The Preferred Use of Google Classroom Features for Online Learning in Indonesian EFL Classes

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Abstract: Google Classroom has been frequently used as an e-learning platform to substitute for Learning Management System (LMS), and the use of its features (Classwork, Stream, People, etc.) varies among teachers with different goals, focuses, and familiarity. However, research has not addressed how the selection of Google Classroom features affects students learning experience. Therefore, this study was aimed at finding out how Google Classroom features should be used to better facilitate online learning among students in English as a foreign language (EFL) classes. The data for this research was collected from ten leading schools in Indonesia, and 373 students participated in this study. Two questionnaires were used and delivered online, i.e. a Google Classroom Use questionnaire with Google Classroom features, consisting of 23 items, and a Technology Acceptance Model (TAM) questionnaire specified for EFL, consisting of 21 items with four constructs, i.e. usefulness, ease of use, intention, and actual system of use. The data were analyzed using multiple linear regression model to determine the effect of each Google Classroom feature on students' perception of TAM indicators. The hypotheses were rejected at the significance level of 0.05. The research results show that there is a correlation between both variables. The results also show that Classwork and Stream features were significant predictors for almost all TAM indicators. In this case, Classwork feature covers learning activities, and Stream feature includes interaction or communication facilities. Based on these results, it can be suggested that e-learning needs to facilitate students learning activities (e.g., quizzes, assignments, materials, and schedules) and student interaction/communication (e.g., announcements, notices, discussions, and shared posts). The results of this study contribute to educators and e-learning developers to consider maximizing the use and design of learning activity and interaction features due to their significance in online learning.

Keywords: Classwork, Google Classroom, Online class, People, Stream

1. Introduction

With the recent development of technology in education, teachers can take advantage of several platforms as learning tools, such as Google Classroom, Moodle, Schoology, Edmodo (Saidi et al., 2021), Skillshare, Udemy, WeVideo, Flipgrid, and Seesaw (Mishra, Gupta and Shree, 2020). The research conducted by Mulyani et al. (2021) shows that there are four learning platforms that students most prefer in Aceh, namely, WhatsApp, Opensimka, Google Classroom, and Google Meet. Albashtawi and Al-Bataineh (2020) found that many students consider Google Classroom useful, and they agree that it serves its purpose as an online learning tool. Google Classroom has adequate features which assist teachers in facilitating learning activities (Apriyanti et al., 2019, Susanti, Junining and Hamamah, 2021). With this e-learning platform, students can still learn outside the classroom as long as they have an internet connection. Research also shows that students performed better when their teachers used a learning management system (LMS), such as Google Classroom, Moodle, Blackboard Education, or Canvas, compared to when they learned using a computer-based application, such as Rosetta Stone (Oguguo et al., 2021).

This research only focuses on online learning using Google Classroom because it is one of the most popular platforms used by teachers and students (Saidi et al., 2021). In addition, when Google Classroom is used effectively in the learning process, it can make students learn more productively (Tuffahati and Nugraha, 2021). There are three main features of Google Classroom, namely Stream, Classwork, and People. Stream is the feature to make announcements, post discussions, view assignments, and preview material from topics given by the teacher. In the Classwork feature, teachers can create test or quiz questions, upload materials, provide assessments, and upload media and documents prepared in Microsoft Word, Excel, and PowerPoint. In the People feature, teachers can invite students to the Google Classroom through access codes. With these three main features, teachers can manage student assignments more easily and provide assessment results

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effectively. However, many teachers do not take full advantage of all these features available in Google Classroom. Previous surveys show that teachers predominantly only used Google Classroom to upload the material and give assignment in Stream feature (Ritonga et al., 2023, Ugla and Abdullah, 2022). These facilities are significant for learning process, but Google Classroom has many other features which teachers rarely used, such as discussions and quizzes (Nuryatin et al., 2023, Othman et al., 2022). Discussion has been claimed to be an essential learning activity because it facilitates engagement (Gameil and Al-Abdullatif, 2023). This feature also enables student-centered learning. The absence of discussion in online classes is a shortcoming of this learning mode. In addition, quizzes under the classwork features are also rarely used based on a previous study (Alom et al., 2023). This feature can facilitate gamification, which is a learning approach advocated for English as a foreign language (EFL) learning, and its effectiveness has been evident from many previous studies (Khaldi, Bouzidi and Nader, 2023). The fact that teachers do not utilize this feature is problematic and they have lost some of the significant opportunities available to them by using Google Classroom. In addition, many teachers used the quiz feature in Google Classroom only as a testing tool instead of as an entire teaching platform (Haryono and Hamzah, 2023). Therefore, teachers need to be aware what features are beneficial for students' learning, so that they can better prepare for class when using this learning management system.

In short, the use of Google Classroom is generally beneficial for teachers and students in supporting the teaching and learning process (Hamid, 2020). Several uses of Google Classroom in the learning process have been studied, such as the advantages and disadvantages of Google Classroom (Susanti, Junining and Hamamah, 2021), the effectiveness of using Google Classroom (Albashtawi and Al-Bataineh, 2020), the perception of teachers and students in using Google Classroom (Hamid, 2020). However, these previous studies have not addressed which features are considered useful in learning process of an online EFL class. Therefore, the objectives of this research are to determine correlation between Google Classroom (GC) feature use as an independent variable and student perception of online learning as a dependent variable, and to find out how much the independent variable predicts the dependent variable. Specifically, the research questions to be addressed are as follows:

RQ1: Do relationships exist between the frequency of GC feature use and student perception of online learning?

RQ2: To what extent does the frequency of GC feature use predict students' perception of online learning?

2. Literature Review

2.1 Google Classroom and its Features

Google Classroom is the most popular learning management system among teachers working in an institution which does not host any advanced LMSs like Moodle or Blackboard (Khairani, Daud and Mahdum, 2020). The popularity of Google Classroom among educators is motivated by the fact that it is easy to use, uses little computer storage memory, and facilitates teachers and students in achieving learning goals (Octaberlina and Muslimin, 2020). Unlike other advanced LMSs such as Moodle (Goyal, Khaliq and Vaney, 2023), Google Classroom features are easy to navigate. The use of Google Classroom for the learning process is also user-friendly for teachers and students (Ugla and Abdullah, 2022). In 2019, it was used as an LMS by over 40 million teachers and students around the world in elementary schools, middle schools, and high schools for blended classes, i.e. a combination of online and face-to-face classes (Lee and Cha, 2021). Google Classroom is integrated with Google Drive for storing and sharing files for assignments, Google Docs for word processing, Google Sheets for spreadsheets, Google Slides for presentations, Google email for communication, and Google Calendar for setting deadlines (Nancy, Parimala and Livingston, 2020). Therefore, teachers and students who are familiar with Google Docs can use Google Classroom easily (Ugla and Abdullah, 2022). Other LMSs use html-enabled textbox, and many teachers and students might not be familiar with this type of input system (Asamoah and Oheneba-Sakyi, 2023).

Google Classroom can help facilitate the teaching and learning process because it offers many features which can be used in online learning (Shak et al., 2022). These features are a simplified version of the major features offered in other advanced LMSs such as Moodle, Blackboard, and Canvas (Gamage, Ayres and Behrend, 2022, Kasim and Khalid, 2016). Many types of learning activities can be created using Google Classroom and those activities are covered under three main features, i.e. Stream, Classwork, and People (Cristiano and Triana, 2019). All of these features are available for all teachers with a Google Classroom account; therefore teachers can deliver learning material and other learning activities, and students can submit their works (Abuzant et al., 2021, Apriyanti et al., 2019). Most of the LMS feature requirements suggested by Basal (2016) were offered by Google Classroom.

2.1.1 Stream

An LMS is expected to manage online activities for what is normally done in a traditional class. Google Classroom has supported most of these activities. Stream is a Google Classroom facility for announcements, discussions, assignments, materials (Zhang, 2021). Students can post comments in class, and announcements are displayed in the stream to be read by teachers and other students. By providing a single point of access to discussion forums and assigned assignments, Google Classroom can simplify communication and workflow for students (Iftakhar, 2016). Communication between teacher and students, and interactions among students create social engagements in an online classroom (Xu, Chen and Chen, 2020). According to Wang et al. (2022), social engagement in an online learning can potentially improve learning achievement. In addition, students can see documents, links, and websites that teachers share as subject materials (Phoenix, 2020). This feature can help teachers and students communicate in sharing materials and assignments (Widiyatmoko, 2021). The teacher can also include a place for recording student attendance in this feature. These facilities make instruction through online learning delivery better than traditional in-person instruction (Gao-Chung et al., 2021). This Stream feature in Google Classroom is the home page feature in Google Classroom, where other activity updates are recorded. Other more advanced LMSs such as Moodle and Blackboard also offers this features, but they are more personalized and more complete. For example, these LMSs are equipped with access restriction in activity lists, activity tracking in material, and html formatting (Dvorak, 2011). However, the simplicity offered by Google Classroom helps teachers use this feature without a need for specific training (Nuryatin et al., 2023).

2.1.2 Classwork

With this feature, teachers can create tests or quizzes, upload materials, and provide assessments for student assignments (Tuffahati and Nugraha, 2021). Unlike the Stream feature, where assignment and materials can be delivered in the form of announcements, the Classwork feature has specific facilities for each learning activity (Zhang, 2021). Classwork is integrated with Google Calendar for scheduling and a Google Drive folder to store all materials, and files can be uploaded from computer drives or smartphones (Shana et al., 2021). Teachers can upload assignments in Microsoft Word and PowerPoint formats, as well as photo, audio, and video files, and students can directly complete the assignments in the provided sections, or students can also upload their completed assignments as documents, photos, or videos (Widiyatmoko, 2021).

This feature is central for the teaching and learning processes because it includes assignments, quiz, questions, materials, topics, reuse posts, and grading (Miller, 2020). First, in the Assignment section, teachers can create tasks, and teachers can also use this facility to assign homework (Zhang, 2021). This is significant for learning because students can complete their work independently. According to Zheng et al. (2023), this learning habit improves students' ability to self-regulate their learning. Second, the Quiz section is used to create quiz-type questions for the question-and-answer process. Quizzes can be distributed using Google Forms so that it can be graded automatically when students submit them in Google Classroom (Susanti, Junining and Hamamah, 2021). Not only will teachers save grading time, but their students will also receive instant feedback on their work. There have been many studies which found the advantages of immediate feedback, among which are learning engagement (Sancho-Vinuesa, Escudero-Viladoms and Masià, 2013) and learning achievement (Razzaq, Ostrow and Heffernan, 2020). Third, Questions are the same as assignments, but in this section teachers can choose between using short answer or multiple-choice questions. Therefore, teachers can use this section for gamification, which has been proven to positively affect student perception and achievement based on previous studies (e.g. Alajaji and Alshwiah, 2021, Khan, Ahmad and Malik, 2017, Sotos-Martínez et al., 2022). Teachers can also provide essay exercises in Question section. Fourth, Materials is where teachers share the teaching materials to students (Zhang, 2021). In this section, teachers can share any files and videos, or create text documents, slides, spreadsheets, or Google Forms. In addition, teachers can also share links for other external sources. Therefore, it is effective to improve student autonomy through this LMS by utilizing the Material section (Moca, 2022). In language learning, learner autonomy is claimed as a key to learning success among EFL students (Sukerti and Yuliantini, 2018). Fifth, in Topics, teachers can create titles or topics that distinguish one material from another. Sixth, Reuse Posts, is helpful when teachers want to use specific posts multiple times (Miller, 2020). Finally, the Grading is tool which teachers can use to assess assignments, and teachers can give personalized feedback for individual students. There is also the option to provide feedback on the Assessment instrument (Widiyatmoko, 2021). Moreover, there is a Helper feature, namely originality report, in Classwork feature, which teachers can use to assess the quality of student assignments by viewing the sections of assignments that students have previously posted (Falabiba, 2020). Most of facilities in major LMSs are offered by Google Classroom Classwork features. However, Workshop activity module, such as in Moodle, is missing in

Google Classroom. This module enables peer assessment, which can foster student engagement (Elfiondri, Mustafa and Yusuf, 2022).

2.1.3 People

With this feature, teachers can check the number of participants, which includes educators and other students, and teachers can also add participating members by registering their email accounts (Zhang, 2021). The teacher can invite students with an access code, which teachers can modify or disable, which will not affect members who are already enrolled (Miller, 2020). There are two roles to choose in this feature, i.e. students and teachers, where students in one class can have a role as teachers in another class. Students can submit their work online for their teacher to grade before the deadline, and teachers can see each student's progress, and they can return assignment to the students with necessary comments, so students can revise their assignments (Sukmawati and Nensia, 2019). This feature offers only minimal capability for user management, and only two roles are possible (Zhang, 2021). Other LMSs, such as Moodle, can assign multiple roles, such as non-editing teachers, which can be used by teacher assistants, and observer role for auditing students. In addition, teachers cannot customize access for each role (Dvorak, 2011). In Moodle, for example, certain activities can only be accessed by specific students. For example, students who do not reach passing grade in a quiz may have an option to read extra materials which other students cannot. This feature is significant for personalized instructions, which has been proven helpful in multi-level instruction (Tan et al., 2008).

2.1.4 Additional features

In addition to the main features of Google Classroom, there are some other features which facilitate better experience for both teachers and students. Some of those features are not related to the teaching and learning process, but Google provides these features to ensure that teachers and students can confidently use Google Classroom for their purposes (Susanti, Junining and Hamamah, 2021). These features include course archives, mobile capability, and privacy. First, “Archive a class”: when a class is archived, it is transferred to the Class Archive area from the homepage. Teachers and students can see archived classes, but they will not be able to edit them until they are restored (Zhang, 2021). However, teachers cannot export past courses which can be shared with other colleagues, as teachers can do in other LMSs such as Moodle, Canvas, and Blackboard (Dvorak, 2011). Course importing and exporting is significant for teacher collaboration, which has been advocated for in online learning (Carpenter, Kerkhoff and Wang, 2022). Second, mobile-support access makes students able to use Google Classroom flexibly. The apps can take photos and use them for tasks, and files can also be transferred from other apps. Google Classroom may be viewed using Google Chrome or other web browsers on any computer or mobile devices (Zhang, 2021). All files uploaded by teachers and students are saved in the Google Drive Class folder, which can be accessed anywhere when necessary (Brock, 2020). However, many studies found that one of the challenges of online learning is internet connection. Google Classroom does not have any offline access feature. Other LMSs can be installed in a smartphone and all course contents can be downloaded when connected to the internet so that students can continue working on the course without any internet connection. Their assignments and other learning activities can be automatically synched when the phones are connected to the internet (Nash and Rice, 2022).

2.2 Google Classroom in Language Teaching

Technology integration in language teaching has been considered necessary to make the teaching and learning process more effective (Syakur, Sugirin and Widiarni, 2020). Google has supported this online learning initiative through its Google Apps for Education (GAFE), one of which is Google Classroom. Google Classroom can be useful for students, teachers, and online education because of its features, its accessibility from any device, and its no-cost access for qualifying educational institutions (Syakur, Sugirin and Widiarni, 2020). The Google Classroom feature that is most often used in the Stream feature is sharing announcements; on the Class Assignment feature to assess and submit assignments (Joshi and Kariya, 2019). The part that is rarely used is the People feature because it is sufficient to enter a class member only once. Google Classroom has been used by teachers for a variety of purposes, including increasing student participation (Beaumont, 2018). It is a simple LMS intended to substitute for face-to-face interaction, so that teachers can present a lesson without any complex processes (Sartika, 2021).

In English language teaching, the use of Google Classroom is very effective in improving all language skills individually or in an integrated mode of teaching (Albashtawi and Al-Bataineh, 2020). In addition, Google Classroom can be integrated into various teaching strategies in an English language class (Nursyahrina et al., 2021). For example, teachers can facilitate online discussions among students and develop group projects.

Students can also work together on Google Docs that have been shared by teachers. Google Classroom can be used to assign lessons to entire classes, individual students, or groups of students. Therefore, Google Classroom has been used in facilitating collaborative learning in language classes (Nuryatin et al., 2023).

Google Classroom has been shown to be effective as a tool for students learning English in several studies. A study has investigated technology-based Google Classroom in a business English writing class (Apriyanti et al., 2019). According to this study, the use of Google Classroom brought positive results to the teaching and learning process of business English writing class. Each student received their writing corrections from the feedback given by the teacher, such as misspellings, wrong word choices, grammar, and structures that need to be corrected. Another study found that Task-based Language Teaching (TBLT) can be facilitated with Google Classroom, and it has been found that it positively affect student motivation (Faridi, Saleh and Fitriati, 2021). Lin (2021) found that students could improve their writing skills, both in knowledge and writing quality. In an integrated listening and speaking class, a study found that Google Classroom can help students improve their speaking skills because students could understand the material better and they got exposure to authentic language because it was presented by teaching experts in videos (Isda et al., 2021). Since students have access to the video embedded on Google Classroom, they could watch the videos multiple times for language exposure. A study revealed that exposure to native speaker oral language improve both listening and speaking skills (Gámez and Levine, 2013, Musa and Fojkar, 2019). Furthermore, in teaching reading comprehension, Jiemsak (2021) experimented with Google Classroom and found that students could improve their reading comprehension due to better learning management, well-organized material delivery by teachers and peer collaboration. Another study also found significant improvement in reading comprehension in experimental group with Google Classroom, compared to the control group (Gao-Chung et al., 2021). Finally, the effectiveness of Google Classroom integration in language learning can be credited to improvements in language features such as grammar and vocabulary. A study found that Google Classroom can help teachers facilitate learners to improve their grammar knowledge through online activities, practices, and formative tests (Haggag, 2019).

Finally, much research has looked at the affective aspects related to Google Classroom. For example, research has been found that students showed positive attitudes towards learning writing in English class delivered using Google Classroom (Sartika, 2021). They reported that Google Classroom could help them complete activities efficiently. They could also spend more time learning writing when the teacher delivered the material using Google Classroom. Ekahitanond (2022) also found that students learning English with Google Classroom created a positive learning environment because it is user friendly, and its features can accommodate all students' needs. Google Classroom has also been found to help students learn independently, and students who are introverted in in-person classes have been found to express themselves and participate more frequently in discussions (Ugla and Abdullah, 2022).

2.3 The use of Google Classroom by EFL Learners

Like learning other languages, English language learning benefit most from language exposure for English language acquisition. Therefore, to obtain maximum exposure, students need to be autonomous learners (Ali et al., 2024). The topic of learning autonomy has been extensively researched in the context of English language learning. Research also found that students are aware of the significance of autonomous learning (Tareen, Zhang and Haand, 2024). In addition, they are ready to take responsibility of their own learning outside the classroom (Oussou, Kerouad and Hdii, 2024). The major findings of research focusing on learning autonomy in language learning show that the factors of learning autonomy are resources availability, self-learning activities, and interaction. First, learning autonomy requires that students have access to resources outside their formal classrooms. Research has found that technology plays a significant role in developing students' autonomy in learning English (Bin-Hady and Ali, 2024). Without the support of technology, students consider that teachers are more responsible of their learning (Win and Kálmán, 2023). Therefore, the use of online learning management system such as Google Classroom facilitates students to learn autonomously. Furthermore, another factor is self-access learning activity, suggesting that students need to be able to manage their own learning activities without any time constraints. A study by Thi Mai (2023) found that students have a positive autonomous learning experience when the learning activities can be completed at students' convenience. Finally, To succeed in learning English autonomously, students need to interact with peers. Treesattayanmunee and Baharudin (2024) found that students who interacted better with peers were more autonomous. Another study found that students who have access to online interaction platform develop better learning autonomy and achieve better learning outcomes (Janfeshan, Sharhan and Janfeshan, 2023). This interaction is not always possible outside the classroom in traditional learning setting. Using Google Classroom, however, students can interact and collaborate online to complete learning activities.

2.4 The Present Study

Based on the literature review, there have been much research on the use of Google Classroom in EFL classrooms. Those studies have found that Google Classroom can help teachers improve their students' language skills (e.g., Albashtawi and Al-Bataineh, 2020, Jiemsak, 2021, Lin, 2021). The use of Google Classroom to facilitate teaching and learning process can also improve students' motivation (Faridi, Saleh and Fitriati, 2021). Other studies have also investigated students' perception regarding the use of Google Classroom in their English classes (e.g., Ekahitanond, 2022, Sartika, 2021). It has also been concluded that Google Classroom could be implemented successfully, as it is simple to use and students had positive attitudes toward learning English with it (Joshi and Kariya, 2019, Shana et al., 2021). However, our present study offers a method of how Google Classroom can be used more effectively by determining what features play more significant roles particularly in EFL classes. Although there are many studies looking at the effectiveness of Google Classroom and students' experience in using this LMS, research to determine how it should be used more effectively to create even better experience is lacking.

3. Method

This research was a quantitative research study, which used inferential statistical analysis to make conclusions. The data were all ordinal categorical data, and thus non-parametric statistic tests were utilized. However, descriptive statistic was also used to show the shape of the data.

3.1 Participants

The data for this study were collected from ten leading senior high schools in Indonesia. This study was conducted in November 2021, during which students in Indonesia had just experienced online learning due to the Covid-19 pandemic. The number of participants was 373, consisting of 253 females and 120 males (see Table 1). They were mostly 16 and 17 years old. The schools in Table 1 were selected because the majority of the students in these schools lived in internet coverage areas, had adequate internet-accessing devices for online learning, and could afford internet data. Therefore, the questionnaire items should make more sense for these students than students in other schools. In addition, the selection of schools by considering the demographical similarities of the students was made to eliminate possible intervening variables.

Table 1: Distribution of respondents' schools

No	Names of Schools	Females	Males	Total
1	SMKN 1 Tambun Selatan	63	20	83
2	SMAN 10 Fajar Harapan	49	24	73
3	SMAN 2 Banda Aceh	28	15	43
4	SMAN 11 Banda Aceh	21	16	37
5	SMA Unggul Tapaktuan	24	12	36
6	SMAN 1 Banda Aceh	23	9	32
7	SMAN 1 Takengon	19	9	28
8	SMAN 1 Meulaboh	7	3	10
9	SMAN 1 Panyambungan Selatan	5	1	6
10	Other schools	14	11	25
	Total	253	120	373

3.2 Instruments

This research used a set of questionnaires for data collection. The first questionnaire was aimed at obtaining information about the use of features in Google Classroom. This questionnaire was designed based on four constructs proposed by Cristiano and Triana (2019), namely, Classwork (7 items), Stream (9 items), People (2 items), and another construct was based on Susanti, Junining and Hamamah (2021), i.e. additional features with five items. A five-level Likert scale was used for this questionnaire (*1 = never to 5 = always*). The second questionnaire was used to find out the students' perception of having an online class with Google Classroom. The writer used the Technology Acceptance Model (TAM) for this questionnaire, adapted from Davis (1989) by Al-Maroof and Al-Emran (2018), consisting of four constructs, i.e. perceived usefulness (7 items), perceived ease of use (6 items), behavioral intention (4 items), and actual system of use (4 items), also presented in a five-level

Likert scale (*1 = strongly disagree to 5 = strongly agree*). Finally, the questionnaire was presented with some questions to collect biographical information, including age, gender, perceived English language skills, and experience with Google Classroom. Due to limitation of the research scope, this study did not record other possible moderating variables such as student learning style preferences, English language levels, levels of learning autonomy, internet access level, or curriculum design.

3.3 Data Collection

To collect the data for this study, the writer sent an online questionnaire in Google Forms to the target participants through their teachers to be distributed to their students. The purpose and instruction were included at the beginning of the questionnaire. It was also stated that their teachers would not be given access to their responses, and they were not asked to provide their identity. The questionnaire administration was completed in one week. The writer sent a reminder to the students on the third and fifth day after the questionnaire was sent.

3.4 Data Analysis

The data analyses for this research were divided into several analysis sections. The first analysis deals with scale validation. Since the Google Classroom use questionnaire was designed by the researchers, it needs to be systematically validated. Confirmatory Factor Analysis (CFA) was used to check whether the questionnaire items fit the construct based on the factor loading. The item with factor loading of less than 0.30 was removed from the scale. Cronbach's alpha was calculated for each scale to obtain internal consistency of the scale. In the second analysis, multiple linear regression tests were performed for each TAM dimensions as the response variable and Google Classroom feature as predictor variables. This type of statistical analysis is normally used for numerical data, but it is applicable in this research because the data were analyzed in averages. In addition, this analysis is recommended by Hair, Page and Brunsveld (2020), and it is a common practice in social research studies. The significance level used in this research was 0.05 both for adjusted R^2 and coefficient estimates. Finally, multicollinearity was detected using Variance Inflation Factor (VIF), where the VIF value of 5 or lower is considered to post no risk of multicollinearity (James et al., 2021).

4. Results

This section presents results from both descriptive and inferential statistical analysis. In addition to the results of study to answer research questions, this section also presents the results of factor analysis.

4.1 Factor Analysis Results

The factor loadings and correlation between one construct and another for each scale is presented in Figure 1. One item which belongs to the additional feature has been removed because the factor loading is less than 0.30.

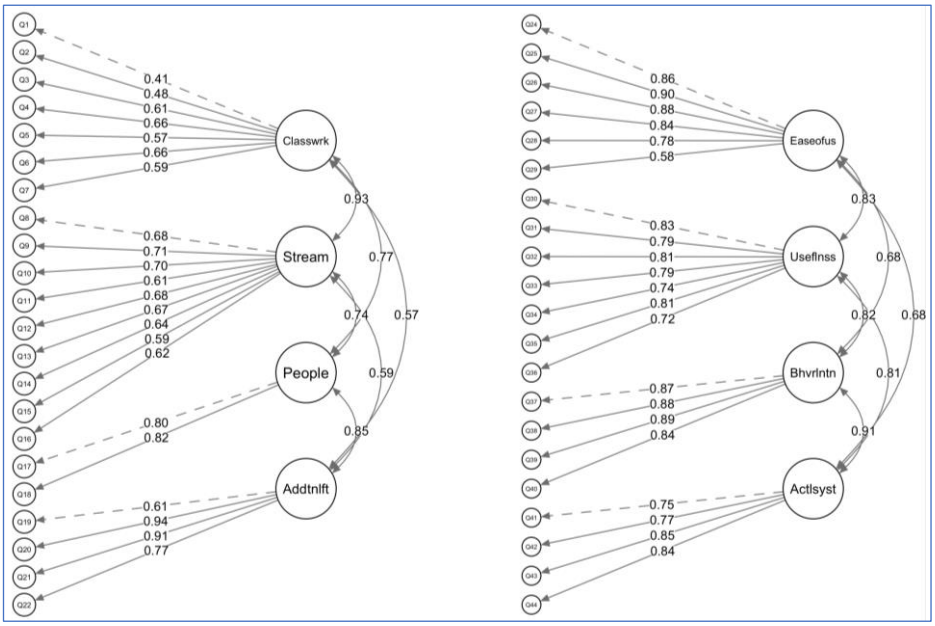

Figure 1: Results of CFA for Google Classroom use (left) and TAM (right)

Figure 1 shows that the factor loadings for each item in the scale of Google Classroom use range between 0.41 and 0.94. Due to a removal of an item in the People feature because of low factor loading, only two items are left. All factors are correlated to one another, starting from moderate to strong correlations. In addition, the figure also shows that factor loadings for TAM, in which all items fit better to the factors, and each factor correlates stronger to others. This is expected because the scale of TAM is a well-established scale which has been validated in many previous studies. The internal consistency of the Google Classroom use was 0.93 and 0.96 for TAM questionnaire, calculated using Cronbach's alpha. The internal consistency, correlation among factors, and factor loadings of TAM questionnaire in this study were not lower than the original version reported by Davis (1989) or the version adapted by Al-Maroof and Al-Emran (2018).

4.2 Descriptive Statistics of Students' Responses

Descriptive statistics of each construct in both scales are presented in Table 2. The table is based on five-number summary, including minimum and maximum values, first and third quartiles, median, mean, and standard deviation.

Table 2: Summary of students' response to the scales

Constructs	Min	Q1	Median	Q3	Max	Mean	sd
Classwork	1.00	2.86	3.43	3.86	5.00	3.36	0.73
Stream	1.00	2.89	3.44	4.00	5.00	3.43	0.81
People	1.00	3.50	4.00	5.00	5.00	3.99	0.97
Additional Features	1.00	3.75	4.25	4.75	5.00	4.11	0.85
Perceived Ease of Use	1.00	3.67	4.00	4.33	5.00	3.91	0.72
Perceived Usefulness	1.00	3.29	4.00	4.29	5.00	3.78	0.75
Behavioral Intention	1.00	3.00	4.00	4.25	5.00	3.68	0.93
Actual System of Use	1.00	3.00	3.75	4.00	5.00	3.62	0.86

Table 2 illustrates that, for the Google Classroom use questionnaire, People and Additional features are more frequently used than the other features. For the TAM questionnaire, the response for each construct is uniform, with a more positive perception for ease of use based on its mean. For both scales, the standard deviations are similar for all constructs, indicating the data quality is uniform across all constructs of both scales.

4.3 Inferential Statistical Analyses

This research uses a multiple linear regression model to find out which features of Google Classroom predicted each factor in the TAM questionnaire in positive direction (see Table 3). A feature was considered significant for learning process if it predicts students' perceptions measured using TAM questionnaire.

Table 3: Results of multiple linear regression

Coefficients	Estimate	Std. error	t-value	p-value	
Ease of use [*RSE = 0.599, adjusted R^2 = 0.310, F-statistic = 42.93, p-value = 0.000*]					
(Intercept)	1.717	0.171	10.060	0.000	***
Classwork	0.291	0.068	4.290	0.000	***
Stream	0.051	0.064	0.799	0.425	
People	0.018	0.052	0.349	0.728	
Others	0.234	0.057	4.100	0.000	***
Usefulness [*RSE = 0.610, adjusted R^2 = 0.333, F-statistic = 47.36, p-value = 0.000*]					
(Intercept)	1.534	0.174	8.832	0.000	***
Classwork	0.142	0.069	2.056	0.040	*
Stream	0.279	0.065	4.290	0.000	***
People	0.021	0.052	0.391	0.696	
Others	0.176	0.058	3.030	0.003	**
Behavioral intention [*RSE = 0.833, adjusted R^2 = 0.193, F-statistic = 23.20, p-value = 0.000*]					

Coefficients	Estimate	Std. error	t-value	p-value	
(Intercept)	1.660	0.237	6.993	0.000	***
Classwork	0.181	0.094	1.919	0.056	.
Stream	0.341	0.089	3.832	0.000	***
People	-0.013	0.072	-0.178	0.859	
Others	0.070	0.080	0.884	0.377	
Actual System of Use [*RSE = 0.737, adjusted R^2 = 0.259, F-statistic = 33.5, p-value = 0.000*]					
(Intercept)	1.520	0.210	7.246	0.000	***
Classwork	0.217	0.083	2.603	0.010	**
Stream	0.367	0.079	4.669	0.000	***
People	-0.016	0.063	-0.256	0.798	
Others	0.042	0.070	0.605	0.546	
Note. Significance codes: 0.000 '' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1***					

Pursuant to research question 1, Table 3 shows that a significant relationship exists between frequency of all Google Classroom features use and students' perception of online learning. The proportion of variance is represented by adjusted R^2, which is a correction between the observed values of the student perception of online learning and its predicted values to show how well the model fits the data. The *p-values* of less than 0.05 indicate that the significant correlations exist between all the frequency of Google Classroom feature use and all constructs of TAM. For the second research question, Table 3 shows that all models were significant, where the 19%–33% of variations in the students' perception could be explained by the use of Google Classroom features. The table also shows that classwork predicts all dimensions of TAM except in behavioral intention. In addition, the Stream feature is also a significant predictor for TAM dimensions except for ease-of-use. Additional features were predictors only for usefulness and ease of use. To ensure that there was no issue with multicollinearity, a Variance Inflation Factor (VIF) was calculated along with correlation between variable using Spearman method due to issue of normality distribution, presented in Table 4.

Table 4: Results of multicollinearity detection using VIF

Predictor variables	Classwork	Stream	People	VIF
Classwork				2.55
Stream	0.76			2.76
People	0.56	0.57		2.60
Additional Features	0.46	0.55	0.72	2.44

Table 4 shows that the correlations between one variable and another were detected at a moderate level. In addition, a VIF of lower than 5.00 indicates that there was no risk of multicollinearity in the model.

5. Discussion

The objective of this research was to determine the Google Classroom features which were considered effective for learning process measured based on TAM indicators. The multiple linear regression analysis results show that the Classwork and Stream features are predictors of three out of four TAM indicators, while additional features are predictors of two indicators and the People feature is not a significant predictor for any indicator. The percentage of variations in TAM indicators explained by the significant predictors vary, with a higher percentage for ease of use and usefulness than actual system of use and behavioral intention. These results have offered significant information to establish what Google Classroom features should be used for effective online learning process in an EFL class.

The first significant feature, i.e. Classwork, is expected because the feature includes all core online learning activities such as assignments, tests, and access to materials. In addition, the three learning activities are the primary components of learning process in a "traditional" classroom. In online learning through Google Classroom, students found that these web-based activities facilitated better learning experiences because they can always access assignments and materials. They can also submit their assignments when they finish them without the need to travel to physical classrooms. Finally, quizzes or exercises are also delivered through the

Classwork feature, and previous studies have found that students enjoyed immediate feedback for quizzes and exercises (Cole and Todd, 2003). Various studies have confirmed that immediate feedback is more helpful for material mastery and student retention (Hattie and Timperley, 2007, Molloy and Boud, 2014, Suryati, Chen and Archer, 2013). In this feature, teachers can also put in more effort to provide personalized feedback, which is more interactive for students.

One of the most important components of learning is the interaction between students and teacher, as well as between one student and another (Demuyakor, 2020). These interactions can include discussion, instruction, announcements, and reminders. In Google Classroom, interactions can be facilitated by the Stream feature, and this research has shown that this feature is considered significant for students' learning processes. Previous research has found that students were more self-efficacious towards their learning success in a class where interaction was rich (Li and Yang, 2021). They believe that interaction is a factor of interactive classroom, and many studies have shown its effectiveness in terms of students' achievement and perception (Atuboinoma and Amadi, 2021, Hussain et al., 2011). Therefore, this feature is essential and available in all leading e-learning platforms and LMSs such as Edmodo, Moodle, Blackboard, and Canvas. Other generic social media such as Facebook and Instagram have also been used for online learning platform for blended learning because they facilitates interactions (Amin and Sundari, 2020, Bailey, Park and Abdoulai, 2017).

Furthermore, Classwork and Stream are predictors for three of four dimensions of TAM. Classwork was not a significant predictor of behavioral intentions. This result is unexpected because, based on previous research, behavioral intentions are affected more by familiarity (Lazar, Panisoara and Panisoara, 2020). Therefore, what we expect is that students who are familiar with Google Classroom features would have higher intention to use the features, as also the case with the Moodle LMS (Xu and Mahenthiran, 2016). This unexpected result is probably due to students' positive perception of this feature regardless of how often it was used in class. In fact, the data shows that more than 50 percent of the participants reported that they would want to use Google Classroom more frequently. Therefore, the correlation cannot be achieved without enough variation in the data, as confirmed by Harrell (2015). Furthermore, the Stream feature does not predict the ease of use of Google Classroom. Since the Stream feature facilitates interaction in an online classroom (Iftakhar, 2016), we had expected that this feature was a significant predictor. This unexpected result might be explained by the fact that other generic platforms that teachers used for online learning can substitute for interactions, such as WhatsApp (Amin and Sundari, 2020). Therefore, students were familiar with activities covered by Stream, which results in lack of variation when ease of use was considered a response variable. A lack of variation in the data results in low correlation, which makes this variable unable to predict the ease of use of Google Classroom, as suggested by Harrell (2015).

Another expected result of this research was that additional features of Google Classroom, which include mobile capability, Google Drive integration and assignment configuration by teachers, predicted ease of use and usefulness of Google Classroom. Being able to submit the assignment, access the materials, and complete other learning activities on a smartphone is expected to make the use of Google Classroom easy. According to Binyamin, Rutter and Smith (2017), this factor influences students' satisfaction in using an LMS. In addition, the ability to save files into a Google Drive or upload them into the Google Classroom was time-efficient, and thus this feature was considered useful. It was also easier for students to plan their work in completing an assignment because they could see the due date because teachers can set it in the additional features. However, the variation in the use of this feature does not contribute to students' intention to use Google Classroom, and it does not predict the actual use of Google Classroom.

Finally, the People feature was not significant for any TAM indicators, and this result is expected because students only needed to be enrolled once. All students must have been invited by their teachers to join the class by providing them with class link or class codes. Another activity in this feature is ability to see class members. Although this feature is significant for teachers, such as to assess each student's past activities or their progress (Evans, Zeun and Stanier, 2014) or to check their students' profile, our study has shown that students did not find it important because they had already known all their classmates.

This study has offered a significant pedagogical implication for use of Google Classrooms among EFL teachers in Indonesia and other similar contexts. Based on the results presented above, the features which more strongly predict TAM indicators are the Stream and Classwork features. Therefore, teachers need to dominantly use these features because they are core features of any LMS, as also suggested by Basal (2016), and may potentially lead to better student engagement, self-regulated learning, which Wang et al. (2022) predicted can improve students' achievement. However, based on the data summary as show in Table 2, teachers did not use these

two features as frequently as the other two less significant features. The same results can also be inferred from previous studies (e.g. Susanti, Junining and Hamamah, 2021, Ugla and Abdullah, 2022). Due to the simplicity of Google Classroom, teachers do not need training to use these features, but they need encouragement from peers and school administrators. In addition, teachers need to believe that these two features are significant in order that they are motivated to use them, as concluded by Asiri et al. (2012). In addition, teachers need pedagogical knowledge on using technology in teaching so that they can use Google Classroom features to their full capabilities (Prasetya, 2021).

This research certainly has limitations in that the questionnaire did not reach all the target participants. This research has a reasonably large population, but the sample size for this research was rather small. Although the number of respondents was more than 350, the researchers could not split the data into groups for further detail analyses due to limited sample size in each group. Also, with a larger sample size, more variations can be achieved in the data, which can make the research results more accurate. In addition, the questionnaire only relied on closed questions and ignored open questions, which may dig up more information from the student's perspective. For this reason, further researchers are advised to conduct more in-depth research with a larger sample in order to obtain information related to the use of features in Google Classroom that can facilitate the learning process, especially in English classes. In addition, the participants' characteristics need to be considered in making generalizations of the results, as suggested by Asiri et al. (2012). Our participants are from leading senior high schools in Indonesia. At the time of the survey, most of them lived in internet coverage areas, had adequate internet-accessing devices for online learning, and could afford internet data. Therefore, the results of the study are generalizable for the context of urban schools in Indonesia and elsewhere. The results of this study do not apply to students from rural schools because they have unique problems of internet connections and access to internet devices (Mustafa, Nguyen and Gao, 2024). A specific future study needs to be conducted in these areas. Finally, the absence of moderating variables, such as learning style preferences, English language levels, level of learning autonomy, or internet access levels, makes the results of the present study less theoretically and practically meaningful. Therefore, future studies need to involve potential moderating variables to draw more impactful conclusions. For example, students exposed to different curriculum to Indonesian high school curriculum, known as Curriculum 2013, might perceive the use of Google Classroom features differently. Therefore, curriculum needs to be considered in generalizing the results of the present study.

6. Conclusion

The primary objective of this study was to find out what Google Classroom features should be implemented in an EFL classroom to extend the results of previous studies which have shown the effectiveness of Google Classroom. Unlike previous studies, which address the use of Google Classroom in general, this study focuses primarily on the Google Classroom features individually. Based on the results of the study related to the first research question, relationships between the use of Google Classroom and some features of Google Classroom, i.e. Classwork and Stream, do exist. Similarly, Classwork and Stream were significant predictors of almost all Technology Acceptance Model (TAM) indicators. Regarding the second research questions, with Classwork, Stream, People, and additional features as the predictor variables for the use of Google Classroom, the adjusted R^2 ranges between 0.193 and 0.333, suggesting that between 19% and 33% of the variance in the use of Google Classroom can be predicted by how students used its features. In addition, Classwork and Stream are significant predictors in more models compared to other Google Classroom features. Therefore, it can be concluded that Classwork and Stream are the core features of Google Classroom which are recommended to be used comprehensively when Google Classroom is used as an online learning platform. Google Classwork features include quizzes, assignments, materials, and schedules, while the Stream feature is for announcements, notices, discussions, and shared posts. The research results suggest that both features be used side by side to complement one another in facilitating teaching and learning process. Therefore, although training is not required for teachers to use these features, our data suggest that school principals and administrators need to encourage teachers to use these features to their full capacity.

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Appendix 1: Questionnaire for the use of Google Classroom features

Items	Statements
Item 1	The teacher asks us to collect assignments that are typed directly in Google Classroom (not using Microsoft Word files or documents).
Item 2	The teacher asks us to collect assignments in the form of Microsoft Word or PDF or images via Google Classroom.
Item 3	The teacher shares the results of the assessment of the assignment through Google Classroom.
Item 4	The teacher shares comments on Google Classroom for the assignments we have collected.
Item 5	The teacher gives clear instructions in Google Classroom when giving assignments.
Item 6	The teacher asks us to complete a Quiz using Google Forms in Google Classroom.
Item 7	Materials, assignments, and quizzes in Google Classroom are organized in an orderly manner.
Item 8	The teacher provides a link to material from YouTube or a video streaming website in Google Classroom.
Item 9	The teacher provides a link to material from a website in Google Classroom.
Item 10	The teacher makes announcements via Google Classroom.
Item 11	The teacher checks student attendance through Google Classroom.
Item 12	The teacher provides a Google Meet or Zoom link in Google Classroom.
Item 13	The teacher provides material in the form of Microsoft Word, PowerPoint, or PDF via Google Classroom.
Item 14	The teacher asks us to discuss a topic through Google Classroom.
Item 15	The teacher greets us in Google Classroom when he/she starts the class.
Item 16	We comment on announcements posted by teachers in Google Classroom.
Item 17	The teacher provides a class code to join Google Classroom.
Item 18	I look at the list of class members via Google Classroom.
Item 19	The teacher stores course materials on Google Drive in Google Classroom.
Item 20	We submit assignments to Google Classroom via smartphone or tablet.
Item 21	We use Google Classroom via smartphone or tablet.
Item 22	The teacher gives a time limit for submitting assignments.
Item 23	After the end of a semester, we no longer have an access the class in Google Classroom. (This item was dropped)

Appendix 2: Scale of Technology Acceptance Model (TAM)

Items	Statements
Item 1	Google Classroom is easy to use.
Item 2	Google Classroom helps me access course materials.
Item 3	Google Classroom is simple and user friendly.
Item 4	The navigations in Google Classroom is easy to understand.
Item 5	Google Classroom helps me access and submit assignments.
Item 6	Google Classroom helps me avoid future academic problems.
Item 7	Google Classroom helps me be more productive.
Item 8	Google Classroom is useful in completing my assignment.
Item 9	Google Classroom improves my learning process.
Item 10	Google Classroom helps me submit assignments on time.
Item 11	Using Google Classroom can save me time.
Item 12	Using Google Classroom can improve the quality of the assignments I submit.
Item 13	Google Classroom can facilitate online learning.
Item 14	I'm interested in using Google Classroom more often these days.

Items	Statements
Item 15	I intend to increase the use of Google Classroom in the future.
Item 16	I wish my classmates were using Google Classroom.
Item 17	I wish Google Classroom was used in other subjects.
Item 18	I use Google Classroom every day.
Item 19	I often use Google Classroom.
Item 20	I always want to use Google Classroom to learn English.
Item 21	I feel very confident and comfortable using Google Classroom.

