

Passport Skill Assisted Project Based Learning to Improve the Punctuality of Time and Product Quality of Three Dimensional Craft

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The inaccurate timing of task collection and the low quality of 3D craft products is due to the fact that most of the students have not been able to manage the timely completion of tasks and lack of optimal control over the tasks assigned. This study aims to determine whether the use of passport skills in project-based learning can improve the timeliness and quality of 3D craft products. An action research conducted in class X Animation 2 SMK N 11 Semarang is done in 2 cycles. Each cycle consists of planning, implementation, observation, and reflection on project based learning with applied passport skill. The data were taken in the form of the timeliness of task collection and product quality measured from the aspect of tidiness, proportion, and uniqueness. The data obtained were analyzed in descriptions. The results show that project-based learning through passport skills can improve the timeliness of X-Animation students of SMK Negeri 11 Semarang. It is proven that students who submitted the task on time rose from 75% to 92%. The learning also improves the quality of three-dimensional craft products, proven by the average in cycle I of 74.31 increased to 85.19. Percentage of completeness in the first cycle reached 64% and in the second cycle increased to 92%. The level of tidiness in cycle I reached 83% increased to 88%, while the proportion aspect increased from 78% to 86%, and the uniqueness aspect increased from 62% to 81%. It was concluded that project-based learning using passport skill enhances the timeliness and quality of 3D craft products in students of X-Animation class of SMK N 11 Semarang.

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INTRODUCTION

Learning in the 21st century demands the development of learners to be able to collaborate, solve problems, think critically and think creatively (Mukminan, 2014; Afandi, et.al, 2016). One of the most challenging challenges for educators is to develop the creative potential of learners to create and renew (creativity and innovation skills) to develop their own creativity in order to produce innovative breakthroughs (BSNP, 2010 in Mukminan, 2014). Responding to these challenges, according to Trilling & Fadel (2009) in Afandi, et.al (2016), learning should experience paradigm shift into student-centered learning, interactive learning, optimizing skills aspect, process, from basic skills of grading to applied skills, and from materials based shifted to project-based, collaborative and learning to life.

Project-based learning is a learning strategy that fosters students for seeking knowledge on themselves and demonstrates what has been known with a variety of presentations (NYD Department of Education, 2009: 8). Project-based learning serves as a reference for the development of creativity and renewal skills as it is seen as having the characteristics of effectively directing students to invent important ideas and questions framed through the discovery process, able to accommodate differences in student needs and interests, leading to the freedom of making products and presentations beyond the expectations of teachers, requires the ability to think creatively, critical thinking, the ability to find information and write conclusions and present the material and related to real and authentic issues as well as the latest issues (NYD Department of Education, 2000: 8). According to Bell (2010), project-based learning is an innovative approach in learning that teaches many important strategies for achieving success in the twenty-first century, as students are encouraged to study through questions, collaboration to research or create projects that reflect their knowledge.

This shifting paradigm and the use of project-based learning are highly relevant to learning in Vocational High School with the ability to renew and create the key elements. To make it happen, support from various parties is needed. Normative and adaptive subjects in the 2013 curriculum of 2013 Curriculum in group A and B have an important role to support productive subjects of what is written in group C. This changing paradigm, demanding the learning process of art and culture in group B is able to support the process the formation of creativity in vocational competence in Vocational High School. The learning process that has been done so far is still limited to the assignments, which have not yet demanded on the creative process to produce a decent selling product.

Learning art and culture in Vocational High School 11 (SMK N 11) Semarang should be able to accommodate differences in characteristics between existing skills programs. The need for an Animation skill program is different from Multimedia skills, Graphics Production and Graphics Preparation. Therefore, the tasks given should also be different among those four competency skills. However, the fact is the tasks assigned between the competencies of skills are relatively similar and has not led to a project-based learning process. These conditions lead to less optimal learning outcomes and results, proving that the majority of students just collect tasks, pay less attention to production quality, selling points, uniqueness, and aesthetics. There are indications due to the lack of application of project-based learning in art and culture subjects in SMK N 11 Semarang.

Research by Wekesa and Ongunya (2016) provides empirical evidence that the use of project-based learning facilitates learning with higher quality and influences on learning achievement. Learning is done into a student-centered approach that influences the change in student attitudes that contribute to improved learning achievement. Another study by İlter (2014) concludes that project-based learning can create a more positive effect on the achievement

of student learning outcomes and conceptual motivation. Through learning, students become responsible and active in making correct decisions; furthermore, they become independent learners and thinkers by participating in real-world projects actively because they are able to develop their own world by increasing their knowledge and skills. The Chiang & Lee (2016) study provides empirical evidence that project-based learning significantly affects the learning motivation and problem-solving abilities of vocational students.

Timeliness in completing the task is one of the benchmarks required in the industry or creative arts field of animation. Therefore, students who are studying in the competency of Animation skills are not only required to be able to complete the task well, but have to pay attention to the timeliness of completion. Completing the tasks in a timely manner is expected to become a habit. It is because when they are working in the animation industry, they will always deal with deadlines that have been determined. Working in a timely manner required the controller from themselves and others, so they are able to stay focus on their job or tasks.

Learning art and culture that supports productive learning in SMK N 11 Semarang has been emphasizing the practice of making project-based products. However, the expected results are still not achieved optimally from the aspect of quality and timeliness. The results showed that there are still around 50% of students who have not been able to collect tasks on time in accordance with the target set. Based on the monitoring results in every week, there are still many slow students in completing the tasks of the project undertaken. At the beginning of the project activities, students tend to relax and do not meet the targets in accordance with the determined plan. At the end of approaching the presentation of the product, many students meet the overtime of completing the task. The data shows that there are still many students who have not been able to manage the timing of completion of the task well.

In the learning process, controlling the tasks of learners has not been done regularly. It is also found that there is a less optimal learning process because teachers are also not optimal in planning lesson. Therefore, structured schedules and achievement targets are not conveyed to learners. These conditions cause learners to be more passive, less active in learning and tend to wait for teacher commands. Evaluation of teachers on products produced by learners has not been implemented in stages, meaning that teachers tend to assess the outcome, even learners are less aware of weaknesses or deficiencies in each process.

The facts described show that students are still not able to manage the timing of completion of the task well, so it needs to be improved. In this case, students are expected to complete project tasks in accordance with predetermined plans. The activity of making the product should be in accordance with the appropriate steps according to the predetermined schedule. Teachers who initially lack control of the stages of students on a regular basis are expected to be able to carry out supervision and assessment tasks in administrative gradually. From this stage, the shortage of students can be seen and resolved. It is expected that all students are able to complete these tasks in a timely manner by controlling product quality at every stage by the teacher.

Seeing these conditions, it is necessary to take an action to improve the accuracy of completing product tasks. Therefore, as it is expected in learning, learners can know what will be done, more able to manage their time independently, and even know the target achievement of animation products independently. Classroom action research that will be carried out is project-based learning and each learner will be able to complete the product task intact. The schedule of activities and targets to be achieved each week is delivered to the learners through a passport skill and will be signed and assessed by the teacher when each target is achieved by each learner. Thus, it is expected that activities undertaken by learners will be controlled directly; every step of the

process of making products will be directly evaluated, and students' activity in completing their tasks will grow independently.

Learners who are doing their tasks faster or slower can directly be seen from their passport skills. Therefore, teachers are easier in knowing the weaknesses of their students. Through that learning process, it is expected that the condition will be more conducive. It is also expected that students will be faster in finishing their tasks since exceeding the targets achieved will be a trigger for other learners.

Some of the problems that are identified related to the learning of Cultural Art in the class X Animation SMK Negeri 11 Semarang include: 1) The lack of strong desire to complete the tasks assigned by teachers, as evidenced by the many (50%) students tend to be late in collecting tasks; 2) Assigning product which collected show less good quality, proven from result look random in making, less pay attention aspect of sale value, uniqueness and aesthetic. 3) The learning process undertaken has not demonstrated a project-based learning process, as evidenced by the task-making process yet reflects project-based learning steps such as setting material and objectives, developing plans for the final product, planning the scope of the project to be undertaken, designing the learning activities, and assess the project design. Other evidence is students just collect the product tasks; the students have not been accustomed to do the planning, record all the process of making activities and report the results of project activities. Finally, the teacher can only see the task from the final product aspect, so the originality of the product is not yet known by the teacher. The presentation process was not done, so the form of individual responsibility to the project creation process has not been seen by the teacher.

Project-based learning is a learning strategy that fosters students in seeking knowledge about themselves and demonstrates what has been known with a variety of presentations (NYD Department of Education, 2000: 8). Various studies have shown that project-based learning has a positive impact on

the development of learners from various aspects such as cognitive, attitudes and skills.

Several studies have shown that through project-based learning students are no longer become passive recipients of knowledge, as they gain deep experience, able to integrate the knowledge they have gained with new knowledge acquired, able to collaborate closely with real-world issues (Riosa, et.al, 2010; Grant, 2002). Students engage in intellectually challenging tasks that encourage the investigation of problems through the process of knowledge and skills to solve complex, non-routine problems, which increase the pleasure and confidence in performing the applied scientific procedures (Movahedzadeh, et.al, 2012; Tamim, 2013), and have an impact on student academic achievement (Du & Han, 2016). Project-based learning focuses more on communication, students focus more on paying attention to their message delivery and at the same time, students are applying the knowledge that they have gained before (Thitivesa, 2014).

Doppelt study (2003) showed that the students' motivation and self-image have increased. In project-based learning, students complete projects such as modeling, diagrams, simulations, and documentation of projects undertaken by students. Each student presents a project in an exhibition where parents and other teachers are invited to attend. In such learning, teachers change their role in the classroom as creative mentors who foster student competencies. The Lasauskiene & Rauduvaite (2015) study concludes that there is a positive feeling from teachers in applying project-based learning and creating sustained student upgrading. Borhan & Ismail (2011) research shows the effect of project-based learning on students' attitudes and students' concern about the environment.

Steps to be taken in project-based learning according to the NYD Department of Education, 2000: 11, include: setting goals, developing final product formats, planning project scope, designing learning activities and assessing project design. The implementation of project-based learning is more emphasis on the

process of making projects or tasks that are planned to produce a product, then required an appropriate assessment instrument. Project assessment (project work) is an assessment activity on a task that must be completed within a certain period/time. The task is in the form of activities from the planning, data collection, organizing, execution of tasks, processing, and presentation of products (goods and services). This technique is intended to assess the ability of students as a whole (comprehensive) in organizing and implementing a competence (MoNE, 2008). Components/activities that need to be assessed are the preparation of design or proposal, performance, product (goods/services), presentation of results/products, and written reports. In the assessment of the project there are at least 3 (three) things to be considered: 1) The ability to carry out the project is the ability of learners in choosing the topic / seeking information, carry out tasks/projects, manage time, and report writing; 2) Relevance is the compatibility between the competency standards learned with the type of work in the community (Du / Di) and 3) The authenticity of the product, that is the product produced by the learners must be the result of his work. The results of the assessment of each project activity undertaken need to be recorded in a document called the passport skill that is the document of recognition record related to the competence mastered by the owner.

This research is aiming at understanding whether the project based learning through passport skill could improve the timeliness and quality of three-dimensional craft products on X-Grade students of Animation in SMK Negeri 11 Semarang.

METHODS

An action research is conducted in class X Animation 2 SMK N 11 Semarang academic year 2017-2018 in two cycles. Each cycle consists of planning, action, observation, and reflection. Planning in cycle I identify the problem related to causes of inaccuracy and

poor quality of students' products in completing the 3D craft task, designing project-based learning with several steps: goal setting, developing final product format, planning project scope, designing learning activities and assessing project design and preparing passport skills instruments and assessment instruments.

The next stage is to apply project-based learning in accordance with the plan and conduct project appraisal. At this stage observations about student activities in conducting project activities and achievement of results are conducted. After the learning activity is done by discussing the reflection with the observer (peers), the results of this reflection are then used for planning in cycle II. The data of learning activities were obtained through: 1) observation by observers, 2) documentation to collect data on the implementation of learning, timeliness of task collection and task portfolio. 3) reflection in the form of the result of discussion with the observer about the implementation of learning and the results achieved and 4) the interview conducted with students to know the response to learning. Instruments are validated by content and expert. The data obtained were analyzed descriptively.

RESULT AND DISCUSSION

Project-based learning on 3D craft materials with ingredients of ice cream sticks. Each student performs product design and searches the literature of reference sources. Based on the sources each student makes a preliminary sketch of the product to be made. The next stage is to do the production of products with the main ingredient of ice cream sticks. In cycle I, is the creation of ice cream sticks with the theme of transportation while in cycle II with the theme of the house.

Average product quality in cycle I reached 74.31 and there are still 9 students (25%) who still have not been able to collect tasks on time. Thus, 75% students are able to complete the task in time. Reflected from the results of product assessment, there are still 36% of students who have not reached the completeness.

Table 1. Product Quality Cycle I

Interval	Criteria	f	%
< 75	Fail	13	36
75-83	Fair	9	25
84-91	Good	7	19
92-100	Excellent	7	19
Total		36	100

There are 25% of students that have fair product quality, 19% are good and 19% are excellent. The quality of the product could be seen from the neatness, proportion and uniqueness with the following results.

Table 2. Product Quality from the Assessment Aspect

Percentage	Neatness	Proportion	Uniqueness
Score 1	0	0	0
Score 2	17	22	58
Score 3	36	42	36
Score 4	47	36	6

From the aspect of tidiness, 47% of students achieve a score of 4 (very neat), 36% categorized tidy and 17% less tidy. Reflecting from the proportion, as much as 36% students are very proportional, 42% proportional and 22% less proportional. Viewed from the uniqueness, only 6% have been classified as very unique, 36% unique and 58% less unique. The data shows that in cycle I, neatness and proportion have been good. However, the aspect of uniqueness still needs to be improved. It is because average tidiness reach 83, proportion 78 and uniqueness only reach 62, as shown in bar chart in picture 1.

Based on the results of reflection, it is obtained that the process of learning is still individual, also there has been no discussion process and exchange opinions about the products made. Based on these findings, it is

then used for the improvement of the plan in the next cycle.

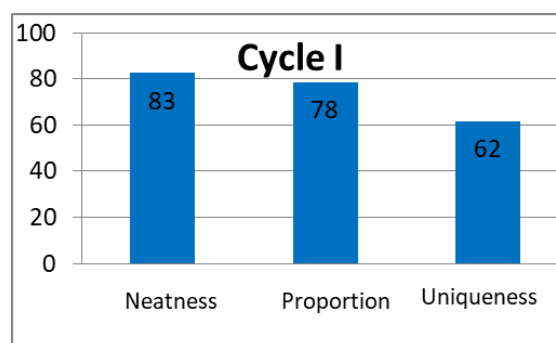


Figure 1. Product Quality Diagram in Cycle I

In cycle II, although the task is individual, but the work process is done in groups. Referring to the project-based learning steps, students are conditioned to discuss the project plan, searching for unique literature sources about home design as well as making initial sketches. Within the group each member makes an assessment and advises each other. Students then make the product according to the design. At this stage, there is also the scoring among students also being done. Students then giving advice to each other related to the resulting products, make improvements and eventually produce the final product.

Average product quality in cycle II reaches 85.19 and only 3 students (8%) are still not able to collect tasks on time. 92% of students are able to complete the task in a timely manner. Results of product assessment indicate that there are still 8% of students who have not reached the standard.

Table 3. Product Quality Cycle II

Interval	Criteria	f	%
< 75	Fail	3	8
75-83	Fair	4	11
84-91	Good	13	36
92-100	Excellent	16	44
Total		36	100

A total of 44% of students had excellent product quality, 36% were good and 11% were fair.

Viewed from the aspect of neatness, as much as 58% of students get a score of 4 (very neat), 36% quite neat and 6% less tidy, as listed in table 4.

Table 4. Product Quality Reviewed from Aspect of Assessment

Percentage	Neatnes s	Proportio n	Uniquene ss
Skor 1	0	0	0
Skor 2	6	8	11
Skor 3	36	39	53
Skor 4	58	53	36

Reflected from the proportion, 53% students classified as very proportional, 39% proportional and 8% less proportional. From the uniqueness, 36% are very unique, 53% unique and 11% less unique. The data shows that in cycle II, proportion of neatness and uniqueness have been classified as excellent, since the total percentage of the neatness reached 88, proportion 86 and uniqueness 81, as stated in the following diagram.

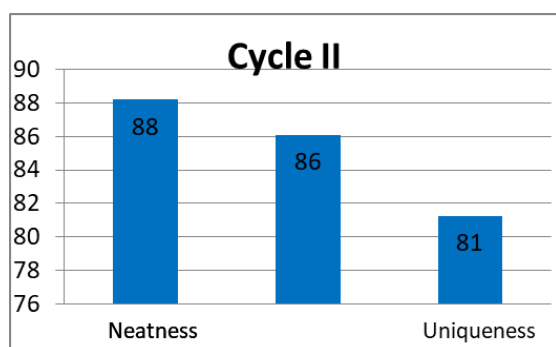


Figure 2. Product Quality Diagram in Cycle II

Based on the data, it could be seen that project based learning could improve the punctuality and product quality of craft 3D. This changing happened because there is there is a control process towards the students through passport skill; students doing planning through discussion process and make a product based on the prepared planning. Through a discussion process, the members are scoring the initial planning, process, or result product. This is in

line with research done by Pujiriyanto Haryanto, Mulyoto & Rochsantiningsih (2016) concludes that project-based learning models have the potential in developing an environment that supports creativity. Similar to Rachmawati's (2017) teacher and student activities in project-based learning are good with successive percentages of 86% and 83%. The learning affects the students' classical completeness in practice.

Continuous control of the teachers leads to changes in the timeliness of task collection. This is consistent with Utami's (2015) study which undertook the learning steps through project design, arranged the activity schedule for completing the project, the teacher monitored the project work activities during the completion of the project done outside the school and the teacher assessed the results of the project that the students had done which impacts on student creativity, more thorough, discipline, and cooperate.

During the learning process, especially in cycle II that facilitates the process of discussion and communication within the group causing students to be more active especially by seeing the results of their friend's better work trigger students to show their best results. This is in accordance with Kristanti's research, Subiki & Handayani (2016) which shows that students' activity in project-based learning is high.

Although the tasks are given individually, the activities carried out in groups. It means that the group is in the process of interaction, sharing about the design and ways to finish the product. As the result of Andri and Istyawati (2013) research which concludes that the student activity on the most dominant project-based learning is to experiment in planning the project, as well as the level of good student collaboration.

The unique product is a reflection of the creative thinking ability that is reflected in the form of works. Project-based learning activities that facilitate the collaboration process bring out a unique idea or idea. When assessing each other's designs and products, it triggers students to create a more unique product. This is in line

with Purbalaksmi, Dantes & Suhandana (2013) that project-based studies on art contributing to creative thinking ability and art learning outcomes.

CONCLUSION

Project-based learning through passport skills can improve the timeliness of X-Grade students of SMK Negeri 11 Semarang. It is proven by 75% of students rose to 92% of students who timely collect tasks. Learning also improves the quality of three-dimensional craft products, proven by the average in cycle I from 74.31 increased to 85.19.

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