

Teaching Secondary School Essay Writing Using Generative AI

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ABSTRACT

Artificial intelligence has made a tremendous impact in the education field since the emergence of Generative AI such as ChatGPT, Gemini and Copilot. Apart from adding a variety to the normal way of teaching, GenAI is able to provide personalised feedback and ideas to writers in a split second. However, studies regarding the use of generative AI among Malaysian secondary school students are still lacking. In addition, there are also insufficient training and materials to guide Malaysian secondary school teachers and students in using Generative AI. Thus, in this study, the researchers had produced their learning aid known as Bard G to guide students in using Google Gemini, a generative AI developed by Google. Bard G consists of a mobile application, two modules and a rainbow chart. In this study, 40 Form 4 students were chosen as the respondents for this study. Students' responses were analysed qualitatively using thematic approach. Among the problems identified while using generative AI include lack of facilities, insufficient computer knowledge and lack of guidance in using AI. On the other hand, themes such as personalised learning, differentiation strategy and self-directed learning were identified regarding the usefulness of Gemini. However, the results of this study were confined to only Form 4 students of a secondary school in Johor Bahru. It is hoped that in the future, Bard G can be used in teaching with other age group of students and with other language aspects such as Grammar, listening and speaking skills.

Keywords— Artificial intelligence, student-centred learning, essay writing, self-directed learning, second language acquisition

INTRODUCTION

Artificial intelligence has made tremendous remarks in the education field since the emergence of Generative AI such as ChatGPT, Gemini and Copilot [1],[2], [3]-[5]. This is particularly seen in the field of essay writing as it is considered as the co-author for students' essays. Most of the time, GenAI has been used in higher learning education and there are still insufficient studies with other age groups of students [6]. Apart from that, one of the main reasons that hinders teachers from using digital tools in teaching students is the lack of guidance and training provided [7],[8]. Thus, in this study, the researchers had produced their own teaching aid known as Bard G to help Malaysian secondary school students to learn essay writing using Gemini. Bard G is a teaching aid that consists of a mobile application, two modules, and a rainbow chart to teach students the prompts in using Gemini. Essay writing was chosen for this study as writing is one of the most difficult language skills to acquire because of its complexity in nature and English is a second language or even a foreign language for majority of Malaysian students [9],[10]-[12]. Besides, writing consists of many elements such as word choice, language use and spelling. The main problems faced by Malaysian students in their essay writing include the inability to form grammatically accurate sentences and generalization of ideas due to poor command of vocabulary and interference from their mother tongue [13]. Due to lack of time, poor facilities and weak command of the English language, the majority of Malaysian English teachers usually employ teacher-centred method in teaching essay writing [14],[15]. Thus, there should be a call for a more creative approach in teaching essay writing such as through the use of Artificial Intelligence [2],[5].

Although AI has long existed since 1950, it has only made tremendous impact in education field since the emergence of ChatGPT. Similar to ChatGPT, Gemini is able to generalise information from a large corpus of

data built in it. Research shows that Gemini can help with creative tasks, explaining complex topics and generally extracting information from a variety of sources on the internet. Although studies had been carried out about ChatGPT, there are a few studies on the use of other AI tools such as Gemini and Copilot [6],[12],[16]. Moreover, there is lack of guidance in using AI such as Gemini. Thus, this has discouraged teachers and students to explore further in the field of AI.

The research objectives for this study are to:

examine Malaysian secondary school students’ problems in using Google Gemini for essay writing find out the perceptions of Malaysian secondary school students towards the use of Google Gemini and Bard G

LITERATURE REVIEW

Gemini is a generative AI developed by Google, one of the largest communication providers in the world [13]. It is even known as one of the best AI in terms of generating high-quality data as it can access information directly from Google, thus making it a reliable source of information compared to other AI [17],[18]. Apart from that, Gemini is safeguarded for kids’ usage and it is also strongly recommended by MOE of Malaysia to be used throughout the country.

The results of the previous study showed that Gemini is perceived as useful by a group of Malaysian secondary school students because of its features such as differentiation strategy, personalized learning, ability to generate high-quality data and safe for students to use [13]. Nevertheless, Gemini is still not widely practised in Malaysian secondary schools due to lack of guidance for Malaysian teachers in using it. In fact, one of the problems that hindered teachers to use digital tool in ESL classroom is lack of guidance and facilities [7], [19]. Thus, Bard G was developed in this study to provide guidelines to teachers and students in using Gemini AI for essay writing.

METHODOLOGY

In this study, Bard G is a learning aid in guiding students to use Gemini AI for essay writing. It consists of a mobile application, two modules and a rainbow chart. The first book is for beginners. It consists of explanations and illustrations about Gemini while the second book consists of step-by-step explanation to guide students to use Gemini in all the three stages of essay writing: Pre-writing, while writing and post-writing. The second book also consists of translation in Bahasa Melayu to guide the weaker students in using Gemini for essay writing. In addition, the rainbow chart is developed to guide students to use Gemini more easily and promptly. It consists of only the prompts used in the three stages of essay writing.

Below is the rainbow chart used in this study.

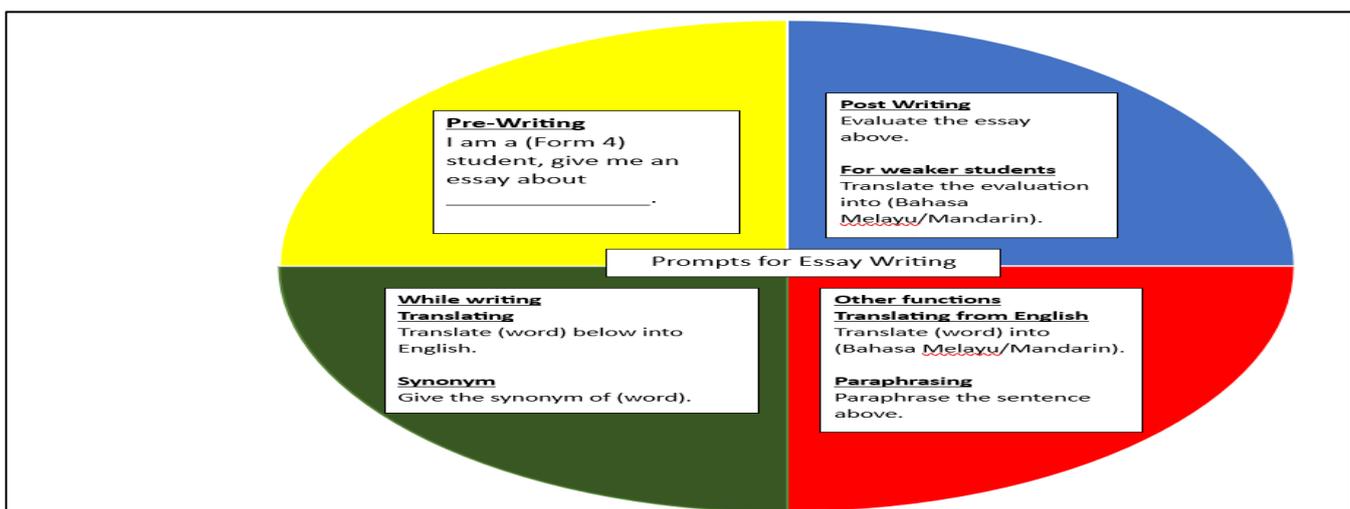


Fig. 1 Rainbow Chart

Participants

40 Form 4 students of a secondary school in Johor Bahru were selected as the respondents for this study. They were High English Proficiency (HEP) students and a few of them had experience in using digital tools before. They were purposely chosen for this study as they were not sitting for any public examination that year, and there was a call for more studies on lower secondary school students in Malaysia [20],[21]. This is because most of the studies carried out on Artificial Intelligence have centred on higher learning institutions so far. Thus, more studies on Artificial Intelligence should be carried out with other age groups of students [13].

Instruments

In this study, a set of semi-structured interviews, journal entries and participant observation were used to gather the data for this study. The research instruments used were developed by previous researchers [13],[22].

Procedures

Respondents were first exposed to the usage of AI such as ChatGPT, Gemini and Copilot in the first essay writing class. Then, in the second lesson, students were asked to write their essay individually using instructions from Bard G Modules. Students were asked to complete an essay entitled 'Review of A Traditional Restaurant' using Gemini. Students were asked to submit their essays at the end of the lesson. In the third essay writing lesson, students were asked to evaluate their essays using Gemini. For students who could not understand the evaluation, they were taught to translate the evaluation into their own mother tongue. They were then required to send the evaluation generated by Gemini to teacher's email.

FINDINGS

The findings for this study were collected through students' journal entries, participant observation and interviews. It was then analysed qualitatively using Atlas.ti and presented using themes identified in the study.

A. Students' Problems in Using Gemini

Students were asked to complete a journal entry after using Gemini in the post-writing activity. Among the problems highlighted by students while using Gemini include lack of facilities, insufficient computer knowledge, lack of guidance in using AI and some commented that the language used by Gemini was too difficult to understand.

Lack of Facilities

Although there were sufficient laptops and notebooks for students, students complained that poor internet connection was one of the main problems they faced while using Gemini. This was because there were too many students using the Wifi connection at the same time. Due to this, teacher had to use her own Wifi coverage for students' usage. The poor connection prevented students to fully utilize the benefits of using Gemini although all of them managed to complete the essay writing tasks using Gemini. The insufficient facilities and poor internet connection had caused frustration among a few students as they had to struggle connecting using Wifi.

Lack of Computer Knowledge

Students also faced problems in terms of using laptops. Although most of them had experience in using mobile phones, they did not have laptops at home. Thus, it was their first experience using laptops. As the features of laptops and mobile phones were different, a few students were struggling in completing tasks such as uploading photos of their essays. Many of them stated that they did not know how to take clear photos of their essays. Some of the comments received from Gemini regarding their essay were illegible handwriting due to the unclear images taken.

Lack of Guidance in Using AI

During the interviews, most of them revealed that it was their first time to use AI. Although a few of them had heard about AI before, this was the first time for them to experience using AI. Nevertheless, students expressed that they still depended on the prompts developed by the teacher in their essay writing tasks. Without the prompts, they were not confident to teach other students in using Gemini. Thus, teacher plays an important role in teaching students to use AI. Teacher has taught students using her own AI teaching aid known as Bard G in this research. The teaching aid was developed to guide students in using Gemini on their own without depending on teacher all the time. Students were observed to be able to progress on their own using the learning aid without much guidance from teacher. Compared to previous research carried out by the researchers, students were able to master the skills of using Gemini at the first lesson compared to before this. It shows that the modules developed by teacher was indeed helpful for students in using Artificial Intelligence such as Gemini.

Students' Perceptions Regarding The Use of Google Gemini and Bard G

Findings from Students' Journal Entries

All 40 students were asked to write down their perceptions regarding the use of Bard G after the essay writing lessons. Below are the students' responses collected through students' journal entries.

Student 1

Bard G helps me to write easily.

Student 2

I have no problem to use Gemini if I have Bard G.

Student 3

Gemini is easy to use.

Student 4

I am confident to teach other students to use Gemini with the prompts in Bard G

Student 5

At first, it was difficult to use Gemini. However, after using Bard G, I can use Gemini easily.

FINDINGS FROM OBSERVATION

Compared to the previous study carried out by the researchers, it was observed that students were struggling initially in using Gemini for essay writing because they had to depend fully on the teacher. However, the use of Bard G had enabled students to progress further on their own just by following the instructions in the Bard G mobile application and modules. Before using Bard G, it was observed that students had to spend about an hour for the essay writing task. However, with the use of Bard G, students could complete the essay writing task within half an hour. Students were observed to be more confident in doing the essay writing task on their own with the use of Bard G. As responded during the interviews, the respondents stated that they believed they could teach other students how to write using Google Gemini with the use of Bard G. Finally, teacher no longer had to spend tremendous amount of time to guide students in using Gemini.

Findings from Semi-Structured Interview

The semi-structured interview used in this study was adopted from previous study [22].

During the interview session, students revealed that they could learn on their own using Google Gemini through Bard G as the latter provided responses based on students' queries. For instance, Google Gemini was able to provide different essays for the prompts 'Form Three students' and 'Primary Three ' students. In addition, Google Gemini also provided different evaluations for students' essays. Gemini was able to analyse students' strengths and weaknesses in essay writing and provided suitable recommendations for them. This helped students to further improve their essays based on the personalised responses given by Google Gemini. However, students responded that they had to depend on Bard G and prompts developed by the teacher to use Google Gemini.

In addition, students could learn on their own using the 'drafts', 'canvas' and 'regenerate' functions available in Google Gemini as they provide different types of responses based on students' queries. For the same prompt, Google Gemini is able to generate different types of responses such as easy, difficult, casual and informal. This helps students with different proficiency levels to choose the type of responses based on their needs and proficiency level. However, students asserted that they need to refer to Bard G to use Google Gemini effectively.

Finally, Google Gemini enables students to learn on their own based on their pace and time. Students who are better can progress on their own using Google Gemini and Bard G while the weaker students can choose a simpler text to learn.

DISCUSSION

The findings of this study were supported by studies carried out by previous researchers [2],[3]-[5]. They stated that generative AI can provide personalised learning for students as it can give different responses based on the prompts used. In fact, Google Gemini is the best generative AI nowadays [17],[18]. However, there are still many challenges in the implementation of AI based classroom in Malaysia due to factors such as lack of facilities and guidance in using generative AI. In Malaysia, the demand in using technology and the lack of proper guidance in using it have caused tremendous stress among teachers [19]. This phenomenon is termed 'technostress'. Thus, proper guidance in using generative AI such as the use of Bard G should be encouraged among language teachers.

CONCLUSION

Although generative AI has made tremendous impacts in our education, there is still lack of proper guidelines for Malaysian educators and teachers in using it. Hence, learning aid such as Bard G should be used to provide proper guidelines in using generative AI. The use of Bard G enabled students to use generative AI on their own without depending totally on the teacher as they can refer to the prompts and steps in Bard G to further progress on their own. However, this study is a case study that was carried out on a group of Form 4 students at a secondary school in Johor Bahru. Different results might be obtained with different age groups of students and with different language skills. Hence, it is recommended that in the future, research can be carried out regarding the use of Bard G and Gemini with different age groups of students as well as other language skills.

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