

Implementation of Project Based Learning on The Sanitation of Public Places Course

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ABSTRACT

The Public Places Sanitation (STTU) is a compulsory course in the field of Occupational Safety and Health/ Environmental Health of the undergraduate program, Faculty of Public Health. Evaluation of learning outcomes in the previous year showed students had low interpersonal skills. The objectives of this class action research are to improve and change the measures to solve the problems and to find models and procedures that provide reassurance against troubleshooting efforts by making modifications or adjustments as necessary. This class action research was conducted in the Public Places Sanitation course in Academic Year 2021/2022 in the Undergraduate Program, Faculty of Public Health, Andalas University for 2 months from September to October 2021 using quantitative method. Based on the results of the data analysis, there was an increase in students' midterm exam scores when compared to achievements in the previous year. This research has limitations, among others, online learning situations make it difficult for students to create projects together. Moreover, the time duration of implementation this method is considered too short.

In addition, the project results are not in accordance with the target, namely a model made by students.

Keywords: Project-based learning, Public Health, Sanitation, Public places, environmental health.

1. INTRODUCTION

Classroom action research is a process where lecturer and students want improvements, and changes in learning for better so that learning goals can be achieved optimally[1].

According to Soedarsono, classroom action research is a form of reflective study by the perpetrator of the action [1].

The Director General of Higher Education stated that creativity and innovation became important keywords to ensure Indonesia's sustainable development. The students who are currently studying at the College, must be prepared to be true learners who are skilled, flexible and resilient(agile learner)[2].

The Public Places Sanitation (STTU) is a compulsory subject in the field study of Occupational Safety and

Health/Environmental Health in undergraduate program, Faculty of Public Health. This course must be taken by students in fifth semester. STTU lecture materials include the requirements of the physical environment and sanitation of public places such as restaurants, health care facilities such as hospitals, primary health care, hotels, swimming pools/ public baths, traditional markets, places of worship, beauty salons, cinemas, airports, terminals and ports.

The purpose of STTU study is to provide basic knowledge about sanitation of public facilities and to know the theories, concepts and applications in the requirements, examination and supervision of public places.

Learning Outcomes and the expected final ability are able to explain the basic concepts of sanitation of public places and to analyze requirements, examinations and sanitary supervision in markets and shopping center,

swimming pool, amusement park, cinema, restaurant, hotel, places of worship/mosques, airports, stations, terminals, salons and barbershops, industries, office, drinking water depots, schools, and hospitals. Furthermore, students are able to monitor, control and study aspects of sanitation in these public places.

The learning achievements of study programs filled by this subject are S3, S6, S7, S9, as well as general skills (KU) 1, KU3, KU5, KU6, KU8 KU9, Special Skills (KK)1, KK2, and KK4 and Knowledge (P) 1 and P4 [1].

The method/model learning applied is Student Centered *Learning* in the form of literature studies and group discussion as well as case studies.

The learning experience is to seek information from various sources (especially articles in scientific journals, related laws and regulations, and textbooks related to STTU). Students are divided into study groups where each group is responsible for making a summary of materials and case studies on sanitation of public places which are then discussed together [3].

To measure students' abilities during the process as well as results, mid-term exam, final exam, and group assignments are performed. From the various tasks and tests, then determined the final value of the learning results.

The assessment weight is a measure in percentage (%) that indicates the percentage of success of one stage assessment of the overall success value in the course [4]. Assessment criteria consist of assessment of results and processes in accordance with learning achievements [5].

Evaluation of learning outcomes in the previous year showed students had low interpersonal skills. This is indicated by low student participation in the classroom both individually and in groups. Although the assessment of the results is quite satisfactory, it is a summative assessment and does not include a formative assessment.

This course has a fairly dense material and requires a good understanding of each material. Understanding the material is not only through mastery of theory in the classroom, but also requires a descriptive learning approach and direct observation to public places [6].

The objectives of this class action research are:

1. To improve and change the measures to solve the problems

2. To find models and procedures that provide reassurance against troubleshooting efforts by making modifications or adjustments as necessary

The benefits of this class action research are increasing student participation/activity in the classroom and understanding of the material provided.

2. METHODS

2.1. Research Settings

This class action research was conducted in the Public Places Sanitation subject in Academic Year 2021/2022 in the S-1 Public Health Study Program, Faculty of Public Health, Andalas University. This study was conducted for 2 months from September to October 2021.

2.2. Research Subjects

The research subject is students from Occupational Safety and Health/Environmental Health field study who attends STTU lecture.

2.3. Research Object

The object of research is the improvement of student understanding and participation using project-based learning methods.

2.4. Performance Indicators

Performance indicators are to increase understanding and participation of students who get learning with Project-based Learning in the classroom

2.5. Data and Data Sources

This study is used quantitative method. Quantitative data is data on the results of student examination scores after the action is carried out and questionnaire.

2.6. Class Action Research Design

1. Determine the course material that will use the Project-based Learning method
2. Create design and action steps
3. Identifying the required components (assessment lecturer, schedule)
4. Preparing research instruments (tools, observation guidelines, learning media)

2.7. Classroom action research stage

1. Planning Stage, preparing the research concept that will be carried out in the form of a learning plan and its instruments
2. Implementation Stage, implementing the method into the class
3. Observation Stage, observing student learning activities that are monitored during the learning process and teaching lecturers are monitored by others
4. Stage of reflection: discussion between monitoring lecturer and research lecturer to evaluate actions

2.8. Schedule

Class action research is conducted from week 4 to week 7 of STTU lecture.

3. RESULTS AND DISCUSSION

| PjBL ASSESSMENT RUBRIC | MAX SCORE | GROUP 5 | GROUP 6 | GROUP 7 | GROUP 8 |
|--|-----------|---------|---------|---------|---------|
| Presentation | | | | | |
| All members of the group participated in presenting the results of the group discussion | 1 | 1 | 1 | 1 | 1 |
| All members of the group mastered the presentation material well without reading the slides. | 1 | 0.8 | 0.8 | 0.8 | 0.8 |
| Timeliness | 1 | 0.5 | 0.5 | 1 | 1 |
| PPT content describes the points in the paper | 1 | 0.5 | 0.5 | 0.5 | 0.5 |
| Paper | | | | | |
| Systematic writing is appropriate. | 1 | 1 | 1 | 1 | 1 |
| Background supports problem goals and formulations | 1 | 0.5 | 0.5 | 0.5 | 0.5 |
| Goals and formulation of problems in accordance with learning objectives | 1 | 0.5 | 0.5 | 0.7 | 0.7 |
| The contents of the paper display sanitary models along with detailed details | 1 | 0.5 | 0.5 | 0.6 | 0.7 |
| | TOTAL | 5.3 | 5.3 | 6.4 | 6.5 |

Table 1 Rubric assessment of groups

The result of assessment during the process of implementation amongst four groups showed different results. The highest score is received by Group 8 due to

the better content of model layout, clearly goals and formulation they have made (Table 1).

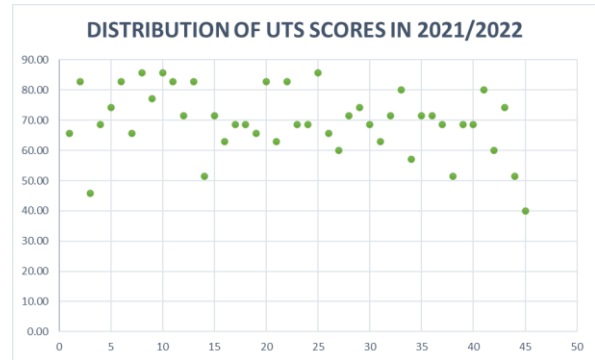


Figure 1 The distribution of mid-term exam scores in 2021/2022

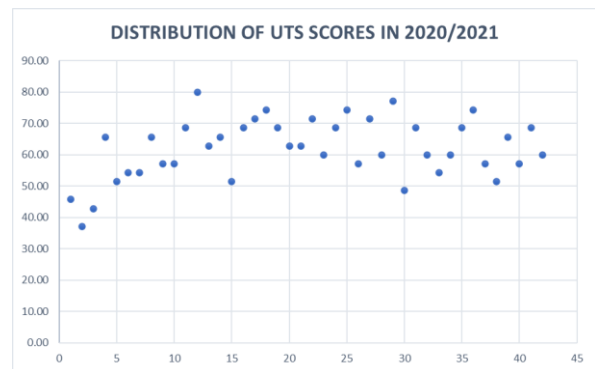


Figure 2 The distribution of mid-term exam scores in 2020/2021

Based on the results of the data analysis, there was an increase in students' midterm exam scores when compared to achievements in the previous year (Figure 1 and Figure 2).

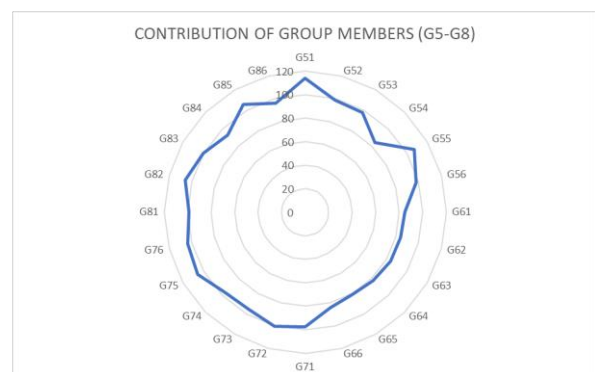


Figure 3 Contribution of Group members

According to the contribution of members within group, it presented similar results above 80, during the method was conducted (Figure 3).



Figure 4 Student challenges building the project

Most of students were agree that online learning has influenced their ability to discuss and build the project (Figure 4).



Figure 5 Percentage of understanding about topic

Moreover, students were believed that the project-based learning have increased their understanding about the topics (Figure 5)

According to Almulla, project-based learning approach has improved student engagement in learning by enabling knowledge and information sharing and discussion. It is recommended for educational use by students particularly in universities [7].

This research has limitations, among others, online learning situations make it difficult for students to create projects together.

In addition, the project results are not in accordance with the target, namely a model made by students still in 2D model.

4. CONCLUSION

Using project-based learning in online context needs an extra effort from lecturer to examine the process of learning. The results of project are inadequate and requiring improvement and commitment from students to manage collaboration each other. The length of intervention requires to adjust longer than half-term to improve the outcomes of this method.

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