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Project tasks effectiveness based on potential of student's region on student engagement

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Abstract

This study aimed to investigate the following: 'what can the project task of region potential do to make students possible act more active with the high involvement of learning?' This study used proactive action research that focused on a new way to improve students' engagement. The result of this study shows that the implementation of a project-based on the potential of the student's region was effective to make students engage with the learning process. In conclusion, the factor that makes high students' engagement was the project task that has been done, because it was very useful for their region.

Keywords: Project task, Engagement, Innovation learning .

La efectividad de las tareas del proyecto basado en el potencial de la región del estudiante en el compromiso del estudiante

Resumen

Este estudio tuvo como objetivo investigar lo siguiente: "¿Qué puede hacer la tarea del proyecto de potencial regional para hacer que los estudiantes actúen de manera más activa con la alta participación del aprendizaje?" El resultado de este estudio muestra que la implementación de un proyecto basado en el potencial de la región del estudiante fue efectiva para que los estudiantes se involucraran en el proceso de aprendizaje. En conclusión, el factor que hace que la participación de los estudiantes sea alta fue la tarea del proyecto que se realizó, porque fue muy útil para su región.

Palabras clave: Tarea del proyecto, Compromiso, Aprendizaje de la innovación.

1. INTRODUCTION

The learning process on vocational education is more dominant in the practice learning that can produce the product (JALINUS, SYAHRIL & NABAWI, 2019). Generally, the students' practical task make a simple product and design of the product are designed by the lecturer. The simple product as the students' task is not interested in students. So, students are less active to carry out the practical task and it can make less intensity of students' effort too (JALINUS & NABAWI, 2017). Based on these problems, the researcher designed a learning model, which is the students' practical task of their region potential.

The project task of region potential is defined as students make a tool based on their region potential and the tool is projected to enhance their region potential. JALINUS & NABAWI (2017) 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 tasks are expected to be useful to develop their region potential so that it has an impact on improving people's economy. Many experts discuss the educational relationship to develop the country's economy (BOTEZAT & BENEÀ, 2012; BEHROOZI, 2014).

The project task based on the potential student region is a new practice 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 the 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 in learning activities (JIMERSON,

CAMPOS & GRIED, 2003). Students' engagement is closely related to the students' learning satisfaction. Students' engagement is an important indicator of learning quality. The education institution is more important to be focus to enhance the students' engagement (BASER, OZDEN & KARAARSLAN, 2017).

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 the action is taken (FJELLSTRÖM, 2014). Lecturers are the right researcher to carry out this study, because of the lecturers have to be responsible to enhance their learning quality (GUPTA, 2017). FREDRICK, BLUMENFELD & PARIS (2004) 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.

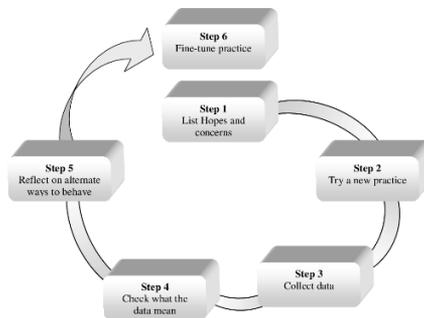


Fig. 1: Steps of the proactive action research

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

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

Steps	Actions
List hopes and concerns	<ul style="list-style-type: none"> ❖ List Hopes <ul style="list-style-type: none"> * The project task that was carried out by students was the potential to develop their 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 <ul style="list-style-type: none"> * Some students might have a hard time identifying the region's potential that has not been developed yet. * Students might have a hard time to find the idea about the innovation of what will be the project task * Some students might not take advantage of the paper references that published by the 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	<ul style="list-style-type: none"> * So students can identify their region potential easily, students were lead to discuss with their region government, public figure and their family * Lecturer allows students for consultation and guidance outside of the class * Students are trained to look for references from journal and YouTube
Collect data	<ul style="list-style-type: none"> * Lecturer fill the observation form of students' learning activities * At the end of the learning process, students fill the questionnaire of the students' engagement * Lecturer interview the students about the students' engagement
Check what the data mean	<ul style="list-style-type: none"> * Lecturer analyze the observation form * Lecturer analyze the interview

		* Lecturer analyze the questionnaire data
Reflect on alternative ways to behave	on to	* Lecturer inform the implementation of successful and failure
Fine-tune practice		* Reporting the conclusion of the study that has been done and giving the implication of project task based on the potential of student region implementation

The object of study in this research was students that registered the Mechanical Design course, which is 51 number of students. Students were given a computer facility to design the product and internet access to look for the references. Students made the learning group that consists 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 taught 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 consists 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 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, sketching tool and machine, making the specification of tool and machine and analyzing the tool and machine design

3. Proposing the proposal to the lecturer
4. Revising the proposal according to lecturer suggestion
5. Making the tool and machine design (blueprint)
6. Presenting in front of the class

The assessment of students' engagement was adapted from a Student Course Engagement Questionnaire by HANDELSMAN (2005) that consists 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 to Table 2). The subject of the 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 related to analyzing.

Table 2: Indicator of students' engagement assessment questionnaire that was adapted by HANDELSMAN (2005)

Factors	Items
Skills engagement	<ul style="list-style-type: none"> * Making sure to study regularly * 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

	<ul style="list-style-type: none"> * Being organized * Taking good notes in class * Listening carefully in class * Coming to class every day
Emotional engagement	<ul style="list-style-type: none"> * 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 * Desiring to learn the material
Participation /interaction engagement	<ul style="list-style-type: none"> * Raising my hand in class * Asking questions when I do not 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	<ul style="list-style-type: none"> * 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 consists of percentage, mean and deviation standard. The data analysis result was shown in Table 3. Based on students' data analysis result of 9 items on the students' engagement factor that choose highest strongly agree was the item of taking good notes in class with 33 choosers or 64.7% of the total number of students (M=4.65), followed y making sure to study regularly (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 on the readings	20(39.2%)	22(43.1%)	9(17.6%)	0(0 %)	0(0 %)	4.22	0.73
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 all

items just two items that were chosen by students, are follows: strongly agree and agree. It indicates the implementation of a project based on the potential region of the student was very effective to enhance emotional engagement. Based on the data analysis result, the highest item was applying course material to my life (M=4.78), with 78.4% of 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 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 course interesting to me	32(62.7%)	19(37.3%)	0(0 %)	0(0 %)	0(0 %)	4.63	0.49
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 the participation/interaction engagement, the data analysis result can be seen in 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 do not 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 do not 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 students	26 (51 %)	21(41.2%)	4(7.8%)	0(0 %)	0(0 %)	4.43	0.64

Regarding performance engagement, the data analysis result can be seen in 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).

Table 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

4. DISCUSSION

Overall, the four factors of students' engagement were not the student that chooses disagree and strongly disagree, it indicates students agree that the implementation of project-based on the potential of student's region was effective to make students engage with learning. The usability of the project task to be able to enhance region potential was trusted to be the main support that makes 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.

The percentage of the highest strongly agree the election was a statement relating to the 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, the implementation of this model can be trusted as a learning model that provides opportunities for students to learn about real life. It is relevant to the stated from JALINUS & NABAWI (2017), students' interest in what they learn is the key to increasing students' engagement.

Based on the list of concerns that have been predicted in the early stage of proactive active research, the students will have a hard time and need more time to be guided. Therefore, the lecturer can allow students to make guidance out of the class hours. Based on the lecturer observation form, this way was effective to help students in solving the problem and facing an obstacle that obtained by students. When students have a hard time identifying their region's potential, lecturer guides students discuss with their region government, public figure and their family. These activities were very helpful for students to identify their region potential and enhance their confidence that the project task that they have done was really useful for their region. Students actively discuss with the lecturer and identify their region potential were indicated that students have the highest engagement of what they learn.

5. CONCLUSION

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

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