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Developing Students' Environmental Awareness Through Environmental Learning Models

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Abstract: The world has a lot of environmental problems which should be addressed in order to help the future generation. It is imperative to come up with measures that promote environmental awareness. However, many students do not consider environmental problems as important issues that need careful consideration. This study used environmental learning models: problem based learning (pbl) and project based learning (pjbl) to introduce real-world problems. Additionally, a descriptive quantitative analysis using sem-pls was used. The result showed the problem based learning has a significant influence on the environmental variable. Problem based learning provided important opportunities for engaging students in real environmental issue and is significant in fostering awareness. Nevertheless, the result showed project based learning has a negative influence on the environmental awareness, where the path coefficient obtained is -0.162 with a cr value of 1.594. Since cr is smaller than the critical value (1.594 <1.96), the statistical hypothesis h0 is accepted. This implies that the project based learning has an insignificant influence on the environmental awareness. Project based learning with campaign task was not effective in conveying the message and changing the behaviors of individuals. Parental and community involvement and the school environment also influence the awareness.

Key words: Students' Environmental Awareness, Environmental Learning Models, Problem Based Learning, Project Based Learning

1. Introduction

Environmental education has an important role in meeting the 21st century needs. It is crucial for children and teenagers and solves environmental problems through information regarding the needs and interest of the community. This makes both the current and future generations relish the benefits of natural heritage. SMAN

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Gambiran is a mainstay school in volleyball in Banyuwangi regency as well as in East Java Province, where policies are focused on developing and looking for talented volleyball athletes. As for sports-oriented schools, they should provide space or a lot of places to produce oxygen for the athletes. Oxygen is produced by crops, so the presence of crops in this school is important. In addition, school cleanliness is also important to support healthy athletes. Therefore, the environmental awareness is needed in this school. Unfortunetly, the school does not prioritize environmental issues. According to Landriany (2014), the ineffectiveness of green schools in Malang is attributed to the fact that some students do not understand the eco-school concept and the lack of community, teachers and staff participation in the implementation of Environmental Education.

One of the teachers is of the opinion that there is a lack of environmental awareness in the school. It is in line with the latest Mission Australia Youth survey release which indicated that lack of awareness is 10th in the environmental degradation list of youth problems facing the nation. The surveyed showed only 12.3 percent of the students, aged from 15 to 19 years - children put it in their three main concerns (Burke, 2014). Moreover, some studies think Indonesia may be the second-biggest contributor to marine plastic debris worldwide, with an estimated 1.3 million tons originating from the archipelago annually. Undeniably, many companies in the country produce small scale products such as disposable shampoo packages and sweets. Moreover, poor waste management infrastructure and scale of challenges have become areas of concern. During rainy seasons, thousands of tons of garbage are dumped in rivers and waterways and flow to the coastal regions (Jong, 2013; Langenheim, 2017).

To overcome these problems, some learning models of environmental education which allow students opportunities to construct their knowledge through engaging in self-directed inquiry, problem-solving, critical thinking, and reflections in a real-world context should be used. There is an assumption that if people are more knowledgeable on the environment and its associated issues, they will be aware of its problems and be motivated to act in more responsible ways (Fahlquist, 2008; Aminrad, Zakari & Sakari, 2013). Furthermore, Aminrad et. al (2013) stated that many students are often influenced by environmental issues.

Education approaches such as Problem based Learning, Project Based Learning, and Discovery Learning are considered to be constructivist. These methods are suitable and cover environmental issues students face every day. In this study, Problem Based Learning (PBL) and Project Based Learning (PjBL) were used.

According to Barrow (1986), Problem-based learning (PBL) is an instructional method of case active learning centered on the investigation and resolution of messy hospital real-world problems. This is an innovation in learning since students' thinking ability is optimized through a systematic group or teamwork process. This helps to empower, sharpen, test and develop students' thinking ability continuously (Tan, 2003; Febriasari & Supriatna, 2017). Project-based learning (PjBL) is an instructional model based on the

constructivist approach to learning. It entails the construction of knowledge with multiple perspectives within a social activity, and allows for self-awareness of learning, solely depending on the context (Duffy & Cunningham, 1996; Tamim & Grant, 2013). There are five criteria for PjBL, including; projects should be central to the curriculum, focused on problems making students struggle with major concepts, involve learners in the constructivist investigation, student-driven, and realistic (Thomas, 2000; Tamim & Grant, 2013).

According to the 2013 Curriculum for Senior High School, there are 11 text types which need to be taught. These include recount, descriptive, narrative, report, analytical exposition, explanation, hortatory exposition, news item, discussion, procedure, and review. Generally, hortatory exposition is considered the most suitable for teaching awareness through environmental issues such as water, air, and land pollution. It is a piece of text that presents one side of an issue (Anderson & Anderson, 2007), meant to persuade the audience that something should or should not be conducted (Depdiknas, 2013). It has three text organizations including thesis, arguments, and recommendations (Depdiknas, 2015).

After being subjected to a problem-based learning model where students conduct surveys for environmental problems in their village, the project-based learning model assignment was given. Students were expected to carry out campaigns in class X and XII with the theme "Reducing plastic waste in school". Public awareness is important in increasing enthusiasm and support, stimulate self-mobilization and action. Awareness raising requires strategies such as effective communication to attain the desired outcome such as campaign. Basically, the campaign involves organizing a series of activities to try to achieve something (Cambridge Dictionary, 2017). The aim of awareness-raising campaigns most often differs between contexts but generally includes increasing concern, informing the targeted audience, creating a positive image, and attempts to change behavior.

Lately, the lifestyle of love the environmental or go green is popular, becoming trendy in some societies. In line with the increasingly widespread global warming issues, the environmentalists increase the incentive for the conservation movement. Unfortunately, some people less concerned when it comes to going green activities, being more concerned with their own survival. The worse thing is, they actually contribute to the destruction of nature and the environment. This condition can be avoided if attitudes, actions and good behavior are emphasized early enough in life.

Learning occurs continuously in families, where parents play an important role in educating their children. When children are still in kindergarten or elementary school, they imitate and obey parents. The things implanted in a child at a young age is always be remembered and applied until one grows up. Basically, the family styles of care are described as a combination of the parent's behavior in different life situations based on the permanent educational climate created (Blažević, 2016).

The influence of parents is also seen in children learning and achievement in school. According to Hill and Taylor (2004), Parent involvement is the participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities. There are three types of parental involvement including 1) behavioral which involves both home and school-based involvement strategies such as active connections and communication between home and school, volunteering at school, and assisting to handle homework, 2) cognitive-intellectual which reflects home-based involvement and includes parental role in exposing their children to educationally stimulating activities and experiences, and 3) personal involvement which include attitudes and expectations about school and education. This reflects parental socialization around the value and utility of education (Hill & Tayson, 2009).

Community involvement also plays an important role in influencing students' environmental awareness and learning progress. As stated by Preston (2013), "Community involvement in school is a medium for augmenting and enhancing the social, cognitive, emotional, and spiritual development of students." For several reasons, rural schools are ideally positioned to foster high levels of community involvement. Due to small sizes and limited student enrolments, rural schools and their communities tend to be socially connected and are very cohesive (Preston, 2013; Haas & Nachtigal, 1998; Mitchell, 2000). There are four indicators of community involvement, community influence (adults feeling they influence decisions in their local area), community cohesion (people thinking their local area is a place where individuals from different backgrounds might co-exist), social capital (people who have helped or been helped by others) and the community and voluntary sector (Extent and influence in the locality) (Humm, Jones & Chanan, 2005).

Some school environments fulfill students' needs and promote their concern more effectively than others on achievement. According to Wang & Helcombe (2010), there are five aspects of school environment including 1) promotion of performance goals which reflect the extent to which students think teachers emphasize relative ability and social comparison, promote competition, and emphasize striving for high grades as the main goal of learning, 2) promotion of mastery goals which maintain student perceptions that teachers emphasize self-improvement, reward, effort, and value mastery as the main goal of learning 3) support of autonomy which involves students' view that instructors provide opportunities to participate in making decisions related to academic tasks and school governance and allow for student input into class discussion, 4) promotion of discussion involves students' perceptions that teachers encourage interactions and discussions on ideas with one another during class., and 5) teacher social support which outlines whether students perceive their teachers to be supportive, responsive, and caring.

2. Methodology

This study used a quantitative approach with multiple linear regression and Structural Equation Modeling (SEM), mediation method and spatial analysis. The SEM approach was adopted since the study consists of many variables and expected inter-variables are inter-connected with each other, having a multilevel model.

However, due to the small sample population (respondent), PLS (Partial Least Square) method was used for data analysis.

2.1. Study Site

The sample population involved the eleventh-grade students in Math and Science program of SMAN 1 Gambiran, Banyuwangi during their first semester in the academic year 2018/2019. The choice was motivated by the following reasons;

1) SMAN 1 Gambiran is one of the schools that needs attention primarily due to the emphasis on volleyball achievement and the lack of concern for the environment.

2) The appropriate genres for teaching environmental awareness are hortatory exposition and analytical exposition text. These two approaches are taught in class XI.

3) The study utilizes Problem based learning and Project-based learning models. On the problem-based learning model, students were asked to look for pollution problems (water, land or air) in their village. The pollution problem is more related to math and science program since it deals with biology and chemistry. This learning model has integrated with writing a lesson. On the project-based learning, students were asked to conduct a campaign in X and XII grades classes. The campaign topic was reducing plastic wastes in school.

This learning model was integrated with speaking lesson.

The population of the study consisted of 173 students as presented in the following table.

Table 1. The Population of The Study

Class	Number of Students
XI MIPA 1	36
XI MIPA 2	34
XI MIPA 3	35
XI MIPA 4	34
XI MIPA 5	34
Total	173

2.2. Data Collection

This study used the questionnaire as a data collection instrument. It included closed-ended questions covering various aspects of the environmental issues students found in their village. It also involved teaching and learning process in PBL and PjBL, parents' involvement in their achievement, school environment, community involvement and students' internal motivation on learning English and environmental awareness. Questionnaire about motivation to learn English was based on Adhiartho (2013) research while parents involvement was based on Grolnick, et al (1997) research. Additionally, the school environment questionnaire was based on Wang & Helcombe (2010) research while community involvement was based on Humm, et al (2005). Lastly, the questionnaire on environmental awareness was based on Harju-Autti (2013) research. The instrument developed consists of five-point Likert type response scale levels and agree and disagree section with a positive meaningful range up to a negative end on the topic with predetermined answer scores between 1 and 5.

Table 2. Likert Scale Ranking

Choice of Answers	Numeric Values	Response Catagory
A	5	Strongly Agree
B	4	Agree
C	3	Undecided
D	2	Disagree
E	1	Strongly Disagree

3. FINDING

Based on the results of PLS analysis, the results are as shown in the table below:

Table 3. The Estimation Results and Hypothesis Testing (Direct Effects)

The Influence Between Latent Variables	Path Coefficient	CR	Conclusion
Community Involvement (X5) -> English Productive Skills (Y1)	0,056	0,590	Not Significant
Community Involvement (X5) -> Environmental Awareness (Y2)	0,295	2,580	Significant
English Productive Skills (Y1) -> Environmental Learning Models (Z)	0,513	9,517	Significant
Environmental Awareness (Y2) -> Environmental Learning Models (Z)	0,526	9,431	Significant
Parental Involvement (X3) -> English Productive Skills (Y1)	0,050	0,707	Not Significant
Parental Involvement (X3) -> Environmental Awareness (Y2)	0,234	2,313	Significant
Parental Involvement (X3) -> Problem Based Learning (X1)	0,030	0,618	Not Significant
Parental Involvement (X3) -> Project Based Learning (X2)	-0,077	1,343	Not Significant
Parental Involvement (X3) -> School Environment (X4)	0,600	6,572	Significant
Problem Based Learning (X1) -> English Productive Skills (Y1)	0,410	2,779	Significant
Problem Based Learning (X1) -> Environmental Awareness (Y2)	0,291	2,698	Significant
Problem Based Learning (X1) -> Project Based Learning (X2)	0,581	6,143	Significant
Project Based Learning (X2) -> English Productive Skills (Y1)	0,381	3,036	Significant
Project Based Learning (X2) -> Environmental Awareness (Y2)	-0,162	1,594	Not Significant
School Environment (X4) -> English Productive Skills (Y1)	0,078	0,883	Not Significant
School Environment (X4) -> Environmental Awareness (Y2)	0,290	2,107	Significant
School Environment (X4) -> Problem Based Learning (X1)	0,822	17,108	Significant
School Environment (X4) -> Project Based Learning (X2)	0,379	3,851	Significant

3.1. Problem Based Learning (X1)

Undeniably, Problem Based Learning (X1) variable has a positive influence on Project Based Learning (X2). This means the higher X1 consequently raise the X2 variable, where the path coefficient obtained is 0.581 with a CR value amounting to 6.143. Since the CR value is greater than the critical value (6.143 > 1.96), the statistical hypothesis H0 is rejected, meaning the X1 has a significant effect on X2.

Problem Based Learning (X1) variables have a positive influence on English Productive Skills (Y1). This means the higher Problem-Based Learning (X1) consequently raise the English Productive Skills (Y1) variable, where the path coefficient obtained is 0.410 with CR of 2.779. Since the CR value is greater than the critical value (2.779 > 1.96), the statistical hypothesis H0 is rejected. This means the Problem Based Learning (X1) variable has a significant influence on the English Productive Skills (Y1).

Problem Based Learning (X1) variable has a positive influence on Environmental Awareness (Y2). This indicates that the higher Problem-Based Learning (X1) will consequently raise the Environmental Awareness (Y2) variable, where the Path coefficient obtained is 0.291 with a CR value of 2.698. Since the CR value is higher than the critical value (2.698 >1.96), the statistical hypothesis H0 is rejected, meaning the Problem Based Learning (X1) has a significant influence on the Environmental variable.

3.2. Project Based Learning (X2)

Project Based Learning (X2) variable has a positive influence on English Productive Skills (Y1). This means higher X2 consequently raise the Y1 variable, where the path coefficient obtained is 0.381 with the CR value of 3.036. Since the CR value is higher than the critical value (3.036 > 1.96), the statistical hypothesis H0 is rejected, meaning the Project Based Learning (X2) variable has a significant effect on the English Productive Skills (Y1).

Moreover, Project Based Learning (X2) variable has a negative influence on Environmental Awareness (Y2). This means higher X2 consequently reduce Y2 variable, where the path coefficient obtained is -0.162 with a CR value of 1.594. Since CR is smaller than the critical value (1.594 <1.96), the statistical hypothesis H0 is accepted. This implies that the Project Based Learning (X2) variable has an insignificant influence on the variable Environmental Awareness (Y2).

3.3 Parental Involvement (X3)

Table 4 Parents' Job× English Learning Outcomes

Cross Tabulation			**English Learning Outcomes**		**Total**
			Low	**High**	
Parents' Job	**Farmer**	**f**	6	8	14
		%	42.9%	57.1%	100,0%
	Farmer Worker	**f**	1	3	4
		%	25.0%	75.0%	100.0%
	Private Sector Worker/ Entrepreneurial	**f**	18	22	40
		%	45.0%	55.0%	100,0%
	Teacher	**f**	0	2	2
		%	0.0%	100.0%	100.0%
	Civil Servant	**f**	3	5	8
		%	37.5%	62.5%	100.0%
Total		**f**	28	40	68
		%	41.2%	58.8%	100.0%

This research involved students with parents working as farmers, entrepreneurs, teachers, and civil servants.

The composition involved 14 farmers, 4 farm workers, 40 entrepreneurs, 2 teachers, and 8 civil servants. The correlation results gave a Chi-Square value of 2.135 with $p = 0.711$. For comparison, since the value of p is higher than $\alpha = 0.05$ ($0.711 > 0.05$), there is an insignificant relationship between Parental Work and the Result of Learning English.

Parental Involvement variable (X3) have a positive influence on Problem Based Learning (X1). This means a higher X3 consequently raise X1, where the path coefficient obtained is 0.030 with a CR value of 0.618. Since the CR smaller than the critical value ($0.618 < 1.96$), the statistical hypothesis H0 is accepted, meaning the Parental Involvement variable (X3) has a non-significant effect on the Problem Based Learning (X1).

Furthermore, Parental Involvement (X3) variable has a negative influence on Project Based Learning (X2). The higher X3 reduces the X2 variable, where the path coefficient obtained is -0,077 with a CR value of 1.343. Since the CR is smaller than the critical value ($1.343 < 1.96$), the statistical hypothesis H0 is accepted, meaning X3 has a non-significant effect on X2 variable.

Parental Involvement variable (X3) have a positive influence on School Environment (X4). Higher X3 results in an increase in X4, where the path coefficient obtained is 0.600 with a CR value of 6.572. Since the CR is greater than the critical value (6.572 > 1.96), the statistical hypothesis H0 is rejected, meaning X3 has a significant effect on X4.

Parental Involvement variable (X3) has a positive influence on Environmental Awareness (Y2). A high X3 increases the Y2 variable, where the path coefficient obtained is 0.234 with a CR value of 2.313. Since the CR is higher than the critical value (2.313 > 1.96), the statistical hypothesis H0 is rejected, meaning the X3 has a significant influence on the Y2 variable.

3.4 School Environment (X4)

To begin with, the School Environment variable (X4) has a positive influence on Problem Based Learning (X1). A higher X4 increases the X1 variable, where the path coefficient obtained is 0.822 with a CR value of 17.108. Since CR is greater than the critical value (17.108 > 1.96), the statistical hypothesis H0 is rejected, meaning the School Environment variable (X4) has a significant influence on the Problem Based Learning (X1) variable. Moreover, the School Environment (X4) variable has a positive influence on Project Based Learning (X2). A higher X4 raises the X2 variable, where the path coefficient obtained is 0.379 with a CR value of 3.851. Since the CR value is greater than the critical value (3.851 > 1.96), the statistical hypothesis H0 is rejected.

School Environment (X4) variable has a positive influence on Environmental Awareness (Y2). A high X4 consequently raises the Y2 variable, where the Path coefficient obtained is 0.290 with a CR value of 2.107. Since the CR is greater than the critical value (2.107 > 1.96), the statistical hypothesis H0 is rejected, meaning the School Environment variable (X4) has a significant influence on the Environmental Awareness (Y2) variable.

3.5 Community Involvement (X5)

Basically, Community Involvement (X5) has a positive influence on Environmental Awareness (Y2). A higher X5 consequently increase the Y2 variable, where the path coefficient obtained is 0.295 with a CR value is 2.580. Since the CR is greater than the critical value (2.580 > 1.96), the statistical hypothesis H0 is rejected, meaning the Community Involvement (X5) variable has a significant influence on the Environmental Awareness (Y2).

3.6 The Effect of The English Productive Skill (Y1) and The Students' Environmental Awareness (Y2) on The Environmental Learning Models

The English Productive Skills (Y1) variable has a positive influence on Environmental Learning Model (Z). This means a higher Y1 increase the Z variable, where the path coefficient obtained is 0.513 with a CR value 9.517. Since the CR is higher than the critical value (9.517 >1.96), the statistical hypothesis H0 is rejected, meaning the English Productive Skills (Y1) variable has significant effect on the Environmental Learning Models (Z).

The Environmental Awareness (Y2) variable has a positive influence on Environmental Learning Models (Z). This means a higher Y2 increase the Z variable, where the path coefficient obtained is 0.526 with a CR value 9.431. Since the CR is higher than the critical value (9.431 >1.96), the statistical hypothesis H0 is rejected, meaning the Environmental Awareness (Y2) variable has significant effect on the Environmental Learning Models (Z).

The path coefficients on the structural model and the value of the factor weights of the manifest variables in the measurement model can be illustrated through the measurement of model path diagrams and structural models as follows:

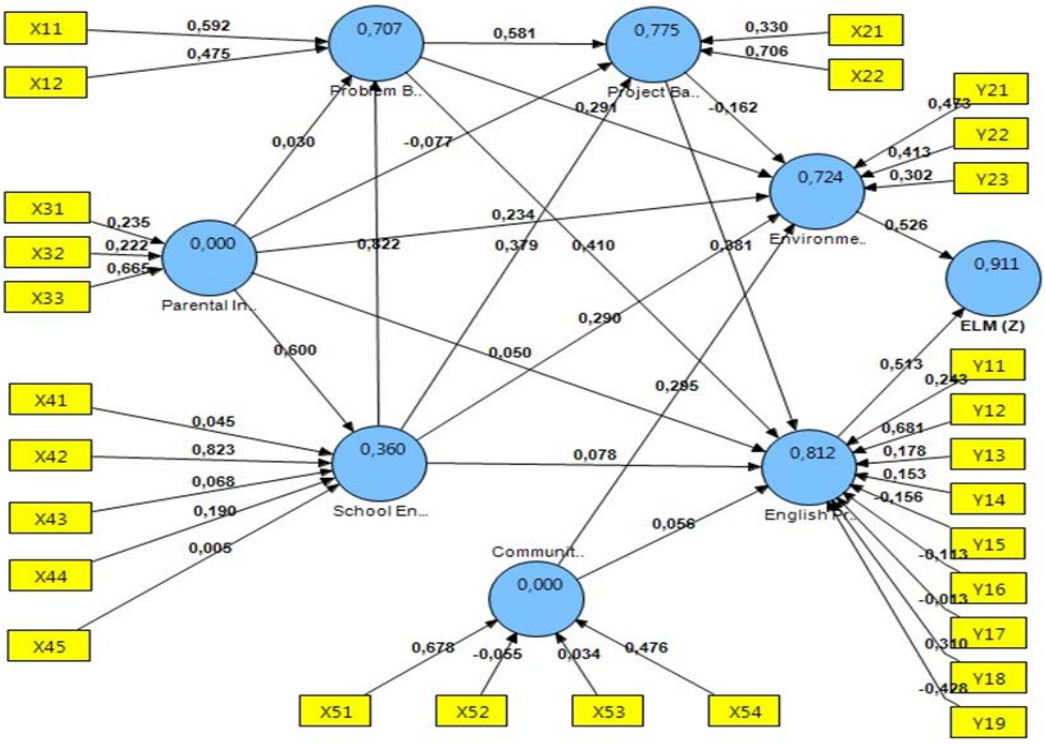

Figure 1: PLS Path Chart

4. Discussion

Problem-Based Learning (PBL) is a teaching method which exposes students complex real-world problems in the form of concepts and principles. This is a contradiction to what they often learn in the classroom set-up (I Illinois Citl, 2019). Moreover, "PBL is also a student-centered pedagogy in which students learn about a subject through solving an open-ended problem found in trigger material"(Wikipedia, 2019). In this study, PBL covered students' learning experiences through environmental problems in their village and explaining them in writing. The relationship between Problem based learning, project-based learning, English productive skills, and students' environmental awareness are discussed in this section.

Problem Based Learning (X1) variable has a significant influence on the English Productive Skills (Y1) variable. According to Namaziandost et. al (2018), writing significantly increase the pre-middle EFL students' speaking ability. Furthermore, Poonpon (2017) states that PBL improves students' skills and self-confidence in using English and learning assessment is carried out by looking at the projects undertaken by students.

In the PBL learning model, the students were asked to look for environmental problems around their village and also applied to scaffold in their reports as writing education. Teacher's scaffolding techniques in teaching writing skill help students and gives a better basis for enhancing the writing of a good and an academic piece of work in English. This is effective compared to conventional learning, where they only gain knowledge about the writing process without putting it into practice it through a sequence of steps (Faraj, 2015). Furthermore, Wulandari et. al (2015) stated that scaffolding teaching technique improves significantly the students' writing skill. This is evidenced by their writing skill achievement such as 1) developing ideas appropriate to the topic provided, 2) organizing a text, 3) using vocabularies in line with the topic, 4) using grammatical and sentence patterns appropriate to the topic, 5) spelling the words appropriately, and 6) using suitable punctuations in the text.

Problem Based Learning (X1) variable has a significant influence on the Environmental Awareness variable. According to Kuvac and Koc (2018), Problem Based Learning helps science teachers explore the nature and factors of environmental problems harming human activity. It also suggests giving solutions to real-life environmental problems and helps students realize the importance of taking an active role in conserving the environment. Through PBL, students in experiment groups had responsible attitudes when it came to exploring their village environment, and concluded there are environmental threats. As a remedial course of action, they started environmental movement activism. Simply put, the students showed they realized and believed their environment is fragile and easily damaged by human activity. Consequently, they were willing to actively support environmental conservation actions. Problem Based Learning variable has a significant influence on

the Project Based Learning variable. According to Artini & Nitiasih (2017), students' productive skills in speaking and writing improved as the result of the implementation of PBL activities in English as foreign language classes.

Project-based learning is the creation of instructional materials, modules or lessons to develop knowledge and skills in students. It is achieved through engaging projects which challenge and introduce the real problems faced (Schuetz, 2018). In this approach, students are asked to campaign in order to reduce plastic waste in other classrooms and present it verbally. The relationship between Project Based Learning and Students' Environmental Awareness is discussed in this section

Project based learning variable has a significant effect on the English Productive Skills variable. This occurred since students were given more time to prepare materials and campaign. Besides, there are many factors influencing students speaking ability, including topical knowledge (Tuan & Mai, 2015). Individuals with topical knowledge from previous PBL learning, such as pollution and garbage were confident and spoke fluently in front of others in X and XII classes. Furthermore, they easily answered the post-test questions than their counterparts in control classes.

Project Based Learning has an insignificant influence on the students' Environmental Awareness. According to Abrahamse & Mathies (2012), they stated that the provision of information is not enough to develop environmental behavior, but rather increase awareness. Furthermore, environmental issues are multifarious. The informational strategies are not enough to encourage people to adopt a more environmentally friendly lifestyle. There is a need to combine them with structural intervention strategies. In line with Abrahamse and Mathies, Hadijah (2017) stated that environmental awareness campaign certainly is not effective in changing the behaviors of people. Even though it is carried out with various appeals, it is easier if they see something and then emulate it. For this reason, it is better for parents to teach children environmental awareness early enough.

Parents' involvement in children education might take different forms. For instance, parents who are behaviourally involved participate in every school activities, while those who are cognitively involved support their children to learn subject materials and join activities which boost their knowledge. Additionally, Parents who personally involved share school-based events, believing the school is valuable and expect their children to do the same (Mare, 2014). This section discusses the relationship between parent involvement in English learning activities in the PBL and PjBL models in class and students' environmental awareness.

Parental Involvement has a non-significant effect on the Problem Based Learning. This is in line with Sapungan & Sapungan (2014) which stated that parental involvement, regardless of ethnic or racial

background, socioeconomic status, or parents' education level, benefits for children. In general, children tend to improve grades, test scores, and attendance, as well as doing their homework.

Parental Involvement also has a non-significant effect on the Project Based Learning. According to Syamsudduha and Ginanto (2017), parents have been involved in school activities, help children carry out school' assignments, and actively giving parental support without interfering with classroom learning activities. Furthermore, Intellectual and behavioral involvements are powerlessness aspects of the parent involvement-variable. Aspects of behavioral involvement include enthusiasm, commitment, and tolerance, while intellectual involvement encompasses stimulating children's intelligence, learning assistance, monitoring academic development, being models and facilitating writing, reading and discussion habits (Junianto and Wagiran, 2013)

Parental Involvement has a significant effect on the School Environment. Parental involvement has always been an important factor of every teacher, student, and school academic achievement. Parental involvement refers to the art of parents playing an active role in school activities as a concern for children's education (Bakker & Denessen in Yulianti et.al, 2018). According to Park & Holloway (2017), parental involvement has a very important role in improving student achievement, especially schools with low-income students. Besides, the network size of parents is a very strong predictor of progress and achievement in school.

Parental Involvement has a significant influence on the Environmental Awareness. This is in line with Erhabor & Oviahon (2018), which established that families have a stronger influence on students' attitudes, attention, and environmental behavior. Moreover, the attitude of the community is also critical and has a major influence on the environmental behavior of students. This implies students from families teaching good behaviors are environmentally friendly and give attention to conserving the environment.

The school environment is characterized by facilities, classrooms, health clinics, and disciplinary policies and practices designed to protect students from external factors (AIR, 2019). The relationship between school environment with Problem Based Learning, Project Based Learning, English productive skills, and students' environmental awareness is discussed in this section.

School Environment has a significant influence on the Problem Based Learning and the Project Based Learning. This is in line with Usain et.al (2015), which concluded that the school environment has a positive effect on student academic performance. The research showed students from schools with adequate learning facilities, good relationships between teacher-students and an appropriate learning environment have good performance. Furthermore, Rahmatika and Hernawati (2016) stated that the students believe their nonphysical school environment affects academic achievement.

School Environment has a significant influence on the Environmental Awareness. According to Bozoglu et. al (2016), environmental education in schools affects students' attitudes and behavior towards the environment. Furthermore, Borg et. al (2017) stated that there was a positive relationship between children who learned about sustainability and involvement of teachers in schools through discussions. Children were given the opportunity to participate in discussions and practical activities, both at home and at school. As a matter of fact, they were involved in responding to environmental problems and various issues around them.

Community involvement is useful in all areas of life, having a lot of impact on human life, society, culture, schools, towns, and small businesses around the world. According to EPA (2019), "community involvement means the process of engaging in dialogue and collaboration with community members".

Community Involvement has a significant influence on the Environmental Awareness. According to Kammarudi et. al (2016), public awareness should be the basis of participating in pro-environmental behavior. It is considered the beginning of change towards pro-environment action. Schools, parents, and the community should work together to promote students' environmental awareness, well being, and learning. When schools actively involve parents and engage community resources, they respond more effectively to the environment. Family and community involvements foster partnerships between schools, family and community groups, and individuals. These partnerships result in sharing and maximizing resources, helping students to develop environmental behaviors.

The English Productive Skills has significant effect on the Environmental Learning Models. This is in line with Setyowati (2013), which stated that the Project work develops the character of students through English lessons, where learners will connect with life outside school, gaining an awareness of environmental problems.

Environmental Awareness has significant effect on the Environmental Learning Models. Acoording to Li (2018), the students with better environmental awareness have positive attitudes since cognition is the individual understanding, knowledge, and opinions of affairs and is the powerful evaluation.

It is undeniable that national education in Indonesia has shown significant progress over time. A lot of Indonesian students win various world activities in different fields of science. However, the education system has not changed the society's behavior, for instance, its approach to garbage. Individuals often throw garbage carelessly and this has reached an acute level. No places and activities are immune to garbage in Indonesia, especially plastic waste.

Our education system is expected to play a major role in changing bad behavior, culture, and attitudes. Basically, students conduct as part of society needs to increase environmental awareness. Besides, society has not been invited to participate in hygiene, even though members are educated. To overcome this problem, the government conducts Adiwiyata school program with a view of instilling the environmental awareness values

to students. This program is carried out by the Department of Environment and the Directorate General of Primary and Secondary Education of the Ministry of Education and Culture. According to Susilowati at al. (2018), Adiwiyata School has implemented a proper system which has made learners responsible enough to support sustainable development. However, Rahmawati and Suwanda (2015), stated that there were obstacles in Adiwiyata's school due to the students' turnover every year, socio-economic conditions, and concerns from teachers.

5. Conclusions

From the results of the study, the following deductions were made;

Firstly, Problem Based Environmental Learning model expands students' awareness and mindfulness on environmental problems around them. It provides important opportunities for students to be engaged in real environmental issues, it is significant fostering their environmental awareness. The awareness occurs also because of the influence of parents' behavioral engagement, the school environment, and community involvement. Problem-based environmental learning with scaffold also could increase students writing skills in hortatory exposition organization, content, grammar, and vocabulary. Learners taught using PBL through scaffold achieve significantly higher scores in writing hortatory exposition text than using the conventional method.

Secondly, Project Based Environmental Learning model challenge and introduce students to the real problems faced. It develops their knowledge and skills in the environment through engaging projects. Nevertheless, the campaign as a student project did not develop students' environmental awareness, and so it is not effective in making people hear the message and change their behavior. However, project-based environmental learning increases students' speaking skills in fluency, content, grammar, and diction. Individuals taught using PjBL through campaign achieve significantly higher scores in speaking than those taught using the conventional method. Moreover, assignment projects where students directly see environmental problems and make improvements, such as planting trees on empty land, making compost from wet waste or processing certain waste into more useful items should be considered.

Thirdly, the environmental awareness of class XI students in SMAN 1 Gambiran is influenced by the models using Problem Based Learning. However, Project Based Learning using campaign does not significantly affect students' environmental awareness. Besides, parental involvement, school environment, and community involvement influence students' environmental awareness. Teaching through environmental-learning models enable students to develop the higher-order skills which enable them to apply what they learned in more meaningful ways. Additionally, arrange the interesting activity in each stage of

Problem Based Learning motivate students to be involved in teaching, learning and to find the solution to their local environmental problems. The more interesting topic assigned to the students will make them more enthusiastic in doing their assignments.

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