

Perceived Efficacy of Google Classroom Usage in Varied English Courses

<https://doi.org/10.3991/ijet.v17i05.22403>

Visara Ekahitanond
Bangkok University, Pathumthani, Thailand
visara.e@bu.ac.th

Abstract—In this disruptive era, universities in Thailand strive to implement emerging technologies in education, to innovate modern venues of learning, and develop new digital skills that are in demand in the future workforce. Therefore, the online application of teaching assistance was employed to offer students more opportunities to review and get engaged with the course materials and content in order to increase their performance, motivation, and confidence in learning. This study assessed students' perceptions on efficacy of Google Classroom when it was used as a learning support for large classes with students enrolled in English courses in a private university in Thailand. The questionnaire survey was distributed in order to collect feedback from 211 students, and the interview was conducted to twenty students to gain more details on the use of the application. The findings revealed that the students had favorable perceptions regarding the use of Google Classroom as a tool to support English learning. When factors were analyzed to ascertain whether they had any impacts on perceptions, it was found that students with prior experience using Google Classroom had better perceptions than first-time users while male and female students did not differ in their perceptions. The result also showed that the students' perceptions of Google Classroom efficacy were not significantly different in a general English course vs. English for specific purposes course.

Keywords—Google Classroom, efficacy, perception, English course

1 Introduction

The mixture of technologies and scholarly theories has clearly become an educational phenomenon in all courses of action in this century [1]. Educators and workforce experts have been searching for best-practice technologies as best-fit learning tools for learners. Traditional teaching approaches can offer limited learning tools and visual aids, which are unable to fully support student-centered education. Students nowadays need not only to acquire knowledge, but also practical skills such as observation, flexibility and adaptation, collaboration, problem solving, critical thinking, global awareness, and technology literacy to cope with today's rapid-changing environment [2].

E-learning can be a driving force to make a difference in students' lives. E-learning increases its potential in alternative regular schooling [3]. Through suitable assimilation

of pedagogical designs, teachers can transform schooling experiences to countless opportunities for students, promoting students' interactivity, extended participation, convenient collaboration, instant communication, and near-at-hand personalization. Venturing online learning challenges educators to put extra effort in pedagogical design and teaching delivery. Teachers must keep themselves updated to acquire competence in developing a technological system, work and co-work in digital platform, and promote communication and interaction in an online learning community. As technology on mobile devices has experienced swift progression, pedagogical planning becomes a controversial issue [4]. Educators and teachers encounter challenges to adapt themselves to learn and make use of rapidly developing technology as well as initiating new learning processes in an effective way. Pedagogical planning indicates deficiency or accomplishment of the technological implementation. To ensure student learning quality, appropriate teacher training may be necessary.

However, some educators and scholars remain doubtful of the benefits of blended and online learning. Autonomy in an online platform and preference to work outside of class can be negative for some students. Halverson mentions some concerns related to online learning such as confidentiality, discordance between educational objectives of students and academics, and conflicts between an institution's expectations and students' holistic goals of identity [5]. As students are heavily occupied with mobile devices, numerous teachers embed technologies in class activities to gain students' attention and participation leading to a positive learning environment and academic outcomes. Web applications such as SkyDrive, Google Apps, and Evernote have been accessed to assist learning and promote essential skills necessary for students in this era. In recent times, Bangkok University has embedded Google Classroom in several courses. Therefore, this paper aims at exploring its efficacy from students' point of views. The information gained from their replies would be beneficial for the course improvement.

2 Literature review

2.1 Google Classroom

Since educational adaptation has been based on technology at a speedy pace, Google Classroom is considered one such highlighted educational tool applicable for distance learning, which supports educators, researchers, teachers, and students all over the world [6][7]. This free, streamlined, and blended-learning web service can support ubiquitous teaching and learning due to its inherent affordances for general classroom management, teacher-student and student-student communication, collaboration, scheduling, sharing documents, links, pictures, or clips on YouTube, assignment submission, organizing information, monitoring individual's progress, discussion platform, giving feedback, grading, thus saving paper and time, and accessibility to the work of students to immediately edit, give comments, and send back. Mutual and private communication between teacher and student or interpersonal communication in a group can be visible for the whole class. Teachers can turn on or off students' comments

and delete at their discretion. For those who have Gmail accounts, it takes a few clicks to create Google Classroom. Moreover, no advertisements are found in Google Classroom. Google Classroom can be designed in a specific learning environment for each subject, class, level, and individual teacher and student's preference and style [8]. It's figures offer opportunities for students' autonomy in day-to-day learning. Materials in the form of articles, images or videos can be sent to students in advance, so they can prepare themselves with additional materials before class time. Study outside class anywhere and at any time offers students learning opportunities. A created Google Classroom can accommodate hundreds of students and add teachers to cooperate, which lessens teachers' time and increases the quality of work. Notification options in Google Classroom can be set up for particular classes and functions such as when students send emails, make comments, or forward comments to the teacher. Managing features and creating a class in Google Classroom has an uncomplicated interface for users. With respect to giving feedback, both teachers and students can take additional time pondering, voicing out, and giving meaningful and personalized comments. To sign in and join a class in Google Classroom, the security standard is reliable. Useful functions have been added in Google Classroom; For example, Google Calendar integrated in Google Classroom supports due dates of class work [9]. In the previous years, Google Classroom had no system for teachers to set deadlines for materials and assignments. A share button for websites facilitates more engagement of educators to Google Classroom [10]. Mobile applications available for Android and iOS accelerate student users easing learning in Google Classroom [8]. Users can upload attached photos, share documents from other applications, and enable offline activities [11].

2.2 Learners' perceptions of Google Classroom

Numerous studies reviewed the students' awareness on Google Classroom, revealing its meaningful function in learning. A study surprisingly exposed that learners are partial to involvement in Google Classroom more than engagement in class [12]. Concurrently, a study of manifested learners consider Google Classroom as practical and beneficial to their learning development [13]. Furthermore, Google Classroom as an autonomous educational platform was remarkable in the mainstream [14], [15]. Prominently, many studies advocated for the students' gratification of Google Classroom on account of its functionality and convenience [16], [17]. An experimental research investigating the implication of Google Classroom together with peer tutor support for elementary students in Taiwan reported the students' optimistic attitude towards the application of Google Classroom [6].

2.3 Factors affecting learners' perceptions

Based on previous research, learner perceptions have been greatly investigated on Google Classroom and similar platforms including Moodle and Edmodo in terms of efficacy. In addition, factors affecting perceived efficacy have been examined in many areas. Among those factors, gender has been the most remarkable, while there is a limited amount of work that studied prior experience and course type. The current study

took these two factors into consideration since they might affect perceived efficacy of the learners, too.

Gender was detected in many studies regarding the use of classroom technology and learner perceptions, and gender differences were found. The findings revealed that male students were more aware of the benefits of classroom technologies [18], recognized the serviceability of educational technologies to a greater extent [19], and enjoyed online learning more than female students [20]. Nevertheless, female learners perceived themselves more connected to other peers in the courses, valuing their online learning experiences as more aligned with their educational desirability and destination [21]. Only one study found no differences in males and females' recognition of the online learning platform [22]. When investigating the use of Google Classroom in relation to gender in higher education, it was found that number of students enrolled was greater for females than for males [23]. Another study investigated if differences in gender were evident in Google Classroom learning conditions. The data analysis showed that no male and female differences existed in the Google Classroom setting [24].

Unfamiliarity to new technologies is likely to be a major cause for ineffective use of technology, and inadequate access may have a negative impact on learning. Prior distance learning experience affected the success in online learning courses [25]. Many studies confirmed that students with past online experience expressed higher satisfaction and positive learning experience [26], [27]. Therefore, students without experience in using Google Classroom may express less satisfaction of the Google Classroom. If students are not cognizant of some of the limited features of Google Classroom, they may feel frustrated when using it. For example, editing problems possibly occur when teachers send a created assignment to students, and the students become the task owners who are able to edit it. Therefore, the paper can be modified or incidentally deleted. This might be considered inconvenient for new users. However, a study revealed that students with prior online learning showed no difference in their perceptions of the quality of their online courses from those without such experience [28]. Therefore, this issue was still of interest for current research.

One important factor to be examined in this study is course type. Since Google Classroom was implemented in two kinds of courses: General English and English for Specific Purposes, it is necessary to investigate which course would benefit more through the use of Google Classroom to support learning. The responses from our students would enable the researcher to understand more about the use of technology to suit learning contexts.

2.4 Purposes of the study

This study aimed to investigate the efficacy of new learning technology such as Google Classroom through learner perceptions. Since implementation of classroom technologies in English courses has been increasing recently, gaining feedback from learners is crucial. Based on previous studies, although males perceived classroom technology usage more beneficial than females, males and females did not differ in Google Classroom usage. Therefore, it was still questioning whether our male and female students perceived efficacy of Google Classroom differently. Moreover, efficacy might be

recognized differently in different courses and experiences despite the same technology usage. In this regard, the current study took these factors into account as they might have an impact on perceived efficacy. The results would help determine how this supplementary platform supported students in their learning and identify what factors affected their perceptions of efficacy.

Four research questions were addressed as follows:

1. What are the students' perceptions of Google Classroom?
2. Do male and female students differ in their perceptions on Google Classroom?
3. Do students having experience of using Google Classroom have perceptions that different from those using Google Classroom for the first time?
4. Do the students in two types of courses perceive Google Classroom differently?

2.5 Research hypotheses

According to the literature review, it was anticipated that there would be differences in males and females' perceptions. Although there was no evidence from previous research regarding prior experience and the type of course that affected learner perceptions, the current study hypothesized that when using Google Classroom, perceptions of varied groups might differ. Therefore, three hypotheses were posited as follows:

1. Male and female students differ in their perceptions on Google Classroom.
2. There is a statistically significant difference in perceptions between students having experience in using Google Classroom and those without experience.
3. There is a statistically significant difference in perceptions of those studying in a general English course and those studying in a course of English for specific purpose.

3 Research methodology

3.1 Context and course detail

This study was conducted in a private university in Thailand where online application has been employed as teaching assistance for some time. In this semester, there were two types of courses using Google Classroom. The first type was general English comprising 1) EN001: English for Everyday Communication and 2) EN003: English for Expressing Ideas. The second type was English for specific purposes course namely EN303: English for Communication Arts Professionals. The students were required to take some quizzes, mostly relevant to vocabulary, in their courses. The Google Classroom was employed as a supplementary, educational platform for all students. The purpose of Google Classroom was explained to the students clearly in the first class regarding its purpose, application, and benefits together with operation details such as how to log in and access to the Google Classroom, or manage files and learning resources causing less stress for both teachers and students. Students could learn on their own at their pace outside of class time through uploaded power points, useful clips and

movie clips from YouTube, exercises, practice tests, and links to Quizlet, a digital game. The various materials not only made the learning more inviting, but also increased students' higher achievements. Therefore, those who used the app were willing to try out the novelty of learning with the expectation of academic enhancement. Since Google Classroom has been implemented and well-known for years, some students have been familiar with it. Most of the students have used Google classroom in their previous classes, while some were first-time users. The online platform aimed to boost students' confidence in their test taking abilities.

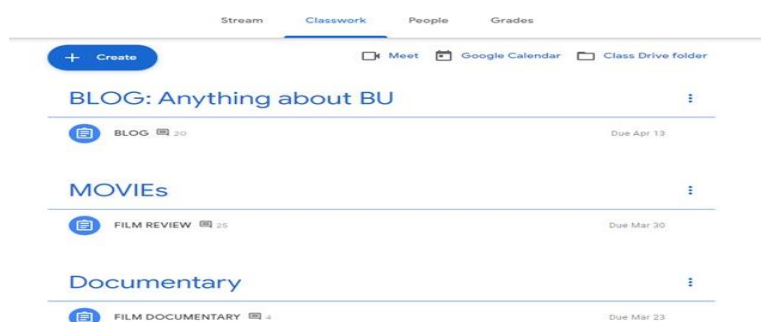


Fig. 1. Teacher created classwork for specific tasks

3.2 Participants

The participants were randomly selected based on types of courses. There were 12 sections opened for General English courses and 10 sections for English for specific purposes courses in the first semester of academic year 2019. Since the students were already arranged into sections by the Registration Office, Cluster Sampling technique was used to procure three sections from general English courses (104 students) and three sections from English for specific purposes course, namely English for Communication Arts Professionals (107 students). There were 101 male and 110 female students. Nearly one-third of them had experience of using Google Classroom.

3.3 Research instruments

In the current study, two instruments were employed to collect the data. Firstly, the questionnaire survey was designed to gather information from the 211 students on the efficacy of Google Classroom enhancing e-learning after using the application to provide extra-curricular activities to improve students' competency and performance. The survey was comprised of 2 parts. The first part asked about gender, the prior experience of using Google Classroom, and course of study. The second part contained 9 statements concerning the efficacy of Google Classroom after usage. The answers were in the form of five rating scales ranging from 1-5. This survey was distributed to the students at the end of semester. The second instrument was an interview containing three questions. Twenty students were randomly selected to provide answers which would

be analyzed to support the findings from the questionnaire. The interview questions were as follows: 1) What do you like about Google Classroom? 2) Do you have any obstacles when using Google Classroom? 3) What are your recommendations for the future use of Google Classroom?

3.4 Data analysis

After the questionnaires were collected, quantitative data were statistically analyzed by a SPSS/Window program. Means and standard deviations were employed to analyze the data of perception and the mean scores were presented in form of levels. Independent samples t-tests were used to compare groups regarding differing characteristics. The acceptable statistical significance level was set at < 0.05 .

4 Findings

4.1 Part I: Findings from the questionnaire

Research question 1: What are the students' perceptions of Google Classroom?

According to Table 1, the overall perceptions with a mean score of 4.03 showed the students had favorable perceptions of Google Classroom. Among all statements, the highest mean score (4.27) was Statement no.1; reviewing content before tests benefited of Google Classroom the most. The second order with a mean score of 4.23 was Statement no.2, showing that Google Classroom allowed them to gain higher scores in the tests. Next, Statement no.4 with a mean score of 4.10 indicated that they felt that Google Classroom was a suitable tool to support their learning.

Table 1. Mean and standard deviation of perceptions of Google Classroom

Statement	Mean	S.D.	Meaning
1. I realized the benefits gained from the implementation of Google Classroom to review contents before tests.	4.27	.84	good
2. The use of Google Classroom helped me to gain more scores from tests.	4.23	.86	good
3. Google Classroom is friendly-user; it is not an obstacle to my learning.	4.03	.88	good
4. Google Classroom is an appropriate learning tool supporting my learning in the course.	4.10	.84	good
5. Google Classroom encouraged me to put more effort in the course.	3.82	.95	good
6. Google Classroom made this course more interesting.	3.93	.88	good
7. Google Classroom increased learners' engagement.	3.95	.89	good
8. Google classroom helped me to become autonomous, disciplined, and self-governing.	3.94	.96	good
9. Google Classroom helped increase my confidence in learning.	4.04	.90	good
Total	4.03	.73	good

Research question 2: Do male and female students differ in their perceptions?

To answer research question 2, a comparison of perception was made based on gender, using an independent t-test. Results revealed that male and female students did not differ significantly in how they perceived Google Classroom ($p < .05$). Therefore, Hypothesis 1 stating that a significant difference existed in perceptions of males and females was rejected.

Table 2. Comparison of perceptions between males and females

Gender	Number	Mean	S.D.	t	p-value
Male	101	4.09	.68	1.136	.257
Female	110	3.98	.77		

Research question 3: Do students having prior experience of using Google Classroom perceive differently from those using Google Classroom for the first time?

To answer research question 3, a comparison of perception was made based on their experience, using an independent t-test. Results revealed that students with prior experience of using Google Classroom perceived Google Classroom usage more positively than first-time users. In other words, two groups of students differ significantly in how they perceived Google Classroom ($p < .05$). Therefore, Hypothesis 2 stating that there was a statistically significant difference in perception between students having experience in using Google Classroom and those without experience was accepted.

Table 3. Comparison of perceptions based on prior experience

Experience	Number	Mean	S.D.	t	p-value
Yes	146	4.14	.70	3.226	.001
No	65	3.79	.75		

Research question 4: Do the students in two types of courses perceive Google Classroom differently?

To answer research question 4, a comparison of perception was made based on the type of course, using an independent t-test. Findings revealed that students taking a general English course and those studying English for specific purpose did not differ in how they perceived Google Classroom at a significance level of .05. Therefore, Hypothesis 3 stating that a significant difference existed in their perceptions was rejected.

Table 4. Comparison of perceptions based on type of course

Types of Course	Number	Mean	S.D.	t	p-value
General English	104	4.04	.73	.238	.812
English for Specific Purpose	107	4.02	.74		

4.2 Part II: Findings from the interview

The findings gained from the 3-question interview were used to support how the students responded in the first part of the questionnaire. This information enabled the researcher to gain more details about using Google Classroom in English courses.

1) What Students Like about Google Classroom. Twenty students expressed their positive attitude toward Google Classroom. Here are sample responses:

“I can review the course syllabus, task instruction, rubric, what was taught in class, exercises, clip and announcements as much as I want.”

“I like its privacy for our own section.”

“To see other friends’ work gave me some ideas to do my own.”

“When teachers graded my work with private comments, I like that.”

“Google Classroom is new to me, but it is user-friendly when compared to others.”

“I really like it; I can study on my mobile phone anywhere.”

2) Obstacles when Using Google Classroom. The main obstacle that most students experienced occurred from being unfamiliar with the functions of Google Classroom. This could lead to feeling pressured.

“It’s my first- time using Google Classroom, so I just followed my friend.”

“I have submitted my VDO clip in Google Classroom. I didn’t know that was the wrong place.”

“I felt uncertain and unconfident in what to do, where to post my assignments in the beginning.”

“I have been using different applications, sometimes it is confusing.”

“It shocked me when Teacher told me that she didn’t find my work. After I learned that I posted it on the wrong place, everything was fine.”

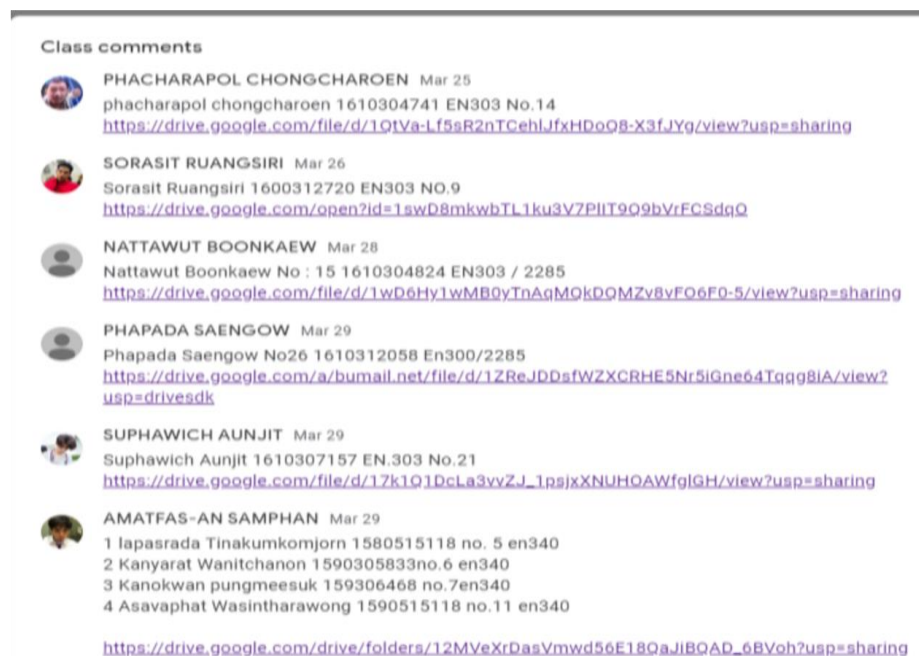


Fig. 2. Students misplaced their VDO clips in class comments

Some students who were the first-time users did not submit their assignments in the albums created for specific tasks, they, instead, posted in the wrong venues causing missing scores. When a student misplaced her/his work, others would follow unknowingly. For example, Teacher created Classwork for students to post their VDO clips, writing, or tasks, some students misplaced their work in comments or links of their VDO clips in class comments. As a result, the teacher would misunderstand that those students' work was absent. Therefore, it is necessary for teachers to allow students to follow up their scores from time to time and resubmit their assignments. It takes additional time for teachers to check, recheck, and explain the functions of Google Classroom. Moreover, students whose emails do not belong to the university domain have to ask permission to access class; it requires the teacher's attention and time to manage these trivial operational problems. Downloading some students' VDO clips takes time. It maybe because of technical problems or insufficient understanding in Google Classroom. Different teachers use different kinds of online platforms, therefore, confusion possibly occurs for students. That is why students tend to follow their friends' footsteps. Once the first person misled, the rest could go in the same direction.

3) Recommendations for Google Classroom Usage in Future Courses. Many students suggested using other tools to increase the efficacy of Google Classroom usage such as VDO conference, Classwork board, and YouTube.

"If there is an option for VDO conference, it will be more convenient. In this course, we use Google Meet for some assignments. If we use just one application for the whole course, it would be easier for students and teachers."

“I like the dateline set for each assignment, It is clear. When I forget what teacher said, I just check with the Classwork board. It would be nice, if there is a reminder notification from Google Classroom.”

“I like the way Teacher posted clips from YouTube. I feel like we have more learning resources, more variety.”

“When teachers in each course use various application, sometimes it is fun to try new things, though.”

5 Discussion

Based on the findings above, many issues are to be discussed. First, total mean of 4.03 indicated that students had good perceptions on Google Classroom and it is an appropriate tool for language classes. This is probably because it was used as a supplementary platform for learning, embedded in class activities to gain students' attention and participation leading to a positive learning environment. Enhancing an e-learning setting can be a method of creating an exciting experience through new technology. Google Classroom is considered friendly-user with stability and sufficient functions for classroom activities and tasks compared to other applications. If students submit their work at the right place, their status will show “turned in” or “missing” after the dateline. It is easy to follow up and do the grading. Moreover, most applications will become similar to one another, the application that is more familiar becomes more usable to work on instead of starting over with a new platform such as MS Teams or OBS. Google Classroom can accommodate other applications; for example, Google Form, Quizlet, etc. can be embedded. The learners' acceptance in Google Classroom is in accordance with the results in previous studies regarding ease of use, usefulness and learning abilities development [13],[16],[17].

The next discussion is on the factor of prior experience of using Google Classroom that affected the students' perceptions. Those with prior experience of this learning tool had better perceptions than those who used it for the first time. The current findings were found to be the same as those in previous studies [25], [26]. This is probably because the students are not familiar with Google Classroom. Some limited features of Google Classroom may cause problems such as editing problems. Those who use Google for the very first time would be perplexed as design buttons and icons are recognizable only for Google users. Since it takes time to learn new things, training should be conducted before real use. After becoming more familiar with Google Classroom, the second, third or fourth time users would have a better understanding in order to manage the application.

However, the current study did not find any differences in perceptions when comparing groups based on gender. The finding was similar to the previous study [22]. This might be due to the fact that all students knew from the course orientation that they had to use this platform for learning. Since Google Classroom provides demanded workable functions to facilitate both teachers and students in a single dashboard, it enables increasing collaborative and autonomous learning with minimal time and effort compared to traditional ways of class management. The students realized that practicing with

course materials helped increase their test scores. The result tends to be supported by Diccio [13] who found that learners perceived that Google Classroom helped to improve their learning abilities. Students tried to follow steps of performing activities in Google Classroom as requested. Male and female students did not differ in the use of Google Classroom as appearing in the previous study [24]. However, the current finding was found to be in contrast with that of other studies which found a gender difference in learners' perceptions and behavior [18], [19], [20], [21], [23].

In addition, type of course was not found to have an impact on the students' perceptions. This is probably because the purpose of using Google Classroom in two types of courses is the same; it is to develop learners' language competence and engagement. It is a good online platform where students can mutually work and communicate anytime. Also, they could learn more on materials uploaded in Google Classroom. The students had more practice and could review what they missed in class. Therefore, from the students' point of view, they similarly had good perceptions on the use of Google Classroom no matter what course they were taking. Moreover, Google Classroom can be designed in a specific learning environment to suit each subject and class [8]. When obstacles of using Google form were investigated, it was found that many students expressed that this platform is still new for their learning. Teachers and students need to become familiar with the functions of Google Classroom to feel at ease because negative attitude towards the application will hinder interest and eagerness in learning. It is necessary to prepare both teachers and students to become acquainted with Google Classroom before class to eliminate unnecessary frustration and inconveniences for both students and teachers, especially those who deal with a greater number of students. Even though Google Classroom seems to be user-friendly, there are some details that need to be understood in order to enhance the usage. Teachers should have a clear explanation in each task and be clear where to post items with examples to prevent students' misunderstanding. Clips to clarify each assignment is more practical than written messages. Expectedly, there will be more advanced options on Google Classroom such as VDO Conference to facilitate group discussion and live conversation, which will facilitate Google Classroom to accommodate full options and serve more needs for virtual learning. VDO Conference can be considered a prominent feature for online learning nowadays and in the upcoming future. Many applications become very approachable because they facilitate VDO meetings and the cloud platform. Moreover, teachers who have large-size classes or many classes, need to decide if they would turn on the notification of students' posting work. To deal with hundreds of students at a time, the notifications could overload to teachers' mailbox.

6 Conclusion

The study reveals students' high satisfaction, confidence, and various benefits gained from the use of Google Classroom as a useful digital literacy tool. Based on the findings, it is possible that Google Classroom can be used as a supplementary platform in other courses. It would be challenging for both instructors and students at the onset;

however, it is considered user-friendly and accessible; creating classes and assignments, inviting students to join, turning in assignments, keeping records, giving immediate feedback, managing class, posting teaching materials, setting due dates, and grading. For teachers, these built-in functions lessen time and workload and allow for complete control over posts and comments from students. The Generation Y realizes and needs to be equipped with digital skills to keep up with the technology-dominated world. Therefore, learning new applications and online platforms becomes a common practice for computer-literate students who could take ownership in the use of the technology in a short period of time. Google Classroom promotes both individual and class engagement and management together with communication and interaction in systematic and flexible ways such as via announcements, private comments, or emails.

7 References

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8 Author

Visara Ekahitanond is currently an Assistant Professor at Bangkok University, Thailand. She received her Bachelor Degree from Faculty of Arts, Chulalongkorn University and Master Degree in Educational Administration from Seattle University, USA. As a full-time instructor at Bangkok University International (BUI), she has been teaching English over twenty years with the focus on English for specific purposes. Publishing a number of papers, she primarily studies on English as a foreign language, critical thinking, questioning, and technology-based learning. The dreams she pursues are to grow both personally as a person and professionally as a well-rounded educator, and to prepare her students for the challenges of tomorrow.

Article submitted 2021-03-03. Resubmitted 2021-07-19. Final acceptance 2022-02-01. Final version published as submitted by the author.