

Investigating the Effectiveness of Computer-Assisted Language Learning (CALL) Using Google Documents in Enhancing Writing – A study on Senior 1 Students in a Chinese Independent High School

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Abstract

Computer-assisted language learning (CALL) has evolved through various stages in both technology as well as the pedagogical use of technology (Warschauer & Healey, 1998). Studies show that the CALL trend has facilitated students in their English language writing with useful tools such as computer based activities and word processing. Students are able to produce higher quality essays in a student-centered nature and less-intimidating manner (Braine, 1997). It is also noted that this has indirectly allowed students to engage in exploratory learning with a large amount of language data. This study investigated the effectiveness of computer-based writing in the computer lab and in-class pen and paper writing. Participants included 114 Senior One students in a writing class at a Chinese Independent High School in Klang, Selangor, West Malaysia. The 114 participants individually engaged in the in-class writing task (pen and paper) and one computer-based writing task using Google Docs in the computer lab. Both writing tasks were on similar descriptive writings. A pre-writing questionnaire was given to see how students perceive using Google Docs in writing lessons and a post-writing questionnaire to check if Google Docs inspires them to write more. In order to investigate further, student interviews were conducted. The findings revealed that majority of the students have a positive attitude towards the use of Google Docs as one of the tools in learning writing as they found it very reliable. The analysis of writing samples showed that 74 students out of 109 (5 absentees) have shown improvement in their writing with the use of Google Docs. The findings revealed that students are aware of the importance of computers as one of the important tools in education for the 21st century. Nevertheless, some students felt it should be done in moderation as too much of technology can sometimes make the teaching and learning process mundane.

Keywords: Computer assisted Language Learning (CALL); Google Docs; Chinese Independent High School; Pre-writing; Post-writing

Introduction

As outlined in the requirements of the Malaysian Ministry of Education, besides listening, speaking and reading, writing skill is one of the important skills incorporated in the English Language Curriculum. Students must be able to demonstrate this productive skill using correct grammar, punctuation, spelling, vocabulary and coherent ideas. This would enable them to communicate well in written language. Besides, students who sit for public exams are exposed to different types of texts such as descriptive, narrative, factual, and recount type essays as part of their assessment requirement. They are also expected to be able to differentiate the types of text taught, to arrange text using their own words and create new ones. Leki (2003, 324) states that writing plays “a major gatekeeping role in professional advancement” in academics. Additionally, writing in English plays fundamental, intercultural and transnational roles in business, work places, and governmental activities across the world’s geography (Parks, 2000; Thatcher, 2000). Given this, it is of utmost importance to enhance students’ writing skills in any way to ensure they are able to write appropriately.

Teachers have sought many ways to enhance students’ writing ability and computer-assisted language learning (CALL) does have the potential to be used as a teaching/learning tool in improving language skills. As stated by Simic (1994); Bush & Terry (1997); Warshauer & Healey (1998); Warshauer & Kern (2000), CALL offers an innovative and effective alternative for language educators. Burke (1982) argues that computers allow students to progress at their own pace and work individually to solve problems. Computer-assisted writing (CAW) is one of the CALL implicational methods that enhance writing. It is devised as a complete system for writing, checking, editing, and text completion. It can accelerate the writing process and the most commonly used software for this purpose is Microsoft Word. Due to the advancement in technology we are now in the era of Cloud and the main program in this zone is Google Drive. One of the important components in Google Drive is Google Docs which has many similarities to Microsoft Word. Google Docs has an interface like Microsoft Word with pull-down menus and a toolbar with buttons for common formatting functions. However, Google Docs offers unique features such as Document Sharing, Real-time Collaboration, Research Tools and Cloud Computing where we can access our files anywhere and anytime compared to Microsoft Word. Students can easily invite teachers to view their writing in real time to edit and at the same the teacher can view the revision history to check what and how students revised their writing. Nevertheless, it is still questionable if this program will really enhance the students’ writing skill.

Statement of the Problem

Despite having been taught descriptive writing year after year, many students do not seem to develop their writing skills. They tend to use the same words, same content, same sentence structure, and make similar grammatical errors. Through our observation during writing lessons, we identified that students have difficulties in expressing and developing ideas, cohesiveness and coherence. Students often make mistakes in their choice of words due to limited vocabulary, spell some words incorrectly, make grammatical errors (wrong sentence structure) and ignore capitalization and other punctuation. From the classroom climate, students spend a lot of time on writing essays as they have difficulties in exploring and developing ideas, discussing what to write with other students and eventually lose their focus as the class gets too noisy.

Even though teachers always ensure that students do their corrections appropriately, students only seem to do it for the sake of doing the correction instead of learning from their mistakes. Furthermore, computer labs are often overbooked as many teachers at Hin Hua High School are convinced that computers are beneficial and interesting for students' learning process whether or not students feel the same way.

Aim of Research

The purpose of this study is to find out if Google Docs can improve writing skills of students from four (4) Senior One classes at Hin Hua High School. It is also to discover students' perceptions about using Google Docs to write and to identify if Google Docs is able to inspire students to write.

Literature Review

Harmer (1998, p. 73) states that there are four reasons for teaching writing to English as a Second Language (ESL) students or learners, and they are reinforcement, language development, learning style and writing as a skill. Furthermore, Enre (1988, p. 13) defines writing as a process of thinking systematically and that it can be easily understood. According to Byrne (1999), writing is producing a sequence of sentences arranged in a particular order and linked together in certain ways. Whereas Celce-Murcia (2001) states that writing is an act of communication that requires an interaction process which takes place between the writer and the reader via text. Thus, writing is important to help students to communicate and express ideas, feelings, information and opinion.

CALL / Constructivism

In teacher-centered learning, students place all the focus on the teacher and the teacher becomes the only source of information. Constructivism is a psychological theory of knowledge which concludes that humans construct knowledge from their experiences (Bowers et al., 2010). Constructivist-based instruction often includes providing learners with skills or support such as modeling, coaching, scaffolding and the teacher's role is to aid the learner in this construction rather than simply providing the information to her or him (Bowers et al., 2010). Scholars believe that electronic media has become the paradigm to promote student-centered learning where teachers function as facilitators and guides.

Many researchers have recently discovered the link between constructivism and technology used. Resnick (1998) argued that computers could become a dynamic part of a constructivist learning environment for learning new ideas and information. In other words, the students would be in control, so he or she can determine what he or she would learn. Murphy (1997) stated that in such teaching and learning environments, the student plays a central role in mediating and controlling learning and teachers serve as guides, monitors, coaches, tutors and facilitators. In order to be effective and current, teachers as facilitators should change their teaching strategies according to student's need and encourage them to read, analyze, interpret, predict and organize the information they get.

The process of writing via computer has an advantage over writing by hand. Studies by Gayle, Davidson-Shivers, Nowlin & Lanouette (2002); Cunningham (2000); Stevens (1999); Hegelmeyer, Mills, Salzman, & Shetzer (1996) list some important benefits of using Computer Assisted Writing (CAW) in writing instructions. They mentioned that CAW could

help students improve their writing in some areas such as spelling, grammar, formatting, and organization. Bangert-Drowns (1993, pp. 69–93) reported in his “meta-analysis” that two-thirds of 32 studies on computer writing indicate improved quality for text produced on the computer.

Google Documents

According to Kennedy, Mighel, Kennedy in Couillard (2011, p. 1) Google Drive is an application that allows users to create documents (Google Docs), spreadsheets (google sheets) and Google Presentations and share them with other online users. Google Docs – an online program for creating and editing texts – is one of the popular tools in Web 2.0 applications which enables any user to share opinions on the same content to edit or remix an existing text (Thompson, 2008, p. 19). Broin and Raftery (2011, p. 3) state that Google Docs can easily be shared with anyone who has a Google Docs account. Oxnevad (2012) describes Smart Spell Checker with Grammar Support and integrated reference tools as powerful Google Doc features in writing. The research tool allows you to do research while you are writing and you can use different Google services such as images, quotes, dictionary, spell checker and Google Scholar from your document.

Suwantarathip & Wichadee (2014) compared those who completed a writing assignment with the support of Google Docs with those who did not in face-to-face classroom. The findings suggested that students in the experimental group gained higher mean score than the ones in the control group. Likewise, Edwards (2011) carried out a case study to investigate the effectiveness of using Google Documents in improving the undergraduate students’ writing skill. Fourteen out of fifteen students had a positive attitude in using Google Docs in terms of accessibility, being easy to collaborate in a writing group and therefore preferred using it. However, Brodahl (2011) could not draw any positive conclusion that student’s writing ability can be enhanced through Google Docs since the results only showed that more than 70% of the students had a positive attitude to commenting and editing others’ contributions to group work.

In conclusion, Computer-based learning platforms can be manipulated to provide students with an environment to learn and practice language. One of these comparatively new environments is Google Docs.

Research Questions

All the studies above show that Google Docs is indeed a useful tool in teaching writing. Moreover, the population for these studies (Suwantarathip & Wichadee, 2014; Edwards, 2011) and others were tertiary level students. Conversely, integrating computer in teaching and learning is something relatively new among teachers in Malaysia as some schools do not have the facilities at all. Yet there is a need to incorporate technology as we need to produce students that have the 21st Century skills. Moreover, there is increasing concern over students’ learning experiences in this high school where this platform is used. Much less is known about whether using computer (Google Document) may be able to replace the traditional English writing classroom especially in Malaysia as there were not many studies were done on it. Thus, this paper attempts to investigate in particular, high school students’ perceptions in using Google Docs as well as how effective Google Docs is for enhancing the quality of writing.

This paper specifically examines three research questions:

- a. What are students' perceptions in using Google Documents to learn writing?
- b. Does Google Docs inspire students to write?
- c. Does Google Docs really improve students' writing skill?

Methodology

The data collection method involved three parts. All the parts were targeted at a group of students from four different classes from the same school. The school is a Chinese Independent High School located in an urban area and the students are mainly Chinese by ethnicity. The rationale for selecting this school is based on the target group of learners where they are non-native speakers of English and use English as either the second or third language. Moreover, this school is a preferred choice for the researcher as they have professional links with the school which could facilitate access to the research site.

Research Design

For this research we have selected the mixed method research design. We used questionnaires as the main instrument for data collection to obtain information from the group of selected students especially on their perception and inspiration. We also collected pen and paper writing samples as well as writing samples using Google Docs and marked them based on a rubric. We would then further analyze the positive and the negative results and make inferences supported by face-to-face interviews data.

Population and Sample

The target population was students from the selected secondary school whose mother tongue or first language was not English. The students are mainly of Chinese ethnicity and are proficient in their mother tongue or another language (not including English). Most of the students use Chinese as their first language. For the purpose of this research we implemented purposive sampling for the interview session by selecting two students that showed improvement and another two who did not show improvement from each class. Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood (2015) stated that purposeful sampling is widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest.

Procedure

Data were collected using three main instruments which are questionnaires, writing samples and structured interviews. The instrument for data collection to answer research questions 1 and 2 are questionnaires. The structured questionnaires were designed systematically using a Likert rating scale. The closed ended items placed on a four point Likert scale gives participants a choice, 1 representing "to strongly agree", 2 representing "agree", 3 representing "to disagree" and 4 "to strongly disagree" (Appendix 2). These responses were elicited to gain insights into the nature of the study.

The participants in this questionnaire are a total of 114 students from a Chinese Independent High School. The students are 17-year-old non-native learners who have learnt English for at least 3 years in the High School level prior to this study. As the participants of the study, they

would provide answers for the research. The research instrument consisted of pre and post responses (Appendix 2 and 3).

Writing samples were collected in the form of pen and paper as well as Google Documents. A descriptive essay topic was given to students to write on both pen and paper and in Google Documents. The topic given for the in-class pen and paper writing was “Describe yourself to someone you have never met” whereas, the topic given to students to write in Google Documents was “Describe your best friend”. Students completed their writing within an hour (double period). The writing samples were given grade points based on grading rubrics (Appendix 4). Each sample was marked individually and the grade points were recorded in a standardized template (Appendix 5).

As for the interviews, we used the unstructured interview strategy for individual face-to-face sessions (Appendix 6). A total of 8 students (2 from each class) were interviewed. Students were selected based on the data which showed students with the most improvement and the least improvement from each class. Each was interviewed for about 15 to 20 minutes. This would enable participants to express ideas spontaneously without restrictions. When the need arose, we would develop our questions to probe in order to clarify a response by asking more detailed follow-up questions.

Results and Discussion

The results are sorted into three sections; each section addresses one of the research questions. The first section answers the first research question: What are students’ perceptions about using Google Documents to learn writing? The second section covers the second research question which investigated if Google Documents inspire students to write. As for the third and final section, it answers the third research question: Does Google Documents really improve students’ writing?

For Part 1, (pre-writing questionnaires) a total of 114 completed structured questionnaires out of 114 questionnaires were obtained (yielding a response rate of 100%). This number is deemed sufficient and complete for the use of the research. Participants were given a time limit of one lesson period (35 minutes) to return the completed questionnaires. All the 114 participants returned the completed questionnaires on the same day.

For Part 2, (post-writing questionnaires) a total of 114 structured questionnaires were distributed to the population but only 109 completed questionnaires were obtained due to 5 absentees (yielding a response rate of 96%). Participants were given a time limit of 35 minutes to return the completed questionnaires due to time constraint. All students present completed the questionnaires and returned the questionnaires within the given time.

Part 1 (Pre-Writing Questionnaires for students)

The first part of the analysis (Part A) looks at students’ perception on using Google Documents in English Writing. The table below shows the percentage of respondents who selected each option from a total of 114 respondents.

Table 1: Students' perception on using Google Documents and computer in learning English.

	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	I enjoy using Google Drive during English Lesson.	33.3% (38)	51% (58)	14% (16)	1.7% (2)
2	I would like my teacher to use Google Documents more often in our writing classes.	35.1% (40)	51.7% (59)	11.4% (13)	1.8% (2)
3	I like to use the computer to learn English.	36% (41)	44.7% (51)	12.3% (14)	7% (8)
4	I spend more time learning English when I use the computer than when I use books.	22.8% (26)	35.1% (40)	33.3% (38)	8.8% (10)

The results show that students have a very positive attitude towards the use of Google Documents in English lessons especially writing lessons as more than 80% of them (96) agree that they enjoy using google drive and would like their teachers to use Google Documents more in writing classes. 80.7% students agree that they like to use computer to learn English while 57.9% of students will spend more time learning English when they use computer. Astoundingly, 19.3% of the students disagree that they like to use computer to learn English and 42.1% will not spend more time learning English when they use computer. They still prefer to use books to learn English.

Table 2: Students' perception of using the features of Google Documents in writing.

	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
5	Using Google Documents in writing can help me with my grammar	15.8% (18)	51.7% (59)	28.1% (32)	4.4% (5)
6	Using Google Documents in writing can help me with my spelling	28.9% (33)	51.8% (59)	15.8% (18)	3.5% (4)
7	Using Google Documents in writing classes can help me brainstorm the topic I would be writing about.	14.9% (17)	60.5% (69)	22.8% (26)	1.8% (2)
8	Using Google Documents in writing classes can help me research the topic I will be writing about.	56.1% (64)	37.7% (43)	5.3% (6)	0.9% (1)
9	I don't like it when I don't know what to write when I am trying to write my essays using paper and pen.	21.9% (25)	47.4% (54)	22.8% (26)	7.9% (9)

Survey Questions 5 to 8 focused on using Google Documents in writing. The results showed that 67.5% (77) of the students believe that the features in Google Documents help them to improve their grammar. 80.7% believe that it can help them to improve their spelling. 93.8%

of the students feel that Google Documents helps them to research about the topic given to them. 69.3 % of the students' state that they do not like it when they don't know what to write when they try using paper and pen. However, it was unexpected that 30.7 % students disagree with the statement. It shows that they do not mind going through the process of brainstorming and forcing themselves to think and write rather than seeking help from Google Search.

Table 3: Students' perception of using Google Documents and computer to edit and to publish their writing.

	Statement	Strongly Agree	Agree	Disagree	Strongly disagree
10	Using google drive can give me confidence to publish my written work.	20.2% (23)	46.5% (53)	28.9% (33)	4.4% (5)
11	Using Google Documents in the writing class can help me become an independent learner	63.2% (72)	14.9% (17)	20.2% (23)	1.8% (2)
12	Using Google Documents can help me to better edit my written work	41.2% (47)	47.4% (54)	11.4% (13)	0% (0)
13	Using google Documents can help me better revise my written work	13.2% (15)	51.7% (59)	33.6% (38)	1.8% (2)

Survey questions 10 to 13 looks at students' perception of using Google Documents to edit and publish their work. Results of the analysis in this part clearly showed that 89 students (78.1 %) have a high level of confidence that Google Documents can help them to become an independent learner. More than 80% of the students consider it easier to edit and only 64.6% consider it helpful to revise using Google Documents compared to pen and paper. However, there were still a small number of students (35.1%) who still prefer pen and paper. This is quite surprising in this 21st century where all youngsters should be comfortable and feel at ease with technologies.

Table 4: Students' perception of the reliability of Google Documents.

	Statement	Strongly agree	Agree	Disagree	Strongly disagree
14	I tend to write more when I am writing on Google Documents	22.8% (26)	48.2% (55)	24.6% (28)	4.4% (5)
15	I tend to be more relaxed when I am writing on Google Documents	29.8% (34)	51.8% (59)	16.7% (19)	1.8% (2)
16	Google Documents cannot be relied on	5.2% (6)	35.1% (40)	43.9% (50)	15.8% (18)
17	Using Google Documents/ drive in the writing class can distract me from staying on task.	13.2% (15)	56.1% (64)	24.6% (28)	6.1% (7)

This final part of the analysis looks at the reliability of Google Docs. Interestingly, 93 students (81.6%) stated that they would be more relaxed when they are writing on Google Docs while 21 (18.5%) students didn't feel the same. The results indicate that 81 students

tend to write more when they use Google Docs meanwhile 79 students stated that using Google Docs distracts them from staying on the task. From the survey, we can see that 46 out of 114 students feel that Google Docs is unreliable.

Part 2 (Post-Writing Questionnaires for students)

A post questionnaire was administered after the students completed their pen and paper writing and a writing using Google Docs. This questionnaire aimed to find out if Google Docs inspired them to write after getting the experience of writing using both methods.

The first part of the analysis (Part A) looks at students' perceptions of the target language which is English to determine students' attitudes towards the learning of English as a second language. The table below shows the percentage of respondents from a total of 109 respondents who selected each option.

Table 5: Students' perception on the use of computer and Google Documents in a writing class.

	Statement	Strongly Agree	Agree	Disagree	Strongly disagree
1	Using the computer in writing class is interesting	43.1% (47)	48.7% (53)	8.2% (9)	0% (0)
2	I feel I've learned more about writing in English from this class than I have from other English classes in which the computer (Google Documents) was not used.	21.1% (23)	58.7% (64)	20.2% (22)	0% (0)
3	I feel I get more individual attention from the teacher in the computer writing class than I do in other, non-computer writing classes.	17.4% (19)	57.8% (63)	20.2% (22)	4.6% (5)
4	I like to use Google Documents better than other ways to write.	33.9% (37)	57.8 % (63)	8.3% (9)	0% (0)

The result clearly shows that 100 students (91.8%) feel very positive towards the learning of writing using computer and feel that using computer in writing class is interesting and very inspiring. The remaining 9 students didn't like using the computer in writing class. 87 students (79.8%) think that they have learned a lot more in this writing class compared to what they learned in a normal classroom.

Furthermore 82 students out of 109 students feel that they are getting more individual attention from the teacher than in non-computer writing classes. 91.7% students (100 students) like to use Google Documents better than other ways to write. Only 9 students do not like to use Google Documents for their writing.

Table 6: Students' perceptions on the reliability of Google Docs.

	Statement	Strongly Agree	Agree	Disagree	Strongly disagree
5	I can think of more ideas for my writing when I use Google Documents	36.7% (40)	52.3% (57)	10.1% (11)	0.9% (1)
6	When I use Google Documents I pay more attention to what I'm writing about.	32.1% (35)	51.4% (56)	15.6% (17)	0.9% (1)
7	Using Google Documents makes me less worried about writing because I know I can make changes easily.	40.3% (44)	54.2% (59)	4.6% (5)	0.9% (1)
8	The tools in Google Documents helped me a lot in writing essays.	35.8% (39)	56.9% (62)	7.3% (8)	0% (0)

However, surprisingly 97 out of the 109 students claimed that they can think of more ideas to write when they use Google Documents but 12 students did not agree to this. 103 students (94.5%) said that they are less worried about writing because they know they can make changes easily if they make any mistakes. Additionally, 83.5% of the students feel that they can pay more attention to what they are writing about when they use Google Documents. 101 students used the tools in Google Documents when they wrote their essay and feel that these tools had helped them in writing their essays.

Table 7: Students' perceptions on the features (apps) in Google Docs.

	Statement	Strongly Agree	Agree	Disagree	Strongly disagree
9	When I use Google Documents to write my essay, I am more careful about grammar.	31.2% (34)	52.3% (57)	16.5% (18)	0% (0)
10	I pay more attention in choosing the right word when I use Google Documents.	37.6% (41)	53.2% (58)	8.3% (9)	0.9% (1)
11	I pay more attention to spelling when I use the computer.	33.9% (37)	54.2% (59)	11% (12)	0.9% (1)
12	I pay more attention to organization when I use the computer.	26.6% (29)	65.2% (71)	7.3% (8)	0.9% (1)
13	I write longer essays using Google Documents.	21.1% (23)	56.9% (62)	19.2% (21)	2.8% (3)

The result from the survey questions 9 to 13 shows the majority of students were careful with the grammar, word choice, spelling and the organization of the essay when they wrote using Google Docs. Additionally, 83.5% (91 students) said they would be more careful with the grammar they use and more than 90.8 % said that they pay attention in choosing the right words. 88% of the students stated that they pay more attention to spellings when using the computer. In fact, 85 students (78%) were able to write longer essays while 100 students (91.8%) paid attention to the organization of the essay.

Table 8: Student’s perception on using Google Documents in future.

	Statement	Strongly Agree	Agree	Disagree	Strongly disagree
14	Using Google Documents has helped me to become better at writing in English.	31.2% (34)	59.6% (65)	9.2% (10)	0% (0)
15	I would recommend that other students learn to use google drive (Google Documents) to write their papers in English.	35.8% (39)	48.6% (53)	15.6% (17)	0% (0)
16	I plan to continue using Google Documents to write my essays after this class is finished.	33.9% (37)	49.6% (54)	15.6% (17)	0.9% (1)
17	I would like to do another essay if I could use Google Documents.	22% (24)	55% (60)	18.4% (20)	4.6% (5)

The Survey questions 14 to 17 show the majority of students will use Google Docs in future to do their writing. Furthermore, 91 students (84.4%) would recommend Google Documents to other students and encourage them to use it to write. 92 students plan to continue to use Google Documents to write their essays and 84 students would do another essay if they could use Google documents. 90.8% students (99) stated that Google Documents has helped them to become a better writer. However, 17 students stated that they would not recommend using Google Documents to other students to write their papers in English.

Results of Writing 1 and 2

The graphs below (Figure 1, 2, 3 and 4) show the difference of the grade point given for Writing 1 and Writing 2. The names (S1 Birmingham, S1 Berlin, S1 Manchester and S1 Canberra) stands for the names of the 4 classes used as samples for this research.

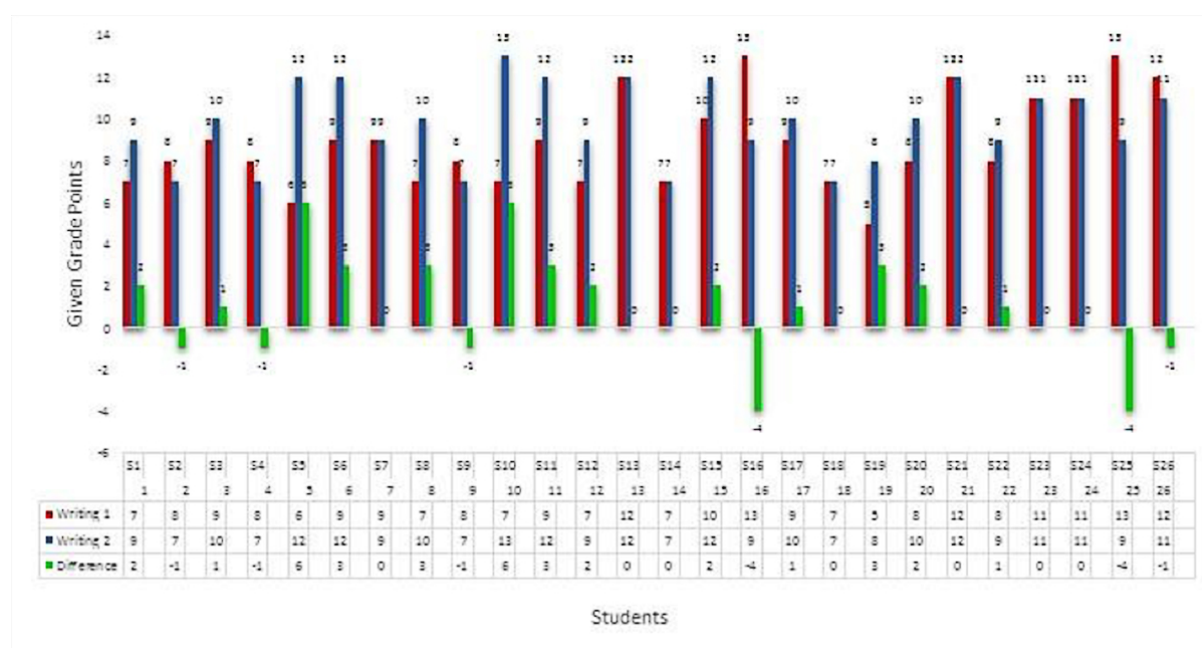


Figure 1: S1 Birmingham-Given Grade Points Difference in Writing 1 and Writing 2.

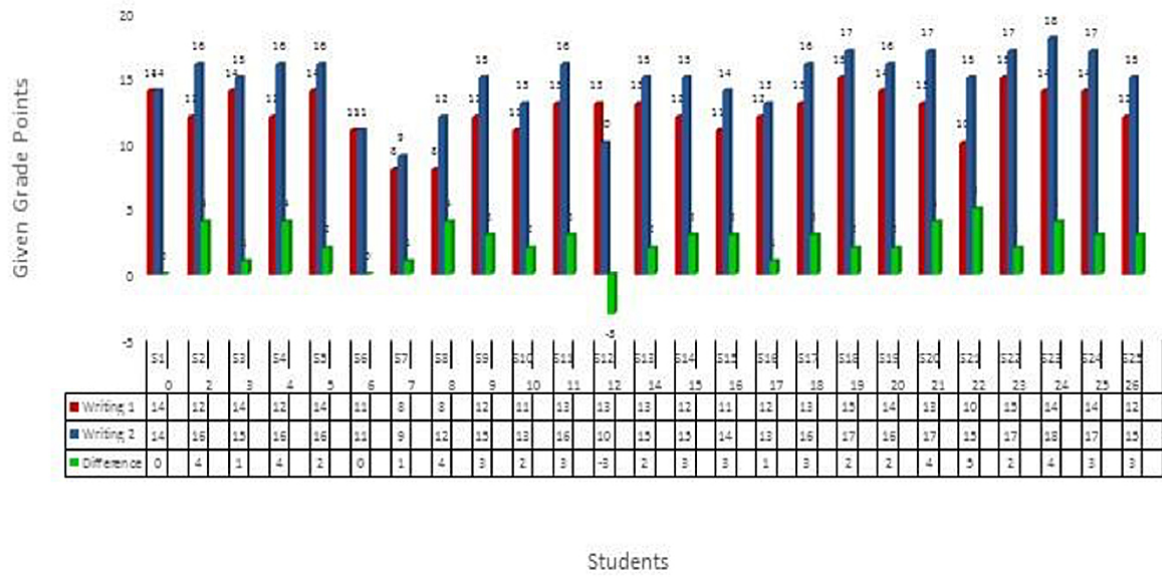


Figure 2: S1 Berlin-Given Grade Points Difference in Writing 1 and Writing 2.

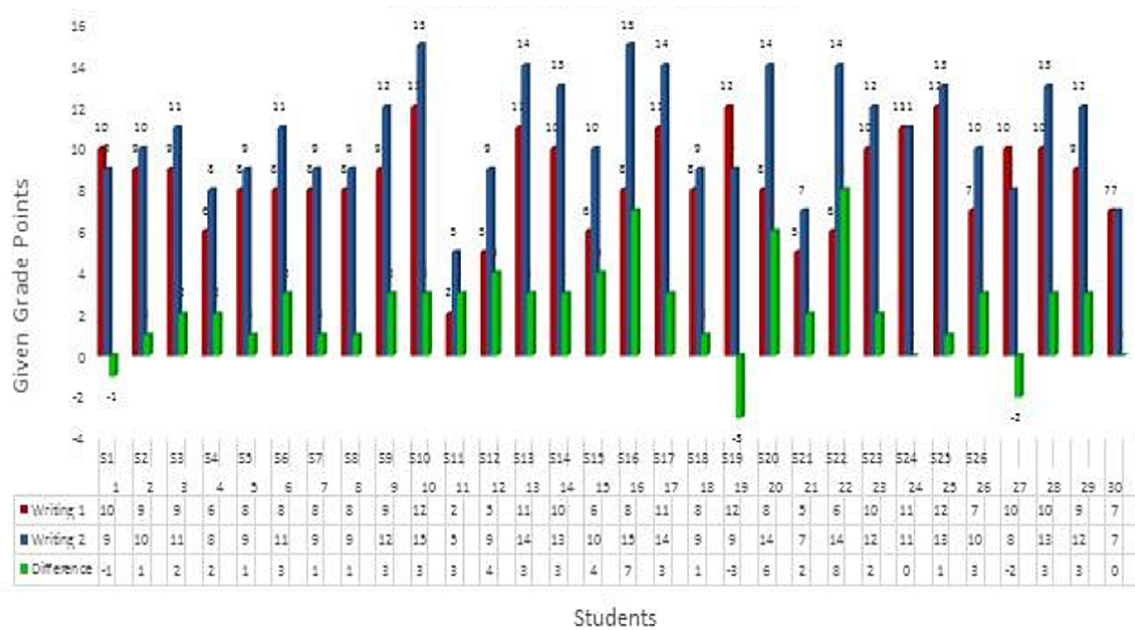


Figure 3: S1 Manchester-Given Grade Points Difference in Writing 1 and Writing 2.

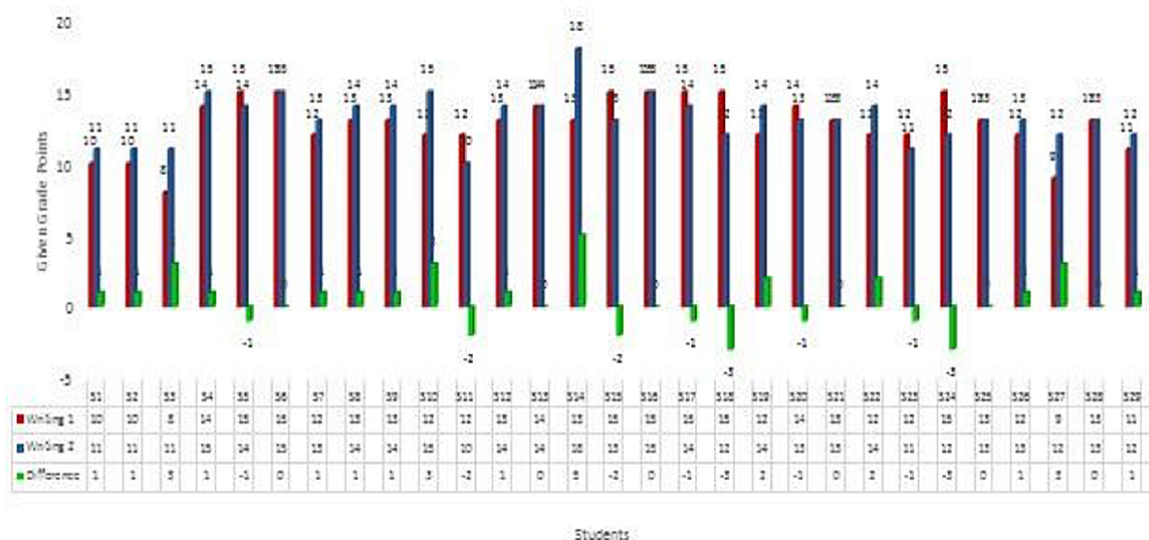


Figure 4: S1 Canberra-Given Grade Points Difference in Writing 1 and Writing 2.

From the research findings, it can be concluded that Google Docs can improve the students’ writing skill in writing a descriptive text. This can be seen clearly from their given grade points for Writing 1 and Writing 2. Results show that 74 students showed improvement and enhancement in their writing. They could easily generate ideas and develop their writing. They also improved their sentence structure, organized the text structure properly, chose appropriate vocabulary and used correct capitalization and punctuation.

Questionnaire: Pre-Writing and Post-Writing

Table 9 below shows students’ perception on the use of Google Docs and its features. Results elicited from the post questionnaire demonstrated that students’ perceptions changed after their writing assignment using Google Docs. From the graph (Figure 5) we can see that the number of students that strongly disagree with using Google Docs had decreased from 6 to 1 student after their writing assignment. Even the students who did not think the features in Google Docs would be helpful to them in their writing tasks had reduced to only 1 student.

One female student specified in the interview that it is a must to use computer technologies in order to be on par with the current world. She thinks using computer technologies helps students because they are already typically computer savvy, so it appeals to their learning interests. However, there is this one student who did not agree with the idea of using computer in learning English. According to him, using computer is very distracting and some students may simply copy and paste their work and they may not learn from it. One male student commented that there must be a balance between using computer technologies and paper-pen writing activities. He asked us to never replace pen-and-paper writing activities.

Table 9: Students' perception on the features in Google Documents in learning English.

	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Students' perception before the writing assignment.	36	52	20	6
2	Students' perception after the writing assignment	31	61	16	1
3	Students' perception on the features in Google Docs before writing assignment	31	57	22	4
4	Students' perception on the features in Google Docs after writing assignment	33	61	14	1

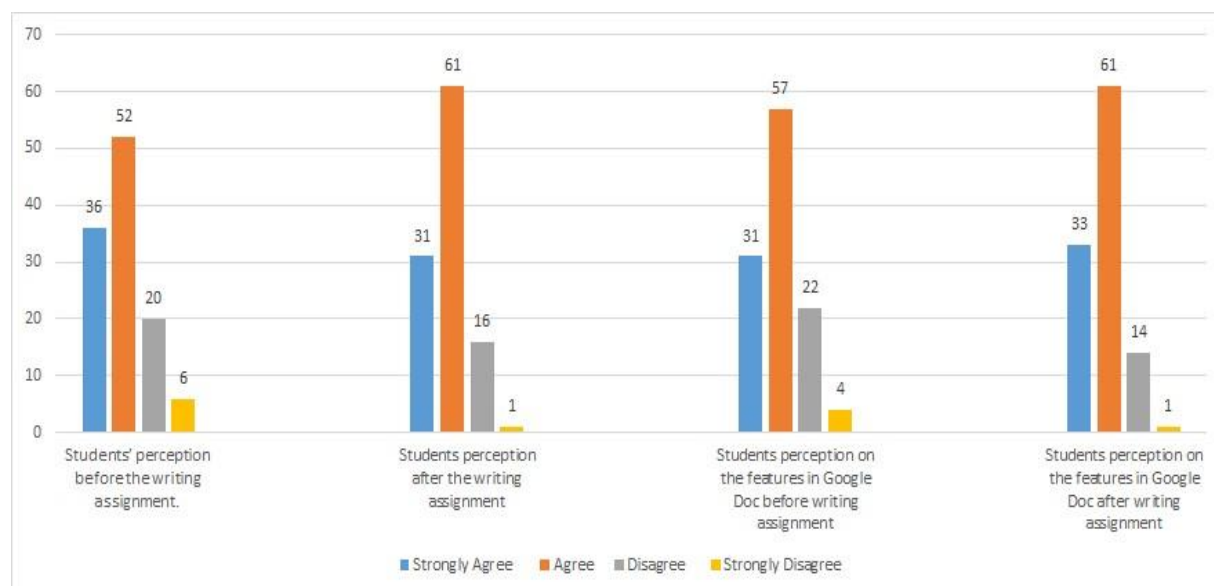


Figure 5: Students' perception on the Google Documents and its features.

Table 10 below shows students' perceptions on the reliability of Google Documents and if they would use it in future for writing tasks. For this part, we found that before the writing assignment 75 students strongly agreed that it is reliable to use Google Documents as their writing tool while an increase of 23 students were found to agree and strongly agree after the writing task using Google Documents (98 students).

In contrast, there were 11 students who still perceived that Google Documents is unreliable even after the writing task using Google Documents. From the interview, we realized that one of the ineffective qualities of Google Documents is the unreliability of the Internet connection and their lagging time.

Table 10: Students' perception on reliability of Google Documents and if they would use it in future for writing tasks.

	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
5	Reliability of Google Documents before the writing assignment.	20	55	31	8
6	Reliability of Google Documents after the writing assignment.	39	59	10	1
7	Students' perception on the editing and publishing their work using Google Documents.	39	46	27	2
8	Students' perception on using Google Documents for writing in future.	34	58	16	1

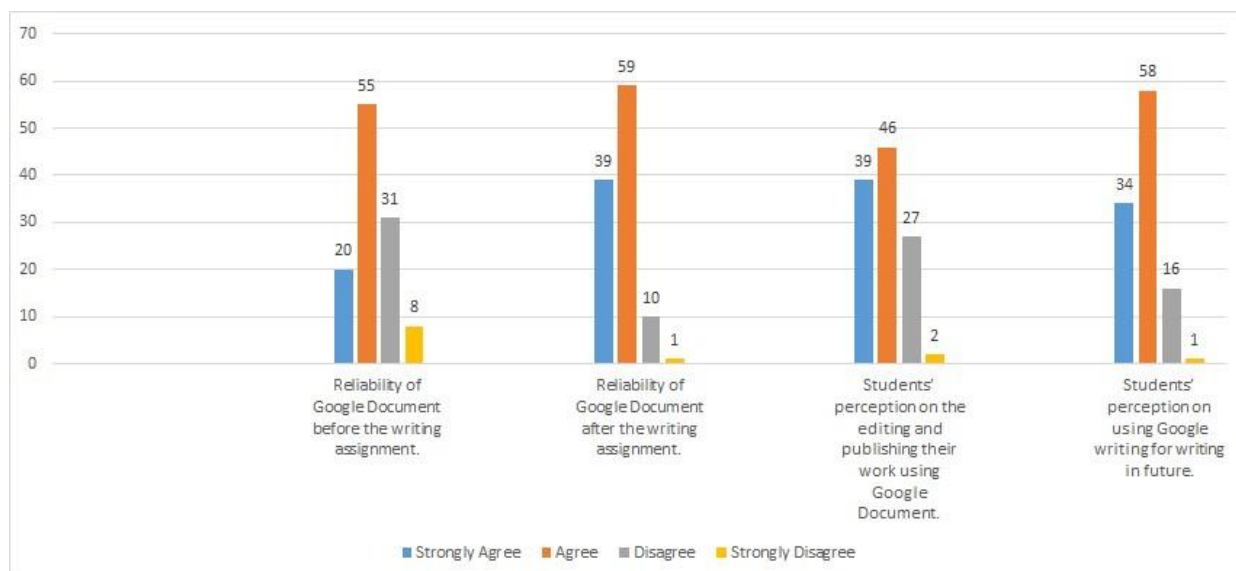


Figure 6: Student's Perception on reliability of Google Documents and if they would use it in future.

Writing 1 and 2

The table below shows the compilation of results of all 4 classes with a total of 109 students. This part of the analysis looks at the given grade point differences between Writing 1 (using pen and paper) and Writing 2 (using Google Documents). There were 5 absentees during the writing 2 session.

Table 11: Grade Points Difference of Writing 1 and Writing 2.

W1 and W2 difference	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
Nb. of students	2	4	3	9	17	20	16	24	7	2	3	1	1

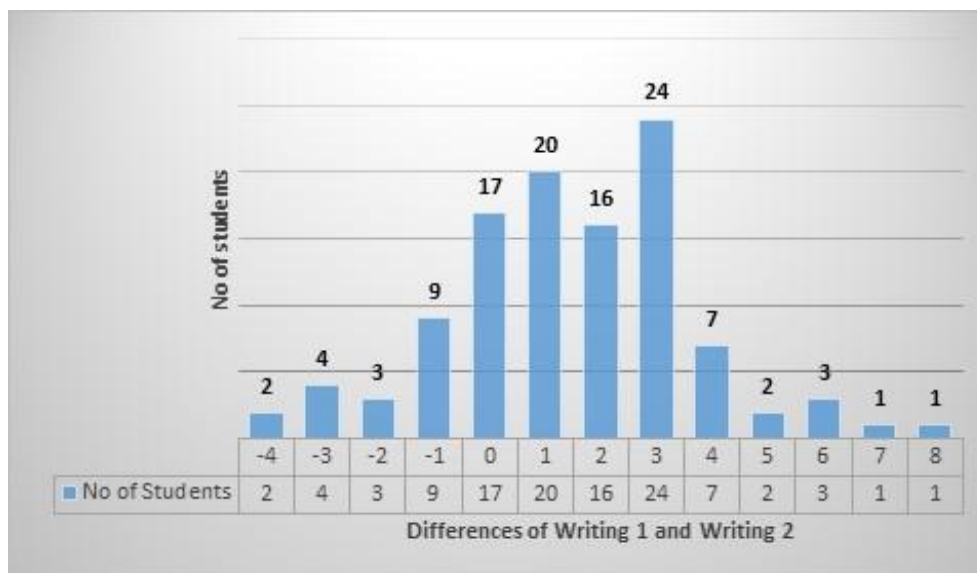


Figure 7: Differences in Writing 1 and Writing 2 Grade Points (109 students).

The bar chart above is used to show a clearer picture of the number of the given grade point differences obtained by students which ranges from negative 4 (-4) to positive 8 (+8). The results show the majority of students have shown improvement in Writing 2, as a total of 74 students scored between 1 to 8 points. From the remaining 35 students, a total of 17 students did not show any improvement or deterioration as they scored 0 points. This situation occurred as students showed progress in some of the writing elements in Writing 1 but did not do as well in Writing 2 and vice versa which produced the result as “0” points. Nevertheless, this does not mean that students in this category did not show any improvement in their writing. For example, Student 7 from S1 Birmingham scored “0” points in “grammar and sentence structure” and 1 point in “spelling” in Writing 1, but scored the maximum points of 3 in spelling and scored 2 points in “grammar and sentence structure” in Writing 2. This shows that the use of Google Docs improved the spelling and grammar usage of this student. However, this student scored only 1 point each in “Ideas” and “Organization” when using Google Docs but scored 3 and 2 points respectively when using “pen and paper”. This shows that some students do not bother to come up with their own ideas as they depend too much on the computers to think for them.

The other 18 students out of 35 students showed deterioration by scoring between -1 to -4 grade points. This was mostly due to poor word choice, missing information and unnecessary usage of the punctuation “comma” (.). For example, in the case of student 12 from S1 Berlin who scored the maximum of 3 points each in “Ideas” and “punctuation” in Writing 1, only scored 1 point each for both these components in Writing 2. This shows that not all students actually perform better when using Google Documents as some students actually write better using pen and paper without any help from computer technology. Furthermore, some students rely on the computer’s intelligence or rather ability to check spelling and grammatical errors

that they fail to check before submission.

The findings also showed that a total of 14 students performed very well in their Writing 2 using Google Documents with a difference of 4 to 8 grade points. This is about 12.85% of students who actually showed a positive impact from the writing activity which was very encouraging. Students were able to use the tools such as spell check, grammar check and facilities like research tools provided in the Google Documents apps to enhance the quality of their writing compared to having to write in the classroom using pen and paper. For instance, students used words like cheerful, optimistic instead of happy and positive to describe their friends' personality. Besides that, there were no spelling errors at all in their writing as they have checked all the spelling errors that were prompted by the Google Documents by underlining them. Teachers also spotted quotes in the conclusion. Students used quotes to conclude their descriptive essay which were not done in paper and pen essay.

More than half of the students fell under the category of 1 to 4 grade point difference, which makes up a total of 60 students (55%), 20 students with 1 point, 16 students with 2 points and 24 students with 3 points. Students in this category have used very good word choice and checked their spelling as well as punctuation using Google Documents before submitting their work. The use of Google Documents via computers has most definitely benefited these students in enhancing the quality of their writing work.

Student Interviews

For further justification and understanding of student's perception, inspiration and attitude towards the use of Google Docs in a writing lesson, interviews with 8 students (selected according to those who scored the highest grade points and the lowest grade points, 2 from each class) were conducted. All 8 students were quite honest and had a positive attitude towards the use of Google Docs as a tool to write better essays. Five students expressed their satisfaction with the Google Docs ability to check errors in their essays (Grammar and Spelling) while one student did show some uncertainty and doubt. Two students were not aware that such tools existed and did not know how to use them. However, the majority of them preferred the use of Google Docs done in moderation of not more than two classes per week as too much would make students too lazy and lose the ability to think for themselves and the writing lesson could become monotonous and boring. Students also expressed their worry of developing the habit of "cut and paste" without control if this issue is not controlled.

Conclusion and Recommendations

This research is aimed to investigate the effectiveness of Computer Assisted Language Learning (CALL) in enhancing students writing. The findings revealed the majority of the participating students favor computer technology in their writing class specifically using Google Docs. It is clear that Google Documents plays an important role in student learning. It is the tool that supports students in learning without being confined to a particular time and place. Students can increase their knowledge by comparing two types of a document thus, increasing understandings of how sentences should be corrected. This was evident in the questionnaires answered by the students. There was even a vast difference in the way they perceived the usefulness of the Google Documents as compared to doing writing in class. Also, there was a significant improvement in the computer based writing task as compared to the in-class paper-pen writing. However, students commented that the infusion of Google Documents writing should be a blend with the classroom writing tasks, in order to create

variation and interest in their learning process.

The most evident limitation of this study is that the data was collected from a group of students studying in a Chinese Independent High School where English is learnt as third language. In Chinese Independent Schools, the main language used for learning is Mandarin and it is compulsory for them to learn Bahasa Malaysia as it is their national language. Due to this, students' proficiency level, syllabus and method of teaching are different from the other educational contexts. So, the same research conducted among students in government schools and other private institutions would probably generate a different finding and conclusion as they learn English as a second language and use more traditional method of teaching and learning.

Furthermore, students were told to use the features of Google Docs for the second writing without any specific measurement on how each student actually used the features of Google Docs. They were monitored randomly as the number of teachers was small compared to the number of participating students. It was 1 teacher for 30 students. Besides, there were also some computer glitches that delayed the students' writing process. Moreover, the participants selected in this study are known to the researcher who happens to teach at the same school which could have affected the interview data which is qualitative. The students involved in this research are of the same age and level, which is Senior One, average students. The same research conducted on different age groups or levels would probably generate a different finding and conclusion.

The implications from the findings support that Google Docs is a useful tool that enables online learning. Nevertheless, the small sample size used might not allow us to generalize across other settings. Hence, the findings should be inferred with care as it may only imply to this population. Furthermore, students were also exposed to other skills such as reading besides writing. Besides, the time constraints could have also triggered different effects on the findings. These issues should be taken into account.

For future studies, further research can be conducted on the effectiveness of classroom writing and collaborative writing via Google Docs in motivating students. Since the majority of the students in this study felt that learning through technology has improved their quality of writing, then getting them to work together beyond the classroom environment would be much easier, time-saving and facilitate students' learning. Other educational technologies can also be used to compare with Google Docs to investigate students' motivation level. Students can acquire lots of support when technology is used more in language classrooms. However, teachers must also remember that students still prefer a balance between the use of technology and classroom teaching so blended learning would be another teaching method that can be explored further to enhance language teaching and learning

Acknowledgment

We would like to take this opportunity to thank God Almighty, our families, friends and the management of our school, Hin Hua High School Klang Malaysia, for their continuous support and encouragement throughout our journey in completing this research. Also, not forgetting our amazing students who participated in this research and gave us their co-operation to enable us to complete the research successfully.

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Appendices

1. Students responses to interview questions

Question 1: How do you feel about using Google Documents/computer in learning English?

1. “I think that using Google Documents to do our homework is more better because it can let us more easier to found the . . . to find the things that we don’t know by googling. . .”.
2. “I like because easy to find information, can use dictionary, other website/ other essays. . . can also checks spelling and grammar. . .”.
3. “It is more convenient to look for info . . . , vocabulary to describe someone. . . using new words.
4. “I like it. . . easy to write.
5. “I know how to use computer. So I like to use them to learn. . . I am good in computer. . .”.
6. “Internet connection not good. . . always very slow. . . and got problem”.

From interview question 1, students had a positive attitude and perception of the use and ability of Google Documents to enhance their writing quality and reduce their time used to look for information.

Question 2: Do you think that learning is taking place when students ‘copy and paste’ from the internet resources/essays/texts?

1. “Yes, because we can read the text again and again before we ‘copy and paste’”.
2. “Yes, got some. Can’t remember all but helps me to learn how to write an essay. . . in future if I see same essay topic I can write better”.
3. “Not so good because not own essay. But I can apply some info into future essays”.
4. “Yes, I can learn something and remember the main idea. . .”.

From question 2, majority of the students felt that the ‘copy and paste’ itself is quite helpful as students are exposed to many new words useful in future writings.

Question 3: How often do you want your teachers to incorporate computer technologies in the writing classroom?

1. “We can go to the computer lab sometimes because if we always go and ‘copy and paste’ always we might learn nothing . . . 1 week can go 2 times”.
2. “1 week 1 time is enough. . . I don’t like writing. . .”.
3. “Once a week. . .”.

From interview question 3, students felt that the use of Google Documents should be balanced with in-class writing using pen and paper to avoid boredom.

Question 4: Besides Google Documents can you think of other technologies /programs /software that we can use to learn English?

1. “Facebook. . . we can discuss with friends in English. Read articles or messages sent by friends”.

Question 5: What is the positive impact of using Google Documents in writing?

1. “Can learn more vocabulary. . . can use google translate to look for meaning, . . . exam can do better’.
2. “We can share information with friends. We can get information easily, which we can’t get in a classroom learning. If I spell wrongly the computer help me to check. . . also can use the tools like spell checker and research tool. I also refer to other reference and essays”.
3. “Be more creative and faster. . .”.

From interview question 5, students are aware that Google Documents help them with checking spelling and grammar. Students also like the idea having the computer to check for meaning of new words.

Question 6: What are the negative impacts of using Google Documents in writing?

1. “When students ‘copy and paste’ all the time. . .”.
2. “Some students play games when teacher not watching. . . some do homework or watch video from YouTube. I also write slower . . .”.
3. “We will depend on internet too much. . .”.
4. “Cutting and pasting too much is not good. . .”.

From interview question 6, students expressed their concern over the habit of ‘cutting and pasting’ which might become serious if left unchecked. Students also felt that the use of computers and Google Documents could be a source of distraction from the main task of writing such as video from you tube and so on.

2. Pre Writing Questionnaire

	Pre Writing Questionnaires	Strongly Agree	Agree	Disagree	Strongly Disagree
1	I enjoy using google drive during English Lesson.				
2	I would like my teacher to use Google Documents more often in our writing classes.				
3	I like to use computer to learn English.				
4	I spend more time learning English when I use computer then when I use books.				
5	Using Google Documents in writing can help me with my grammar.				

6	Using Google Documents in writing can help me with my spelling.				
7	Using Google Documents in writing classes can help me brainstorm the topic I would be writing about.				
8	Using Google Documents in writing classes can help me research the topic I will write about.				
9	I don't like it when I don't know what to write when I am trying to write my essays using paper and pen.				
10	Using Google drive can give me confidence to publish my written work.				
11	Using Google Documents in the writing class can help me become an independent learner.				
12	Using Google Documents can help me to better edit my written work.				
13	Using Google Documents can help me better revise my written work.				
14	I tend to write more when I am writing on the google documents.				
15	I tend to be more relaxed when I am writing on the Google Documents.				
16	Google Documents cannot be relied on.				
17	Using Google Documents / drive in the writing class can distract me from staying on task.				

3. Post Writing Questionnaire

	Post Writing Questionnaires	Strongly Agree	Agree	Disagree	Strongly disagree
1	Using the computer in writing class is interesting.				
2	I feel I've learned more about writing in English from this class than I have from other English classes I've taken in which the computer (Google Documents) was not used.				
3	I feel I get more individual attention from the teacher in the computer writing class than I do in other, non-computer writing classes.				
4	I like to use Google Documents better than other ways to write				
5	I can think of more ideas for my writing when I use Google Documents				
6	When I use Google Documents on the computer, I pay more attention to what I'm writing about.				
7	Using Google Documents makes me less worried about writing because I know I can make changes easily.				
8	The tools in Google Documents helped me a lot in writing essays.				
9	When I use Google Documents to write my essay, I am more careful about grammar.				
10	I pay more attention in choosing the right word when I use Google Documents.				
11	I pay more attention to spelling when I use the computer.				
12	I pay more attention to organization when I use the computer.				

	Post Writing Questionnaires	Strongly Agree	Agree	Disagree	Strongly disagree
13	I write longer essays using Google Documents.				
14	Using Google Documents has helped me to become better at writing in English.				
15	I would recommend that other students learn to use google drive (Google Documents) to write their papers in English.				
16	I plan to continue using Google Documents to write my essays after this class is finished.				
17	I would like to do another essay if I could use Google Documents.				

4. Grading Rubrics (Grade Points given for writing 1 and 2)

Marks	3	2	1	0
Content/Ideas (I)	Writing and ideas are clear, focused and easy to follow. Has all the important information for a descriptive writing (Physical appearance, characteristics etc.)	Writing and ideas are adequate and can be followed. Has some missing information (1 or 2)	Writing and ideas are difficult to identify and follow. Lacks many important information for a descriptive writing (more than 2)	Writing and ideas are unclear and unfocused
Organization/Structure (O)	Sentences and paragraphs are clear, well-structured and well-organized (Intro, Body, Conclusion) Clear transition	Structure is present but order and transition in sentences and paragraphs are unclear	Lacks sufficient structure or transitions in sentences and paragraphs. (Missing Intro/Body/Conclusion)	Little to no structure and transitions are apparent

Word Choice (W)	Accurate, specific and appropriate words are used (More than 5)	Adequate use of appropriate word choice (3 to 5)	Inadequate use of word choice (1 or 2)	Little attempt to choose words wisely or carefully
Spelling (S)	No spelling errors	One or two spelling errors	Three or four spelling errors	Numerous spelling errors
Grammar/ Sentence structure (G/S)	No grammar or sentence structure errors	One or two grammar or sentence structure errors	Three or four grammar or sentence structure errors	Numerous grammar or sentence structure errors
Punctuation/ Capitalization (P/C)	No errors	One or two errors	Three or four errors	Numerous errors

5. Marking/Grading Template

	Name: Class : S1 Berlin		Idea	Organization/ structure	Word Choice	Spelling	Grammar/ Sentence structure	Punctuation/ capitalization	Total	Diff
1		W1								
		W2								
2		W1								
		W2								
3		W1								
		W2								
4		W1								
		W2								
5		W1								
		W2								

6	W1								
	W2								
7	W1								
	W2								
8	W1								
	W2								
9	W1								
	W2								
10	W1								
	W2								

Note: W1: Writing 1 using pen and paper Documents

W2: Writing 2 using Google Documents

6. Interview Questions

Question 1: How do you feel about using Google Documents/computer in learning English?

Question 2: Do you think that learning is taking place when students’ copy and paste’ from the Internet resources/essays/texts?

Question 3: How often do you want your teachers to incorporate computer technologies in the writing classroom?

Question 4: Besides Google Documents can you think of other technologies/programs /software that we can use to learn or improve? English?

Question 5: What is the positive impact of using Google Documents in writing?

Question 6: What are the negative impacts of using Google Documents in writing?