

# IMPLEMENTATION OF PROJECT-BASED LEARNING IN SENIOR HIGH-SCHOOLS, CHALLENGES, STRATEGIES, AND EFFECT

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## ABSTRACT

*Project-based learning (PBL) is one of the learning innovation because it is one of the pedagogical approaches to change the way students experience learning and better align it with their experiences outside of school. The use of a new curriculum for elementary and high schools in Indonesia has some aims to develop students' affection, skills, and knowledge through Scientific Approach. PBL is a great emphasis. It has been placed on students – centered learning, that is teaching learning that makes the students' needs and experience central to the educational process. The reason that PBL as the learning innovation is to train and drill the student in aspects of the language course. Collaborative in learning has four aspects characterized in learning. Those characteristics are a situation, the interaction, learning mechanism, and how to measure the effect of collaborative toward the strategy such PBL (Project-based learning). The strategy and effect of using PBL for developing students' thinking skills allow them to have creativity. It also encourages them to work cooperatively and leads them to access the information on their own and to demonstrate the knowledge. And keep attention on a negative side, students do not feel encouraged to finish the projects, they lack interest the topic because they do not have an idea for exploring the knowledge integration in the subject.*

**Keyword:** Collaborative, Curriculum, Learning Innovation, Learning Organization, Project-Based Learning.

## 1. Introduction

The use of a new curriculum for elementary and high schools in Indonesia has some aims to develop students' affection, skills, and knowledge through Scientific Approach. Based on that approach, learning is a scientific process in the classroom. Based on the curriculum of 2013 the learning process should be scientific, it means that all methods and steps of learning should reflect established procedures, namely observing, questioning, associating, experimenting, and networking (Sulisworo, 2016). One of the approaches which are used in teaching English which can be combined with the scientific method is the Project-Based Learning (PBL). Licht (2014) states the PBL is essential to preparing the 21st-century skills of critical thinking, communication, collaboration, and creativity. The Edmonton Catholic School District (2013) also supports this theory that PBL serves to provide our students with the skills needed to help them succeed in the 21st-century. Meanwhile, (Tamim & Grant, 2013) stated that PBL is an instructional model that is based on the constructivist approach to learning, which entails the construction of knowledge with multiple perspectives, within a social activity, and allows for self-awareness of learning and knowing while being context-dependent. According to Jumaat & Tasir (2013) during the work of the project, PBL created different teaching environment by getting students out of the dull routine in the classroom. This teaching environment is more interesting, fun, and useful for students and allows them to build knowledge in an authentic context. Cook and Weaving (2013) stated that PBL is traditional

classroom learning environments may not be the most appropriate context for the efficient development of critical competencies. Learning organization of this approach is student-centered learning because the students should do the task which is given by teamwork. This method is to teach the content involves a group of students is working together collaboratively to do the function, design, and create projects that will reflect their knowledge).

This paper will discuss the implementation of PBL in senior high school especially challenges, strategies, and effect. The research problems are what the role of curriculum toward PBL is, what the learning organization which is used in PBL is, why choose the PBL as the learning innovation, what the strategy in the class is, and how the implementation in senior high school does.

## **2. Curriculum**

Curriculum implementation contributes importantly finding to the empirical works by comparing different modalities of professional development (Fishman et al., 2013). It is to support adoption of a new science curriculum makes a welcome contribution to high education, such as in a senior high school. The nature of curriculum as the unique demands of these reforms and the scale of the need means that professional development will have to use innovative approaches to handle the type of complex learning called for this improvement and will have to do so at scale (Wilson, 2013).

Indonesia has undergone several changes in curriculum. The last curriculum which is used is the 2013 curriculum. The 2013 curriculum is competency-based as a concept of curriculum that is emphasized to develop the student's ability and competence to a certain standard. So, the result can be felt by learners as mastery of a particular capability Muzamiroh (2013). According to Mulyasa (2013), the 2013 curriculum is competency and character based that emphasized on the field experience to make a relationship between teacher and developer of curriculum and students as subjects who are taught by the teacher. However, as a whole, the 2013 curriculum is still a competency-based curriculum in that the objectives are formulated concerning the prescribed or target competence or the outcomes of language learning (Agustien, 2014). She further states that in spite of the similarities, this new curriculum seems to have sent much bigger shockwaves to the teachers than ever before especially now that the ministry has decided that the curriculum was fully implemented in 2014. There is an urgent call for putting what has been going on for a perspective that might be useful in portraying what the problems are.

The use of Curriculum 2013 in Indonesia introduce the teachers that science learning should be designed well, so that teacher candidates/students can understand the story of how the scientist arrived at these results. This curriculum implies that the lecturers/science teachers should develop the learning process which is in line with how science proceeds, teach science as science is done. The science learning should be designed to by following the values and spirit of the Scientific Method. Many experts believe that through a scientific approach, besides it can make students more active in constructing their knowledge and skills. Also, it can encourage learners to investigate to find the facts of phenomenon or event. Sudrajat (2013). It will make the students are trained to be able to think logically, coherently, and systematically. The implementation of PBL in the class is expected to have some strategic values to the development of learning both on the process and outcome sides. From the learning process aspect, it can be used as a theoretical reference for pre-service training lecturers in developing learning strategies that can internalize the values and spirit of the Scientific Method to the teacher and teacher candidates. With the right and proper strategy then optimization of students' potential is expected to happen. Scientific Method through a course run by the PBL approach, when teaching at schools, and the students who have been accustomed to do will not find any problem as experienced by the teachers. The teachers who will implement the Curriculum 2013, by knowing the advantages obtained when applying this model, the teachers will be motivated to apply this model to the process of learning. Last is by understanding the constraints faced when implementing this model; it can be used as a consideration in developing this kind of learning model at school.

### **3. Learning organization**

Learning organization as a merely an organization that determined by the students. A more recent definition highlighted organizational learning, which is related to learning organization (Robelo & Gomes, 2013) as a processor capacity within a structure which enables it to acquire, access and revise organizational memory thus providing directions for regulatory action in a learning process. According to Hussein et al. (2014) noted that today's public institutions of education in learning organization depends on how these systems accept changes, improve practices and competitiveness. Defined as an organization that facilitates learning of all its learners, learning organization possesses specific characteristics to meet the ever-changing needs of the environment.

The Ministry of Higher Education (2013) merely stated that public institutions of education in learning's ability to carry out their functions and responsibilities more transparently and efficiently would be conducted to create an excellent higher education system, such senior high school. Based on the description of opinion experts about the learning organization, the writers conclude that the contents of the learning team are "organization form" that consists of participants, a group of the target, known location, analysis of the concepts. All of the contents are the form of sequences order that will be practiced by the students for building the learning organization. In the review of a learning organization, the individuals are the learning entities. Further, the literature emphasizes knowledge was stored outside the individuals to a much lesser extent than the research on organizational in the learning process. After all, in some facts, some is saved outside the individuals although the students on learning organization mostly tend to describe that most knowledge exists inside the individuals, it means that critical thinking. According to some of the studies, learning organization is opportunities for students into research and teaching practices (Brundiers et al., 2013; Brundiers & Wiek, 2013). The individuals are connected to the organization by a shared vision and mission through a perspective of wholeness. In conclusion, the individuals learn to make the team and the knowledge is mainly located inside and outside. In learning organization not only need a teacher as a tutor, a controller, an organizer, an assessor, a prompter and a resource, but also it requires some the other students' view or comprehension for drilling their knowledge to have a project. This project should be done together related to the topic that they have by using organization form.

Savery (2015) state that PBL is a great emphasis has been placed on students-centered learning organization, which is teaching learning that makes the students' needs and experiences central to the educational process. In this framework, it is students' need which should drive the syllabus, not some imposed list; it is the students' experiences and their responses to them which should be of the language course. Lastly, the learning organization involves a group, as well as individual learning, is promoted to collect the creation of knowledge about the information or the data in some cases of education.

### **4. Learning innovation**

There has been an exploring of the view of the between knowledge formation and innovations. While previously changes were seen primarily as a function of investments in research and development, innovations also viewed as a function of the learning and knowledge creation that takes place in the process of goods and services in organizations of education. A necessary implication of this broader view is the need to consider the workplace as a site for learning and not only as a production site. Learning innovation is a strategy to apply the idea of the project in practice-based learning and to propose a framework that can be used to conceptualize and analyze practice-based innovation processes in organizations. Related to the description above, the writers recommend PBL as the alternative one of the learning innovation.

There is some convergence that academic sustainability programs would benefit from using approaches in their curricula and courses and, indeed, universities have been exploring real-world learning opportunities and implementing PBL components over the past ten years. However, for many higher education institutions, it remains challenging to provide rigorous, curriculum-wide and cohesive PBL opportunities in sustainability

education (Dobson & Tomkinson, 2012; Guerra, 2012; Brundiens et al., 2013; Brundiens & Wiek, 2013).

Providing experiential learning opportunities that are effective in all educational fields, several reasons make PBL necessary for sustainability education, particularly in senior high school. Sustainability science is distinct from other disciplines because it develops solution options to specific types of complex societal problems (Wiek & Lang, 2014). Savery (2015), learning challenges of PBL, students learn primarily by constructing knowledge and making meaning through iterative processes of questioning, active learning, sharing, and reflection. Students work together in groups to conduct research, apply logic and reasoning, and devise solutions to complex problems. The teacher's role in PBL is to manage the activities to stimulate motivation and encourage reflection for the students and to facilitate learning through scaffolding, feedback, guidance and prompts for thinking. As the while, the student's role in PBL is to take responsibility for their learning and make meaning of the knowledge and concepts they encounter to do something. It is clear that students in the PBL environment must be motivated to learn and be able to focus their efforts and attention appropriately, monitor and evaluate their progress, and seek help as needed. However, teachers report that many students do not possess these skills (English, 2013).

Subsequently, PBL migrated into some level of senior high school, whether the tenth, eleventh, twelve graders. This study explores whether PBL can 'work' in the context of senior high school. PBL is the primary gateway through which the hall makes are realized. There are consistent characteristics that do a project. Some of the projects should be collaborative, hands-on, multidisciplinary, learner-centered, real-time and the real world. The technology is an integral aspect of our lives, more than ever our students have an individual learning style. It provides the opportunities for students and the teachers to be engaged in ways that are best suited. The reason that PBL as the learning innovation is to train and drill the student in aspects of the language course, Savery (2015). Here is the description as follows;

- a. Using PBL students become directors and manager in their learning process even the teacher as tutor to them.
- b. The students have the personal and social responsibility toward the project that they have.
- c. The students can plan, create, to build communication skill both for interpersonal and presentation needs.
- d. Knowing how and when to use technology and choosing the most appropriate tool for the task.

## **5. Collaborative**

Collaborative learning is learning that occurs as a result of interaction between peers engaged in the completed task or project. Successful collaborative projects have the characteristics. One of them is the problem to be solved an example of the types of the issues found in the community, and it requires the use of knowledge, skills, and attributes the part of the curriculum. Collaborative learning activities provide the students' opportunity to think for themselves, compare their thinking with others, conduct a small research project, and investigate subject matter (Bernstein et al., 2014). The student team continued working with the community after the course concluded and secured funding for implementing an initial tree and shade program.

Andriessen & Suthers (2013), collaborative in learning has four aspects characterized in education. The characteristics are concerted learning focus on the situation, the interaction, learning mechanism, and how to measure the effect of collaborative toward the strategy such PBL. The implementation of cooperative skill in learning needs a process that should be applied to learning for the students. It starts from the self-explanation from the students, it relates to the social phenomenon or the topic that they have a project. Every individual learner has a circumstance to find the model of partner for increasing the quality of broadening the knowledge and developing the task or the project well.

As a result, based on the description of the collaborative in learning above the writers would like to simplify the strategies and the effects of the PBL as one of the cooperative skill to do with the group or teamwork. Here are the strategies;

- a. Organizes learning around the projects and involves students in authentic situations where they can explore and reap the subject matter to the practice that they are preparing.
- b. Developing students' thinking skills, allowing them to have creativity, encouraging them to work cooperatively, and leading them to access the information on their own and to demonstrate the knowledge.
- c. Teacher drills the students through interactive learning by questioning, active, sharing and reflection. To have a potential for improving students' outcomes in the affective, cognitive and psychomotor domain.

Meanwhile, the effects of PBL can be seen on two sides, positive and negative. In the positive side, by using PBL in learning, it is integrated and practical to enhance understanding of the course material by overcoming knowledge boundaries for having the project. In a negative side, students do not feel encouraged to finish the projects; they lack interest the topic because they do not have an idea for exploring the knowledge integration in the subject. For those, the teacher as the tutor could come into the condition of the problem for guiding while they prepare and have to think the ways to get the students back in interest for having project based. In a negative side, students do not feel encouraged to finish the projects; they lack interest the topic because they do not have an idea for exploring the knowledge integration in the issue. For those, the teacher as the tutor could come into the condition of the problem for guiding while they prepare and have to think the ways to get the students back in interest for having project based.

## 6. Problem-based learning

### 6.1 How do the implementation in senior high school?

The assessment of learning process in the Curriculum 2013 uses a holistic approach which means that the evaluation of knowledge, skill, and attitude should be integrated. The appropriate assessment to assess PBL is the scientific approach. Project Based Learning emphasis on the process and product, Therefore, this study proposes the authentic assessment models which consist of self-assessment, peer-assessment and portfolio models to assess the process, and teacher's rubric to evaluate the product. The implementation of PBL in the class should be done by the teachers. It helps the students to collaborate each other because they do the project together in one group.

### 6.2 The example of activity of PBL to the students

The case of this project is for the first semester XI grade of senior high school, and the project is making a drama script. The core competence that is used in this paper is to cultivate and give the reason in the real of concrete, and abstract spheres related to the development of the school studied independently, acting efficiently and creatively and capable of using methods according to scientific rules. Table 1 shows the necessary competencies are taken from syllabus;

Table 1. The basic competence

Competence	Basic Competence
4.1	Arrange oral and written texts to state, inquire, and respond to expressions of suggestions and offers, pay attention to social functions, text structure, and linguistic elements that are true and contextual.

- 4.2 Arrange oral and written texts to express and respond to expressions expressing opinions and thoughts, paying attention to social functions, text structures, and linguistic elements that are true and contextual.
- 4.3 Arrange oral and written text to speak and respond to the expression of extended wishes and prayers, taking into account the correct and contextual function of the social, textual, and linguistic elements.
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Learning Focus: offering, suggestion, giving an opinion, responses the excellent advice, expressing wish and dream, expressing congratulation and reactions.

Description: The students do a project to make the script of drama. It can be an adaptation of a local story or a tale. The content of the story should include at least three expressions of giving offer or suggestion, providing an opinion, responding to others, view, expressing the wish, or congratulating others. The students who provide the expressions with more than three in the story they will be appreciated more. The characters in the drama should be divided equally among the members of the group. Each group consists of five or six students. The project should be finished within three weeks.

### **Conclusion**

Project-Based Learning is one of the approaches to teaching English which supports the scientific method of Curriculum 2013. This approach can bring some benefits to the students namely promoting the comprehensible input and output and gaining favorable experiences with the real world, and also support learner-centeredness during the learning process. However, the implementation of this approach still has some problems particularly regarding appropriate kinds of project and the way to assess the student's progress and achievement. Therefore, this paper proposes the plans and the assessment models for Senior High School as an alternative to overcome the problems of the implementation of Project-Based Learning in Curriculum 2013. In some cases related to the learning organization, learning innovation and collaborative as the strategy and effects of PBL (Project-based learning strategy) has an important role. Because of three of them are needed to be considered when the implementation of PBL conducted in the classroom.

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