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A PHENOMENOLOGICAL STUDY OF STUDENTS' EXPERIENCES USING GOOGLE DOCS FOR COLLABORATIVE ONLINE VIRTUAL TEAM WRITING INSTRUCTION

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ABSTRACT

Online collaborative learning for developing English writing skills has been widely recognised for decades as a key approach to enhancing students' learning achievement and experiences through technology. However, it is generally one-way learning. Therefore, the virtual team concept has recently been applied to online learning and teaching to raise the level of two-way interaction between a teacher and students. This research explored the experiences of a group of second-year English majors collaborating online as a virtual team during writing instruction. Google Docs was the synchronous online platform deployed in this study. Data from six participants in semi-structured interviews were studied qualitatively using a phenomenological analysis method. The findings revealed the students' perceptions of opportunities in the online environment, the collaborative learning environment, knowledge construction, preference for group activities, collaborative activities, teacher feedback, and accessibility (including pressure and communication). Difficulties with grouping, monopolisation, time arrangement, free-rider effects, familiarisation and communication, emerged from the interviews. Factors related to social interaction, usability, prior experience with computer-mediated communication, technology, and support for learners were found in this study. We conclude with the disagreement of the students' voices regarding their experience and learning with the Google Docs application, suggesting the need for further development.

Keywords: *Analogy, Collaborative Online Learning, Google Docs, Phenomenological Study, Virtual Team, Writing Instruction*

INTRODUCTION

Technology has fundamentally transformed educational practices through multimodal approaches (textual, visual, and aural modes). Technology has enabled the creation and development of learning and teaching practices in education, particularly fostering independent learning in online communities through various platforms such as YouTube, Twitter, Facebook, and Google for Education applications. These social networking sites (SNSs) provide spaces where learners can search for information, interact to solve problems and engage in deeper discussions as virtual teams (Palloff & Pratt, 2005). Learners form communities of practice (Dudeney, 2007) to build knowledge repertoires with like-minded individuals sharing similar goals. Social networking sites have proven valuable for establishing social interactions (Yunus et al., 2012), fostering learning opportunities, assisting teachers in creating instructional media, and supporting various learning styles while extending education beyond classroom boundaries (Razak et al., 2013).

Research has demonstrated the effectiveness of different SNS platforms in enhancing English language skills. Studies have explored the use of podcasts for listening comprehension (Abdulrahman et al., 2018), YouTube for speaking skills and vocabulary development (Boonbandol & Soontornwipat, 2017; Kabooha

& Elyas, 2015), and hypertext materials for reading comprehension (Abdi, 2013). In writing instruction specifically, researchers have investigated platforms such as Facebook (Rodliyah, 2016; Yunus & Salehi, 2012), blogs (Lin et al., 2013), and YouTube (Abdelrahman et al., 2017). However, these studies predominantly focused on one-directional teacher-student communication, potentially limiting student interaction and motivation by replicating traditional classroom dynamics in digital spaces (Kareema, 2014).

The theoretical foundation for collaborative learning is rooted in social constructivism theory (Liu et al., 2016), emphasising students to maximize their learning through social interaction by exchanging knowledge and experiences. As 21st-century learning embraces technology more fully, online collaborative learning has emerged as a powerful combination of collaborative learning principles and digital capabilities. This approach enables students to interact and cooperate through online platforms to achieve learning objectives (Cordes, 2016), transcending physical classroom limitations through virtual team learning (Ebrahim et al., 2009).

Research has consistently shown the benefits of collaborative writing: it enhances idea exchange between unskilled writers (Yeh et al., 2007), enables peer learning, provides opportunities to generate diverse ideas while reducing errors (Noël & Robert, 2004), and helps students construct knowledge through explicit articulation (Peres & Pimenta, 2008). However, traditional collaborative writing in physical classrooms faces challenges, including student resistance to group work, group formation issues, lack of essential group-work skills, free-rider effects, ability disparities, member withdrawal, assessment difficulties (Roberts & McInnerney, 2007), members and assessment of individuals within the groups (Roberts & McInnerney, 2007).

Google Docs emerges as a potential solution, offering features for "close interaction" (Ebener, 2017, p. 40), "active collaboration" (Firth & Mesureeur, 2010, p. 13), "real-time collaboration" (Jeong, 2016, p. 2), "constructive engagement" (Azhar & Iqbal, 2018, p. 60), and "increasing motivation" (Suwantarathip & Wichadee, 2014, p. 154). As an accessible online word-processing program, Google Docs enables real-time collaborative editing, making it particularly suitable for language teaching. Despite these advantages, its potential remains underutilized in Thai education, where writing instruction relies on traditional paper-based methods (Dokchandra, 2018; Hwang, 2010; Klayklueng & Prathoomthin, 2015; Loan, 2017). This traditional approach limits collaborative opportunities and proves time-consuming for students and teachers.

While numerous studies have examined writing instruction with SNSs, few recent studies have investigated collaborative online writing instruction using Google Docs (Marandi & Seyyedrezaie, 2017; Seyyedrezaie et al., 2016). Only one recent study conducted in Saudi Arabia has explored teaching and learning experiences with collaborative online writing instruction (Alsubaie & Ashuraidah, 2017). Notably, within the Thai educational context, there is a significant research gap regarding students' experiences, perceptions, difficulties, and success factors in online collaborative writing using virtual teams.

This phenomenological study addresses this gap by investigating second-year English majors experiences with collaborative online virtual team writing instruction using Google Docs. The study poses one main research question: 'What are students' experiences in using Google Docs for collaborative online virtual team writing instruction?' This question is further explored through three sub-questions examining:

1. Students' perceptions of using Google Docs for collaborative online virtual team writing instruction
2. Difficulties encountered in using Google Docs for collaborative online virtual team writing instruction
3. Factors that influence using Google Docs for collaborative online virtual team writing instruction

LITERATURE REVIEW

Collaborative Learning Approach

Collaborative learning is a pedagogical approach based on the belief that learning and working together for a particular purpose helps in problem-solving, task-carrying, or product creation (Laal & Laal, 2012). In a collaborative learning environment, students are challenged socially and emotionally as they listen to different perspectives and show and defend their ideas. In doing so, the students create conceptual frameworks and do not rely on an expert's or text's framework. Daradoumis and Marques (2000) claimed that there are two benefits of applying collaborative learning in a classroom. The first benefit is that it encourages cooperation for cognitive and metacognitive benefits because it engages students in a situation, and they have to make explicit both the process of carrying out a learning activity and the strategies applied to resolve a problem. The second benefit is that collaborative learning supports both effective and social benefits. It increases students' motivation to learn a language, encourages positive attitudes, and promotes social interactions among students with different knowledge levels and other characteristics.

Learning with a Virtual Team

A virtual team is a group of people who live in different places but interact and perform online to achieve a shared goal as a technology-enabled team (Cohen & Gibson, 2003). In educational circumstances, students can search for information, interact with one another to seek answers to problems from different places on an online platform, and discuss deeper issues in which they are interested with a virtual team learning approach (Palloff & Pratt, 2005). Hu (2015) claimed that 'virtual teams are currently being used exponentially in higher education' (p. 17).

Actual classroom practice cannot be duplicated in an online platform environment. Five key issues contribute to making a virtual team successful (Zigurs, 2003): trust, communication, conflict, leadership support, and technology. Trust is the most important issue since it concerns the members' belief in the team. In other words, when team members trust each other, they are willing to share information and drive the team to succeed at a goal (Jarvenpaa et al., 1998, as cited in McCarthy, 2012). Communication and conflict are two issues that are naturally discussed together. Online communication appears less personal than face-to-face communication, and it may raise a conflict issue that can ruin friendliness or trust among team members (McCarthy, 2012). Leadership support encourages team success. At first, it will probably be difficult to support and manage a virtual team (McCarthy, 2012). Using technology effectively is a key issue in learning with a virtual team, as each member needs to use it to interact and contribute effectively.

Online Writing Instruction with Google Docs

Google Docs is an online word processing application developed by Google and is compatible with personal computers using various operating systems (OSs), such as Windows, MacOS, and ChromeOS, and devices, such as smartphones and tablets, using the Android OS and iOS (Kittle & Hicks, 2009). According to Boyes (2016), 'Google Docs allows instant feedback and collaboration on student-generated text when students are online at the same time' (p. 229). The application can create a collaborative learning environment between the teacher and students for several reasons, including the following: (1) the ability to control edit settings, (2) it allows simultaneous work, (3) students can chat with each other, (4) the students can save changes and retrieve past versions, and (5) the application offers clear online tutorials and help sections (Ragupathi, 2013). According to Kittle and Hicks (2009), Google Docs possesses one particularly outstanding feature as a writing tool in that students can work together on the same document simultaneously, with everyone seeing all changes in real-time. They also pointed out Google Docs' support of synchronous writing by showing who is online and saving the document automatically with each change. Because of its advantages, Google Docs has been widely used as a platform by technology-oriented language teachers to enhance student writing ability and achievement (Abell, 2013; Al-Chebani, 2016; Andreasen et al., 2014; Birnholtz et al., 2013; Yang, 2010). However, there has not been much recent research exploring how successful it has been in terms of EFL undergraduate student experiences; some exceptions include Khalil (2018) with student perceptions towards using Google Docs as a collaborative tool, Chao and Lo (2011) with student perceptions of wiki-

based collaborative writing, and Farrah (2011) with attitudes towards collaborative writing among English majors.

Perception of Collaborative Online Instruction

Kumi-Yeboah and Yuan (2017) explored graduate students' perceptions of online collaborative learning activities, revealing benefits, preferences, and challenges, categorised into six themes of perception: (1) knowledge construction, (2) preference for group activities, (3) opportunities in an online environment, (4) collaborative activities, (5) challenges with cultural differences, and (6) lack of multicultural inclusion. Khalil (2018) specifically explored students' perceptions towards using Google Docs and found that it helped create *a collaborative learning environment*, provided the benefit of *teacher feedback*, and provided *easy access*.

Difficulties with Collaborative Online Instruction

Shea (1995) implemented the use of a collaborative learning technique in teaching and found eight significant problems: (1) grouping, (2) time arrangement, (3) irresponsibility, (4) monopolisation, (5) selfishness, (6) power, (7) partition of repertoire, and (8) lack of understanding. Some of these problems align well with those described by Roberts and McInnerney's (2007) research, such as 'grouping', which the latter researchers referred to as student antipathy towards group work; 'selfishness' represented in the selection of the groups in Roberts and McInnerney's work, 'lack of understanding' is similar to a lack of essential group-work skills; 'monopolisation' can be compared with possible inequalities of students' ability; and, finally, 'irresponsibility' is related to the withdrawal of group members. Two more problems provided by Roberts and McInnerney's work were the free-rider effect and the assessment of individuals within groups.

Factors Influencing Collaborative Online Instruction

Gamage et al. (2014) conducted research on factors that influence effective e-learning, and their findings revealed ten key factors: (1) *technology,* (2) *pedagogy,* (3) *motivation,* (4) *usability,* (5) *content/material,* (6) *support for learners,* (7) *assessment,* (8) *future direction,* (9) *collaboration,* and (10) *interactivity*. Vrasidas and McIsaac (1999) indicated that the *structure of the course, class size, feedback,* and *prior experience with computer-mediated communication* affect collaborative learning. Moreover, Curtis and Lawson (2001) added five types of behaviour that affect collaborative online learning: *planning, contributing, seeking input, reflection/monitoring,* and *social interaction*. Razali et al. (2015) categorised factors compiled from relevant literature into three groups: *learning interaction, learning design,* and *learning environment*. These three categories were used to organise the work of Gamage et al. (2014) and Vrasidas and McIsaac (1999) into sub-categories.

METHODOLOGY

Research Design

This study was a phenomenological study, a qualitative research method aiming to understand and describe the lived experiences of individual students regarding the phenomenon of collaborating in online virtual team writing classes during the pandemic of COVID-19. There are six certain criteria of this phenomenological study.

Firstly, this study focused on understanding the students' lived experiences. The primary objective of this study is to gain insights into the students' experiences with virtual team writing instruction utilising Google Docs. In phenomenology, researchers aim to delve into and comprehend individuals' real-life encounters (Creswell & Poth, 2018). Secondly, the study collected data through interviews and questionnaires. This study employs data collection methods commonly associated with research, such as conducting interviews and administering questionnaires (Seidman, 2019). Interviews are widely used in studies as they allow participants to express their experiences in their own words. Thirdly, this study selected a small sample. The deliberate selection of six students for this study reflects the typical approach of phenomenological research, which often involves a small sample size chosen based on the intensity of their experiences (whether positive or negative) (Smith et al., 2009). Fourthly, this study emphasised in-depth data. The reliance on detailed qualitative data is evident in this study. The richness

and depth of the collected data provide insights into participants' experiences. Fifthly, this study employed analysis for data interpretation. This study employs a thematic analysis approach (Braun & Clarke, 2006) to analyse the collected data. This demonstrated how this study aligns with the principles and practices of research. In phenomenology, data analysis often involves identifying patterns or core elements within the data. In this case, the researcher accomplishes this by utilising categories and symbols for coding. Lastly, questions that allowed for ending responses: The interview questions are designed to elicit detailed and comprehensive answers from participants, encouraging them to share their experiences and perceptions in their own words. This aligns with the approach, which values participants' viewpoints and enables them to articulate their experiences authentically.

Theoretical Sampling, Participants, and Context

The current study was conducted at a well-known public university in Bangkok, Thailand. It involved 76 second-year English majors enrolled in a basic writing course in the second semester of the 2020 academic year. Previously, all of them completed two courses in English grammar, one listening and speaking course, one linguistics course, and one reading course during their first year and the first semester of their second year. They had not taken a previous writing course at the university. Moreover, as I asked all the students about their instructors' teaching styles, class management, and learning activities using technology (in particular, online learning), all stated that they had not been previously exposed to online learning and teaching. This fact indicated that the students were entirely new to online education. Therefore, they were new to online learning and teaching in their tertiary education. After the end of the semester, the students were asked to evaluate the course and complete a questionnaire to provide opinions and suggestions about their satisfaction with learning through online virtual team writing instruction. This information was analysed and used as the primary data to choose group representatives for further participation.

As soon as the data were available, intensity sampling selection techniques were applied, and I chose two male and four female students who expressed opinions on the questionnaire on both ends of the linear numeric scales. In other words, all of them had reported values that were mostly dissatisfaction ('not at all', scale values of 1–2) or mostly satisfaction ('extremely likely', scale values of 8–9) on the ten scales (Smith et al., 2009). These six students took part in interviews as participants in the study to explore their experiences in collaborative online virtual team writing instruction. They were also notified that pseudonyms would be used to replace their real names throughout the study.

In conducting research, all the students were taught with a face-to-face method for four lessons about the components of writing a paragraph, unity and coherence, the grammar used in writing sentences, and the types of sentences. This first phase took eight weeks. I then spent one week introducing and teaching the online word processing software (Google Docs, one of the Google for Education online applications) and how it worked to familiarise the students with the software. Afterwards, they were divided into ten smaller groups (each group contained approximately 7–8 students). Each group was assigned to compose four different types of paragraphs (description, narration, comparison and contrast, opinion, and example) one by one, and each group spent two weeks on each one. The order in which each group completed these four tasks was up to them. I devoted myself as a facilitator and technician to assist them whenever they wanted assistance and helped shape their paragraphs during the final process before the end. This second phase, therefore, also took eight weeks for each group to complete the four final writing products.

Instruments

A questionnaire and an interview were deployed as the research instruments to select the participants and to explore the second-year English majors' experiences in collaborative online virtual team writing instruction. The questionnaire was designed to examine their perception, difficulties, and factors towards learning with a collaborative learning approach in a virtual team with Google Docs consisted of the fifteen 10-Likert scale items (Yamashita & Millar, 2021) and one open-ended question about feedback in working online. The questionnaire was first used to select 6 participants (out of 76) for the interview. The questionnaire items were constructed online with Google Forms and given to the

participants immediately after the course ended through the Google Docs platform, which they had used in their groups for the assignments.

However, before delivering the online questionnaire to the participants, its items were analysed and validated for congruence with the research objectives by three experts in the field, consisting of one Thai lecturer of English, one Thai lecturer of educational technology, and one Thai lecturer of educational evaluation and quality assurance. The evaluation results showed that all the items had an index of item objective congruence (IOC) values between 0.67 and 1.00, meaning that the questionnaire items were congruent with the research objectives and appropriate to be used in the questionnaire.

The questionnaire items were divided into three sections: (1) general information about each participant, including asking for an email address to be able to contact that individual later for an interview; (2) online learning, which generally asked about their experiences in collaborative online learning, and was comprised of seven items; and (3) collaborative online learning with Google Docs, comprised of eight items about the participant's perception, difficulties, and factors influencing the individual's learning online. The intensity sampling selection technique used to acquire interview participants mostly involved the ten linear numeric scales. The selected participants were from both extreme sides of the ten linear numeric scales; in other words, they responded either mostly in terms of dissatisfaction ('not at all', scales of 1–2) or mostly in terms of satisfaction ('extremely likely', scales 8–9). The interview was the second step in eliciting data from the participants to explore their experiences in collaborating online virtual team writing instruction. A semi-structured, in-depth interview was used. It consisted of five steps with 12 interview questions: (1) a grand tour for two questions, (2) six specific/concrete example questions, (3) two comparison and contrast questions, (4) new elements for one question, and (5) closing with one question. All the questions were analysed by three experts in the field (the same committee that evaluated the questionnaire), consisting of one Thai lecturer of English, one Thai lecturer of educational technology, and one Thai lecturer of educational evaluation and quality assurance. The results revealed that all the questions were congruent with the research objectives and research questions—the index of IOC values between 0.67 and 1.00. Furthermore, regarding this type of interview, some questions arose during the interview, enabling me to understand the phenomenon of what experiences, perceptions, difficulties, and factors influence collaborative online virtual team writing instruction better.

Data Analysis

The process of data analysis was started from the review of the literature and related documents to construct the preset categories of data to be used as the theoretical frameworks for analysis, consisting of three categories: perception (Table 2), difficulties (Table 3), and factors (Table 4).

As soon as I received the data from the questionnaire for the participant selection model, all of the responses were analysed in order to select the participants for the interview section using intensity sampling. I then selected and interviewed the six participants, two males and four females. After the interviews, these data were analysed according to the 12 question items grouped into five main questions: (1) grand tour, (2) specific/concrete example questions, (3) comparison and contrast questions (4) new elements, and (5) closing, all based on the underpinning of the three aforementioned preset categories.

The research questions and associated methodology are summarised and illustrated in Table 1.

Table 1. *Research Questions and Methodology*

Research Questions (RQ)	Analysis	Interview Questions
Main RQ 1. What are students' experiences in using Google Docs for collaborative online virtual team writing instruction?	*Content Analysis* to provide overall summaries and	• How did you find studying online writing in collaboration with your friends and instructor while you were elsewhere?

Research Questions (RQ)	Analysis	Interview Questions
	findings of the research	• How was this writing instruction similar to or different from how you were taught in other classes?
Sub-Questions 1. What are students' perceptions using Google Docs for collaborative online virtual team writing instruction?	*Preset Categories* (Khalil, 2018; Kumi-Yeboah & Yuan, 2017)	• What similarities or differences were there when comparing studying using in-class collaborative online writing versus virtual team writing? • We have talked so far about collaborative online virtual team writing instruction. Are there other issues you experienced and would like to share or discuss?
2. What difficulties are encountered in using Google Docs for collaborative online virtual team writing instruction?	*Preset Categories* (Roberts & McInnerney, 2007; Shea, 1995)	• What did you find difficult when you first began studying with collaborative online writing in the class? • Could you please tell me how you overcame those difficulties or problems? • Until the end of the collaborative online virtual team writing instruction course, what are any problems or difficulties you have found? • How did you solve those problems or difficulties?
3. What are factors that influence using Google Docs collaborative online virtual team writing instruction?	*Preset Categories* (Gamage et al., 2014; Razali et al., 2015; Vrasidas & McIsaac, 1999)	• What are factors that influence studying online writing in collaboration with your friends and instructor elsewhere?

To analyse the findings with the preset categories as indicated in Table 1, Tables 2–4 indicate the coding symbols used in each category.

Table 2. *Themes of Perception on Collaborative Online Instruction and Coding Symbols for Research Sub-Question 1*

Researchers	Themes of Perception	Coding Symbols
Kumi-Yeboah and Yuan (2017)	Knowledge construction	P-KNCO
	Preference for group activities	P-PRGA
	Opportunities in an online environment	P-OPOE
	Collaborative activities	P-COAC
	Challenges with cultural differences	P-CHCD
	Lack of multicultural inclusion	P-LAMI
Khalil (2018)	Collaborative learning environment	P-COLE
	Teacher's feedback	P-TEFE
	Easy access	P-EAAC

Table 3. *Difficulties in Collaborative Online Instruction and Coding Symbols for Research Sub-Question 2*

Researchers	List of Difficulties	Coding Symbols
Shea (1995) and Roberts and McInnerney (2007)	Grouping (*Student antipathy towards group work*)	D-GRUP
	Irresponsibility (*Withdrawal of group members*)	D-IRRS
	Monopolisation (*Possible inequalities of students' abilities*)	D-MNPL

Researchers	List of Difficulties	Coding Symbols
	Selfishness (*Selection of the groups*)	D-SLFN
	Lack of understanding (*Lack of essential group-work skills*)	D-LKUD
Shea (1995)	Power	D-POWR
	Partition of repertoire	D-PARE
	Time arrangement	D-TIAR
Roberts & McInnerney (2007)	Free-rider effect	D-FRRI
	Assessment of individuals within the groups	D-AIWG

Table 4. *Main Categories and Subcategories of Factors Influencing a Collaborative Learning Approach and Coding Symbols in Blankets for Research Sub-Question 3*

Subcategories		Main Categories (Razali et al., 2015)		
Researchers	**Factors**	**Learning Interaction**	**Learning Design**	**Learning Environment**
Gamage, et al. (2014)	Technology			✓ (F-ETEC)
	Pedagogy		✓ (F-DPED)	
	Motivation	✓ (F-IMOT)		
	Usability		✓ (F-DUSA)	
	Content/material		✓ (F-DCNM)	
	Support for learners			✓ (F-ESUP)
	Assessment		✓ (F-DASS)	
	Future direction		✓ (F-DFUT)	
	Collaboration	✓ (F-ICOL)		
	Interactivity		✓ (F-DINT)	
Curtis & Lawson (2001)	Planning		✓ (F-DPLA)	
	Contributing	✓ (F-ICON)		
	Seeking input	✓ (F-ISEE)		
	Reflection/monitoring	✓ (F-IREF)		
	Social interaction	✓ (F-ISOI)		
Vrasidas & McIsaac (1999)	Structure of course		✓ (F-DSTR)	
	Class size			✓ (F-ECLA)
	Feedback	✓ (F-IFEE)		
	Prior experience with CMC			✓ (F-EPRI)

Moreover, the six participants who were selected to take part in the interview section were also assigned a code symbol so that their personal information and identities were safely protected. I assigned S1 to the first student in my interview process, S2 to the second, and so on. In order to realise the interpretation of the coding symbols in the findings section, they can be explained through the following examples:

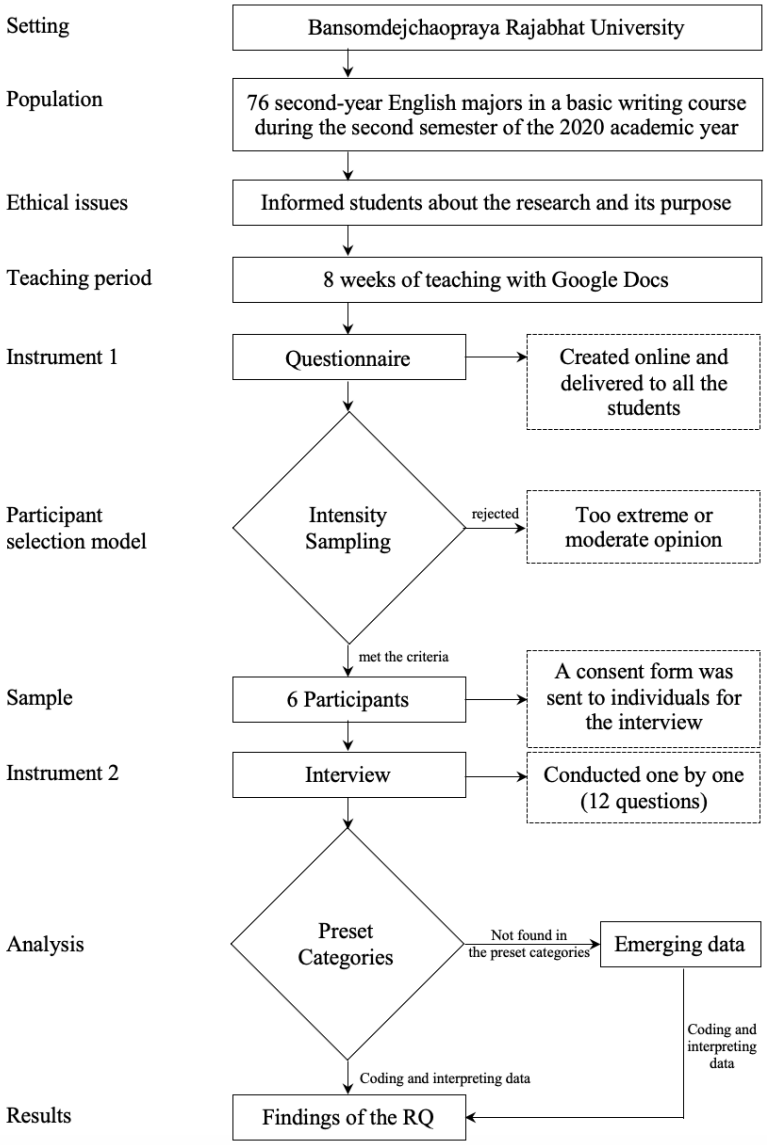
- P-COAC-S2 can be interpreted as a statement from the second student about a perception of collaborative activities.
- D-TIAR-S4 refers to the fourth student who disclosed their perspective on a learning difficulty with time arrangement.
- F-ISOI-S6 can be understood as a statement from the sixth student about factors that influenced their online learning within social interaction.

Ethical Consideration

Since the start of this research, I have always considered ethical issues concerning the students and the research participants who provided their information. To be honest with all of my students who took the basic writing course during the second semester of the 2020 academic year, I informed them that I was conducting research and informed them of the purposes of the research so that they would feel comfortable and act naturally. All of them acknowledged this. When I delivered my online questionnaire to them at the end of the course, I asked them to put their email for further contact, although this was not mandatory—they could either provide their email or skip this item. Of the 76 students, 64 provided an email with the questionnaire. After analysing the questionnaire data and selecting participants for the research, I sent an email inviting them to participate in my research. Six of them accepted and came to the formal meeting I had arranged. At the meeting, I reviewed my research purposes again and asked whether they agreed to provide information about the course they had just completed. All of them verbally agreed, so I provided a consent letter form to them and let them review the same information as the text. I asked them to sign if they understood the letter and provided their consent.

To understand the overall picture of the research, Figure 1 depicts the entire research procedure.

Figure 1. *Research Procedures*



FINDINGS

Students' Experiences in using Google Docs for Collaborative Online Virtual Team Writing Instruction

This question was asked to explore the experiences the students had while studying with collaborative online virtual team writing instruction and to compare them with what they experienced from previous courses using more traditional face-to-face-oriented methods of teaching. The participants shared common online learning patterns in their English paragraph writing class. Their sensory experiences in using the Google Docs application surprised the research in two main aspects; both were emerging data and considered technical problems. First, although Google Docs provides the benefits of a shared and synchronous online platform allowing everyone to work together from different locations, it provides no *alert function* when there are updated changes or actions from their colleagues on the platform. Second, they noted the *failure of technology-mediated interaction*. The participants preferred human-human interaction rather than through the media, such as Google Docs.

During the interview, S1 raised the issue of an alert function and said, 'I have to go back and forth in Google Docs so that I know what has happened. I think that the application should tell the user when there is a change' (this was similarly reported by S3, S4, and S6). S4 added, 'Actually, it is a good application, and I like it, but it doesn't give any signal to the user when there is a change, so I solved this problem by arranging the time so that I can meet everyone and work together.'

Regarding the failure of technology-mediated interaction, all the participants discussed this and preferred being taught in a physical classroom rather than using an online platform. S1 said, 'Face-to-face communication is faster than online communication.' S2 claimed that what I taught in the classes had been more meaningful than the online one by saying, 'I like the way you teach in the classes, such fun, colourful, lively.' S3 added, "When teaching in the class, you had a lot of tricks of learning, which I liked, but on Google Docs, you seemed more formal and serious.' S4 said, 'When I had a question, I could ask you immediately, but learning through Google Docs, I had to wait for your answer, and sometimes it was not clear." S5 reported, 'Learning through the online platform may be good for some subjects, but for English, it needs human–human interaction' (S6 expressed the same idea in slightly different words).

Even though these were examples of the students' negative feedback, the students in this study are powerful and positive voices to which the Google developers should listen, as the need for better online word-processing application has been growing continually and substantially (Abell, 2013; Alsubaie & Ashuraidah, 2017; Dathumma & Singhasiri, 2015; Godwin-Jones, 2018; Jeong, 2016; Suwantarathip & Wichadee, 2014; Zhou et al., 2012).

The overall experiences of the participants in learning with collaborative online virtual team writing instruction provided the research with several surprising results. These are further described concerning the research questions on students' perceptions, difficulties, and factors that influence collaborative online virtual team writing instruction.

Perceptions Using Google Docs for Collaborative Online Virtual Team Writing Instruction

According to the reference of the preset category of perceptions (Table 2), the themes of perception were opportunities in an online environment, collaborative learning environment, knowledge construction, preference for group activities, collaborative activities, teacher feedback, and easy access. Several themes also emerged across the responses about their perceptions, including pressure and effective communication. Student perceptions of using Google Docs for collaborative online team writing were mixed, highlighting both positive and negative aspects as follows:

One participant's perceptions towards collaborating online virtual team writing instruction appeared in knowledge construction, preference for group activities, collaborative activities, and collaborative learning environment. The participant reported:

> Learning through collaborative online learning helped increase my knowledge of retrieving information on the Internet, summarising data [P-KNCO-S3], practising working with the team and collaborative skills [P-COLE-S3 and P-PRGA-S3], as well as the teacher provided and assigned a lot of activities that we could do together [P-COAC-S3].

S3's perspectives were supported by other participants. For instance, S4 said, 'I have never known before that there is such a good application like this. It is new to me' (P-OPOE). Similarly, S2 added, 'It opens opportunities for me and my friends for future assignments. We can do them together anywhere, whenever we are busy and cannot meet each other' (P-OPOE).

Moreover, some participants also agreed that it was an easy-to-access application that was applicable and available on smartphones and computers by saying, 'It is convenient for me to catch up with my friends' writing on the app anywhere, while I was on the bus or at home' (P-EAAC-S6). Also, 'it was easy for me to access the data as I am using the iPad, and it works well, was compatible with Google Docs' (P-EAAC-S2).

S5 also indicated that feedback from the instructor was also productive in the writing task in the online instruction. S5 said, 'Your feedback was really helpful. I always felt excited when I saw your comments. I liked this way of giving comments because whenever I didn't understand, I could come back and gain understanding' (P-TEFE).

On the other hand, some students did not always share the same perceptions. One participant (S5) said, 'Google Docs produces less pressure than studying in the classroom because I have time to search for information before writing, while in the classes, I have to write for your assignments sometimes without having schemata about those'. In contrast, another participant (S3) claimed, 'I prefer in-class teaching to online teaching. I think it is more communicative and effective between the teacher and students'. Regarding this, S3 also suggested a solution: 'The teacher should teach both of the methods simultaneously. For example, teaching knowledge can take place in the class, as well as explaining errors found on the assignments, so that everyone can learn together, and the assignments and comment or feedback can be assigned through Google Docs'.

Difficulties Encountered in Using Google Docs for Collaborative Online Virtual Team Writing Instruction

The research also focused on any difficulties with collaborative online virtual team writing instruction. If so, what were they? Four particular difficulties were noted in the interviews: time arrangement, monopolisation, free-rider effect, and grouping. The participants also suggested possible solutions.

The difficulty that most participants raised was time arrangement; an example comment was, 'It is hard to find the exact time when everyone is convenient to meet and work' (D-TIAR-S5). S4 said, 'Our team postponed the meeting time a lot at the beginning, and later, we came to our final decision that each one wrote what they had. When the others came, they could revise, add and edit their friends' writing' (D-TIAR). S3 supported this with the statement, 'Time is our problem. My friend and I have to set the Line group for this work in particular, so that we can arrange the time to go to the platform' (D-TIAR).

One more difficulty was monopolisation, which occurred, for example, when a more advanced student trying to control the rest, who were weaker, or there were large differences in students' abilities. S1 said:

> My team had two clever students, and they tried to convince the other members to use the paragraph they had written. When I or some of my friends wrote anything, I was always disinterested. As a result, I tried not to propose any ideas and let them do everything they wanted. (D-MNPL)

I did not consider S1's perspective to indicate free-rider effect because S1 tried to help the group, but S1's friends were disinterested. However, a free rider is one who does not help their group or wants to attach their name to the group's work and does nothing. This event occurred with S5's group:

> There is one of my friends who never helps other people. The group leader asked him to find information about Madame Tussauds for the descriptive writing. He said okay, but we never got their work. When I asked him for a reason, he said he had to work, and he had no time to do it. (D-FRRI)

Last, but not least, is grouping. One participant disclosed that group work was not his or her preference: 'When there are a lot of people, there are a lot of problems. When there is a problem, there are also a lot of different solutions. Individual work suits me' (D-GRUP-S1).

In addition to the difficulties, two more emerged during the interviews: familiarisation and communication. Four participants raised the same difficulty in familiarisation by noting that the application screen layouts between the personal computer and smartphone versions were not the same. They spent greater time coping with this difficulty (S2, S3, S4, and S6). Communication not only appeared in the participants' perceptions, it was also described by the participants (S1, S3, and S4) in terms of difficulty. They found it hard to contact each other through Google Docs in chat mode. Therefore, they used another application as a group, such as Line or Facebook Messenger, to talk, make arrangements, etc., to fulfil their communication needs.

Factors Influencing Using Google Docs for Collaborative Online Virtual Team Writing Instruction

While interviewing the students, I specifically listened for any factors that influenced the collaborative online virtual team writing instruction and asked them only one question about it. Their responses were varied; however, they could be organised into three main categories: learning interaction, learning design, and learning environment.

For learning interaction, I found that social interaction was a key factor. S2 said, 'I am quite an introvert. When in group work, I don't know how to behave. If I talk too much, will they feel annoyed by me?' (F-ISOI).

For learning design, I also found one main factor that was thought to influence collaborative online learning with a virtual team: usability. Two participants (S1 and S6) expressed the same idea in slightly different ways: 'I think its usage is quite complicated' (F-DUSA-S1) and 'I am not computer-literate' (F-DUSA-S6).

For a learning environment, prior experience with computer-mediated communication (CMC), technology, and support for learners were the three key factors found during the interviews. Prior experience with CMC was mentioned in the learning environment category. S6 said, 'I am lucky that I used to use this application, so I know how it works, and I can help my friends' (F-EPRI). S1 also emphasised that those who knowledgeable in computer software and technology can help a great deal. S2 said, 'Different knowledge of using the application is a factor to demotivate learning through an online platform' (F-EPRI). Technology itself also influenced online learning. S1 claimed, 'Smartphone and Internet access of individuals are different, and it affects working in a collaborative online virtual team' (F-ETEC). Leaner support is crucial. Most participants said that support from the lecturer (F-ESUP-S4), internet access (F-ESUP-S3) provided by the university, and collaboration within the team (F-ESUP-S5) helped them succeed in their tasks.

DISCUSSION AND IMPLICATIONS

The findings of this research, drawn from the students' experiences in collaborative online virtual team writing instruction, reveal that an online platform, such as Google Docs, has both pros and cons. In

addition, reporting the students' perceptions, difficulties, and factors is productive in offering an explicit reflection of collaborative learning in online virtual team writing instruction.

The findings from the first research question were consistent with prior research, even though they surprised to me. In the current study, the participants noted the lack of an alert function regarding updated changes or actions of their colleagues on the platform, and the limitations of the technology-mediated interaction. The participants preferred human–human interaction rather than through media such as Google Docs. This finding is consistent with Eberner (2017), who wrote, "Student[s] appreciate close teacher interaction during the writing process and improve their writing the most when given quality feedback, so teachers need to be available and in frequent conversation with students during writing instruction" (p. 40). However, other researchers' work presents a different view. For example, Lee's (2018) study showed that almost 25 percent of students preferred to use technology in the classroom. Lin and Yang's (2013) findings also revealed that Google Docs helped students establish interactions with their friends.

Answering the second research question produced several findings. Opportunities in an online environment, collaborative learning environment, knowledge construction, preference for group activities, collaborative activities, teacher's feedback, and easy access were perceptions expressed by the participants. These were consistent with the previous findings of Kumi-Yeboah and Yuan (2017) and Khalil (2018). Moreover, the participants' perspectives on learning online with a virtual team suggested opportunities in terms of how they could approach their future work. This finding was consistent with Seyyedrezaie et al.'s (2016) implication that Google Docs could lead to success in students' writing ability and Lee's (2018) finding that 92 percent of students were prepared to use Google Docs in their future jobs. The additional data that emerged obtained during the interviews was consistent with Alsubaie and Ashuraidah's (2017) finding that students did not feel pressured to work with Google Docs. The perception of effective communication is part of the following discussion on the next research question.

The exploration of the third research question discovered four main difficulties: time arrangement, monopolisation, free-rider effect, and grouping. These were consistent with the work of Shea (1995) and Roberts and McInnerney's (2007). Two additional difficulties emerged during the interview: familiarisation and communication. The participants said that they were unfamiliar with certain aspects of the application, which was consistent with Khalil's (2018) study in which 50 per cent of the students identified themselves as shy students who cannot familiarise themselves with Google Docs. However, they got better as they had more time to practice. Regarding communication difficulty, Zhou et al. (2012) also found that Google Docs was not as effective as either face-to-face communication or other word-processing software.

The fourth and final research question revealed various factors that the students believed influenced their online learning with virtual team writing instruction, such as social interaction (categorised as learning interaction), usability (categorised as learning design), and prior experience with CMC, technology, and support for learners (categorised as learning environment). Some of these factors were consistent with Razali et al. (2015), Gamage et al. (2014), and Vrasidas and McIsaac (1999), and no emerging results were found during the interviews.

The implications for this research are focused on EFL teachers themselves because they are the ones who know their students the best. Hence, planning, material selection, and pedagogy should be initially considered. Technology, e.g., Google Docs, provides both pros and cons. Writing is a productive skill that requires several supporting skills and abilities. Although Google Docs is an effective online word-processing tool, in-classroom teaching is also important. I strongly believe that direct human interaction is always better than interacting through technology. Therefore, for example, teaching half a class in face-to-face format and the other half online or with flipped and blended learning approaches may be a way to combine the methods harmoniously and would be good topics for further study.

For future research for other investigators, the findings of this research provide a foundation for further exploration into the use of online platforms like Google Docs for collaborative online virtual team writing instruction. Future studies could delve deeper into the specific pros and cons of such platforms and the students' perceptions and difficulties. It would also be interesting to investigate the impact of direct human interaction versus technology-mediated interaction on students' learning outcomes. Additionally, research could explore the potential benefits of blended learning approaches combining face-to-face and online instruction.

In terms of practice suggestions for practitioners, teachers should consider the findings of this research when planning their instruction. Online platforms like Google Docs can offer many benefits, but it's important to know the potential difficulties and limitations. Providing additional support or training for students could help mitigate these challenges. Furthermore, educators might consider using a blended learning approach, which could offer face-to-face and online instruction benefits.

Last but not least, administrators should consider policies that support online platforms for collaborative writing instruction. This could include providing the necessary resources and training for teachers and students and ensuring adequate support systems are in place to address any difficulties or challenges that may arise. Additionally, policies could encourage the exploration of blended learning approaches, which combine face-to-face and online instruction.

CONCLUSION

This study offers crucial insights into the benefits and limitations of using Google Docs for online virtual team writing instruction. While students appreciated the platform's collaborative potential, significant drawbacks emerged, including limited real-time interaction features, reliance on asynchronous updates, and technological dependency that hampered immediate communication and group cohesion. These limitations indicate that online tools like Google Docs may require further development to emulate responsive, interpersonal dynamics of face-to-face learning environments better.

Additionally, challenges like unequal participation, the free-rider effect, and scheduling conflicts highlight a need for explicit instructional support that prepares students for digital collaboration and encourages accountability in shared tasks. Moving forward, integrating project management functionalities, enhanced notification systems, and more intuitive collaborative tools may address these issues, supporting more seamless virtual teamwork.

Furthermore, this research underscores the value of a blended approach to teaching that combines the strengths of both face-to-face and online formats. Such an approach could provide students with the direct engagement they value in traditional classrooms while leveraging digital platforms for collaboration. Future research should investigate hybrid learning environments and assess their effectiveness in mitigating the drawbacks identified, with a focus on maximizing student engagement and productivity.

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