Students’ response to project learning with online guidance through Google Classroom on biology projects

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Abstract. This study aims to describe students' response to project learning with online guidance through Google Classroom on biology projects. This is a descriptive study which involved 35 high school students in the West Bandung regency. The study was conducted from March to April 2018 for 7 weeks. Data were collected using questionnaires and interviews to the students directly. The result of this research is Google Classroom can be used as a medium of online guidance on project learning. Students find it easy to upload their project progress reports and students feel that Google Classroom can be used in the future. Students also find it quite effective if Google Classroom is used to guide students' projects. However, students find it difficult to understand the feedback given by teachers through Google Classroom. The presence of teachers physically was still needed to guide students especially when discussing feedback.

1. Introduction
Project-based learning (PjBL) is used in education to develop students' competencies for problem solving, group work, and self-management [1]. PjBL is one of the recommended learning approaches in the 21st century [2]. Project-based learning also reflects a Vygotskian perspective. Vygotsky, a Russian cognitive psychologist, theorizes that learning occurs through social interaction that encourages individuals to deal with the kind cognitive challenges that are just slightly above their current levels of ability [3]. He posits that concepts develop and understanding happens when individuals enter into discussion and meaningful interaction with more capable peers or teachers. These individuals can model problem solving, assist in finding solutions, monitor progress, and evaluate success.

Although the teacher's role is less that of an instructor who transmits information and organizes activities for practice and more that of a guide and a facilitator, it is a critical role, nevertheless. Projects require that teachers get to know their learners' interests. Teachers should be able to keep students motivated to complete the project [4]. Teachers should guide students during project work. Many teachers in Indonesia do not implement PjBL because they spend a lot of time to guide students. One way to solve this problem is to combine PjBL with technology [5].

Technology in 21st century education is expected to be used by educational administrators, teachers and students for the advancement of learning and teaching. Nowadays, many academic articles, virtual learning environments and other educational tools which are available in the internet for free can be accessed by ordinary people. Students to be more specific frequently used the internet or to be more particular social networking sites [6].
Now, teachers can use the web to monitor projects that students do. One of the sites that can be used to monitor student project progress is Google Classroom. Google Classroom is very simple to create and to use. Here all available features are integrated. Once a new course space is created, the instructor can see three taps. These are labeled as about, students and stream. In the same page, on the bottom of the right side, he or she can see a plus sign. If the instructor clicks on it, four different tabs will open named reuse post, create question, create assignment and create announcement. A teacher can keep all files save in the Google Drive. He or she can grade, attach Youtube or any link for instructional purpose. From Google Classroom, a teacher can send mail to all students at a time [7].

Currently, there is no research in the Indonesia about project learning with online guidance. Therefore, it is interesting to note how students perceived online guidance especially when they are doing the task. It is also vital to know the advantages and disadvantages of using Google Classroom sites on Biology project learning.

2. Method
This research uses a descriptive method. Descriptive research method is a research method that is intended to describe the phenomenon that took place at this time or the past [8]. This study describes the students’ response to project learning with online guidance through Google Classroom on biology projects. The research involved 35 high school students (16-18 years old) in West Bandung regency. The study was conducted from March to April 2018 for 7 weeks. Data were collected using questionnaires and interviews to the students directly.

The project learning used in this research has 6 stage: start with the essential question, design a plan for the project, create a schedule, monitor the students and the progress of the project, assess the outcome, and evaluate the experience [9]. At the first week, the teacher assigns the assignment to the students. Students individually design problem solving solutions. Then, in groups, students determine a solution that will be used as a team project. Every group make a plan for their projects. All student plans are then uploaded to Google Classroom. Teachers provide feedback through Google Classroom after reading the student activity plan. Students conduct project activities independently outside the classroom from week 2 to week 6. During the project students regularly report on their project progress through Google Classroom. Teachers provide feedback to students through the comments column in Google Classroom personally. At the 7th week, students present their project results in front of the class.

3. Results and discussion

3.1. Features of Google Classroom
Google Classroom is very simple to create and to use. Here all available features are integrated. Once a new course space is created, the instructor can see three taps. These are labeled as about, students and stream. In the same page, on the bottom of the right side, he or she can see a plus sign. If the instructor clicks on it, four different tabs will open named reuse post, create question, create assignment and create announcement. A teacher can keep all files save in the Google Drive. He or she can grade, attach Youtube or any link for instructional purpose. From Google Classroom, a teacher can send mail to all students at a time. In this study, researchers create assignment features, discussions and a place for the collection of project progress reports are shown in Figure 1. Figure 1 shows that the teacher assigns the task to the student with the deadline of the task collection. We can see there are 7 groups who have reported the progress of the project on that date.
The teacher advises students on project progress after reading the student project progress report. Feedback is given in writing through the comment field personally. An example of feedback is shown in Figure 2. Figure 2 shows the discussion between the student and the teacher about the progress of the project.

![Figure 1. Teacher gives assignments to students to report on their research progress regularly.](image1)

![Figure 2. Teacher gives assignments to students to report on their research progress regularly.](image2)

3.2. Students’ response
Students’ response to project learning with online guidance through Google Classroom on biology projects were collected using questionnaires. Questionnaires are given to students after project learning ends. Questionnaires include several aspects: the easiness of uploading the report, the easiness in understanding the feedback from the teacher, the effectiveness in project direction, the interesting to use in the future. The results of the questionnaire are shown in table 1.
Table 1. Student response to project learning with online guidance through google classroom on biology projects.

| Aspects                        | Percentage (%) (N=35) |
|--------------------------------|-----------------------|
| The easiness of uploading the report. | Yes 97.14, No 2.86  |
| The easiness in understanding the feedback from the teacher. | Yes 22.86, No 77.14 |
| The effectiveness in project direction. | Yes 74.29, No 25.71  |
| The interesting to use in the future. | Yes 94.29, No 5.71   |

Table 1 shows that students find it easy to upload their project progress reports and students feel that Google Classroom can be used in the future. Students also find it quite effective if Google Classroom is used to guide students’ projects. However, students find it difficult to understand the feedback given by teachers through Google Classroom. The presence of teachers physically was still needed to guide students especially when discussing feedback.

Interviews were made to some students to inquire about the advantages and disadvantages of using Google Classroom. Among students’ participants, 30 students declare Google Classroom is effective and easy to use. They mentioned that Google Classroom can be easily opened anywhere, students are easier to discuss with teachers about projects, and students can request feedback from teachers. However, guidance through Google Classroom must provide funds because students must provide quotas. Students also do not understand the feedback given by the teacher. Some students should meet the teacher directly for clarification. Students feel that the existence of a physical teacher is still needed. Some students feel unashamed to ask. Unlike if face to face directly, students feel awkward if asked in front of his friends.

These findings are in line with the previous research that has found the positive impact. Google Classroom like Edmodo as an learning platform that has some distinct advantages over traditional classroom environment. The advantages lie in that Google Classroom can foster the combined knowledge creation of a group better than individuals diaries and discussion, because it facilities sharing ideas beyond the classroom via an online platform that allows readily available access at random times to continue such discussion, online quiz, sharing folder options and mainly connection to the global experts of various disciplines [10].

Teachers should also change their teaching habits offering their students innovative opportunities to improve their skills, to monitor their own learning and to practice their skills in and outside the classroom. Learning platform like Google Classroom can help the teachers to monitor students’ projects [11]. Some crucial suggestions if the teachers using an learning platform like Google Classroom are: teachers who would like to use Google Classroom to change their traditional classroom may have to think of a workshop introducing this platform for students before starting using it, teachers may also use other functions of Google Classroom like a quiz, an assignment, and a progress which shows students’ marks from the quiz and the assignment [12].

4. Conclusion
The conclusion of this research is Google Classroom can be used as a medium of online guidance on project learning. Students find it easy to upload their project progress reports and students feel that Google Classroom can be used in the future. Students also find it quite effective if Google Classroom is used to guide students’ projects. However, students find it difficult to understand the feedback given by teachers through Google Classroom. The presence of teachers physically was still needed to guide students especially when discussing feedback.

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