Effectiveness of the 4MAT Model in Developing the English Spelling Skills of grade 8 students, Thailand

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Abstract

The purpose of this research was to construct an instructional method for developing English spelling skills by using the 4MAT model entitled "In the Garden" for grade 8 students of Khamkaen Nakorn School. The level of student' satisfaction was also studied. The sample of this research comprised 30 grade 8 students in the first semester of the 2024 academic year at Khamkaen Nakorn School, Khon Kaen Province. While the independent variable was 4MAT model learning, the dependent variables were 1) the effectiveness of English vocabulary spelling skills, and 2) The students' satisfaction with 4MAT model learning. The research instruments consisted of two units of vocabulary activities or games and procedures, a vocabulary post-test, and a satisfaction questionnaire. The data were analyzed by percentage, mean ($\overline{X}$), and standard deviation (SD). The results of this research were 1) the effectiveness of the 4MAT model in developing the English spelling skill was 80/73.67, and 2) students' satisfaction towards the instructional package was at the high level.

Keywords: Effectiveness, 4MAT Model, English Spelling Skill

Introduction
Rationale

Currently, the globalization is changing so fast that many countries are being influenced as a result of technological development and restructuring the economy and world politics on all dimensions of social, economic, political and technology (ASEAN Secretariat, 2015). Therefore, many countries need to be interdependent and associated. They have prepared to develop the potential of their population, in order to keep abreast of the international situations. The population quality is the key factor to support the policy-driven success as the progress of both domestic and international economy through public security and equality is becoming a part of ASEAN (Association of South East Asian Nations). People need to adapt themselves to the situations wisely in order to cope with world differences.

Therefore learning English is a significant tool to build better understanding for communication among other countries. As English language is an international language that other countries all communicate with, the language can be the means for sharing and exchanging knowledge and experiences among people. English Language has played significant parts on trade and diplomacy since the present Thai dynasty's third reign or fourth reign and with increasing influence in other fields to the present in politics, economic, culture, commercial, especially education. Therefore, it is crucial to reinforce human quality through learning English. Moreover, teaching through activities can improve learners' English skill in support of Thai education vision that English skills help learners to survive the world of

globalization. According to the Core Curriculum for Basic Education Curriculum BE 2551 (AD 2008), it requires foreign language learning especially English for communication with other countries widely.

Research Problems

Throughout the first week of teaching, the student teacher (the researcher) realized that vocabulary was one of the problem areas for the students. She noticed that students could not use the vocabulary in the unit lessons correctly when they performed learning activities. They also misspelled the vocabulary. Also, they could not remember or correctly spell the vocabulary. Data received from the student diaries and informal talks she had with them also indicated that the students could neither remember the meaning nor spell the vocabulary that was taught in class. Accordingly, she wanted to do something to help the students. She wanted to find an activity which might draw their attention to spelling and motivate learning as well, based on learning style. She wanted to help them on their spelling in general and to help them to recognize some common English spellings.

The researcher observed that the students could not recognize the meaning of the vocabulary and wrongly spelled words in their homework. The truth is, spelling has an important influence on word writing, yet not enough attention has been given. As Todd (2009 Cited in Tomas, et al, 2011) commented on teaching in a teacher-fronted classroom, "many teachers ignore spelling problems and hope they will go away on their own. If a teacher does treat spelling problems, this is often done through rather boring exercise."

In learning English as vocabulary spelling skill, focus must be on expressing the students themselves and practicing spoken and written words every single day to communicate ideas. Spelling vocabulary skill is the fundamental importance that affects the development of language. Improving vocabulary is one of the most crucial academic investments student can make. Moreover, vocabulary is a key step to drive for one's success in career and social life. Spelling skill is indicative of the progress and improvement in learning the language that starts with the vocabularies or words through the phrases for building the corrected sentences as successfully communicative ways in daily life.

Nevertheless, spelling is quite important in vocabulary learning. Some students learn vocabulary well by memorizing, some learn by writing words down and some need to learn the correct spelling of those words. Cohen (1990, 2011) indicates that "sometimes we use a certain approach to vocabulary learning not because it works, but because we think we should be able to learn that way .... some learners like to visualize the word ... others like to spell it out." It is an irony, however, that spelling may be a problem faced in learning vocabulary. Hughes (2015) said that "vocabulary is an area which gives the students various kinds of learning problems, including spelling." The basic reason is that many students have spelling problems unless they are extraordinarily gifted with spelling ability. It seems to the researcher that it is time to resolve this problem, to do something to improve the use of spelling conventions.

Literature Review
Vocabulary Acquisition

Vocabulary is a part of language that people have to learn all the time. According to (Zimmerman, 2000) says that Vocabulary is central to language and critical importance to the typical language learner. It is prominent in language learning and lexical competence is also at

the very heart of communicative competence, i.e., the ability to communicate successfully and appropriately; however, the role of vocabulary has been neglected and underestimated in the past (O'dell, 1997)

The important of vocabulary knowledge in foreign language learning has been progressively more documented (Rodriguez & Sadoski, 2000). And the knowledge of learners for vocabulary acquisition, (Chanell, 1988) defines that are as 1) the meaning of an L2 word can be recognized and understood both in and out of context, and 2) it can be used naturally and appropriately to situation. The acquisition of a word depends on the number of times a word is seen, and the quality and type of task as well the quality of the process of the input by the learner. Language learning in general and vocabulary acquisition in particular are problem-solving tasks at different levels of complexity. The strategies a learner uses and the effectiveness of these strategies depends on the learner (e.g., attitudes, motivation, prior knowledge), the learning task at hand (e.g., type, complexity, difficulty, and generality), and the learning environment (e.g., the learning culture, the richness of input and output opportunities).

Spelling Vocabulary Skill

At an earlier period, countless opportunities had been lost to job seekers because of misspelled words in letters of application. This was because the easiest way to judge an applicant was to look at the spelling, even though that might not have been the fairest way to arrive at a judgement. At that time, spelling might have been over-emphasized, but even now educated people are supposed to spell correctly. Moreover, with the volume of paper work always increasing in the modem business world, secretaries are not the only ones who must know how to spell. Spelling plays an important role in students' language learning. It is a part of language acquisition. Successful language users master the linguistic code, including vocabulary, grammar, pronunciation, spelling and word formation to a high degree of accuracy (Oxford: 1990). The accuracy of spelling is significant as Newby (1989) says, " spelling is one of the few areas in language performance where, in a very precise sense, your work is either exactly right or it is wrong." Regarding the relationship between spelling and vocabulary learning, it is known that some learners learn vocabulary better if they can spell the words correctly. As mentioned elsewhere, " sometimes we use a certain approach to vocabulary learning not because it works, but because we think we should be able to learn that way ..... some learners like to visualize the word ..... others like to spell it out." (Cohen, 1990).

Furthermore, the action of writing is known to help a learner to remember. Nichols (cited in Dunn: 1984: 64) says, " Spelling is remembered best in your hand. It is the memory of your fingers moving the pencil to make the word that makes for accurate spelling." People appear to remember the visual patterns of words by writing them in order to help them build up confidence in spelling. Spelling is also mastered as a part of the process of learning to write. As mentioned by Croft (1992) " our sole purpose in teaching children to spell should be to enable them to write clearly, confidently and accurately ... spelling is an important component of writing." In other words, spelling provides a sufficient basis to determine writing progress. An important part of improving spelling, then, is becoming more aware of the way words are spelled.

4MAT System

The study of learning activities promotes the teaching of English spelling of 4MAT model that can develop the ability to write words in English (Nowacki, 2011; McCarthy, 2007; Sasiwimol, 2011; Onkham, 2014; Keawkoon, 2005) found that the consequence of the students' post-test by 4MAT model showed improved English vocabulary spelling skill professionally. Learning through 4MAT model is associated with John Dewey's theory on learners' learning styles.

Additionally, the 4MAT system developed by Bernice McCarthy (2007) mentioned that teaching 4MAT model combines the fundamental principles of several long-standing theories of personal development with current research on human brain function and learning. The model of 4MAT is a process for delivering instruction in a way that appeals to all types of learners and engages, informs, allows for practice, and creative use of material learned within each lesson. A very important component of this method is the need for teachers/instructors to understand and present their material conceptually, presenting the big picture and the meaning and relevance of the material to be learned.

In conclusion, this knowledge about the specialization of 4MAT as an English vocabulary spelling skill can result in improvement. In this regard, the researcher has attempted to propose a prospective instructional model based on the 4MAT system to enhance vocabulary acquisition for English writing and attitude towards learning in secondary education.

Research questions

Do the 4MAT activities improve the English spelling skill of the grade 8 students? What level of satisfaction do the grade 8 students have after learning 4MAT activities?

Research objectives

The research objectives were to determine the effectiveness of lesson plan through 4MAT system as English spelling skill of the grade 8 students at criteria 80/70, and determine satisfaction on learning activities through 4MAT model as English spelling skill of the grade 8 students.

Research scope

The population of this research comprised 352 grade 8 students in the first semester of the 2024 academic year (July – September) at Khamkaen Nakorn School, Khon Kaen Province, and learning content of 10 lesson plans.

Table 1: Learning content of 10 lesson plans

Topic	Content	Material instrument	Time (minutes)
1. Electronic devices	**Structure:** Asking about things A: What is this? B: This is ………………. **Vocabulary:** telephone, television, laptop, video camera, watch, mobile phne, stereo, digital camera, CD player, and computer	- Flashcards(electronic devices) - Knowledge sheet - Worksheet - Notebook - Quiz	100 (2 lesson plans)
2. My warm bedroom	**Structure:** Asking about objects in the bedroom A: Do you have ……….in your bedroom? B: Yes, I have./No, I don't. **Vocabulary:** wardrobe, lamp, pillow, bed, bookcase, desk, blanket, chair, fan, and teddy bear	- Flashcards(bedroom stuffs) - Knowledge sheet - Worksheet - Notebook - Quiz	100 (2 lesson plans)
3. Our classroom	**Structure:** Asking about materials A: What is that? B: That's………………….. **Vocabulary:** schoolbag, whiteboard, whiteboard marker, whiteboard eraser, notebook, textbook, clock, wall, door, and window	- Flashcards(materials) - Knowledge sheet - Worksheet - Notebook - Quiz	100 (2 lesson plans)
4. What do you feel?	**Structure:** Asking about feeling A: What do you feel when you see a spider? B: I feel…………………..	- Flashcards(feeling) - Knowledge sheet - Worksheet - Notebook	100 (2 lesson plans)

Topic	Content	Material instrument	Time (minutes)
	Vocabulary: frightened, frustrated, scared, angry, sad, happy, shocked, calm, embarrassed, surprised, excited, thrilled, peaceful, and relaxed	- Quiz	

5. What do you do?	**Structure:** Asking about jobs
	    A: What do you do?
	    B: I'm…………………..
	Vocabulary: judge, doctor, nurse, chef, dentist, painter, dancer, pilot, hairdresser, photographer, detective, and engineer
		- Flashcards(occupations)
		- Knowledge sheet
		- Worksheet
		- Notebook
		- Quiz
			100
			(2 lesson plans)

Total (10 lesson plans)			500

Definition of Terms

"4MAT Model" refers to eight-step cycle of instruction model, based on individual learning styles and information processing preferences as determined by brain dominance, which translate concept from learning style theory into instructional strategies. The model, based on Kolb's (1984) theory of experiential learning and on the findings of brain hemispherical research, was developed by McCarthy in the 1970s. There are eight steps of learning styles as follows:

Engage

Step 1: Learning from our experiences and from who and where we are. It becomes personally involved.

Step 2: Sharing perception and idea about experiences, exploring its thinking, both within yourself and often in dialogue (analysis).

Share

Step 3: Understanding conceptually, picture how it all fits together.

Step 4: Comprehension the underlying concepts and how they connect all the details.

Practice

Step 5: Examining the steps and the parts to practice with supportive coaching.

Step 6: Applying the learning to real-life problem solving.

Perform

Step 7: Evaluating the progress and skill levels, refining and editing as needed.

Step 8: Integrating the learning into your live with our own adaptations.

Criteria 80/70: 80 refers to the percentage of 80 passed students, and 70 refers to the grade 8 students' post-test with over the 70 percentage.

Research framework

Independent Variable

Dependent Variables

| 4MAT Model learning |

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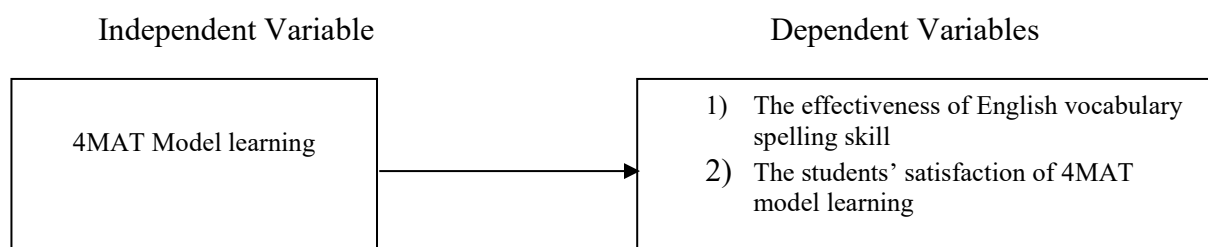| 1) The effectiveness of English vocabulary spelling skill
2) The students' satisfaction of 4MAT model learning |

Figure 1: Research framework

Research method

The design of the present study was that of the Pre-Experimental Research Design as One-short case study. Vocabulary post-tests were administered to 30 students after they learned the whole lesson plans. The sample of this research comprised 30 grade 8 students in the first semester of the 2024 academic year at Khamkaen Nakorn School. The 10 lesson plans were provided using 4MAT model. The other instruments were 10 lesson plans, post-test, and questionnaire of students' satisfaction. After that the researcher used the instruments to collect the data. At the end of research methodology, all data would be analyzed by using average ($\overline{X}$), percentage (%), and IOC. Accordingly, the research question raised in this study was whether the 4MAT activities could be used to improve the students' vocabulary knowledge.

Research results

The findings are the following.

1. The effectiveness of grade 8 students in English vocabulary spelling ability after using 4MAT system activities was over than the researcher's expectation with the resulted standard criteria of 80/73.67 against the pre-setting standard criteria of 80/70. The average test score of the whole class was 29.47 while the full score was 40. The samples, studying through 4MAT activities, got higher scores. This meant that vocabulary activities through 4MAT system could encourage the students to get the knowledge of vocabularies.

2. The students' satisfaction toward developing spelling English vocabulary after instruction was at the average 4.45 or satisfied level. Most students extremely enjoyed practicing English vocabulary ability through 4MAT activities as shown in Table 1 and 2.

Table 1. Shows the post-test score of students' effectiveness in English spelling skill by using 4MAT system.

No	The score of vocabulary post-test (40)	Percentage (%)
1	27	67.50

No	The score of vocabulary post-test (40)	Percentage (%)
2	30	75.00
3	34	85.00
4	29	72.50
5	30	75.00
6	33	82.50
7	31	77.50
8	32	80.00
9	29	72.50
10	29	72.50
11	29	72.50
12	20	50.00
13	19	47.50
14	32	80.00
15	33	82.50
16	33	82.50
17	38	95.00
18	28	70.00
19	29	72.50
20	35	87.50
21	36	90.00
22	33	82.50
23	21	52.50
24	22	55.00
25	28	70.00
26	28	70.00
27	33	82.50
28	31	77.50
29	32	80.00
30	20	50.00
Mean score		**73.67**

Table 2. Shows the result of the satisfaction toward the activities learning through 4MAT model.

Questionnaire items	Mean ($\overline{x}$)	Std. (SD)	Level
Activities learning	**4.61**	**0.43**	highest
1. The activities learning toward 4MAT system stimulated students' learning.	4.43	0.63	high
2. The instruction was clear.	4.70	0.47	highest
3. Students got more self-confident in sharing their opinion.	4.67	0.55	highest
4. Students accomplished their learning through 4MAT activities.	4.63	0.56	highest
Atmosphere in learning	**4.60**	**0.41**	highest
5. Students were energetic in learning, and following the instruction.	4.67	0.48	highest
6. 4MAT activities was interesting in participating.	4.70	0.47	highest
7. Students enjoyed activities through 4MAT system.	4.47	0.68	satisfied
8. The atmosphere was relaxing.	4.57	0.50	highest
Learning assessment	**4.15**	**0.74**	**high**
9. Quizzes evaluated students' apprehension.	4.33	0.55	high
10. The assessment stimulated into students' learning.	4.10	1.06	high d
11. Teacher evaluated the whole contents on group and individual.	4.10	0.84	high
12. Teacher evaluated in various strategies.	4.07	0.94	high
Total	**4.45**	**0.46**	**high**

Discussion

As developing the 4MAT instructional model of the study, emphasized on effectiveness of 4MAT model in developing the English spelling skill in the two main intentions of this study were evaluated as the following.

The effectiveness of grade 8 students in English vocabulary spelling ability after using 4MAT system activities was over than the researcher's expectation with the resulted standard criteria of 80/73.67. The average score of the whole class was 29.47 while the full score was 40. As the result, the students' spelling skill was achieved with 4MAT instructional model. This study supports the findings by Sasiwimol (2011); Onkham (2014); Keawkoon (2005) that determined the efficiency of 4MAT method of instruction as the learning style. They found that it has been determined that 4MAT method of instruction was more efficient than the traditional method in teaching of the binary operation subject.

The students' satisfaction toward developing spelling English vocabulary after instruction, had average 4.45 which is at satisfied level. Therefore, it could say that the learners enjoyed and were better interested in class activities, based on the 4MAT instructional framework consisting of 4 different students' learning styles with 8 steps, in order to develop both right and left brain functioning. Aktas and Bilgin (2015) stated that the 4MAT model increases student motivation and participation in the lesson, the lessons are more amusing and enjoyable, and the self-confidence of the students increases.

Recommendation

On the basis of the research results, the following recommendations were made.

1. 4MAT activities through vocabulary learning were helpful for students to improve vocabulary knowledge. Therefore, teachers should be encouraged to create the lesson activities according to the model part of the English course for students.

2. Arranging various material instruments could stimulate students to participate in class for high achievement. However, the school should provide budgets for purchase the materials for constructing them so that teachers can study further and construct them for their students quickly.

3. There should be self-access center for students to learn the activities. This can encourage students to attend activities any time. Then they will get the knowledge about vocabularies better.

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