



Enhancing Students' Entrepreneurship and Environmental Awareness through the Development of a Project-Based Learning Model

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Abstract. This paper discusses the development of a project-based learning model to enhance entrepreneurship and ecological awareness among state Polytechnic Ujung Pandang students. This qualitative study involved 120 students from 5 classes pursuing English for Business courses at the State Polytechnic Ujung Pandang (PNUP). The data source for this study was a portfolio of activities, videos, and images (photos and pictures) obtained through observation techniques, interviews, and simulations. The researchers utilized the four-stage development process proposed by Thiagarajan, Semmel, and Semmel in developing the model: define, design, develop, and disseminate. The result showed that this model could enhance the students' entrepreneurial skills. This paper also showed the value of the project-based approach by the students' reflection that project-based learning has facilitated them to cultivate a positive attitude towards the environment.

Keywords: Project-Based Learning, entrepreneurship, Environmental Awareness, four-stage development Model.

1 Introduction

Merdeka Belajar Kampus Merdeka (MBKM) of Indonesian Vocational College aims to integrate vocational higher education with the world of work to produce competent, productive, and competitive graduates. The vision is to prepare students for the Industrial Revolution 4.0 era, contributing to outstanding human resources and winning competition. However, the number of graduates absorbed by the industry is not as high as that produced by educational institutions. Vocational education graduates often lack soft skills like self-confidence, adaptability, communication, discipline, work ethos, and collaborative ability, which align with the Zolihgen formula, which requires broad skills, quick problem-solving, initiative, and quick decision-making abilities[1]. One solution to bridge vocational higher education by preparing alumni who have hard skills and soft skills that the industry needs is learning based on Project (PBL). The PBL method makes students learn actively to be able to create products or services that can be used by industry. However, the PBL product or service is not only a task but also a

network, from learning from the beginning to being able to form a team to design PBL, including working on projects from industry. In the teaching activities of English teachers at the State Polytechnic of Ujung Pandang, they have begun to implement innovative learning models that can enhance creativity but have not been able to produce valuable products that can boost the entrepreneurial spirit of students. Therefore, this research focuses on the development of a research model that meets the elements of innovation (novelty), where the application of the concept of PBL in English language learning activities is centered on a project inspired by students who designed products from the trash and marketed them using online and direct marketing, where students will sell products in English.

The Learning Based on Project (PBL) method aims to bridge vocational higher education by preparing alumni with industry-specific skills. PBL involves students actively learning to create products or services, fostering a network, and fostering creativity. At the State Polytechnic of Ujung Pandang, English teachers are implementing innovative learning models to enhance creativity and entrepreneurial spirit. This research focuses on developing a research model that incorporates PBL in English language learning activities. The study developed an English learning model for English Communication for Business students, enhancing skills, self-learning technology, motivation, and creativity. It aimed to enhance entrepreneurship and environmental concern through PBL, transforming garbage into economically valuable products for direct and online marketing.

2 Literature Review

One of the pedagogical methods used in student-centered learning is project-based learning, which exposes students to real-world competencies like problem-solving, critical thinking, experimental design, data collection, analysis, and interpretation of the results, as well as cooperative learning and effective communication. This teaching method engages a class of students and teaches them how to learn[2]. There were many definitions of project-based learning, Thomas in [3] stated that PBL encourages students to work collaboratively in teams while engaging them in practical work, enabling them to make better decisions and solve problems. Other definition by Mergendoller and Thomas in [4] as a teaching approach that emphasizes learning through projects.

For teaching 21st century skills in the classroom, Project Based Learning (PBL) has proven to be a successful pedagogical strategy[5], therefore there many researchers conducted in this area such as which focused on the effectiveness Project-Based Learning (PBL) [3] as an approach in engaging learners in learning[6], while the study about the development and implementation of Project-based Learning in an ESP course conducted by [7].

2.1 Project Based Learning in Entrepreneurships

There has been investigation of PBL for entrepreneurial education. According to [8] the results demonstrate that incorporating PBL into a number of courses can help

students develop entrepreneurial personalities., PBL techniques in management and accounting can help students launch and grow their businesses.

2.2 Project Based in Environmental Issue

A study conducted by [9] in the development of project-based teaching strategies has improved students' conceptual understanding of the use of waste and recycled media. This study showed that PBL has a positive impact on achieving learning mastery goals, improving student creativity, intelligence, and happiness in the classroom, and honing skills (skills). It also helps students develop cooperative, patient, and proud attitudes toward their work, as well as a concern for the environment.

3 Material and Method

The text of your paper should be formatted as follows:

3.1 Research Design

This study is a qualitative research project. In order to create the model, the researchers followed the Thiagarajan, Semmel, and Semmel's four-stage development process: define, design, develop, and disseminate.

3.2 Subject

120 students from 5 classes taking English for Business courses at the State Polytechnic Ujung Pandang (PNUP) participated in this study. A portfolio of activities, films, and images (shots and photographs) gathered through observational methods, interviews, and simulations served as the study's data source.

3.3 Instrument

A portfolio of activities, films, and images (shots and photographs) gathered through observational methods, interviews, and simulations served as the study's data source.

4 Finding and Discussions

4.1 The Development of PBL Model to Enhance Students' Entrepreneurship Skills and Environment Awareness

The use of Following is the development of the PBL model. A 4-D development model of the four primary stages of define, design, develop, and disseminate was developed by Thiagarajan, Semmel, and Semmel.

Phase I Define

The defining stage is where the conditions necessary for the growth of learning are established and defined. The defining phase consists of five fundamental components, including frontend analysis by examining the fundamental issues with English Business learning to foster student entrepreneurship in relation to course materials and raise students' environmental awareness.

This activity begins with the collection of information related to the Business English courses that can enhance the entrepreneurship of students with a review of the materials used in the learning of English, studying the curriculum that has established the initial product, analyzing the needs through observation, discussion between lecturers and students. The materials in English for Business courses are: a. Communicate on business trips. b. Welcome and get acquainted with company guests. c. Visit the company. d. Ask questions and give explanations about the company organization. e. Ask for answers about company products. f. Ask for accountability about company employees' routine activities. g. Ask responsibilities about and company trends. h. Negotiate about company product prices. Hosting company guests at business dinners. j. Handling customer complaints for ordering goods.

Based on the ten materials above, students discussed determining the learning material and English competence in the English for Business course with the selection of real problems in the activities in this PBL model. Students viewed that all English for business materials are related to the product, so they decided that this PBL would focus on the manufacture of the product.

Further setting the context of the project, in this case, students decided that in addition to achieving the desired English language competence, they also assumed that the project context should be directed to enhance the spirit of entrepreneurship as a requirement of the curriculum that directs students to be not only ready to work but also ready to venture. Students discuss to find economically valuable products that will be marketed by students to cultivate their entrepreneurial spirit. In addition to the isolation context, discussions between faculty and students agreed to add environmental context to this PBL activity.

Phase II: Design

This phase of planning aims to design a Project Based Learning model that can be used in learning Business English. The design of the project plan is carried out in collaboration between faculty and students with the expectation that students have a sense of ownership to the project being run. Planning is about the rules, the selection of activities that can support the project, by integrating various resources, as well as knowing the funding, tools and materials used to help in the completion of the project.

The planning phase includes a. Preparation of a test (criterion-test construction) which measures the student's ability to produce, process, psychomotor during and after learning activities. Students are divided into small groups consisting of 5-6 students from 5 classes, who are taking English for Business courses namely 2A, 2B, 2C, 2D Diploma III program, and 2D Class D Diploma IV program.

2) Identification of problems and determination of project themes Students in each group try to identify the problems they face. After finding problems and finding

solutions, each group presents their experience in solving problems. Then they get input either from the instructor or from students from other groups.

The results of the discussions decided that they would make products from garbage with the aim not only to enhance the spirit of entrepreneurship but also to increase their concern for the environment by managing the waste into a product of economic value, with the title project "From Trash to Treasure" b. In this activity: 1) Students in each group search for information from various sources (books, guidelines, and other sources) or ask experts in this case labs in the accompanying central library of PNUP to get information on how to obtain information from different sources both from the library collection and from the Internet. In this phase, students in each group search for information from various sources (books, guidelines, and other sources) or ask experts in this regard lab in the central library of PNUP, which accompanies to get information on how to obtain information from different sources both from the library collection and from the Internet. The activity also improves students' literacy ability to search and select appropriate sources or references from the Internet. Based on the references they obtained in the library, students circled the campus to identify the kinds of garbage that could be processed as a useful and worth selling product. After that, students returned to discuss and decide what kind of trash and what product they would make.

d. Initial design, i.e. prototyping, has been evaluated by experts in the appropriate field of study. (expert).

Based on reference recommendations from librarians and practitioners of waste management issues, students start the design process and the production process. The initial design of the product was done by choosing the material or materials from the appropriate garbage like used bottles, garlic bags, cans, bars, dried leaves, tree branches, used cardboard, and sate sticks that were found around the campus of PNUP. Subsequently, the students identified the necessary equipment such as scissors, knives, brushes, tang, wire, and glue. Once the materials and equipment are ready, students work in their groups to finish the product they have designed. As for the product of garbage produced by the students such as; flower pots, photo frames, hangings pot, and key hangings from the bottle lid of the photo frame, these products are made of ice cream and cardboard paper holders, flower vases, key chains, decorative flowers from the base material of a drink pipette as well as container cartridges, hanging shelves from a biscuit can, coated by fabrics and jeans, bags from waste jeans, small chairs from plastic bottle holders made of plastic bottlenecks, cutting case or pencil place key hanging, and "Sunny Side Up" flower.



Fig. 1. Project Based Learning "Recycling Product".

Stage III. Development

This development phase aims to produce a revised Project Based Learning model based on expert input and trials with students. There are two steps in this phase: a. Expert Validation This expert validation serves to validate the content and learning model of Project Based Blended Learning. Expert validation is carried out by the vocational PBL team by examining the Semester Learning Plan (RPS) and Project Implementation Plan (RPP) that have been prepared by lecturers and students.

b. Development testing is a limited field test to find out the results of the application of the Project-Based Learning model in business English learning, which includes measurement of the impact of project Based Learning on improving student communication skills in English, student learning motivation, and PBL performance in enhancing student entrepreneurship. The results obtained from this phase of the Project Based Learning model have been revised.

Stage IV Dissemination

After the test is limited and the instrument has been revised, the next stage is the dissemination stage. The goal of this phase is to spread. This research only carried out dissemination by disseminating and promoting the final product (learning model) on the activities of the workshop PBL Polytechnic in East Indonesia, and the event 'D3 Business Administration Expo'



Fig. 2. Promoting and selling PBL product in the D3 Business Administration Expo.

4.2 Obstacles Encountered in Developing the PBL Model

According to Student Journal Reflection, some obstacles were found in the development of the Project Based Learning model in Business English courses related to time management, coordination and communication between group members, difficulty making products worth selling, as well as external factors at the time of implementation of the PBL that will be elaborated as follows:

Time Management

One of the weaknesses in implementing project-based learning, i.e. it takes a lot of time to solve a problem or complete a project. According to Student Journal Reflection (SJR), 99 out of 125 students stated that their obstacle in implementing the PBL was in the timing. Most of them stated that it was difficult for them to set a schedule to meet their group members because each had a different class schedule.

Here's the student's statement in SJR.

"The problem I'm facing is that it's just a matter of time, we're having trouble organizing and adjusting the time to meet with our group in order to do the work on this project" (GL)

"The challenge I've faced during the PBL is difficult to organize because of the different school hours of each group member" (SY5).

Campus Location

In addition, the conditions of the campus that are in two separate locations are an impediment to students in running PBL can be seen in the following student statement:

"... sometimes it is difficult to adjust the free time to meet because of different school schedules and also sometimes some are on campus 1 and the other on campus 2" (ATP)

Communication Factor

Communication online was felt by students because the discussions held online through the WhatsApp application were less efficient because there were how many members of the group were slow to respond.

"...the discussions conducted online felt less effective because of slow response... (NP)

"The problem that I encountered during working with PBL was the difficulty in arranging a time to meet with group friends and some group members who were late to respond in the group" (ADR)

Less Responsive Partner is also one of the obstacles faced by students in carrying out PBL. This is seen from the following data;

"The problem I encountered at the time of PBL is the difficulty of arranging a time to discuss this project and there is some time friends - friends are less responsive to the group" (ALK)

Student complaints related to communication due to the presence of members of the group that are less responding to communication in the group WA" (ND)

"The challenge I experienced is difficulty in adjusting time, communication with a group of friends is still a little less and obstacles to finding goods that can be recycled in the campus environment".

AFZ also quotes: "The group members and sometimes the group members slowly respond to the topic of discussion in the group"

(AFZ) Difficulty communicating was also experienced by FQM through the WA group "The problem I encountered was the difficulty of adjusting time with group friends to quickly complete a given project. As well as the communication difficulty because only through WA group so it is difficult to understand each other" (FQM)

"The problem I encountered while working on PBL tasks is the difficulty in scheduling appointments with other group members and the difficulties also in terms of communication with fellow group members" (AAR)

"... there are some conditions, which where our group friends are less responsive to some messages in our WhatsApp group" TS.

Time Schedule

Another problem I encountered in working with the PBL was the difficulty in organizing meetings due to different school schedules, and the difficulties in communicating

through the WA group due to home distances between different or distant members. (SK)

Making Decision

The problem related to PBL Products Related to the product that will be made at this PBL activity, the obstacle that students encounter is that they have difficulty making decisions in choosing the product. They have to discuss several times with other group members.

"When our group is only a problem of time to make decisions when chooses the product" (SA) The other thing related to the PBL products in this activity is that it is difficult to get raw materials to be recycled that can be submitted to the following SJR: "... (AO)

"..We've had a little hassle searching for the stuff because it turns out that biscuit dust is so hard to find around the campus... (AAR)

External Factors

Weather factors also become one of the obstacles for students because the implementation of this "From Trash to Treasure" PBL takes place during the rainy season. The thing can be seen on the SJR as follows:

"..the weather was not supportive then, on that day I could not join my friend who was on campus 1.. (TA) (one) to find a bottle because at that time I still had a college in

"...the weather at the time of the observation was also in heavy rain I finally decided to look for material or plastic bottle garbage in campus 2..." (STY)

5 Finding and Discussions

This study follows the course of Thiagarajan, Semmel, and Semmel which is a 4-D development model of the main phase: Define, Design, Develop, and Disseminate. In this 4D phase, students and lecturers discussed to determine the project that will be produced in the PBL, that was the process of transforming garbage into an economically valuable products that can improve the entrepreneurship of students who are able to create jobs like the goal of the MBKM curriculum to form students ready to work and ready to enter.

The obstacles in the implementation of this PBL model related to time management, communication, weather factors, and psychological factors in implementing PBL activities from Trash to Treasure.

It is suggested that the development of BPL model should be a collaboration between several courses that have the same competence or even support the competence in English for Business courses so that PBL can run effectively and efficiently.

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