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Effectiveness of The Project Task Based on Potential of Student's Region on Student Engagement

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Abstract

This study aimed to investigate 'what does the project task of region potential can make students possible to act more active with the high involvement of learning?' This study used proactive action research that focused to the new way to improve students' engagement. The assessment of students' engagement was carried out using questionnaire and strengthened by qualitative data, were follows: lecturers' observation result and students' interview. The result of this study shown that the implementation of project based on potential of student's region was effective to make students engage with the learning process. The factor that make high students' engagement was the project task that has been done, it was very useful for their region.

Keywords: project task, students engagement, innovation learning

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Efectividad de la tarea del proyecto basada en el potencial de la región del estudiante en la participación del estudiante

Resumen

Este estudio tuvo como objetivo investigar: ¿qué puede hacer la tarea del proyecto de potencial regional para que los estudiantes puedan actuar de manera más activa con la alta participación del aprendizaje? La evaluación de la participación de los estudiantes se realizó mediante un cuestionario y se fortaleció con datos cualitativos, fueron los siguientes: resultado de la observación de los profesores y entrevista de los estudiantes. El resultado de este estudio mostró que la implementación del proyecto basado en el potencial de la región de los estudiantes fue efectiva para hacer que los estudiantes participaran en el proceso de aprendizaje. El factor que hizo que la participación de los estudiantes fuera alta fue la tarea del proyecto que se realizó, fue muy útil para su región.

Palabras clave: Tarea Del proyecto, compromiso de los estudiantes, aprendizaje de la innovación

1. INTRODUCTION

Learning process on the vocational education is more dominant in the practice learning that be able to produce the product (Jalinus, Syahril & Nabawi, 2019). Generally, the students' practical task make a simple product and design of the product are designed by lecturer. The simple product as the students' task, it is not interested by students. So that, students are less active to carry out the practical task

and it can make less intensity of students' effort too (Jalinus dan Nabawi, 2017; Syahril, Nabawi and Prasetya, 2020). Based on these problems, the researcher designed a learning model, which is students' practical task of their own region potential.

The project task of region potential is defined students make a tool based on their own region potential and the tool is projected to enhance their own region potential. Mackenzie, et al. (2003) stated that education must be able to invite students to always be close and interact with the local culture. The product results of students' practical task are expected to be useful to develop their own region potential, so that it has an impact in improving people's economy. Many experts discuss about the educational relationship to develop the country's economy (Fjellström, 2014; Behroozi, 2014).

The project task based on the potential student region is a new practical for vocational education. Therefore, the study to explain the effectiveness of it is needed. This study aimed to explain the effectiveness of that learning model. The effectiveness of learning strategy is reviewed from students' engagement with the learning activity in carrying out the project task. Student engagement is a term to describe students' engagement deeply on learning activities (Jimerson, et al., 2003; Fedrick, et al., 2004; Reschly and Christension, 2012). Students' engagement is closely related with the students' learning satisfaction (Kuh et al., 2007). Students' engagement is an important indicator of learning quality (coates, 2005). The education institution is more important to be focus to enhance the students' engagement (Holmes, 2018).

2. METHODOLOGY

The study applied a proactive action research strategy under a qualitative research paradigm to enhance student engagement. Action research can be applied to investigate and evaluate of the action taken (McNiff and Whitehead 2005). Lecturers are a right researcher to carry out this study, because of the lecturers have to be responsible to enhance their learning quality (McNiff and Whitehead, 2005; Baser, et al., 2017). Schmuck (2006) stated that the proactive action research is application and investigation of a new practice, with the six stages of action, are follows: list hopes, try a new, collect data, check what, reflect on and fine-tune. In the current study, the lecture was also a researcher and focus on utilizing a new way to enhance student engagement.

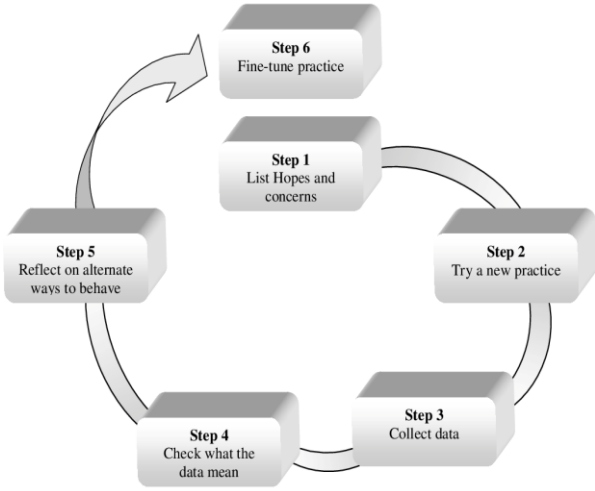

Fig. 1: Steps of the proactive action research (Schmuck, 2006).

The research activities were carried out and every step of the proactive action research is shown on Table 1.

Table 1: Research activities on every step of proactive action research

Steps	**Actions**
List hopes and concerns	❖ List Hopes * The project task that was carried out by students was potentially to develop their own region potential * The project task was lifted from real world problems and issues of students' region. * The project task based on region potential will enhance the student engagement * Implementation of this learning model will promote project task based on region potential ❖ List concerns * Some student might have a hard time to identify the region potential that has not been developed yet. * Students might have a hard time to find idea about innovation of what will be the project task * Some students might not take advantage of the paper references that published by journal * Some student might not take advantage of the other knowledge source, like machine video or the creative tool that shown in YouTube * Some students might not share information or

	discuss with their friends
Try a new way	* So students can identify their own region potential easily, students were lead to discuss with their own region government, public figure and their family * Lecturer gives the opportunity to students for consultation and guidance outside of the class * Students are trained to look for references from journal and YouTube
Collect data	* Lecturer fill the observation form of students' learning activities * In the end of learning process, students fill the questionnaire of the students' engagement * Lecturer interview the students about the students' engagement
Check what the data mean	* Lecturer analyze the observation form * Lecturer analyze the interview * Lecturer analyze the questionnaire data
Reflect on alternative ways to behave	* Lecturer inform the implementation successful and failure
Fine-tune practice	* Reporting the conclusion of study that has been done and giving the implication of project task based on potential of student region implementation

The object of study in this research was students that registered Mechanical Design course, which is 51 number of students. Students were given computer facility to design the product and internet access to look for the references. Students made the learning group that consist of 3 students in one group, so they can cooperate to discuss and share the idea that they have.

Before giving the practical task to make the product that based on region potential, students are teach about how to analyze the region potential, the concept of tool and mechanical design, designing the tool or mechanical using CAD software. Then, students make the learning group that consist of 3 students a group based on the same region, so they can cooperate to discuss and share the idea that they have. The stages to carry out the practical task of region potential, are follows:

1. Students identify their own region potential and choose the topic that will be basic of their practical task.
2. Making the practical task proposal of region potential that consist of: analyze the region potential, writing the hypotheses of effectiveness on tool or machine to enhance the region potential, drawing the sketch of tool and machine, making the specification of tool and machine and analyzing the tool and machine design
3. Proposing the proposal to lecturer
4. Revising the proposal according to lecturer suggestion
5. Making the tool and machine design (blue print)
6. Presenting in front of class

The assessment of students' engagement was adapted from a Student Course Engagement Questionnaire by Handelsman et al. (2005) that consist of four dimensions of students' engagement, are follows: skills engagement, emotional engagement, participation/interaction engagement and performance engagement. There are 23 statement items on the questionnaire (refer Table 2). The subject of study was asked to assess the statements in the questionnaire with the options: 1) strongly disagree, 2) disagree, 3) neutral, 4) agree and 5) strongly agree. Analyzing data of the questionnaire result that has been filled by students was carried out by using percentage, mean, deviation standard and statistic method that related to analyzing.

Table 2: Indicator of students' engagement assessment questionnaire that was adapted by Handelsman et al. (2005)

Factors	Items
Skills engagement	* Making sure to study on a regular basis
	* Putting forth effort
	* Doing all the homework problems
	* Staying up on the readings
	* Looking over class notes between classes to make sure I understand the material
	* Being organized
	* Taking good notes in class
	* Listening carefully in class

	*	Coming to class every day
Emotional engagement	*	Finding ways to make the course material relevant to my life
	*	Applying course material to my life
	*	Finding ways to make the course interesting to me
	*	Thinking about the course between class meetings
	*	Really desiring to learn the material
Participation /interaction engagement	*	Raising my hand in class
	*	Asking questions when I don't understand the instructor
	*	Having fun in class
	*	Participating actively in small-group discussions
	*	Going to the professor's office hours to review assignments or tests or to ask questions
	*	Helping fellow students
Performance engagement	*	Getting a good grade
	*	Doing well on the tests
	*	Being confident that I can learn and do well in the class

3. RESULTS and DISCUSSION

Skill engagement data of questionnaire that has been filled by students was analyzed by using statistic formula that consist of percentage, mean and deviation standard. Data analysis result was

shown on Table 3. Based on students' data analysis result of 9 items on the students' engagement factor that choose highest "strongly agree" was item of taking good notes in class with 33 choosers or 64.7% of the total number of students (M=4.65), followed by "making sure to study on a regular basis" (M=4.61), "putting forth effort" (M=4.53), "listening carefully in class" (M=4.51), "doing all the homework problems" (M=4.49), "being organized" (M=4.43), "looking over class notes between classes to make sure I understand the material" (M=4.41), "coming to class every day" (M=4.33), and "staying up on the readings" (M=4.22).

Table 3: Data Analysis Result of skills engagement

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	M	SD
Making sure to study on a regular basis	31 (62.7%)	18 (35.3 %)	1 (2 %)	0 (0 %)	0 (0 %)	4.61	0.53
Putting forth effort	28 (54.9%)	22 (43.1 %)	1 (2%)	0 (0 %)	0 (0 %)	4.53	0.54
Doing all the homework problems	29 (56.9%)	18 (35.3 %)	4 (7.8 %)	0 (0 %)	0 (0 %)	4.49	0.64
Staying up	20 (39.2%)	22	9	0	0	4.22	0.73

on the readings		(43.1 %)	(17.6 %)	(0 %)	(0 %)		
Looking over class notes between classes to make sure I understand the material	26 (51%)	20 (39.2 %)	5 (9.8 %)	0 (0 %)	0 (0 %)	4.41	0.67
Being organized	27 (52.9%)	19 (37.3 %)	5 (9.8 %)	0 (0 %)	0 (0 %)	4.43	0.67
Taking good notes in class	33 (64.7%)	18 (35.3 %)	0 (0 %)	0 (0 %)	0 (0 %)	4.65	0.48
Listening carefully in class	28 (54.9%)	21 (41.2 %)	2 (3.9 %)	0 (0 %)	0 (0 %)	4.51	0.58
Coming to class every day	25 (49%)	18 (35.3 %)	8 (15.7 %)	0 (0 %)	0 (0 %)	4.33	0.74

Analysis result of questionnaire data about emotional engagement has a high agreement for each item (Table 4), where on the all items just two items that was chooses by students, are follows:

"strongly agree" and "agree". It indicates the implementation of project based on potential region of student was very effective to enhance emotional engagement. Based in the data analysis result, the highest item was "applying course material to my life" (M=4.78), with 78.4% students choose "strongly agree". It was followed by "finding ways to make the course material relevant to my life" (M=4.75), "finding ways to make the course interesting to me" (M=4.63), "thinking about the course between class meetings" (M=4.61), and "really desiring to learn the material" (M=4.59).

Table 4: Data Analysis Result of Emotional engagement

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	M	SD
Finding ways to make the course material relevant to my life	38 (74.5%)	13 (25.5%)	0 (0 %)	0 (0 %)	0 (0 %)	4.75	0.44
Applying course material to my life	40 (78.4%)	11 (21.6%)	0 (0 %)	0 (0 %)	0 (0 %)	4.78	0.42
Finding ways to make the	32 (62.7%)	19 (37.3%)	0 (0 %)	0 (0 %)	0 (0 %)	4.63	0.49

course interesting to me							
Thinking about the course between class meetings	31 (60.8%)	20 (39.2%	0 (0 %)	0 (0 %)	0 (0 %)	4.61	0.49
Really desiring to learn the material	30 (58.8%)	21 (41.2%)	0 (0 %)	0 (0 %)	0 (0 %)	4.59	0.50

Regarding to the participation/interaction engagement, data analysis result can be seen on Table 5. Based on the data analysis result, the highest item was "Going to the professor's office hours to review assignments or tests or to ask questions" (M=4.61), followed by "asking questions when I don't understand the instructor" (M=4.53), "helping fellow students" (M=4.43), "having fun in class" (M=4.41), "Participating actively in small-group discussions" (M=4.37), and "Raising my hand in class" (M=4.35).

Table 5: Data Analysis Result of Participation/interaction engagement

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	M	SD
Raising my hand in class	25 (49%)	19 (37.3%)	7 (13.7%)	0 (0 %)	0 (0 %)	4.35	0.72
Asking questions when I don't understand the instructor	27 (52.9%)	24 (47.1%)	0 (0 %)	0 (0 %)	0 (0 %)	4.53	0.50
Having fun in class	26 (51%)	20 (39.2%)	5 (9.8%)	0 (0 %)	0 (0 %)	4.41	0.67
Participating actively in small-group discussions	24 (47.1%)	22 (43.1%)	5 (9.8%)	0 (0 %)	0 (0 %)	4.37	0.66
Going to the professor's office hours to review assignments or tests or to ask questions	31 (60.8%)	20 (39.2%)	0 (0 %)	0 (0 %)	0 (0 %)	4.61	0.49
Helping fellow	26 (51 %)	21 (41.2%)	4 (7.8%)	0 (0 %)	0 (0 %)	4.43	0.64

students							

Regarding the performance engagement, the data analysis result can be seen on the Table 6. Based on the data analysis result, the highest item was "being confident that I can learn and do well in the class" (M=4.66), followed by "Doing well on the tests" (M=4.47), and "Getting a good grade" (M=4.39).

Tabel 6: Hasil analisis data Performance engagement

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	M	SD
Getting a good grade	23 (45.1%)	25 (49%)	3 (5.9%)	0 (0 %)	0 (0 %)	4.39	0.6
Doing well on the tests	26 (51%)	23 (45.1%)	2 (3.9%)	0 (0 %)	0 (0 %)	4.47	0.57
Being confident that I can learn and do well in the class	34 (66.7%)	17 (33.3%)	0 (0 %)	0 (0 %)	0 (0 %)	4.66	0.47

Overall, the four factors of students' engagement was not student that choose "disagree" and "strongly disagree", it indicates students agree that the implementation of project based on potential of student's region was effective to make students engage with learning. Usability of the project task to be able to enhance region potential was trusted to be main support that make students more spirit and active in the learning activities. Based on the data analysis result that has been done, the highest assessment factor was "emotional engagement", where on the five statement items, all students choose strongly agree and agree. No one student choose neutral, disagree and strongly agree. Percentage of the highest strongly agree election was statement relating to implementation of teaching material in life and then on the statement of finding the way to make the learning materials relevant to life. Based on the result, implementation of this model can be trusted as learning model that really provide opportunities for students to learn about real life. It is relevant with the stated from Kahu, Nelson and Picton (2017), students' interest in what they learn is the key to increasing students' engagement.

Based on the list of concerns that has been predicted in the early stage of the proactive active research that student will have a hard time and need more time to be guided. So, the lecturer can give the opportunity for students to make guidance out of the class hours. Based on the lecturer observation form, this way was effective to help students in solving problem and facing obstacle that obtained by students. When students have a hard time to identify their own region potential, so lecturer guides students to discuss with their region

government, public figure and their family. These activities were very helpful for students to identify their own region potential and enhance their confident that the project task that they done was really useful for their own region. Students actively discuss with the lecturer and identify their own region potential were indicated that students have the highest engagement of what they learn.

4. CONCLUSION

Based on the result of study that has been done, implementation of project task based on potential of student's region was effective to be applied on the vocational education. The advantage factor of project task for region become key factor of students' active spirit to learn. The further study also needs to be carried out to explain competency level that obtained by students through implementation of this learning model.

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