

# STUDENTS' PERCEPTION OF 21<sup>st</sup> CENTURY SKILLS DEVELOPMENT THROUGH THE IMPLEMENTATION OF PROJECT-BASED LEARNING

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**Abstract:** The phenomenon of graduate students who are not ready for employment in a digital age seizes the educators' attention. Then, some research findings identified the students' need to focus on 21<sup>st</sup> century skills in order to fulfill the workplace requirements. Some teaching methods are provided to help teacher in teaching 21<sup>st</sup> century skills. One of them is the project based learning (PBL). This research aimed at knowing the students' perception of 21<sup>st</sup> century skill development through the implementation of project-based learning. Descriptive quantitative method was utilized in this research. The respondents were the students of English department from one of private universities in East Java. An online questionnaire was used as the instrument in this research. The data analysis was done statistically. The responses indicate that the implementation of project based learning generally helps the students in developing their 21<sup>st</sup> century skills. In conclusion, the students agree that the PBL can develop their 21<sup>st</sup> century skills. So, the lecturers are suggested to design the project based learning with the specific goals of 21<sup>st</sup> century skills development.

**Keywords:** *students' perception, 21<sup>st</sup> century skills, project-based learning*

## INTRODUCTION

In 2008, three large technology corporations (Cisco, Intel, and Microsoft) start complaining about the skills of graduate students from schools and university that are not ready for employment in a digital age (Griffin and Care, 2015). Some of students have high GPA but when they enter the workplace, they still need to learn more. It seems like their GPA do not describe their competencies well. Based on this problem, Griffin et. al., (2012) identified the students' need to focus on 21<sup>st</sup> century skills in order to fulfill the workplace requirements. In this era, the students are forced to master the 21<sup>st</sup> century skills such as critical thinking, problem solving, decision-making and collaboration (Raizen in Griffin and Care, 2015). In line with this, President Obama's first month in office also pointed out the

development of standards and assessments that measure more than memorization of information. Educators need to find out whether students possess skills for the 21<sup>st</sup> century such as problem solving, critical thinking, creativity, and entrepreneurship (Toch, 2011). In simple words, the students need more than just a theory. So, the teachers need to bring the real word problem into their classroom and provide the students with the reality that will be faced in the workplace. Some of learning innovations can be used by the teacher to help their students reach those skills, one of them is project-based learning (PBL).

The purpose of this research was to know the students' perception of their 21<sup>st</sup> century skills development through the implementation of PBL. The investigation focused on: (1) the students' 21<sup>st</sup> century

development before and after being taught by using project based learning, and (2) the influence of project based learning in developing the students' 21<sup>st</sup> century skills. The research subject here was the English education department students at one of the Private Universities in East Java. Most of lecturers in this university, especially English education department, have implemented the PBL in their teaching learning process. The researcher took one of the classes to participate in this research.

Here, PBL is purposely designed to force the students in creating a project. PBL was first proposed by John Dewey at the end of the 1890s (Douglas and Stack, 2010). Dewey's pointed out PBL as child-centered that introduced real-life situations and contexts into the school environment. In line with Dewey, Middleton (2005) defines PBL as meaningful activities having "a contingent relationship with the real world that is both inside and outside of the classroom (Mioduser & Betzer, 2003). Those definitions stressed on the importance of introducing the students' learning experience in the real world through school activities. Markham et al., (2003) summarized the characteristics of PBL. According to them, the fundamental criteria for PBL include: student's drive to learn; a focus on student-centered processes; familiarizing students with the core concepts in disciplines and topics; focus questions to enable in-depth exploration; students' management of their own work and projects; outcomes related to students' problem-solving and investigations; provision of feedback; emphasis on student cooperation in small groups through student presentations and class evaluation; application of modern ICT tools; performance-based assessment; and the incorporation of PBL into the curriculum. Those characteristics are in line with the 21<sup>st</sup> century skills.

Implementing PBL also gives some

advantages to the students. According to Trilling and Hood (1999) and Wurdinger and Qureshi (2015) (in Meyer and Wurdinger, 2016) project-based learning also promotes not only academic rigor, but life skills such as communication, critical thinking, and collaboration. Another research reported that PBL improved language skills because students engage the purposeful communication in completing their project (Levine, 2004). A further benefit reported is pertains to the development of problem-solving and higher order critical thinking skills (Allen, 2004). These skills are very important, since they are life-long, transferable skills to settings outside the classroom. Therefore, the implementation of PBL is urgently needed in order to support the development of students' 21<sup>st</sup> century skills.

There are several researches related to the Project based Learning. The first research is from Fragoulis (2009) "Project-Based Learning in the Teaching of English as A Foreign Language in Greek Primary Schools: From Theory to Practice". It deals with the implementation of project work in the teaching of English as a foreign language in Greek state primary schools. The article purports to be pragmatic in focus, linking theory with practice, and providing practitioners with a tool for effectively implementing project-based learning in foreign language contexts.

The next is "Proposing Project Based Learning as an alternative to traditional ELT Pedagogy at public colleges in Pakistan" by Sultana & Zaki (2015). The researchers used experimental and control group. The experimental group was taught by using project based learning method while the control group was taught by using traditional lecture method. One of the findings showed that the attendance of experiment group (which is taught by using PBL) is higher than the control group. Moreover, the

mortality ratios of the two groups strongly support the conclusion that PBL method involves students more than those taught using the traditional method.

The last one is Chikita et al (2013) under the title “the effect of project based learning and students’ perceived learning discipline toward the writing competency of the eleventh grade students of SMAN 5 Mataram in the academic year 2012/2013”. This is an experimental study which aims at investigating the effect of Project Based Learning (PBL) and students’ perceived learning discipline on students’ writing competency of the eleventh grade students of SMAN 5 Mataram. The researchers recommended to apply the project based learning method in writing class as an alternative way to improve students’ writing competency.

There have been many researches conducted relating to the Project based Learning and most of them recommended teacher to implement this method in the teaching learning process. From those kinds of research, there is no research which focuses on the students’ perception of their 21<sup>st</sup> century skills development through the implementation of Project based Learning. So, here the researcher wants to conduct a research on students’ perception of 21<sup>st</sup> century skills development through the implementation of project-based learning. It will investigate deeply about the impact of implementation project based learning to the students’ 21<sup>st</sup> century skills development.

Perception here means the responds from students regarding the issues. Here, the researcher focuses on two perceptions. The first is students’ perception toward the development of their 21<sup>st</sup> century skills. The other one is students’ perception toward the implementation of project based learning. Those two perceptions aimed at knowing the influence of students’ 21<sup>st</sup> century development through the implementation

of project based learning.

There are some explanations from the experts regarding with 21<sup>st</sup> century skills but in this research, the researcher focusing on four 21<sup>st</sup> century skills. They are: critical thinking, problem solving, communication and collaboration.

In this research, project based learning refers to teaching learning method which drives students to do a project by doing some stages such as designing the project, arranging the schedule, monitoring the progress of the project, and evaluating the project. This method is chosen because this method can help the students in developing their 21<sup>st</sup> century skills and many researchers give recommendation to use it.

## **LITERATURE REVIEW**

A partnership for 21<sup>st</sup> century skills (P21) is held in America on 2002. This coalition involved enterprises, educational experts, and decision makers to prepare the 21<sup>st</sup> century skills on some levels of educations. According to P21 (2011), the 21<sup>st</sup> century world is characterized by essential skills for success in today’s world, such as critical thinking, problem solving, communication and collaboration”. In line with this, Torch (2011) said that educators need to find out whether students possess skills for the 21<sup>st</sup> century such as problem solving, critical thinking, creativity, and entrepreneurship. Griffin et. al., identified the students’ need to focus on 21<sup>st</sup> century skills in order to fulfill the workplace requirements. In this era, the students are forced to master the 21<sup>st</sup> century skills such as critical thinking, problem solving, decision-making and collaboration (Raizen in Griffin and Care, 2015). The concept of 21<sup>st</sup> century skills here is similar to the previous explanations which covers four aspects: critical thinking, problem solving, communication and collaboration. However, recognizing the need of students to be prepared for workplace entry, has

led teachers to take new perspectives in their teaching.

This new challenge shall not ignore the importance of students' personality quality. Hence, teacher should challenge themselves from their comfort teaching zone to the more challenges one by utilizing the Project based Learning. This method provides opportunities for students to develop the 21<sup>st</sup> century by drive their own learning through inquiry as well as work collaboratively to research and create projects that reflect their knowledge (Bell: 2010). According to Meyer (2016) project-based learning requires in-depth learning about issues and themes that are directly related to standards in the various content areas. It will increase their critical thinking while doing in-depth learning about the issues and themes of the given project. During completing the project, they will also find some problem that forces them to solve and decide the solutions of it. The project based learning also facilitates the students to work in group which can train their communication skill and their ability to work in team. But, as the teacher we should remember that the PBL practices vary depending on grade level and subject area, projects should allow for some degree of student voice and choice, and should be carefully planned, managed, and assessed to connect rigorous academic content to 21<sup>st</sup> Century Skills (such as collaboration, communication & critical thinking) through student development of high quality, authentic products and presentations (Mergendoller, Markham, Ravitz & Larmer, 2006). So it is important for the teacher to plan their PBL well before implement it to the class.

There were several researches that have similarities with this study. The first one is "Students' Perceptions of Life Skill Development in Project-Based Learning Schools" (Meyer and Wurdinger, 2016). The researcher examines students' perceptions of

their life skills while attending project-based learning (PBL) schools. The study focused on three questions including: 1) what are students' perceptions of their development of life skills in project-based learning schools? 2) In what ways, if any, do students perceive an increase in their life skill development over a one-year period of time? 3) What relationship, if any, is there between grade level and students' perceptions of their life skills? The results showed students' perceptions of their life skills were positive and that project-based learning helped them develop multiple life skills including, but not limited to communication, collaboration, problem-solving, responsibility, and time management.

The second is "using project based learning to teach 21<sup>st</sup> century skills: Findings from a statewide initiatives" (Ravitz, Hixson, English, & Mergendoller, 2012). This study focused on the impact of a weeklong summer professional development institute to help teachers develop effective Project based Learning lessons emphasizing student development of 21<sup>st</sup> century skills. This research focused on two research questions: (1) Do teachers who have used PBL with extensive professional development teach and assess 21<sup>st</sup> century skills to a greater extent than teachers who have not had similar professional development or do not use PBL? And (2) How is PBL use and teaching of 21<sup>st</sup> century skills influenced by other variables--such as subject and grade, class achievement level, block scheduling, etc.? The finding showed that teachers who used PBL and received extensive professional development reported more teaching and assessment of 21<sup>st</sup> century skills overall, with similar patterns seen within subjects and for nearly all of the measured skills.

The other study is conducted by the title "project based learning for the 21<sup>st</sup> century: skills for the future (Bell:

2010). This paper described the benefits of project based learning that help the students to develop their 21<sup>st</sup> century skills. In the implementation of project based learning, the students will drive their own learning through inquiry, as well as work collaboratively to research and create projects that reflect their knowledge. They will also viable to learn technology skills, to becoming proficient communicators and advanced problem solvers, students benefit from this approach to instruction

In accordance with the previous relevant research reports, which most of them recommended project based learning to be implemented in the teaching learning process, the researcher draws a conclusion that project based learning is a suitable method that can be used to teach 21<sup>st</sup> century skills. So, it is considered that the implementation of project based learning will influence the students' 21<sup>st</sup> century skills development.

This research is conducted to investigate university students' perception regarding their 21<sup>st</sup> century skills' development after the PBL implemented in their teaching and learning process in the classroom. By investigating those aspects, the researcher will know whether the students' 21<sup>st</sup> century developed or not after the PBL was implemented in the teaching and learning process. based on the thesis statements above, the research questions are addressed as the followings:

1. What are the students' perceptions of 21<sup>st</sup> century skills development?
2. What are the students' perceptions on the implementation of PBL?
3. What are the stages to implement the effective PBL?

## **RESEARCH METHOD**

This research was conducted through a descriptive quantitative method by employing survey. As stated by Polland

(1998) that surveys can be used to describe phenomena and summarize them in order to get a precise measurement of certain things. In this study, the measurement is focused on the measurement of students' perception. The type of survey was online questionnaire. It was to describe the students' perception of 21<sup>st</sup> century skills development through the implementation of project based learning.

The respondents of this research were the students of English Education Department at one of the Private Universities in East Java. There were eleven classes but the researcher only focused on one class. All of the students in the chosen class were asked to fill the online questionnaire provided through Google form. Most of the lecturers have implemented project based learning in their teaching and learning process, so it becomes the reason of why the researcher chose them as the participants in this study.

The instrument used in this research was online questionnaire provided by Google form. It consisted of 30 questions. The question number 1 to 15 aimed at investigating the students' perception of their 21<sup>st</sup> century skills development while the other questions were to investigate the implementation of project based learning. The online questionnaire link was given to the students through the teaching-learning session.

The lecturer asked the students to read an article about the 21<sup>st</sup> century skills. It aimed at avoiding misunderstanding terms during completing the online questionnaire. After reading the article, the lecturer gave the link of online questionnaire to the students then asked them to fill it. The result of those questionnaires were analyzed statistically. To answer research questions number one and two, descriptive statistics was used in this research. Meanwhile for the research question number three, the researcher reflected on the result of some

relevant research reports.

The data entry from online questionnaire was provided using a Likert scale, thus the researcher should describe the data in the form of words. The questionnaire consists of 30 questions. The questions number 1 to 15 about the students' perception on their 21<sup>st</sup> century development will answer the first research question. The questions number 16 to 30 about the students' perception on the implementation of project based learning, will answer the second research question. In providing the last research question, the researcher reflected on the result of some relevant research reports.

### FINDINGS AND DISCUSSION

*RQ1. What are the students' perceptions of 21<sup>st</sup> century skills development?*

The students' perception on 21<sup>st</sup> century skills development is recorded through the questionnaire number 1 to 15. Each question and response is described clearly in table 1 and 2. The questions number 1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 shown in table 1, are provided using Likert scale with five scales (poor, fair, satisfactory, good, and excellent). Meanwhile the questions number 3, 4, and 5 shown in table 2, are provided using multiple choices with four options (critical thinking, problem solving, decision-making, and collaboration).

**Table 1. Students' perception on 21<sup>st</sup> century development (Likert scale)**

No	Questions	Answer (%)				
		1	2	3	4	5
1	Are you familiar with the term of 21 <sup>st</sup> century skills?	10	20	35	10	25
2	Do you think it is needed to train the 21 <sup>st</sup> century skills?	0	5	25	15	55

6	How do you rank yourself as a critical thinker?	5	30	45	10	10
7	How do you rank yourself as a problem solver?	0	5	70	15	10
8	At what level do you rank yourself as a decision maker?	0	5	55	15	5
9	How well do you work with others?	0	15	45	30	10
10	How much your lecturer helps you in developing your 21 <sup>st</sup> century skills?	10	10	55	15	10
11	How far the impact of learning on improving your 21 <sup>st</sup> century skills?	0	10	40	30	20
12	Is there any impact in giving the project assignment to your 21 <sup>st</sup> century skills development?	10	15	30	35	10
13	Is there any significant your 21 <sup>st</sup> century skills development on you before and after being a collage students?	5	5	45	40	5

14	How far the campus environment influences your 21 <sup>st</sup> century skills development?	10	15	20	45	10
15	Overall, does your campus (inside/outside the classroom) support you in developing your 21 <sup>st</sup> century skills?	5	20	30	45	0
TOTAL		55	165	495	305	170

\*note:

(1) poor, (2) fair, (3) satisfactory, (4) good, and (5) excellent.

From the table 1, it is shown that the highest score of students' 21<sup>st</sup> century skills development in the third scale. It means that most of the students have satisfactory development in their 21<sup>st</sup> century skills. The next score of students 21<sup>st</sup> century skills development is in the fourth scale which means that they have good development in their 21<sup>st</sup> century skills. The third score is placed in the fifth scale which means that the students have excellent development in their 21<sup>st</sup> century skills.

**Table 2. Students' perception on 21<sup>st</sup> century development (multiple choices)**

No	Questions	Answer (%)			
		1	2	3	4
3	Which 21 <sup>st</sup> century skills should be take in priority?	50	10	10	30
5	Which of your 21 <sup>st</sup> century skills is the best?	40	15	15	30
5	Which of your 21 <sup>st</sup> century skills is the worst?	35	15	30	20

\*note:

(1) Critical thinking, (2) problem solving, (3) decision-making, and (4) collaboration.

Table 2 shows the response that critical thinking is the most important skill among the other 21<sup>st</sup> century skills. Then, the best 21<sup>st</sup> century skills that mastered by the students is critical thinking and it is followed by collaboration skill. The last is about the worst 21<sup>st</sup> century skills of the students are also same, that is critical thinking and it is followed by decision-making skill.

*RQ2. What are the students' perceptions on the implementation of PBL?*

The students' perception on the implementation of project based learning is recorded through the questionnaire number 16 to 30. Each question and response is described clearly in table 3 and 4. The questions number 16, 17, 19, 22, 25, 26, 27, 28, and 29 shown in table 3, are provided using Likert scale with five scale (with different descriptions in each question). Meanwhile the questions number 18, 20, 21, 23, 24, and 30 shown in table 4, are provided using multiple choices with some options (number 18 with three options and the others with two options).

**Table 3. Students' perception on the implementation of PBL (Likert scale)**

No	Questions	Answer (%)				
		1	2	3	4	5
16	Do your lecturers often give project assignment?	0	5	15	35	45
17	How clear is the lecturer instruction related to the project assignment?	5	5	60	20	10
19	How well your lecturers teach you what the students need to know before starting the project assignment?	5	10	40	35	10

22	How good is the lecturer's attitude in providing the project assignment consultation?	0	10	50	35	5
25	How far does the project assignment help you in developing your critical thinking?	5	5	40	45	5
26	Do you think project assignment help you in developing your problem solving skill?	0	0	45	40	15
27	Is there any impact of the project assignment on developing your decision-making skill?	0	0	40	45	15
28	Do the project assignments influence your work in team (collaboration skill)?	0	15	30	45	10
29	Overall, does the project assignment influence the development of your 21 <sup>st</sup> century skills?	5	15	35	35	10

\*note:

Each scale has different descriptions (see appendices for details information)

From table 3, it can be described that the highest score toward the implementation of project based learning is placed in the third score. It means that the implementation of project based learning is not bad and not good/ medium according to the most participants. Then, it is followed by fourth scale and the fifth scale which showed that the implementation of project based learning is included in the good to satisfactory category.

**Table 4. Students' perception on the implementation of PBL (multiple choices)**

No	Questions	Answer (%)			
		1	2	3	4
18	Is there any clear timeline regarding to consultation time, revision, and project assignment collection?	0	40	60	
20	Do you make any plan in completing your project assignment?	95		5	
21	Do your lecturers monitor the progress of your project assignment?	70		30	
23	Do your lecturer use clear instrument in assessing your project assignment?	85		45	
24	Do your lecturers give a clear feedback related to the result of your project assignment?	75		25	
30	Which 21 <sup>st</sup> century skills are most improved after getting the project assignment?	30	35	25	10

\*note:

For details optional descriptions, please see appendices.

Table 4 shows about how good the implementation of project based learning. Most of the respondent said that the overall implementation of project based learning is good. The response for the last question shows that most of students' problem solving skills improve after the implementation of project based learning.

*RQ3. What are the stages to implement the effective PBL?*

The existing teaching-learning



method used in this class is Project based Learning. The project here is given by the lecturer as the final assignment. The given assignment here is not intended to help the students in developing their 21<sup>st</sup> century skills but indirectly the implementation of project based learning gives the impact to the students' 21<sup>st</sup> century skills development. This fact is revealed from the result of the questionnaire that has been described in previous findings.

In order to get the strong impact on the development of students' 21<sup>st</sup> century skills the lecturer should arrange the implementation of the project based learning well and insert the clear goals of skills. Then, it is important for the lecturers to realize their role. Here, the lecturer's role had shifted to that of a facilitator, instead of a more traditional role (Habók and Nagy: 2016). Besides, it should be realized that the implementation of this method is high-consuming activity.

According to Habók (2015) here are numerous aspects which call for careful consideration. Firstly is choosing a topic and a title of the project. Secondly, planning involves assigning roles and activities, organizing groups, and establishing venues and financial and time requirements in completing the project. In addition, the project should ensure that students carry out research and work cooperatively in order to enhance their problem-solving skills, motivation and creativity. Finally, the assessment or evaluation focuses on the presentation of the final product, which can take various forms, such as a school presentation, a short film, a diary entry or any other form which helps students summarize the work process.

## **CONCLUSION AND SUGESTION**

This study attempts at investigating the students' perception of 21<sup>st</sup> century skills development through the implementation

of project based learning. The findings show that there is impact on the students' 21<sup>st</sup> century skills after the implementation of project based learning but its impact is not significant enough. As discussed in the previous part of this research, the project based learning did not intended to help the students' in developing their 21<sup>st</sup> century skills but indirectly, as unconsciously done by the lecturer, the implementation of project based learning gives the impact to the students' 21<sup>st</sup> century skills development. Based on that, it is recommended by the researcher to design the project based learning with the specific goals of 21<sup>st</sup> century skills development.

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