meaning of the words.

Record (R3)

The students might record their performance using electronic devices to carefully review their pronouncing performances.

Review (R4)

The students listen to their performances and fix the mistakes if any. Feedback from peers or teachers could be given in this stage.

It could be noticed that the processes of the SQR4 technique allow learners to take control of their learning. The S and Q stages allow them to process the input with plans. the R1 and R2 were the execution of plans while R3 and R4 stages encourage the revision of the plan. According to Djudin & Amir (2018), SQR4 assists students to develop student's metacognition in learning. Quality is defined as the capability of controlling the cognition processes of learning. It is also a reference to people's awareness and control of their emotions and the motivations behind their actions (Papaleontiou-louca, 2003). These learning behaviors could also benefit students' learning as a whole since they can lead to the selection, evaluation, revision, and abandonment of cognitive tasks, objectives, and tactics. In addition, it can lead to a range of metacognitive experiences and help them evaluate their meaning and behavioral implications.

Moreover, the results of previous studies found the benefits of the SQ4R technique in language education. As mentioned, the technique is designed to develop receptive skills. Studies have found the benefits of the SQ4R in reading comprehension (*e.g.*, Başar & Gürbüz, 2018; Narges & Farh, 2015; Sayed, 2020). However, the technique could be adapted to classes of productive skills as it prioritizes the development of metacognition in learning which could be used in learning any skills. Therefore, the current study aims to employ the SQ4R technique in developing Thai students' consonant cluster pronunciation. The purposes of the study were 1) to investigate the effects of the SQ4R technique on Thai students' consonant cluster pronunciation and 2) to study student satisfaction with the SQ4R technique in developing consonant cluster pronunciation.

2. Methodology

2.1 Research Design

The study was conducted in a quasi-experimental design employing one group of participants and assessing their performances before and after the treatment to prove the hypothesis of the study. The study utilizes a null hypothesis since the SQ4R technique is generally used in receptive skills. The participants' satisfaction with the technique was also investigated to illustrate the psychological aspect of learning that the SQ4R has in instruction.

2.2 Participants

The participants were 40 grade 6 students in a public school in Thailand. The students pass through language courses issued in Thailand's core curriculum (Ministry of Education, 2008), and none of them reported having experience abroad. The participants were chosen using the purposive sampling method. The criteria emphasize the heterogeneous characteristics of first language, experiences in foreign countries, and dialects as they could affect the development of pronunciation.

2.3 Instruments

The instruments were 1) a learning management plan designed using the activities of the SQ4R technique in developing the pronunciation of consonant clusters, 2) consonant clusters pronunciation assessment form, and 3) a satisfaction questionnaire. In detail, the learning management plan consists of 5 lesson plans requesting 10 hours of instruction. The learning management was validated by experienced teachers and all plans were rated to be consistent with the purpose of the study at a very high level. The learning management was implemented in the trial session and found to be effective in developing preliminary samples' performances. The test consists of 30 multiple-choice question items. The difficulty (p = 0.3-0.8) and discrimination (r = 0.29-0.83) of the test items were at an acceptable level. The reliability of the test was 0.971. The questionnaire consists of 15 positive statements regarding learning with the developed learning management plan. The questionnaire was designed on a 3 Likert scale, and the reliability of the instrument was 0.901.

2.4 Data Analysis

The data were analyzed using percentages, mean scores, standard deviation, and an effective index with the determining criteria of 75/75.

3. Results

3.1 The Effectiveness of the SQ4R Technique in Developing the Pronunciation of Consonant Clusters

Table 1. The effectiveness of the SQ4R teaching model

Learning plan	Full-mark (N = 40)			Student score in total					
	Tests	Exercises	Group work	Tests	Exercises	Group work	Σ	$\bar{x}$	S.D.
1	10	12	15	283	426	540	1,249	31.225	0.22
2	10	12	15	286	437	542	1,265	31.625	0.31
3	10	12	15	292	435	546	1,273	31.825	0.27
4	10	12	15	307	441	553	1,301	32.525	0.04
5	10	12	15	313	425	542	1,280	32.00	0.50
total	50	60	75	1,481	2,164	2,723	6,368	159.20	1.12
$E_1 = 159.20 \times 100/185 = 86.05$ $(E_1) = 86.05$									

According to Table 1, the student's total score for all activities after learning with the learning management plan designed using the activities of the SQ4R technique in developing the pronunciation of consonant clusters was 6,368 which accounts for the average score of 159.20 for each student. This number accounts for 86.05 % of the maximum point. Therefore, the process effectiveness (E_1) of the developed learning management was 86.05.

Table 2. The effective index of the SQ4R technique

Performance	Full mark	$\bar{x}$	S.D.	%
Process effectiveness (E_1)	185	159.20	1.12	86.05
Outcome effectiveness (E_2)	30	26.65	1.81	88.83
Effective index (E_1/E_2) = 86.05/88.83				

The results of the study indicate that the process effectiveness (E_1) of the developed learning management was 86.05. At the end of the learning process, students took a test to investigate the outcome effectiveness of the learning management plan designed using the activities of the SQ4R technique in developing the pronunciation of consonant clusters. It was found that the average score of the participants was 26.65 out of the maximum point of 30. As a result, the Outcome effectiveness of the learning management was 88.83, and the effective index

was 86.05/88.83. It could be interpreted that the SQ4R as a principle in designing learning management could positively affect students' consonant cluster pronunciation both in-process and at the end of learning.

3.2 Students' Satisfaction with the SQ4R Learning Management Plan of SQ4R

Table 3. Students' satisfaction with the SQ4R learning management plan

No.	Statements	$\bar{x}$	S.D	Interpretation
1. Content				
1	The lesson plan content is appropriate for students' knowledge levels.	2.87	0.35	Agree
2	The content is consistent with time.	2.87	0.35	Agree
3	The content is consistent with the expected outcomes.	3.00	0.00	Agree
4	The content is comprehensible.	2.87	0.35	Agree
5	The content is useful in students' lives.	3.00	0.00	Agree
Overall		**2.93**	**0.26**	**Agree**
2. Management of learning activities				
6	There are clear procedures for learning activities.	2.93	0.26	Agree
7	Students' can take part in learning activity management.	2.93	0.26	Agree
8	Time spent in activities is rationale.	2.87	0.35	Agree
9	The use of SQ4R makes the class more interesting.	2.93	0.26	Agree
10	The use of SQ4R makes the class more learnable.	2.93	0.26	Agree
Overall		**2.88**	**0.34**	**Agree**
3. Instructor				
11	Teachers can explain learning activity processes clearly.	2.87	0.35	Agree
12	Teachers can assist students in all processes of class activities.	3.00	0.00	Agree
13	Teaching techniques are well presented.	3.00	0.00	Agree
14	Teachers understand the class content.	2.73	0.42	Agree
15	Teachers are eager to transfer knowledge in class.	2.93	0.26	Agree
Overall		**2.91**	**0.22**	**Agree**
Overall satisfaction		**2.94**	**0.16**	**Agree**

The results of the study indicate that the participants agreed with the positive statements related to learning with the learning management of the SQ4R technique in all aspects of content ($\bar{x}$ = 2.93, S.D. = 0.26), management of learning activities ($\bar{x}$ = 2.88, S.D. = 0.34), and instructor ($\bar{x}$ = 2.91, S.D. = 0.22). Therefore, they agreed that the SQ4R is the principle in the design of learning management overall ($\bar{x}$ = 2.94, S.D. = 0.16). In detail, the participants perceive the

learning management designed in the SQ4R as the activities that help them enjoy practicing producing consonant clusters, developing language knowledge, and utilizing knowledge in real practice. Moreover, the participants also show a positive attitude toward teachers using SQ4R in learning management in terms of class information, activity management, and student support. Consequently, it could be claimed that the participants were satisfied learning with the learning management plan designed using the activities of the SQ4R technique in developing their pronunciation of consonant clusters.

4. Discussion

The results indicate the effectiveness of the learning management in developing students' pronunciation of consonant clusters in both in-process and end-product outcomes. Moreover, it could also contribute to satisfaction in learning the results of the study could be discussed below.

First, the results of the study confirmed the benefits of the SQ4R in language education as has also been seen in previous studies (*e.g.*, Başar & Gürbüz, 2018; Narges & Farh, 2015; Sayed, 2020). However, the results could also be a pioneer in identifying the benefits of the model on the productive skill of language. It could be noted that the effectiveness of the technique on consonant cluster pronunciation development could be discussed further in each stage of the SQ4R. In the survey and question stages, students have a chance to priorly examine the input. This allows them to analyze it and make a plan to transform the textual input into sounds. According to Mattsuda (2003), planning is an important process in language learning. Students have opportunities to apply their knowledge in analyzing the requirement of tasks, the key discussion, and the possible solutions that could lead to the fulfillment of the tasks. In the reading and responding stages, students put in an attempt to produce output. The plan is executed in this stage and students are allowed to test the hypothesis of their language knowledge. Swain (1995) suggested that learners are expected to create output in learning a language. According to the author, the target language could not be acquired unless learners have a chance to transform knowledge into practice. Lastly, the record and review processes allowed the participants to examine their output, compare it to the standardized output, reregulate the output, and improve their pronunciation of consonant clusters. The revision in language learning is significant, and learners should be instructed to put in revising strategies to acquire the language (Lantolf, 2000). As a result, all stages of the SQ4R technique could develop students' metacognition—the ability to take control of one's learning processes, and it resulted in the development of students' consonant cluster pronunciation. Consequently, the direction of further studies with the SQ4R technique could be the adaptation of the technique to develop productive skills of language.

Moreover, the results of the study provide evidence to support the benefits of the SQ4R techniques in improving the class atmosphere of language learning. It could be noted that the processes of learning activities in the SQ4R technique encourage the participants to take control of their learning process and take part in all processes in pronunciation practicing. Keeping students' attention in-class participation is one of the techniques used to create a learnable learning environment (Abdullah et al., 2012). Regarding the results of the study,

further research should also focus on employing instructional techniques that are capable to increase the level of class participation as it is a key leading to learners' satisfaction found in the current study.

5. Conclusion

The study was conducted to test the effectiveness of the SQ4R technique as the principle in designing learning activities to develop grade 6 students' pronunciation of consonant clusters. After the processes of data collection of the experimental design study, the results of the study indicate the benefits of the SQ4R technique to both in-process and end product outcomes. To explain, students could develop their pronunciation of consonant clusters while taking part in the learning activities and at the end of the learning management. Moreover, it was also found that the participants were satisfied with the processes provided by the learning management. Content, activities, and teachers were components that contribute to the desired learning environment in the study.

The study could be implicated in the educational setting as teachers could employ the principle of the SQ4R technique in developing language skills. Apart from reading comprehension, the technique can also be used to develop speaking-related skills with adaptations. However, it should be noted that the goal of implementing the SQ4R technique is to develop students' metacognition. Implanting effective learning behaviors is the key to success.

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