

## Empowering Dyslexic Children's Literacy through Mobile Applications and Multisensory: Enhancing the Main 4Cs of 21<sup>st</sup> Century Learning Skills in Narrative Writing

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### ABSTRACT

English proficiency is vital to develop a knowledgeable society. Nevertheless, upper secondary students still face major problems in writing skills, such as developing main ideas, organizing the ideas into a few paragraphs, as well as using the correct grammar and vocabulary elements to produce a good story. Therefore, this study introduces a writing module which was '4Cs to WRITE' as a step-by-step guideline to enable upper secondary students to improve their narrative writing skills by using an online learning platform via mobile devices. This was a mixed-method study in which the data were collected from 55 upper-secondary students from two different schools in Malaysia. The data were collected by using pre-test and post-test, participant observation, document analysis, and focus group interview. The outcomes of the treatment revealed that the mean scores in the post-tests of the narrative essay improved in both schools. The results indicated that the potential of using a writing module could be implemented to teach different types of writing skills for upper secondary school students. Moreover, this could develop their overall writing abilities as the classroom practices for writing skills are inadequate due to the time constraints and the teachers need to focus on other three skills.

**Keywords:** 21<sup>st</sup> century learning skills (4Cs); mobile devices; writing module (4Cs to WRITE); online learning platform

## INTRODUCTION

Students in Malaysia need to master English language proficiency level appropriately as it is the second important language in Malaysia to communicate verbally and non-verbally with others. It is gaining its popularity in this globalization era due to the development of technology which makes people to use this language enormously in various fields (Yunus et al, 2020). It shows that English language is becoming a major communication medium in this 21<sup>st</sup> century era to receive and share information all over the world. In Malaysia, learning English language is tremendously an important matter as it provides many benefits. Once students can master English language unconditionally, it helps them to do well in their tertiary education and in their career fields (Rashid et al., 2022). Besides that, it helps them to gain many career opportunities in their own country, as well as in other countries in this world as it provides a larger access to knowledge and prospects for economic evolution (Yunus et al., 2020).

The Ministry of Education of Malaysia has designed many objectives and programmed to develop students' language proficiency level in Malaysia, but English language performance for the Malaysians has continued inadequate and lacking ability (Talib et al, 2019). Referring to this matter, the Ministry of Education has documented another two approaches in Malaysia Education Blueprint 2013-2025 to help Malaysian students to progress their English proficiency in both primary, as well as secondary schools (Rashid et al., 2022). The two strategies are the English Language Education Roadmap for Malaysia (2015-2025) and the Common European Framework of Reference (CEFR) (Nawai & Said, 2020). The aim of the roadmap is to enhance English language education in Malaysia for the young generation to progress into effective and proficient English language users. Therefore, the utmost extensive change brought by the roadmap is the implementation of the Common European Framework (CEFR). It signifies the international standard to describe and measure language proficiency at each phase of education level in Malaysia. The beneficial acceptance of the CEFR caters vast changes in curriculum, teaching and learning, as well as examination.

Furthermore, National Educational Blueprint (2013-2025) has given importance to enhance Information and Communication Technology (ICT) in teaching and learning process in the present curriculum system (Borrego et al., 2012). Hence, the Shift 7 of National Education Blueprint noted on the significance of Information and Communications Technology (ICT) to improve the excellence of learning in Malaysia, which provides Internet access and virtual learning atmosphere (Yeop et al., 2019). Consequently, teachers need to incorporate various teaching methods to help students to improve their writing skills. In this era, students are keen in using technology platforms in their daily life. Incorporating the use of the technologies to teach writing skills is useful as these technologies can assist the students to do their work from anywhere and anytime. Apart from that, using technology platforms helps students to access easily to any information, accelerated learning and fun opportunities to practice what they learn (Harjanto & Sumarni, 2021).

There are a number of approaches that teachers can apply to teach writing skills for students. One of that is utilizing the main four skills of 21<sup>st</sup> century learning. The four main skills are communication, collaboration, critical thinking, and creativity thinking skills (Ramalingam, et al., 2021). The 21<sup>st</sup> century learning pedagogy was introduced in Malaysia in 2014 (Yu et al,1978, 2019). Teachers need to use various teaching methods in Malaysia to enable and motivate the Malaysian students to develop their writing skills. One of the ways is by integrating the main skills of 21<sup>st</sup> century as students could communicate and collaborate with their group members, as well as use their critical thinking and creativity thinking to write their essays rather than focusing on traditional teaching approaches for learning writing elements.

Social Development Theory is employed as the core theory in this study as students need to work with their friends to complete each narrative writing element task. This theory was introduced by Vygotsky (1978). In this theory, Vygotsky emphasized that every function in a child's social development occurs twice. The first phase is on the social level and the second phase is through individual level. Thus, it is believed that a good social circle for the students is vital to enable them to work in group activities in the first phase to learn the elements of narrative writing step-by-step. On the other hand, for the second phase, the idea of Vygotsky's theory, which is the ability of cognitive development of individual, is based on the 'zone of proximal development' (ZPD) which is perceived through social efforts. Hence, for the second phase, students work individually, in which they are required to write their own narrative writing essays after the group activities.

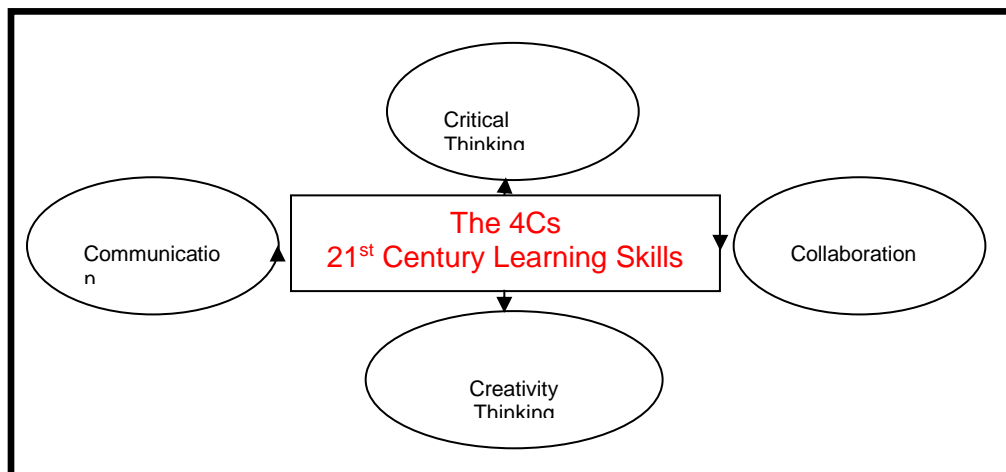
Henceforth, this study introduces the 4Cs to WRITE module as a guideline by using an online learning platform via mobile devices during the treatment phase. There are many types of writing skills which need to be mastered by upper secondary students before sitting for their Sijil Pelajaran Malaysia (SPM) examination. However, this study mainly creates the writing materials to develop students' narrative writing skills by applying all the main elements of 21<sup>st</sup> century learning. The narrative writing competencies include these four aspects, namely, developing the main ideas, creating the elements of plot to write a story, improving the usage of grammar, and enhancing the usage of vocabulary elements. The aim of conducting this study is to investigate the effectiveness of the main 4Cs of 21<sup>st</sup> century skills in preparing narrative writing materials by using an online learning platform via mobile devices. Henceforth, the study aims to answer the following four research questions:

Is there any significant effect between students' narrative writing scores in pre-test and post-test?

1. Is there any significant difference between students' narrative writing scores in pre-test and post-test in two groups of students?
2. What is the effectiveness of implementing the elements of 21<sup>st</sup> century learning skills in students' narrative writing skills through the 4Cs to WRITE module by using an online learning platform via mobile devices?
3. What are the students' perceptions on the 4Cs to WRITE module by using an online learning platform via mobile devices?

## LITERATURE REVIEW

### *(4Cs)- 21<sup>st</sup> Century Learning Skills*



*Figure 1. The main skills of 21<sup>st</sup> century learning*

Figure 1 displays the skills that are used in this study. All the main 21<sup>st</sup> century learning skills are included to teach narrative writing skills for students. Lubis et al. (2020) stated that communication is an ability to share thoughts and ideas through spoken, written, and interpersonal forms. In this era, individuals can communicate by using various types of technology platforms. It shows that applying this element in teaching narrative writing skills would be essential as it allows students to communicate with one another which helps to explain many unresolved issues during the writing process. As a result, it is noted that including communication aspect in learning narrative writing skills mainly to construct main ideas and planning to organize their ideas into a few paragraphs is essential. This is because many students do not have enough ideas to narrate a storyline or their story that is more to primary school level, as well as lacks liveness and maturity. Students in upper secondary level should train themselves to write a narrative essay critically and creatively by including the elements of plot, setting, five senses, including main and minor characters, some interesting events and suspense elements, as well as moral values. Nevertheless, majority of students in Malaysia have difficulties to construct proper ideas or they lack ideas and are unable to sequence the storyline (Siddek & Ismail, 2021). It shows that when students communicate with their group members, they would be able to overcome the issues and it would help them to reduce their anxiety in narrative writing process.

On the other hand, collaboration skill is defined as students' participation in authentic and purposeful cooperative learning between individuals, as well as group members to construct new ideas and knowledge together (Fianti et al., 2019; Sharratt & Planche, 2016). This means that including the element of collaboration is vital to practice narrative writing skills when compared with practicing alone. Many past studies stated that students are unable to successfully identify the main ideas and they have great difficulties to arrange their ideas into a few paragraphs. This is because they are unable to provide explanations and examples for the main ideas accordingly as they lack practices in classroom and teachers need to focus on other skills (Ghulamuddin et al., 2021; Harun & Kabilan, 2020; Miin et al., 2019).

Therefore, when students do not have enough practices, students tend fail to produce a good piece of narrative essay. Nonetheless, when students collaborate with their friends, it is imperative as they have more time to discuss and overcome their problems in narrative writing skills. Apart from that, collaborating with their group members would favor them as it helps them to improve their writing skills through discussion with group members. This is because they feel more comfortable with their peers when compared with their language teacher as some students may feel shy, fearful, and uncomfortable to deal with their language teacher directly during their lessons (Jones, 2007, as cited in Yu et al., 2019).

Writing is one of the abilities that a person must enjoy producing a good writing. Choosing the grammar and vocabulary elements according to the storyline is fundamental. Thus, students need to implement the usage of their critical and creativity thinking as writing involves mental process. Duncan-Andrade and Morrell (2008) elucidated that through the process of engaging students in activities that promote critical thinking, it brings about ideas which enable them to analyze, critically evaluate and assess their abilities. They need to plan, as well as evaluate the grammar features and vocabulary words critically to give life to their storylines. Reay (2018) noted that there is a strong connection between critical thinking and writing skill because critical thinking helps students to clearly process their thoughts or ideas to construct proper structured essays. This specifies that students need to be accomplished with proper guidelines to improve their grammar and vocabulary skills.

On the other hand, students' creativity and innovation are evaluated as one of the main priorities of all societies (Baucus et al., 2008). Tse and Shum (2000) remarked that many researchers acknowledge the significance of creativity skill in language writing. Students in Malaysian upper secondary level needs to practice writing and produce their stories creatively. Hence, grammar and vocabulary skills are related aspects to aid in writing good stories. For writing narrative essays, students should not replicate the same grammar components and vocabulary words. The repetition will make the storyline to be dull and less enthralling. When students can use their creativity thinking, it supports them to use various types of sentence structure expressively and avoid writing unpretentious stories. Additionally, upper secondary students should be able to apply grammar characteristics properly based on their level. For instance, in their story writing, they should employ creativity thinking to include punctuated dialogue lines. In addition, they must be inventive in their use of tenses. They cannot use the same past tense in their narrative essays to make the story interesting. Aside from that, students should be able to creatively use vocabulary words in narrative writing. They must also be innovative in their explanations of their ideas, utilize suitable syntax and language to guarantee that they may exhibit identification with a character, communicate different feelings that characters are aware of, or manage a difficult circumstance that a character is experiencing.

Hence, integrating the main 4Cs of 21<sup>st</sup> century learning skills to enhance students' narrative writing skills is needed to enable students to learn each element of narrative writing skills appropriately.

### *Importance of Incorporating Online Learning Platform via Mobile Devices to Practice Narrative Writing Skills*

Yeop et al. (2019) stated that the Ministry of Education of Malaysia has given priority to make a vast change in teaching and learning system in Malaysia to enable each student to progress well by incorporating new teaching approach. One of that is through implementing technology platforms. It shows that teaching writing skills in classroom only is not sufficient as students need a lot of practices. Henceforth, in this new era, students can use their technology devices to take part in their learning after school hours.

Moreover, Malaysian government has emphasized on the use online platform in teaching and learning. Using an online learning platform is needed for students to enable them to do extra practices in the subjects that they are weak. Consequently, using an online learning platform to practice writing skills is needed to help them to improve and progress well in their writing abilities in future. In Malaysia, students are being introduced to use Google Classroom as it provides numerous benefits in the learning context (Tamin & Mohamad, 2020). Apart from that, students are convinced to use the online learning platform as they can download the application in their mobile devices, and they can do their task anytime and anywhere. In this study, Google Classroom is employed for the students to practice their narrative writing skills by using their mobile devices.

Overall, teachers do not have enough time to teach each type of writing skill to the students for a long period due to time constraint and they need to focus on other language skills. As a result, one of the strategies that has the high possibility is applied in this study to encourage students in improving their narrative writing skills. This means that the main four skills (4Cs) of 21<sup>st</sup> century learning skills are incorporated in narrative writing content areas.

## **METHODOLOGY**

### *Research Design*

This study used a mixed-method approach to collect the overall data. In this study, the data were mainly collected by using the qualitative method and the quantitative data were the supplementary. Triangulation was done after collecting the overall data to identify the effectiveness of the 4Cs to WRITE module in developing upper secondary students' narrative writing abilities in Malaysia.

### *Samples*

The samples consisted of 55 upper secondary students from two different schools in Malaysia to collect the data. These students are Form 4 students who are from one secondary school located in Penang and another in Kedah. Purposive sampling method was used to select 31 female students and 24 female students from these two schools, respectively. In this study, there was a treatment that was used. This treatment which involved the activities from the module given to the students were uploaded to the Google Classroom platform weekly based on different themes. Before the students took part in this treatment, they were required to answer a survey before a treatment to indicate the type of mobile devices that they are using at home. The survey was conducted by

using a Google Form. It revealed that 69.1 per cent of the students (38 students) use smartphones at home. Another 20 per cent which comprised 11 students use their laptop at home. The remaining 5.45 per cent (3 students), 3.64 per cent (2 students) and 1.81 per cent (1 student) use their tablet computer, notebook computer and computer at home, respectively. The details are as shown in the Figure 2.

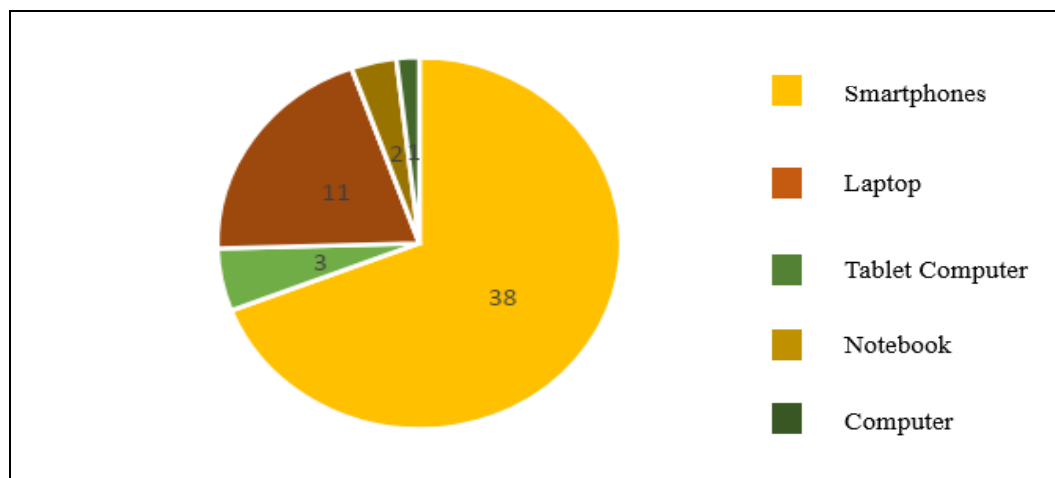


Figure 2. Types of mobile devices that are used by the students at home

### Research Instruments

The data were collected by using both quantitative and qualitative methods. The researcher had used the pre-test and post-test to collect data using quantitative method, as well as employed participant observation, document analysis and focus group interview with the students after the treatment for qualitative data.

### Pre-Test and Post-Test

In this study, the researcher used the pre-test as the first method to collect the data which was conducted beforehand the treatment. Then, in Week 10, the students were required to sit for their post-test after the completion of the treatment phase which was held for eight weeks by using the created 4Cs to WRITE module.

### Participant Observation

The purpose of using participant observation was to enable the language teachers to monitor the students' activities while using Google Classroom via mobile devices to communicate and collaborate with their group members to complete the given activities. Besides that, employing participating observation was paramount to monitor whether the students were able to use their critical thinking and creativity thinking to complete the grammar and vocabulary tasks, as well as to observe the usage of Google Classroom and mobile devices in developing their narrative writing skills throughout the treatment phase in study. Therefore, the language teachers used a participant observation checklist to monitor their work.

### Document Analysis

The researcher employed document analysis as a qualitative data collection method. After completing their activities, the students were asked to write a complete narrative essay in each week for eight weeks repeatedly on Fridays. This would be their summative evaluation to determine whether the students were able to incorporate all the elements that they learned during the group work to write their own narrative essay of about 250 words before they took the post-test. Their language teachers uploaded different topics of narrative essay each week from the module to the Google Classroom. Then, the students constructed their own narrative essay and uploaded to the Google Classroom. Their group members would be able to read their friends' narrative essays at the Google Classroom platform. Finally, the language teachers checked 440 summative essays by using a checklist which was prepared by the researcher in this study.

### Focus Group Interview

The last way to collect the data from the students was by using focus group interview. The students were interviewed in their group of about 10 to 15 minutes. The interview sessions were carried out by using the Google Meet. There were 17 interview questions that were prepared by the researcher. The need of interview with the students was to identify the effectiveness of the Google Classroom, the usage of mobile devices and the narrative writing module. Finally, the responses from the interview were transcribed and coded in into a few common themes.

### Procedures

Before conducting this study, the researcher met the students to know the types of mobile devices that they use in their daily life. Then, the researcher explained about the 4Cs to WRITE module to the students, and they would take part in the treatment for total of eight weeks. The research was conducted in a duration of 10 weeks.

During the first week, the researcher instructed the language teachers to conduct the pre-test. After collecting their pre-test narrative essays, the language teachers marked the essays by using the marking rubric which was created by the researcher in this study. From Week 2 to Week 9, the students worked in their small groups via the Google Classroom by using their mobile devices to do all the given activities. On top of that, for the eight weeks of the treatment period, the students were required to write their own individual narrative essays after all the group tasks.

In Week 10, the students were required to take their post-test. After the post-test, the same language teachers marked their essays and gave the marks to the researcher. Finally, the researcher conducted the focus group interview session with the students via the Google Meet for about 10 to 15 minutes for each group.

### Data Analysis

In this present study, the researcher amassed the data by using both quantitative and qualitative data. Before marking the pre-test and post-test narrative essays, the researcher created a marking rubric based on Jacobs et al.'s (1981), Brown's (2007), and Wong's (1989) writing rubrics. The rubric contained four elements which were on main idea or content, organization or plot, grammar, and vocabulary. Each element comprised five marks. Therefore, the total mark was 20. Other than



that, the researcher used Statistical Package for the Social Sciences (SPSS) version 25 to demonstrate the pre-test and post-test data for analyzing the quantitative data. Apart from that, since the researcher would use the same group of students to be involved in pre-test and post-test, paired samples t-test was used to classify the difference between two mean scores of the same group and independent t-test was carried out with the two schools which were involved in this study. The significance range was set at 0.5 for both essays. The school in Penang was coded as School A and the school in Kedah was conducted as School B.

In contrast, for qualitative data, the researcher collected the data by using participant observation, document analysis and focus group interview. All the qualitative data were analyzed by using common themes.

## FINDINGS AND DISCUSSION

### *Quantitative Data from Pre- and Post-tests*

To answer the first research question, the students' narrative pre-test essays of both schools, which were identified as School A and School B in this study, were compared with the post-test scores respectively (see Table 1). The findings indicate that the students in both schools (School A and School B) improved in their narrative writing because there is a difference between the pre-test scores and post-test scores. The difference of School A for the pre-test score (9.78) and post-test scores (16.12) which is 6.34. Conversely, the difference for School B for the pre-test score (8.33) and post-test scores (13.53) which is 5.20.

Table 1  
 Descriptive statistics for pre- and post-tests' scores (School A and School B)

		Mean (upon 20)	N	Std. Deviation	Std. Error Mean
Pair 1 School A	Overall Marks for Pre-Test	9.7800	25	2.33310	.46662
	Overall Marks for Post-Test	16.1200	25	2.04776	.40955
Pair 1 School B	Overall Marks for Pre-Test	8.3333	30	3.05505	.55777
	Overall Marks for Post-Test	13.5333	30	2.67470	.48833

From Table 1 for School A, the result of the within group comparison indicates the students' post-test ( $M = 16.12$ ,  $SD = 2.04$ ) and the pre-test ( $M = 9.78$ ,  $SD = 2.33$ ). However, for School B, it is shown that the students' results of their post-test ( $M = 13.53$ ,  $SD = 2.67$ ) and pre-test ( $M = 8.33$ ,  $SD = 3.06$ ). The findings from the Table 1 reveal that the results within group comparison is comparatively higher than their pre-test. The significance of the mean difference between the participants' scores in the pre-test essay and post-test essay was notified (see Table 2: School A and School B).

Table 2 Paired samples t-test results (School A and School B)  
 \* *Correlation is significant at the .05 level (2-tailed)*

		Mean (upon 20)	t	df	Sig. (2-tailed)
School A	Pair 1 Overall Marks for Pre-Test	-6.34000	-14.670	24	.000
	Overall Marks for Post-Test				
School B	Pair 1 Overall Marks for Pre-Test	-5.20000	-17.063	29	.000
	Overall Marks for Post-Test				

For School A, Table 2 indicates that the mean difference of 6.34 between the pre- and post-tests' scores is statistically significant,  $(24) = 15, p = .00$ . Conversely, for School B, the result shows the mean difference of 5.20 between the pre- and post-tests' scores that is statistically significant,  $(29) = 17, p = .00$ . Consequently, it discloses that selection of appropriate narrative writing materials developed the students' narrative writing abilities by using the main four skills of 21<sup>st</sup> century in this present study. The students were able to develop their narrative writing skills in term of identifying the main ideas, organizing the ideas into a few paragraphs or incorporating the element of plot for story writing, as well as using correct grammar and vocabulary features which are relevant for a narrative essay accordingly.

The findings demonstrated that utilizing the main 4Cs of 21<sup>st</sup> century skills is valuable. This finding is like Yu et al.'s (2019) study which displayed that the 4Cs elements of 21<sup>st</sup> century play an important role in teaching process of students in this era. This is because the main elements of 4Cs encouraged the students to communicate and collaborate with their peers in their learning process. Apart from that, they were taught to use critical thinking and creativity thinking throughout the writing process by using various types of writing activities. Creating group activities or making students to work in a small group to improve their writing skills was essential as they were able to communicate and collaborate to find out the proper answers rather than focusing on the individual activities as mentioned by Anggraini et.al (2020). They also mentioned in their study that collaborative writing method helped the students in generating proper ideas and actuating the students' background knowledge of the topics allocated to them to develop in their writings. Moreover, to produce a good narrative essay, it depended on proper usage of grammar and vocabulary features which enabled students to describe their story in a good manner. Therefore, including the elements of critical thinking and creativity thinking during the group tasks would be needed to enable them to think critically and creatively to use the elements of grammar and vocabulary with their peers who have different styles of thinking abilities (Tully, 2009 cited in Yu et. al, 2019).

Aside from that, the analysis of the four dimensions (main idea, organization or plot, grammar, and vocabulary) was conducted for both schools (School A and School B) to identify whether the 4Cs based activities have significant effects on the students' narrative writing essays. Table 3 and Table 4 reveals that the students' pre-test scores for each dimension are comparatively lower than their post-test scores.

Table 3  
 Descriptive statistics for pre- and post-tests' scores for School A (N = 25)

Dimensions	Mean	Std. Deviation	
Pair 1	Main Idea for Pre-test	2.6000	.70711
	Main Idea for Post-test	4.5200	.65320
Pair 2	Organisation or Plot for Pre-Test	2.4800	.13064
	Organisation or Plot for Post-test	4.4000	.12910
Pair 3	Grammar for Pre-Test	2.3200	.62716
	Grammar for Post-test	3.4400	.50662
Pair 4	Vocabulary for Pre-Test	2.4800	.65320
	Vocabulary for Post-Test	3.7600	.66332

Table 4  
 Descriptive statistics for pre- and post-tests' scores for School B (N = 30)

Dimensions	Mean	Std. Deviation	
Pair 1	Main Idea for Pre-test	2.4667	.19018
	Main Idea for Post-test	3.7667	.13290
Pair 2	Organisation or Plot for Pre-Test	2.0667	.90719
	Organisation or Plot for Post-test	3.5333	.68145
Pair 3	Grammar for Pre-Test	1.7667	.72793
	Grammar for Post-test	3.0333	.66868
Pair 4	Vocabulary for Pre-Test	2.0333	.61495
	Vocabulary for Post-Test	3.1667	.79148

The mean difference between the pre- and post-tests' scores for each dimension was verified for their statistical significance by using paired samples t-test. Table 5 and Table 6 indicates the SPSS version 25 output for these tests.

Table 5 Paired samples t-test results for School A  
 \* *Correlation is significant at the .05 level (2-tailed)*

	Mean	t	df	Sig. (2-tailed)	
Pair 1	Main Idea for Pre-test	-1.9200	-12.643	24	0.00
	Main Idea for Post-test				
Pair 2	Organisation or Plot for Pre-Test	-1.9200	-13.668	24	0.00
	Organisation or Plot for Post-test				
Pair 3	Grammar for Pre-Test	-1.12000	-9.333	24	0.00
	Grammar for Post-test				
Pair 4	Vocabulary for Pre-Test	-1.2800	-10.428	24	0.00
	Vocabulary for Post-Test				

Table 6 Paired samples t-test results for School B  
 \*Correlation is significant at the .05 level (2-tailed)

		Mean	t	df	Sig. (2-tailed)
Pair 1	Main Idea for Pre-test Main Idea for Post-test	-1.30000	-10.142	29	0.00
Pair 2	Organisation or Plot for Pre-Test Organisation or Plot for Post-test	-1.46667	-6.562	29	0.00
Pair 3	Grammar for Pre-Test Grammar for Post-test	-1.26667	-13.321	29	0.00
Pair 4	Vocabulary for Pre-Test Vocabulary for Post-Test	-1.1333	-12.234	29	0.00

The findings reveal that all the mean differences between the pre-test and post-test scores for each dimension are statistically significant for both schools. For School A, the differences between the pre-test and post-test scores for main idea [ $t(24) = -12.64, p = .000$ ], organization or plot [ $t(24) = -13.67, p = .000$ ], grammar [ $t(24) = -9.33, p = .000$ ], and vocabulary [ $t(24) = -10.4, p = .000$ ] are statistically significant since the significant value,  $p$  is less than .05. Similar to School A, for School B, the differences between the pre-test and post-test scores for main idea [ $t(29) = -10.1, p = .000$ ], organization or plot [ $t(29) = -6.56, p = .000$ ], grammar [ $t(29) = -13.3, p = .000$ ], and vocabulary [ $t(29) = -12.2, p = .000$ ] are statistically significant since the significant value,  $p$  is less than .05. It shows that the usage of the narrative writing materials for main idea, organization or plot, grammar, and vocabulary to develop narrative essays is positively affected by the treatment by using the Google Classroom via mobile devices in this current study.

Table 7  
 Effect size (test of between-subjects effects)-dependent variable: overall marks for post-test for School A  
 a.  $R Squared = .000$  (Adjusted  $R Squared = .000$ )

Source	Type III of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.000 <sup>a</sup>	0	.	.	.	.000
Intercept	6496.360	1	6496.360	1549.211	.000	.985
Error	100.640	24	4.193			
Total	6597.000	25				
Corrected Total	100.640	24				

Table 8  
 Effect size (test of between-subjects effects)-dependent variable: overall marks for post-test for School B  
 a.  $R Squared = .000$  (Adjusted  $R Squared = .000$ )

Source	Type III of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.000 <sup>a</sup>	0	.	.	.	.000
Intercept	5494.533	1	5494.533	768.034	.000	.964
Error	207.467	29	7.154			



Total	5702.000	30
Corrected Total	207.467	29

From Table 7 and Table 8, effect size is determined from partial Eta squared. It is shown that the effect size is very large as the partial Eta is .985 for School A and .964 for School B. This means that 98.5 per cent for School A and 96.4 per cent for School B of the change in the overall marks for post-tests are caused by the integration of 4Cs based elements activities through the narrative writing module by using the Google Classroom via mobile devices for the students. This finding is supported by the past study by Yunus et. al,(2020) which demonstrated that using a writing module is paramount for the students as they had an opportunity to practice the writing skills (content, organization, grammar, and vocabulary) step-by-step to nurture their writing skills. Moreover, it is noted that when the teachers plan to teach writing skills via technology platform, they need to use proper guidelines and prepare some writing materials accordingly which allow the students to practice with their peers. This means that without proper guideline while utilizing the technology platform in developing writing skills, students would be unable to improve their writing skills. Proper module creation for writing skills is ultimate to enable and stimulate students’ interest to write and learn each type of writing appropriately.

After each school comparison, the researcher did the comparison between School A and School B as shown in Table 9.

Table 9  
 Comparison of pre-test and post-test between School A and School B

	School	N	Mean (upon 20)	Std. Deviation	Std. Error Mean
Pre-Test	A	25	9.8800	2.33310	.46662
Total	B	30	8.3333	3.05505	.55777
Post-Test	A	25	16.1200	2.04776	.40955
Total	B	30	13.5333	2.67430	.48833

Table 9 shows that the students in School A can progress well in their post-test which is the mean is higher than School B. The mean difference for School A is 6.34 and School B is 5.20, respectively. This is because the researcher chose two different types of school to conduct the treatment. School A is one of the best schools in Penang District, but the student’s faced problems in their writing skills even though they have similar language background in their classroom. Hence, the language teacher from School A conveyed the message if they have continuous writing practices, they will develop in their writing skills. On the other hand, School B is a normal daily school which is in Kedah District and the students’ language backgrounds are varied. They need a close supervision to develop their writing skills. Henceforth, students from both schools managed to improve in their narrative writing skills in their post-test. Table 10 indicates the independent samples test of School A and School B.

Table 10  
 Independent sample t-test

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre-test Total	Equal variances assumed	.409	.525	2.076	53	.043	1.54667	.74516	.05206	3.04127
	Equal variances not assumed			2.127	52.641	.038	1.54667	.72722	.08782	3.00551
Post-test Total	Equal variances assumed	.441	.510	3.962	53	.000	2.58667	.65293	1.27706	3.89627
	Equal variances not assumed			4.059	52.662	.000	2.58667	.63734	1.30814	3.86520

According to Table 10, overall scores for pre-test for School A ( $M = 9.88$ ,  $SD = 2.33$ ) scored slightly higher than School B ( $M = 8.33$ ,  $SD = 3.05$ ). Similarly, the overall scores for post-test for School A ( $M = 16.12$ ,  $SD = 2.05$ ) scored slightly higher than School B ( $M = 13.53$ ,  $SD = 2.67$ ). Based on the results of independent samples t-test,  $t(53) = 3.96$ ,  $p = .000$ , 95% CI [1.28, 3.90], since the significant value was greater than alpha at .05 level of significance, it can be concluded that there is no significant difference between School A and School B’s achievement scores in their narrative essays.

*Qualitative Data from Participant Observation, Document Analysis and Focus Group Interview*  
 Qualitative data from participant observation, document analysis and focus group interview were collected. Data for the participant observation were collected by using a fieldnote, data for the document analysis were collected by using a checklist and the focus group interview was conducted with all the 55 participants via the Google Meet. All the responses from the focus group interview were transcribed. Data were organized according to common themes.

Participant Observation

The researcher in this study conducted participant observation, while the students used the narrative writing materials in their group discussion by using the Google Classroom via mobile devices. The purpose of carrying out the participant observation was to identify whether the students were able to progress in their narrative writing skills by using technology tools after their school hours with their group members.

There were 36 items for the participant observation under five scales which were very frequently, frequently, occasionally, very rarely, and never. The researcher instructed the language teachers from both schools to conduct the participant observation for each group for eight weeks.

They needed to tick an appropriate scale according to the students' ability. After that, the researcher divided the findings from the checklist into a few themes, such as communication, collaboration, critical thinking, creativity thinking, and usability of the Google Classroom and mobile devices in developing narrative writing skills.

The researcher discovered that the students in both schools developed in their writing consistently every week. In the beginning stage, they faced difficulties to communicate and collaborate with their group members to complete the given activities. Nevertheless, week by week, they were able to communicate and collaborate to discuss the main ideas, as well as arrange their ideas into a few paragraphs. Apart from that, the students demonstrated the same progress to complete their grammar and vocabulary activities by applying their critical thinking and creativity thinking. They were able to discuss the grammar and vocabulary tasks critically and creatively. Moreover, they were able to use the Google Classroom platform appropriately and they did not face any great difficulties of using it during their discussion. They were also able to upload their worksheets accordingly by using their mobile devices without fail.

Besides that, this study displayed that using proper online learning platform via mobile devices is needed for students nowadays to further discuss their narrative writing tasks after the school hours. This finding is like Handayani et.al (2018), Nugroho and Rahmawati (2020), as well as Yunus et. al (2019) which indicated that using a proper teaching approach which is through technology platform to carry out writing activities is evidential as it helps students to improve their writing skills.

#### Document Analysis

The researcher employed document analysis by using a checklist to identify whether the students were able to write their individual narrative assessment for each week accordingly. It has shown that the students were able to use all the elements that they learned in their group tasks to write their individual essay even though they tended to make some mistakes. Nonetheless, they were able to write their individual task according to the given instructions for both schools. Besides that, week by week, the students showed improvement in their individual narrative essay as they were able to include the elements that they learned in their group activities.

Practicing writing regularly could help students to become more conscious of the restrictions of their ideas, organization, grammar, and vocabulary. The more students write, it would be able for them to clearly understood in identifying the main content points, listing the ideas into a few paragraphs, as well as practicing to apply various types of grammar and vocabulary aspects while writing. In this way, writing practice could help them to have the dexterity in a distinct voice, which is something that every good writer must have, and it could aid them to become a better writer. On top of that, practicing each week is seen as a key to sharpen general writing skills, as well as promote a meaningful and balanced level of thinking (Nurwanti et.al, 2017).

#### Focus Group Interviews

After the treatment, the researcher conducted the interview session with the students. The students provided their opinions, in which the researcher divided them into a few common themes as stated

below:

### *Online Learning Platform*

Students stated that using online learning platform is convenient for them as they were able to discuss the narrative writing tasks after their school hours. Majority informed that they needed more exercises to improve their narrative writing skills and using online learning platform was very useful.

### *Mobile Devices*

It was easy for the students as they were able to complete their task anytime and anywhere. They would also get replies from their group members immediately when compared with the traditional approach. Thus, they were motivated to take part in the treatment and most of students elucidated that if they had any words that they could not understand the meaning, it was convenient as they were able to search for meanings by using their mobile devices before completing the given assignments.

### *Group Activities*

The students informed they were comfortable with the group activities rather than individual tasks as the group activities helped them to communicate and collaborate to understand each element of narrative writing skills profoundly. Other than that, they claimed that they understood the correct grammar and vocabulary elements that they needed to apply to construct a story.

### *Practising Individual Narrative Writing*

The students stated that continuous writing practices for narrative writing are pertinent as these practices helped them to improve their narrative writing abilities. Majority of students remarked that they needed more practices in future for each type of essay.

### *Usefulness of 4Cs Elements of 21<sup>st</sup> Century Learning*

The students explained that using different teaching approaches is crucial as it would help them to learn appropriately. Including the 4Cs elements enabled them to communicate and collaborate with their group members to understand the way of writing a story. In addition, working with their group members enabled them think critically and creatively to complete the grammar and vocabulary exercises. This is because students needed to critically and creatively by using their grammar and vocabulary aspects, so that it would make their story to be interesting.

### *Challenges*

The students noted that they faced some problems during the treatment phase in this study as they did not have enough data to discuss further with their group members. Moreover, they were unable to allocate more time to discuss as everyone had his or her own routine of going for tuition and doing school homework after school. Lastly, some group members were unable to join as they were involved in school extra curriculum activities, and they had other unavoidable circumstances.



## CONCLUSION AND RECOMMENDATIONS

Based on the outcomes of this study, it could be summarized that the 4Cs to WRITE module has a positive impact for the students in developing their narrative writing skills. This is because the module was carefully created based on each important element that was needed to write a good piece of story for the students. Students needed more exposure for each element of narrative writing skills for a period to enable them to write a good story. It stated clearly that students needed a duration to improve each type of writing skill. Furthermore, the activities in this module had been divided into few categories, such as developing the main ideas, generating plot, or organizing the storyline into a few paragraphs, as well as choosing appropriate grammar and vocabulary elements to write a story. Moreover, the activities which had been created in this module were useful as those activities enabled them to communicate and collaborate accordingly in their groups before finishing each task. When they communicated and collaborated with the members, it helped them to understand each activity better when compared with the individual task. In addition, it allowed students to use their creativity and critical thinking skills in articulating ideas by working collaboratively. Aside from that, using an appropriate module, teaching pedagogy and technology platform would generate a higher tendency to improve in writing skills when compared with the traditional approach.

The researcher suggested that policy makers or teachers could create a proper module to teach each type of writing skill for upper secondary students in Malaysia. This is because the exercises that students are doing in classroom are not sufficient as students need more continuous practices to improve the overall writing skills. Hence, by incorporating a correct writing module, it will be a good guideline for teachers to follow while practicing writing skills by using technology platforms to give extra writing activities after the school hours. The researcher believes that with proper writing modules, students could improve their writing skills.

Apart from that, teachers could incorporate the elements of 4Cs which are communication, collaboration, critical thinking, and creativity thinking to teach each type of writing skill for upper secondary students in future. Students communicate and collaborate with their peers; henceforth, it helps them to understand the writing skill better and it helps them to avoid writer's block as group members can discuss with one another to provide ideas to write an essay. Additionally, through discussion, they would be able to think critically and creatively to write their essays. Moreover, teachers could provide activities which enable students to use they're critically thinking and creativity thinking as both elements are important to write a good piece of writing.

Finally, the researcher in this study recommended that students could be trained to practice writing essays by using technology platform. This is because the language lessons in classroom are not enough as the teachers need to focus on the syllabuses and teaching other skills, as well.

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### Conflict of Interest

There is no conflict of interest.




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### Authors' Contributions

The first author in this study searched for relevant articles, carried out the study and analysed the data. On the other hand, the second and third authors contributed their ideas and revised the manuscript.

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