

The Effects of Bubble Map and Tree Map Method in CEFR Reading Comprehension

Shanthini Selvarajasingam¹, Subadrah Madhawa Nair^{1&2}, & Walton Wider³

¹ Faculty of Education and Liberal Studies, City University Malaysia, Petaling Jaya, Selangor, Malaysia

² Faculty of Education & Humanities, UNITAR International University, Kelana Jaya, Selangor, Malaysia

³ Faculty of Business and Communications, INTI International University, Nilai, Negeri Sembilan, Malaysia

Correspondence: Walton Wider, Faculty of Business and Communications, INTI International University, Nilai, Negeri Sembilan, Malaysia.

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Abstract

The effective method of teaching CEFR reading comprehension makes students to have better exposure and gain confidence in Malaysian secondary schools. The ultimate goal of this study is to investigate whether the use of Bubble Map and Tree Map methods enhances students' learning of Multiple-Choice Questions (MCQ) in the CEFR reading comprehension. This quantitative study employed a quasi-experimental design. The sample of this study consisted of 105 Form One students (13 years old) from three different schools (school A, B and C) from Petaling Jaya, Selangor. The sample were chosen as intact groups. The Experimental Group 1 (EG1) from school A was taught using Bubble Map, Experimental Group 2 (EG2) from school B was taught using Tree Map and the Control Group (CG) from school C was taught using conventional method. The pre-test and post-test were used as instruments to collect the data for this study. The quantitative data was analyzed using SPSS program for Windows version 26. The MANCOVA test and Tukey HSD were used to analyze the data. The findings demonstrated that EG1 (using Bubble Map) significantly outperformed EG2 and CG in their CEFR reading comprehension. The results also indicated that EG2 (using Tree Map) performed significantly better than CG (using conventional method). This study has essential pedagogical implication because the Bubble Map and Tree Map methods had positive effects in enhancing students' CEFR reading comprehension. As such, teachers can use Bubble Map and Tree Map methods as an alternative method to teach CEFR reading comprehension in the ESL classroom.

Keywords: i-Think mind maps, Bubble Map, Tree Map, ESL comprehension, education policy

1. Introduction

1.1 Background of the Study

The Common European Framework Reference for Language (CEFR) represents the prevailing international standard for the teaching and learning of English as a second language in Malaysia. The CEFR provides detailed descriptions of what second language learners can do in terms of all four skills (listening, speaking, reading and writing) in the six levels of proficiency. The CEFR is intended to be a comprehensive reference tool in order to stimulate better education in schools throughout the world. In regard of this, the Malaysian Ministry of Education (MMOE) has taken a tremendous twist to adapt the changes in the CEFR reading comprehension as a kick start in enhancing students' ESL comprehension. In the line with this Haerazi and Irawan (2020), believed that reading is one of the language skills that should be studied and mastered by students in order to get information from the texts. As per the opinion of Alowalid et. al. (2018) discerned that reading comprehension could be a competence to encourage a handful information from the text and interpret the meaning of the text precisely. In addition, it is crucial that students are given inspiration to create comprehending and assisting them to relate what they have read towards more meaningful and glorious direction of learning.

Ameyaw and Anto (2018) pointed out that students should be encouraged to instill the spirit of reading in a correct way, will empower them to have considerable reading skills. To boost the quality of students' CEFR reading comprehension, their overall knowledge and understanding are needed desperately. Based on these grounds, i-Think mind maps are seen as a powerful unique tool for teachers and students to utilize and create a greater mind for teaching and learning of CEFR reading comprehension. Similarly, Saori (2020) asserts that utilizing mind mapping method in teaching and learning has an optimistic impact on students' reading comprehension as a form of analysing and creating thinking skill. Hence, the rise of concern on the quality of CEFR reading comprehension, i-Think mind map is a modern alternative method to upscale students' ESL reading comprehension in Malaysia.

1.2 Problem Statement

The main problem teachers encountered in teaching CEFR reading comprehension is lack of background knowledge among students (Kasim and Raisha, 2017). Students may not be able to comprehend the text meaningfully because they do not have sufficient background

knowledge to comprehend the text (Rizqon, et. al., 2021). When this happens, students cannot absorb what they are reading or have read to answer the comprehension questions. This will lead students to perform badly in their learning and teachers' creativity is also blocked in emerging meaningful teaching method. Therefore, students tend to reject the knowledge they acquire from the reading comprehension.

Moreover, there is also an issue on lack of teaching methods that teachers utilize in teaching to cater CEFR reading comprehension. Ganie et. al. (2019) pointed out that teachers' poor teaching methodologies and the use of inappropriate strategies when teaching comprehension can demotivate the students. This is in light of fact that there was no proper guidance given during teacher's training or courses organize by MMOE to assist teachers' teaching methods. Teachers emphasized that they are lack of training on how to teach reading comprehension was not lectured and this is challenging for teachers (Phala and Hugo, 2022). The teachers are not confident enough on how to teach comprehension because of their limited knowledge in using blended learning, project-based learning, discussions, role play and other applied based skills. This will divert teachers to use traditional method as a safe way to teach students. Findings by Abdullah (2005) revealed that the most popular teaching approach in teaching English is still traditional deductive approach. To add on, "teachers are still using conventional method by asking students to read the text and answer the questions" (Sari, 2017). This is because they were reluctant to adopt and adapt new methods of teaching and learning in today's 21st century.

Besides, another problem in teaching CEFR reading comprehension is teacher-centered teaching in ESL classroom. Teachers spend most of the class time lecturing students, that makes them to be passive learners (Rochman, 2017). In addition, teachers take over the teaching content as well as the learning tasks of the classroom activities that hinders the process of teaching CEFR reading comprehension. This correlated with findings by Rizkiah (2020) that teachers still control and give a very little space for students to discover their learning in the class. This will give students less opportunity to self-direct their own learning and convey their thoughts in any comprehension-related discussion topics they should learn. Lak et. al., (2017) pointed out that in Conventional method of teaching, teachers dominate students' access to information while closely managing the whole learning process. When this happens, students will feel bored, pointless in their learning and depending on others to guide them entirely on their reading comprehension. In the long run, this will curb students' educational growth in CEFR reading comprehension.

Furthermore, ineffective teaching strategy is another problem faced by teachers in CEFR reading comprehension classroom. The teachers use old traditional teaching strategies which they feel comfortable without considering students level of proficiency. In line with this, Al-Husban (2019) stressed that teachers traditionally teach students to read and answer the reading comprehension question because they do not know how to implement better teaching strategies in their lesson. This traditional strategy of teaching comprehension among teachers have been in them since the day they stepped into the world of teaching. The teachers believe that the strategies they use in teaching reading are correct and appropriate in their context of understanding. Teachers are not sure of what strategies should be applied into their lesson, so they prefer using Conventional teaching method (Solikhah, 2018). To add on, teachers do not include any useful strategies as they do not know any new reading strategies to teach reading comprehension (Erfani et. al., 2009 as cited in Ahmadi, 2016). This has caused students to stop discovering more knowledge and has hamper their creativity in learning.

Taking this reading comprehension problem further, there were not much research has been done on the use of i-Think mind map method especially the Bubble Map dan Tree Map on the ESL reading comprehension in Malaysia. As such, the current study is to investigate the effect of utilizing Bubble Map and Tree Map methods to enrich the upcoming of CEFR reading comprehension standards among Malaysian secondary school students.

1.3 Research Objective

The research objective is to investigate whether there is a significance difference in students' mean score in reading comprehension for multiple choice questions and information transfer between the Experimental Group 1 (taught using Bubble Map) compared with the Experimental Group 2 (taught using Tree Map) and the Control Group (taught using the Conventional method). Following are the research questions of the study.

RQ1 Is there a significance difference in students' mean scores in reading comprehension for multiple choice questions between the Experimental Group 1 (taught using Bubble Map) compared with the Experimental Group 2 (taught using Tree Map) and the Control Group (taught using Conventional method)?

RQ2 Is there a significance difference in students' mean scores in reading comprehension for information transfer between the Experimental Group 1 (taught using Bubble Map) compared with the Experimental Group 2 (taught using Tree Map) and the Control Group (taught using Conventional method)?

2. Review of Literature

CEFR reading comprehension is the most essential skill for secondary school students in Malaysia. They need to be more exposed to the positive approach of CEFR learning, which allow them to monitor what they can do to reach the different aspect of learning. In order for this to happen, students need to grip the understanding of the reading content that will assist them in meaningful learning. Alowalid et. al. (2018) indicates that reading comprehension is the capability to comprehend the information of the text and interpret the meaning of the text correctly.

I-Think mind maps cultivate reading skill among teachers and students to deliver an engaging and the right method that goes beyond better teaching and learning process of CEFR reading comprehension in today's world. Tiing and Said (2019) uphold that the use of

Thinking Maps helps to enhance teachers and students in the process of reading comprehension. This will lead teachers and students a positive attitude towards teaching and learning as well as develop independent thinkers in CEFR reading comprehension. Utilization of thinking map helps students take ownership of their learning and become independent thinkers (Edwards, 2010). The i-think mind map is a simple and easy tool for students to comprehend the reading text (Hyerle, 2012).

The advantage of i-Think mind map is that, it gives practical thinking experience and is a powerful technique to enhance today's teaching and learning field of CEFR reading comprehension. Delfi (2018) believes that mind mapping is an activity which can assist students to structure, internalize and remember the information they read more easily which as a result can enhance their reading comprehension. i-Think mind map is the key to discover innovative and better educational approach that help a person to sort the ideas or information and facts from the reading text then apply them to answer the comprehension questions. This method also can be applied for HOTS comprehension questions. According to Samelian (2017), higher-order questions can strengthen students' in answering comprehension questions.

I-Think mind map is one of the brilliant ways to captivate and expose students to utilize in the CEFR reading comprehension. It underpins students thinking abilities by generating new information from the reading text and store them through meaningful learning. This will aid them to think freely and perform better in their academic achievement particularly in CEFR reading comprehension. To gain this, students just need to connect their cognitive abilities and understand the text by utilizing i-Think mind map method specifically Bubble Map and Tree Map methods. Mind mapping helps students to organize their ideas on the text they have read so that they can comprehend the text quickly (Male, 2019). This approach will slowly divert students' CEFR reading comprehension into a new outlook of teaching and learning which engages students actively in the learning process. Therefore, i-Think mind maps able to boost students' CEFR reading comprehension.

By utilizing Bubble Map and Tree Map methods, students can visualize the connection between the main ideas and supporting details in the reading text. When this happens, students will be able to comprehend the reading text better. Several previous studies have indicated positive effects of utilizing i-Think mind map in reading comprehension. Sumarjati (2017) who carried out a study on the use of mind maps showed that the students' reading comprehension improved tremendously. This study was carried out among eleventh-grade students at a vocational school in Yogyakarta. The data was collected through comprehension tests, questionnaires and interviews. This study showed that the use of mind maps has developed students' critical thinking by fostering creativity and exhibiting their ideas into mind map diagrams. The researcher also found that students were able to engross themselves more actively in the reading comprehension activities planned by the teacher. At the same time, they were able to show high spirit of learning new words from the reading comprehension.

A further study was conducted by Phongploenpis and Supangyut (2018) in the use of mind map technique to describe students' understanding on reading comprehension. The study was carried out on seventh grade students in Indonesia using a quasi-experimental design. The results showed that the Experimental Group (using mind mapping techniques) has significantly outperformed compared to the Control Group (using Conventional method) in their reading comprehension. To add on, the researchers reported that by incorporating mind mapping method into reading comprehension, it enhances students' understanding of the text. This leads them to stay focus for a longer period of time and the learning process is enjoyable.

Alomari (2019) assessed the effectiveness of mind mapping to develop students' reading comprehension in Jordan. The sample of the study consisted of 65 students using quasi-experimental design. The utilization of mind mapping has been successful in developing students' positive attitudes towards reading comprehension. The findings showed that the mind mapping method assisted students to comprehend their thinking ability, analyze the reading text, and channel their ideas from the reading text systematically into mind maps. This alternative method can arouse students' higher-order thinking skills (HOTS) in teaching reading comprehension. Nair and Narayanasamy (2017) stressed that concept map method is able to raise students' interest in learning and engaged students actively in the learning process.

Similar research on the effects of using i-Think mind map method on learners' reading comprehension was conducted by Tiing and Said (2019). The study was carried out among Year 4 (10 years old) and Year 5 (11 years old) primary school students in Sarawak. The researchers collected data from students' class work on reading comprehension and semi-structured interviews. This study demonstrated that incorporating i-Think mind map appeared to be effective in helping students with their reading comprehension. In addition, the study also found that using mind map helped students to organize and recall the main ideas better from their reading comprehension. This method also gives teachers an inspiration to divert their teaching strategies toward improving emerging students' reading comprehension and thinking skills.

Rizkiah (2020) carried out a study on the use of mind maps to facilitate the students' reading comprehension in Indonesia. The sample of the study consisted of 32 students in eighth grade using descriptive qualitative method. The data was obtained through observation, field note and questionnaires. This study discovered that the students gave a positive response on the use of mind maps, which helped them to understand the reading text better. At the same time, students were motivated to answer the comprehension questions. This method automatically improves their vocabulary through reading comprehension. Additionally, the researcher also found that the students were able to enjoy their learning and absorb the detailed information easily through the use of mind map method in the reading comprehension tasks.

Furthermore, Saori (2020) carried out a quasi-experimental design to determine whether the implementation of mind map technique gave an impact on teaching reading comprehension. This case-study was conducted among first year students of Nabi' Nubu' Islamic Senior High School. The data was collected through the reading tests (pre-test and post-test) from two intact classes. The results revealed that the use of mind maps method has a strong positive impact on students' performance in their reading comprehension. Moreover, mind map promotes students' critical thinking skills and stimulates them to answer the comprehension questions. The use of mind map method in the lesson was an effective strategy to get students fully engaged in the process of learning reading comprehension. The findings also helped students gain confidence in learning through the use of mind maps.

Based on the literature review, teachers and students should be given an opportunity to inculcate creativity and critical thinking skills by utilizing Bubble Map and Tree Map methods in their ongoing teaching and learning process. Both the maps can help them to absorb their teaching and learning of CEFR reading comprehension in a better way. By collaborating Bubble Map and Tree Map methods, students would be able to stimulate good enthusiasm of learning in CEFR reading comprehension. In this way, Bubble Map and Tree Map methods will be a good experience and highly effective tool for today's teaching and learning of CEFR reading comprehension. As such, in the present study, the researcher examines the outcome of utilizing Bubble Map, Tree Map and Conventional methods in teaching CEFR reading comprehension.

3. Methodology

This study employed a quasi-experimental design (Creswell, 2012) to investigate whether utilizing Bubble Map and Tree Map methods are positive alternative methods in teaching CEFR reading comprehension among Form 1 students in Malaysia. The samples were taken from 105 Form One students (35 students from Experimental Group 1, 35 students from Experimental Group 2 and 35 students from the Control Group). These students are from three different public schools in Petaling Jaya District, Selangor, Malaysia. In this research, intact groups of students were used as sample. School A was chosen as the Experimental Group 1 (taught using Bubble Map), School B as Experimental Group 2 was (taught using Tree Map) and School C as Control Group was (taught using Conventional method). The intervention in this study took place for eight weeks.

The pre-test and the post-test were utilized to collect the data of CEFR reading comprehension as instruments for this study. Both the test questions were formulated based on revised of Bloom's Taxonomy by Anderson and Krathwohl (2001). The comprehension test consisted of two parts. In Part 1, there were 10 short reading passages with 10 Multiple-choice questions and Part 2 was on information transfer. Prior to the intervention students were given the pre-test and after the intervention (in the eighth week), a post-test was administered. The content of pre-test and the post-test were similar. The quantitative data of the study was analyzed by using SPSS Program Windows version 22 (Revathi & John, 2019). The descriptive statistics and inferential statistics (MANCOVA) were used to analyze the data. The pre-test was used as a covariate to eliminate the differences between the Experimental Group 1, Experimental Group 2 and the Control Group before the intervention.

4. Results and Discussion

The result and discussion are presented based on the research question:

- RQ1** Is there a significance difference in students' mean scores in reading comprehension for multiple choice questions between the Experimental Group 1 (taught using Bubble Map) compared with the Experimental Group 2 (taught using Tree Map) and the Control Group (taught using Conventional method)?

The findings indicate that in the Pre-test, the mean score for the multiple-choice questions in reading comprehension of the Experimental Group 1 was a little higher (M = 5.06; SD = 1.85) compared with the mean score of the Experimental Group 2 (M = 4.97; SD = 1.79). The mean score for the Control Group in the Pre-test was the lowest (M = 4.31; SD = 1.55) compared with the Experimental Group 1 and 2. However, in the Post test, the mean score of the Experimental Group 1 for multiple-choice questions was higher (M 9.69; SD = .718) than Experimental Group 2 (M = 9.40; SD = .737). The mean score of the Control Group was the lowest (M = 5.51; SD = 2.03).

Table 4.1. The Results of MANCOVA Test on Students' Performance in their Reading Comprehension for MCQ

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	344.62	3	114.87	56.12	.000
Intercept	663.24	1	663.24	324.01	.000
MCQ Pre-test	.080	1	.080	.039	.844
GROUP	334.52	2	167.26	81.71	.000
Error	165.81	81	2.05		
Total	5839.00	85			
Corrected Total	510.42	84			

Level of significance is at $p < 0.05$

The findings of the MANCOVA test in Table 4.1 demonstrated that there is a significant difference between the Experimental Group 1, Experimental Group 2 and Control Group in their mean score for multiple-choice questions for comprehension in the Post-test (F = 81.71,

df = 2, p = .000). Accordingly, the Research Question 1 has been answered.

These results clearly support the findings by Alomari (2019) which showed that utilizing of Bubble Map and Tree map methods had significantly improved the mean score of students in MCQ compared with the Control Group. These findings are in line with findings by Saori (2020) which indicated that the use of Bubble Map and Tree Map methods were effective in promoting students' critical thinking skills and stimulate them to answer the comprehension questions. The Bubble Map and Tree Map methods also helped students gain confidence in their learning of reading comprehension. To support further, Tiing and Said (2019) demonstrated that i-Think mind map encourages teachers to divert their teaching strategies in emerging learners' reading and thinking skills compared with the Control Group (using the conventional method).

Table 4.2. Multiple Comparisons for Multiple Choice Questions in Post-test

		Tukey HSD			95% Confidence Interval		
	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
MCQ Post-test	1.00	2.00	.286	.439	.792	-.762	1.33
		3.00	4.17	.340	.000	3.36	4.98
	2.00	1.00	-.286	.439	.792	-1.33	.762
		3.00	3.89	.439	.000	2.84	4.93
	3.00	1.00	-4.17	.340	.000	-4.98	-3.36
		2.00	-3.89	.439	.000	-4.93	-2.84

Level of significance is at $p < 0.05$

(1: Experimental Group 1; 2: Experimental Group 2; 3: Control Group).

The results of Tukey HSD test in Table 4.2 show that the Experimental Group 1 (using Bubble Map) did not perform significantly higher than the Experimental Group 2 (using Tree Map) in their reading comprehension for MCQ (MD = .286; $p = .792$). However, the Experimental Group 1 performed significantly higher than the Control Group (using Conventional method) in the Post-test (MD = 4.17; $p = .000$). The Experimental Group 2 also performed significantly higher than the Control Group in answering MCQ (MD = 3.89; $p = .000$).

These findings revealed that there is a significant difference in students' comprehension for MCQ in the Post-test. The Experimental Group 1 (using Bubble Map) and the Experimental Group 2 (using Tree Map) outperformed the Control Group (using Conventional method) in their reading comprehension for MCQ.

These findings are parallel to the studies by Liu et. al. (2014) who explicated that the use of Bubble Map and Tree Map methods increases students' memory power in answering comprehension questions. Moreover, Fitri et. al. (2022) demonstrated that students who participated actively were able to improve their learning in reading comprehension through the use of Bubble Map and Tree Map methods. The results also correspond to the findings by Ling and Mohamad (2019) who unfolded students to visualize Bubble Map and Tree Map methods connection between the main ideas and supporting details which facilitates them in comprehending the reading text.

RQ2 Is there a significance difference in students' mean score in reading comprehension for information transfer between the Experimental Group 1 (taught using Bubble Map) compared with the Experimental Group 2 (taught using Tree Map) and the Control Group (taught using Conventional method)?

The findings show that in the Pre-test, the mean score for the information transfer in reading comprehension of the Experimental Group 1 was lower (M = 3.29; SD = 1.49) compared with the mean score of the Experimental Group 2 (M = 3.8; SD = 1.97). The mean score for the Control Group in the Pre-test was the lowest (M = 3.11; SD = 2.00). However, in the Post-test, the mean score of the Experimental Group 1 for the information transfer was almost similar (M = 9.14; SD = .879) with the mean score of the Experimental Group 2 (M = 9.00; SD = 2.04). The mean score of the Control Group was the lowest (M = 4.46; SD = 1.31).

Table 4.3. The Results of the MANCOVA Test on Students' Performance in their Information Transfer for Reading Comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	497.34	3	165.78	73.83	.000
Intercept	1284.12	1	1284.12	571.86	.000
Information Transfer Pre-test	.175	1	.175	.078	.781
GROUP	489.46	2	244.73	108.99	.000
Error	226.80	101	2.25		
Total	6683.00	105			
Corrected Total	724.13	104			

Level of significance is at $p < 0.05$

The results of the MANCOVA test in Table 4.3 indicated that there is a significant difference between the Experimental Group 1, Experimental Group 2 and Control Group in their mean score for information transfer for comprehension in the Post-test (F = 108.99, df = 2, $p = .000$). These findings clearly show that Bubble Map and Tree Map methods help the students in the area of information transfer compared with the Control Group. As such, the results answered the Research Question 2.

These findings are parallel with those findings by Phongploenpis and Supangyut (2018) who stressed that Bubble Map and Tree Map methods enhance students understanding of the reading text and help them stay focus in answering the comprehension questions. Similarly, findings by Alomari (2019) also indicated that Bubble Map and Tree Map methods led students towards positive attitude due to more pleasant learning environment of reading comprehension. Current findings are also consistent with the opinion of Saori (2020) whose research affirmed the use of Bubble Map and Tree Map methods assist students to gain confidence in answering reading comprehension questions.

Table 4.4. Multiple Comparisons for Information Transfer in Post-test

Tukey HSD							
	(I)/ Group	(J) Group	Mean Difference			95% Confidence Interval	
			(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Information Transfer Post-test	1.00	2.00	.143	.357	.915	-.705	.991
		3.00	4.69	.357	.000	3.84	5.53
	2.00	1.00	-.143	.357	.915	-.991	.705
		3.00	4.54	.357	.000	3.69	5.39
	3.00	1.00	-4.69	.357	.000	-5.53	-3.84
		2.00	-4.54	.357	.000	-5.39	-3.69

Level of significance is at $p < 0.05$

(1: Experimental Group 1; 2: Experimental Group 2; 3: Control Group).

The results of Tukey HSD test in Table 4.4 show that the Experimental Group 1 (using Bubble Map) did not perform significantly higher than the Experimental Group 2 (using Tree Map) in the area of information transfer in reading comprehension ($MD = .143; p = .915$). On the other hand, the Experimental Group 1 performed significantly higher than the Control Group (using Conventional method) in the Post-test ($MD = 4.69; p = .000$). Similarly, the Experimental Group 2 also performed significantly higher than the Control Group ($MD = 4.54; p = .000$). As such, these findings reveal that the Experimental Group 1 and the Experimental Group 2 had performed significantly better than the Control Group in their information transfer for reading comprehension.

These findings are shared by Ardakani and Lashkarian (2015) who highlighted that students' interest in learning was enhanced through the application of Bubble Map and Tree Map methods in reading comprehension. Similarly, a study by Zuo (2017) advocated those vivid illustrations of text using Bubble Map and Tree Map methods helped in managing students' ideas and guided them in learning reading comprehension. In addition, the findings support studies done by Lahab et. al. (2022) which showed that Bubble Map and Tree Map methods assisted students in information transfer through the activation of creative and critical thinking skills.

5. Conclusion

The utilization of Bubble Map and Tree Map methods significantly helped students in answering ESL comprehension (MCQ and information transfer). The Tree Map and Bubble Map methods facilitate students to identify the link and the keywords in answering comprehension questions. In addition, both methods promote students' creative thinking in solving the problems. As an instructive device, the visual impacts of i-Think mind maps method especially Bubble Map and Tree Map methods can be powerful and effective teaching tools in helping students to perform better in their learning of CEFR reading comprehension. Students learn to use i-Think maps by gathering information from the reading text and create simple and easy diagrams (Bubble Map and Tree Map), that shows strong positive development in their CEFR reading comprehension.

On the other hand, this study has crucial pedagogical implication as it can further enhance teachers' pedagogical skills in teaching CEFR reading comprehension. In addition, Bubble Map method and Tree Map method create a conducive learning environment for students and help them with their reading comprehension. In term of practical implications, Ministry of Education and the Teachers Training Division should train teachers on how to utilize Bubble Map method and Tree Map method in reading comprehension. In addition, book publishers can provide more exercises using Bubble Map and Tree Map methods in reading comprehension to help ESL learners. Publishers can also come up with top-quality books with better and more lively reading materials through these maps for teachers and students.

This study has some limitations. First of all, the sample only consist of 105 Form 1 secondary students. As such, future studies can employ a larger sample of students from different proficiency level to achieve better generalization. Second, this study only focuses on the effects of Bubble Map method, Tree Map method and the Conventional method in CEFR reading comprehension. However, future studies can focus on the effects of utilizing these methods in ESL writing, ESL oral communication and other subjects.

In conclusion, this study demonstrates that the use of Bubble Map and Tree Map methods can assist students' CEFR reading comprehension. Students can develop their understanding of the reading text through meaningful learning that can be transformed into more enjoyable learning environment. Teachers can incorporate these maps into interesting and amazing activities during CEFR reading comprehension. Hence, these methods can benefit teachers and students in their respective field as creative and innovative teaching and learning process of CEFR reading comprehension.

References

Abdullah, M. N. (2005). *Teaching Thinking Skills: Redesigning Classroom Practices*. Brunei: Universiti Brunei Darussalam. Retrieved

from <http://studentsrepo.um.edu.my/3961/3/References.pdf>

- Ahmadi, M. R. (2016). *The Effects of Reciprocal Teaching Strategy on Reading Comprehension, Motivation and Metacognition Among Iranian EFL University Learners. (Unpublished Doctoral dissertation)*. Universiti Sains Malaysia.
- Al-Husban, N. (2019). EFL Teachers' Practices while Teaching Reading Comprehension in Jordan: Teacher Development Implications. *Journal on English as a Foreign Language*, 9(2), 127-145. <https://doi.org/10.23971/jefl.v9i2.1288>
- Alomari, A. M. (2019). Using Mind Mapping Technique to Improve Reading Comprehension Ability of Fourth grade Arabic Language Students in Jordan. *IOSR Journal of Humanities and Social Science*, 24(1), 53-58.
- Alowalid, A., Mujiyanto, J., & Bharati, D. L. A. (2018). The Linguistic Factors That Affect Poor Reading Comprehension Among Libyan Students. *English Education Journal*, 8(2), 229-240.
- Ameyaw, S. K., & Anto, S. K. (2018). "Read or Perish: Reading Habits among Students and its Effect on Academic Performance: A Case Study of Eastbank Senior High School - Accra." *Library Philosophy and Practice (e-journal)*. 1748. Retrieved from <https://digitalcommons.unl.edu/libphilprac/1748>
- Anderson, L. W., & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A revision of Bloom's Taxonomy of Educational Objectives*. (Complete edition). New York: Longman.
- Ardakani, M. P., & Lashkarian, A. (2015). Using Mind Mapping Strategy to Improve Reading Comprehension Ability to Intermediate Iranian Student. *Cumhuriyet Universitesi Fen Edebiyat Fakultesi Fen Bilimleri Dergisi*, 36(3), 1077-1095.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. (4th ed.). Boston, MA: Pearson Education, Inc.
- Delfi, S. (2018). The Effect of Using Mind Mapping on Reading Comprehension of The First-year Students. *Mindmeister*.
- Edwards, P. A. (2010). The Effects of Utilizing Thinking Maps® to Influence Attitudes and Comprehension of Elementary School Males. *(Unpublished Doctoral dissertation)*. Oakland University.
- Elmadwi, H. M., & Shepherd, R. (2014). A Critical Study of The Problems Faced by The Libyan Students in Reading and Comprehension of English as a Foreign Language. *IOSR Journal of Humanities and Social Science (IOSRJHSS)*, 19(1), 29-33. <https://doi.org/10.9790/0837-191122933>
- Fitri, N. A. A., Prastiwi, C. H. W., & Rahmawati, O. I. (2022). Using Mind Mapping Technique to Improve the Students' Reading Comprehension of Recount Text. *English Language and Literature International Conference (Ellic) Proceedings*, 5(0), 337-342.
- Ganie, R., Deliana, & Rangkuti, R. (2019). Reading Comprehension Problems on English Texts Faced by High School Students in Medan. *The Second Annual International Conference on Language and Literature*, 3(19), 684-694. <https://doi.org/10.18502/kss.v3i19.4896>
- Haerazi, H., & Irawan, L. A. (2020). The Effectiveness of ECOLA Technique to Improve Reading Comprehension in Relation to Motivation and Self-Efficacy. *International Journal of Emerging Technologies in Learning (iJET)*, 15(01), 61-76. <https://doi.org/10.3991/ijet.v15i01.11495>
- Iftanti, E. (2015). What Makes EFL Students Establish Good Reading Habit in English. *International Journal of Education and Research*, 3(5), 365-374.
- Kasim, U., & Raisha, S. (2017). EFL Students' Reading Comprehension Problems: Linguistic and Non-Linguistic Complexities. *English Education Journal*, 8(3), 308-321.
- Lahab, R., Fitriyah, S. M., & Sukmaantara, I. P. (2022). Improving the Seventh Grade Students' Reading Comprehension Achievement by Using Mind Mapping Technique at Itisam Wittaya Foundation School. *EFL Education Journal*, 9(2), 51-77.
- Lak, M., Soleimani, H., & Parvaneh, F. (2017). The Effect of Teacher-centeredness Method vs. Learner-centeredness Method on Reading Comprehension Among Iranian EFL Learners. *Journal of Advances in English Language Teaching*, 5(1), 1-10.
- Ling, T. M., & Mohamad, M. (2019). Effects of Tree Map in the Teaching of Sentence Construction among Upper Primary Pupils. *International Journal of Innovative Research and Creative Technology*, 4(6), 126-133. Retrieved from <https://www.ijirct.org/viewPaper.php?paperId=IJIRCT1801024>
- Liu, Y., Zhao, G., Ma, G., & Bo, Y. (2014). The Effect of Mind Mapping on Teaching and Learning: A Meta-analysis. *Standard Journal of Education and Essay*, 2(1), 17-31.
- Male, H. (2019). Using Mind Mapping to Improve Students' Reading Comprehension at SMK BPS&K II Bekasi. *UKI English Education Department (EED) Collegiate Forum*, 54-65.
- Nair, S. M. & Narayanasamy, M. (2017). The effects of utilizing the concept maps in teaching history. *International Journal of Instruction*, 10(3), 1694-609X, 109-126. <https://doi.org/10.12973/iji.2017.1038a>
- Nur, A. H., & Ahmad, D. (2017). Improving Students' Reading Skill Through Interactive Approach at The First Grade of Sma N 1 Mare, Bone. *ETERNAL (English, Teaching, Learning and Research Journal)*, 3(1), 44-56. <https://doi.org/10.24252/eternal.v3i1.2017.a5>

- Phala, T. A., & Hugo, A. J. (2022). Difficulties in Teaching Grade 3 Learners with Reading Problems in Full-service Schools in South Africa. *African Journal of Disability*, 11(0), 1-9. <https://doi.org/10.4102/ajod.v11i0.906>
- Phongploenpis, S., & Supangyut, M. (2018). The Effect of Mind Map Technique on Students Reading Comprehension. *International Journal of Management and Applied Science*, 4(12), 49-53.
- Revathi, S., & John, S. (2019). Learning preferences transformation in tertiary education. *International Journal of Recent Technology and Engineering (IJRTE)*, 8(2S), 215-220.
- Rizqon, M. K., Andreani, S., & Astuti, U. P. (2021). The Problems Faced by Senior High School Students in Reading Narrative Text. *JoLLA: Journal of Language, Literature, and Arts*, 1(11), 1508-1522. <https://doi.org/10.17977/um064v1i112021p1508-1522>
- Rochman, M. (2017). The Importance of Teaching Reading: Emphasize for Reading Fluency or Accuracy in Improving Students' Reading Comprehension in EFL Context. *Ethical Lingua: Journal of Language Teaching and Literature*, 4(1), 11-29. <https://doi.org/10.30605/ethicallingua.v4i1.345>
- Sameliam, L. A. (2017). How Higher Order Questioning and Critical Thinking Affects Reading Comprehension. *School of Education and Leadership Student Capstone Theses and Dissertations*. Hamline University. 43-45. Retrieved from https://digitalcommons.hamline.edu/hse_all/4345
- Saori, S. (2020). The Use of Mind Mapping to Teach Reading Comprehension. *Journal of Languages and Language Teaching*, 8(2), 162-169. <https://doi.org/10.33394/jollt.v8i2.2483>
- Solikhah, I. (2018). Insufficient Preparation Of Teaching Reading: What Should Teacher Challenge? *IJOLTL: Indonesian Journal of Language Teaching and Linguistics*, 3(3), 71-84. <https://doi.org/10.30957/ijotl-tl.v3i3.499>
- Somers, A. J. (2015). *The Graphic Organizer and Extended Thinking*: Florida Department of Education.
- Sumarjati, A. S. (2017). The Use of Mind Maps to Improve Vocational School Students' Reading Comprehension. (Unpublished Doctoral dissertation). Sanata Dharma University Yogyakarta.
- Tiing, C. T. Y., & Said, N. E. M. (2019). The Effects of I-Think Maps on ESL Learners' Reading Comprehension in A Primary School Setting. *International Journal of Current Innovations in Advanced Research*, 2(6), 11-18.
- Zuo, H. Q. (2017). *A New Direction for English Class*. Shanghai: Huadong Normal University Press.

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