

Development of learning tools project based learning to increasing the basic skills of catering students at SMK 6 Makassar

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Abstract—This study aims to develop learning tools based on project based learning in improving the basic skills of catering for students of SMKN 6 in Makassar. This type of research is the development of learning tools in the form of research and development. The tools developed include the syllabus, job sheets and student books. The development model used is a 4-D model with stages of define, design, develop and disseminate. Based on the results of the analysis conducted, the development of learning tools with the PjBL model is declared valid, practical and effective so that it is feasible to use, so it is necessary to consider criteria that include; (1) the results of the validity of PjBL-based learning tools after being evaluated and examined by experts produce valid categories for lesson plans and job sheets, while for student books in the category are very valid (very good); (2) student activities receive classical completeness in the category of very valid (very good), while for cognitive, affective and psychomotor learning outcomes students are in the valid category; and (3) student responses and management of learning in the classroom categories are very valid. The suggestions made in this study are (1) to fellow teachers to use the PjBL model as an alternative used in the learning process; (2) learning materials developed after improvements and revisions can be tested in several other schools based on the problem characteristics of each school.

Keywords: *Learning material, Project-based learning, Basic skills of catering*

I. INTRODUCTION

Learning tools are one of the most important parts of the learning process in order to improve the quality and skills of students. The success of the learning process is strongly supported by quality learning tools such as the Learning Implementation Plan (RPP), Jobseets and Student Books containing teaching materials. Conversely, if the learning tools lack quality, the learning objectives will definitely not be achieved (Syamsidah, 2016). Therefore, the learning tools are very important to be used

as guidelines for the success of the learning process (Hartini, 2017).

Learning tools are a means of supporting the learning process which includes learning plans that describe in detail the competencies to be achieved by students, guidelines for the process of student activities, tools for measuring student competency achievement, and learning designs that follow a particular learning model. Every educator is expected to be able to design quality learning tools with a good learning model accompanied by the selection of appropriate methods according to the material being taught (Kusumaningrum & Djukri, 2016).

The learning model that will be applied in this research is Project Based Learning (PjBL).

The PjBL model is one of the anticipated approach models in developing the potential of students both soft skills and skills (Qur'ani, 2015) (Hadith, Abdul and Nurhayati B, 2014) (Hadi, et al, 2019) (Fariroh & Anggraito, 2015). The PjBL approach was developed based on the flow of constructivism philosophy in learning activities that develop learning conditions in directing students to compile their own knowledge and skills (Haryono, 2014). PjBL is also a learning model that gives learners the freedom to learn independently to plan their learning activities, work on projects in groups/collaboratively, and produce outputs/work products to be presented to other learners (Khanifah, 2018) (Didiharyono & Qur'ani, 2019).

The PJBL model is a project learning model that begins with problem identification, problem solving, and leads to the output (final product) produced by students through group collaboration and active participation in teaching and learning activities based on the objectives to be achieved in the learning process. The syntax of PJBL in Muskania et al. (2017) includes (a) asking questions based on facts or phenomena around; (b) designing stages in completing the project; (c) preparing a schedule or project implementation plan; (d) collecting, analysing and interpreting data mathematically, informatively, computer technology and computational thinking; (e) preparing reports and project presentations; (f) evaluating the process to the results of the project prepared (Annafi & Agustina, 2018).

There are several problems found during the learning process at SMK 6 Makassar City, namely the low knowledge of teachers related to different learning models, then teaching and learning strategies and the application of learning models that tend to use conventional models and have not been combined with diverse learning models. Therefore, it is very necessary to have a learning model that can activate learning activities that have an impact on improving students' performance or learning outcomes.

In addition, learners still do not actively participate and engage in learning activities, do

not ask questions about things they do not understand, do not respond to questions posed by teachers, and find learners who are actively involved in activities outside of learning activities. Furthermore, in practical learning activities, the products produced by the students only focus on and rely on what is taught by the teachers, without any development of ideas or creativity by the students. In addition, students do not present the results of the products they have worked on after carrying out practical activities. Therefore, the development of project-based learning tools (PJBL) is one of the efforts to improve these learning activities (Hadi, et al, 2019) (Fatkhurrohman, et al, 2017) (Fariroh & Anggraito, 2015).

Project-based learning is the operationalisation of the idea of 'production-based education' implemented by SMKs, as educational institutions whose function is to prepare outputs or graduates who are ready to work in both the business world and the industrial world. SMKs must also equip students who are adapted to the standardised competences in their respective fields of diligence that are required in the workplace. Therefore, with the implementation of project-based learning, students are introduced to the work atmosphere as a miniature of the real world of work. Based on these problems, researchers are interested in developing PJBL-based learning tools on basic food ingredients.

II. METHODS

This type of research is research and development, namely the development of learning tools with quasi-experiments. The devices developed include lesson plans, job sheets and teaching materials (student books). The development model used is the four D development model including definition, design, development and dissemination. The research subjects were students of Class X Tata Boga at SMK Negeri 6 Makassar City. The learning tool validation sheet was used to obtain information about the research tool based on the experts' evaluation. On the learning tool validation sheet, the validator writes or provides an assessment of each learning tool, which includes lesson plans, teaching materials (student books), and work

sheets with research materials on two main competencies, namely (1) food ingredients; (2) food processing techniques. The data obtained from the study will then be analysed using descriptive statistical analysis.

III. RESULTS AND DISCUSSION

A. Results

1. Conditions for basic food learning

Based on the observations made by analysing the situation or initial conditions of basic food learning. Researchers found that the process of passive learning activities, caused by several things, namely (a) students have not actively participated in the process of learning activities; (b) students lack the courage to ask about learning materials that are not yet understood; (c) students have not dared to respond or answer questions from teachers; and (d) there are still students who are actively involved in activities outside the learning process.

This learning condition was found during the implementation of practical learning, students only rely on the things taught by the teacher without developing the ideas and creativity of each student. Not only that, it was also found that students did not present the products or works produced after the practicum activities. As a result, students do not understand the process and results of the practicum activities, which has an impact on reducing the quality of learning and not achieving the planned learning outcomes.

2. Development of teaching material based on PjBL

a. Define

1) Initial condition analysis

Referring to the observation activities in the learning process and the learning achievement/learning outcomes of basic cooking, it is known that a very basic problem is the low motivation and learning outcomes of the students. In order to solve this problem, a constructive solution is needed that has an impact on improving the learning activities.

2) Learner analysis

Analyses and observations focusing on learners' cognitive and psychomotor knowledge revealed that learners have different academic abilities, ranging from high academic ability, medium ability and even low ability, according to the general characteristics identified.

3) Analysis concept

There are two competences that are the main reference or benchmark in this study, namely (a) pieces of food ingredients and (b) food processing techniques. The use of these two concepts is very important to know so that students are more mature in analysing concepts in basic food service learning.

4) Task analysis

According to the results of the analysis carried out, the form of the tasks given to the students is monotonous and the planning of practical activities in food processing is not combined with tasks. On the other hand, by giving tasks, students are able to train their creativity so that the material presented can be properly received. In addition, it was found that in the case of project assignments, students were not given enough time to explain or present the results of the practical work carried out.

b. Design

1) Test preparation

The cognitive tests are carried out by means of oral formative tests and written tests, in this case with multiple choice questions. Meanwhile, the psychomotor test is carried out through project assignments/exercises on food preparation using food ingredients and quality food processing techniques. The results of the project task are then presented by each student according to their respective groups.

2) Media selection

The media used in the development of this learning tool are PowerPoint media. With learning tools developed, namely lesson plans,

job sheets and student books. The facilities and infrastructure used are culinary laboratories.

3) Learning device format selection

The syllabus format developed was an improvement (modification) of the previous PPA-based syllabus model. Similarly, the format of the Job Sheet and the Student Book were adapted from the previously developed PPA model.

4) Initial learning design

The initial learning design refers to the form of the learning tools developed. Meanwhile, for activities or scenarios of the learning process based on the PjBL model as in Table 1.

Tabel 1. Learning activities based on PjBL

Activities	Description
Introduction	<ol style="list-style-type: none"> Welcome the learners with a greeting. Communicate with learners about their readiness to learn, their comfort level and the cleanliness of the classroom. Taking attendance to know the presence of the learners. Invite the class leader to lead the prayer according to their respective beliefs. Present the learning objectives through Power Point according to the lesson plan prepared earlier.
Core activities	<p>Phase I. Project identification In this phase, the teacher communicates the project or laboratory practice to be carried out and motivates the students in problem-based learning (PJBL).</p> <p>Phase II. Designing the project Teachers help students to find material in different reliable sources.</p> <p>Phase III. Developing a timetable At this stage, learners need to write, record and produce material found or learned from several reliable sources.</p> <p>Phase IV. Completing the project This stage requires guidance, facilitation and monitoring by the teacher.</p>

Stage V. Evaluation

In this phase, learners have to write a final project report and present it to their respective groups.

Closing	<ol style="list-style-type: none"> Summarise what you have learnt Giving homework by showing work management as a practical guide. Clean up and tidy up the workplace.
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c. Develop

The purpose of the validation activities carried out by the validator is to determine the level of validity of the learning tools developed. The validation results from the two experts are the basis for making improvements (revisions) to the developed learning tools. The results of the improvements based on the instructions, suggestions and criticisms of the expert validators are called draft II (two), which is then tested. The summary of the validators' assessment results is presented in Table 2.

Table 2. Validator assessment results

Instruments	Average	Category
Lesson plan	3.51	Valid
Job Sheet	3.50	Valid
Learning modul	3.71	Very valid
Learner Activity	3.62	Very valid
Learner Response	3.70	Very valid
Learning management	3.90	Very valid
Learning outcomes	3.51	Valid

The aspects assessed in the development of learning tools and in the evaluation of curricula include several indicators, as shown in Table 3.

Table 3. Results of lesson plan validation

No.	Aspect assessed	Average	Category
1.	Formulation of learning success indicators	3.83	Very valid
2.	Selection of learning materials	3.75	Valid
3.	Learning scenario	3.5	Very Valid
4.	Assessment	3,5	Valid
5.	The use of language	3	Very Valid
Average		3.51	Valid

The assessed aspects of the learner's job sheet

include several indicators, as shown in Table 4.

Table 4. Job sheet validation results

No	Assessed Aspect	Average	Category
1.	Material	3.5	Valid
2.	Presentation technique	3.7	Very Valid
3.	Completeness of presentation	3.5	Valid
4.	Language	3.3	Valid
5.	Benefits/usability	3.5	Valid
	Average	3.5	Valid

The aspects of the student book that were assessed include several indicators, as shown in Table 5.

Table 5. Textbook validation results

No	Assessed Aspect	Average	Category
1.	Material	3.8	Valid
2.	Presentation technique	3.91	Very Valid
3.	Completeness of presentation	3.5	Valid
4.	Language	3.5	Valid
5.	Benefits/usability	3.83	Valid
	Average	3.71	Very Valid

Meanwhile, the components related to learner activities, learner responses, learning manager and learner learning outcomes are related to the process of teaching and learning activities.

d. Disseminate

The dissemination stage is the stage where the learning tools developed are used in other school sites. The dissemination stage was carried out in several schools in the Makassar City region, including SMKN 4 Makassar City and SMKN 8 Makassar City.

B. Discussion

The results of the trials carried out in several schools can be used to see the quality of the learning tools based on PjBL that have been developed. The learning tools that have been developed include lesson plans, work sheets and student books that have been evaluated on the basis of validity, effectiveness and practicality in their implementation, as well as the evaluation of the teaching and learning process in the valid and very valid categories. The process of developing PJBL-based learning

tools, depending on the initial conditions of learning at SMK Negeri 6 Makassar City in the basic food department as described in the results of the previous study.

1. Learning device development process

a. Define

In the definition phase, the condition of basic culinary learning was determined with several analysis studies, namely initial condition analysis, learner analysis, material analysis and task analysis as previously described. The initial learning conditions and basic food learning outcomes found, so that efforts are needed to solve them, namely the learning process still tends to be teacher-centred and learning tools are still general. It is therefore necessary to develop learning tools based on PjBL.

For the task analysis section, students are given two days to complete the project tasks for each group. The first day, the focus is on the material learnt, as well as the preparation of the project task plan that will be given, and ends with a formative test to evaluate the results of the material learnt. The second day, learners prepare the tools and materials used in the project task, namely food processing practices and after that learners are asked to present the results of each group's project.

b. Design

This stage is carried out by designing the initial form of learning materials based on the specified outcomes. This stage consists of four steps: test development, media selection, format selection and formulation of learning objectives. Based on the analysis of the curriculum, the materials and the specificity of the learning outcomes, a project activity was prepared, which was used to measure the skills and learning outcomes of the students, specifically on the mastery of the food ingredients and food processing techniques that were tested. The media used in the PJBL learning model are Power Point media. The format of the lesson plan developed is an improvement of the model of lesson plan, job sheet and student book based on PJBL. The final activity at this stage is the

initial design of lesson plans, job sheets, student books and assessment tools in the form of learner activity tools, management of learning activities, learning outcomes tests and learner responses as assessment materials.

c. Develop

This stage is carried out to improve the initial form of the learning tools prepared as described in the define stage. Although it has been improved in the design stage, the modified results are still said to be the initial form of learning tools that can be improved again before becoming the final form that is effectively used in learning.

1) Validity test

The validation results are mainly used to see the validity or feasibility of a learning tool to be used in teaching and learning activities. Based on the results of validation by expert validators, they are then used as material for improvement before the PjBL model is tested. Learning tools that have been validated by both validators are called draft II.

2) Readability test

Furthermore, the resulting draft II is then subjected to a readability test in order to know whether the learning tools developed can be clearly read by teachers. This activity is related to the testing of the learning model by reflecting on the tools that have been evaluated by experts, as well as to reflect on the process of implementing PJBL learning and the suitability of each time as planned in the lesson plan in accordance with the expected learning outcomes. In addition, the results of the readability test will be used to improve the learning tools.

3) Trial

The revised learning material based on PjBL is then piloted. The trial activities were carried out in only one class and a pre-test was conducted to determine the students' learning outcomes before the model was implemented.

The results of the trial were used to get suggestions from teachers and students about the learning tools used. The class for testing the development of this PJBL model is Class X Boga A with a total of 31 students.

4) Implementation

In the implementation section, two cycles were carried out, which were useful to see the benefits of the PJBL model. In this section, students were given a post-test at the end of each cycle, which was carried out with the aim of seeing students' achievements or learning outcomes after giving a pre-test.

d. Disseminate

After improvement, Draft III has met the criteria of validity, practicality and effectiveness. Furthermore, it will be socialised to several vocational schools in the culinary department including SMK Negeri 4 and SMK Negeri 8 Makassar City. The results of the socialisation obtained several suggestions, criticisms, and input from educators in schools, in duplicating learning tools are expected to maximise the use of school libraries, and these learning tools can be applied or implemented in learning activities in vocational schools, especially in the culinary department.

2. Quality of the learning device

a. Validity

The results of the validation by expert validators of learning devices as shown in Table 2 show that all learning devices, namely the developed lesson plans and job sheets, are in the valid category. Meanwhile, the developed student book device is in the very valid category (very good). These results indicate that the developed PPA-based learning tools are considered adequate and feasible to be used as learning tools in teaching and learning activities. Although all the PPA-based learning tools met the criteria of validity, small revisions or improvements are still needed to perfect the learning tools.

b. Effectivity

Various references that become references, the learning process is said to be effective if the fulfilment of four conditions that include; learner activities, teacher's ability to manage learning, positive learner responses and learner learning outcomes in accordance with the requirements for the completeness of learning activities in the valid and very valid categories as shown in Table 2. Ideal learner activities or activities depend on the quality of learning tools and learning models developed with attention to learning outcomes. Aspects assessed in learner activities include aspects of instruction, aspects of activity coverage and language.

Observations of teachers' activities place more emphasis on the ability of teachers to manage quality learning processes. There are several components that guide the success of teachers in managing learning, namely the implementation of each step set out in the learning activities, the suitability of the time allocation in the lesson plan and the positive response of students to the classroom atmosphere during the PjBL process activities that can improve students' understanding. Furthermore, in relation to student learning outcomes. There are two aspects of assessment in assessing learning outcomes, namely psychomotor tests or project outcome assessment and cognitive ability tests with 30 multiple choice questions. Both learning outcome tests are used to measure the students' level of competence with the learning materials and to assess the effectiveness of the PjBL model.

Table 2 shows that the students' learning outcomes on the taught material are in the good category and classical completeness has been achieved. This means that the students are able to understand and apply the PjBL learning model, which is based on the development of previous learning tools.

c. Practicality

Based on the results of the pilot test, the PjBL model that has been developed is considered practical based on the results of observations of classroom learning

management. The results of the analysis show that everything related to the teacher's ability to manage PjBL is in the very valid category (high) as shown in Table 2. This means that the assessment components included in the lesson plan have been implemented properly and can be used in learning activities, especially in basic culinary materials.

IV. CONCLUSION

The results showed that the process of developing PjBL-based learning tools with the 4D model, including (1) define (define), namely by knowing the initial state of basic boga learning activities accompanied by analysis including learning analysis, material analysis and task analysis; (2) design, which is carried out by designing the initial form of learning materials which includes improving PjBL-based learning tools, preparing tests which include formative tests (oral tests) and summative tests (written tests) with multiple choice questions; (3) develop, which is improving the initial format of learning materials as mentioned in the definition and design stages; (4) disseminate, which is disseminating in several vocational high schools including SMK Negeri 4 Makassar City and SMK Negeri 8 Makassar City. Based on the results of the analysis carried out, the development of learning tools with the PjBL model is declared valid, practical and effective so that it is feasible to implement, taking into account several criteria which include; (1) the results of the validity of PjBL-based learning tools after being evaluated and reviewed by experts produce valid categories for lesson plans and job sheets, while for student books in the very valid category (very good); (2) for learner activities in classical completeness in the very valid category (very good), while for learner cognitive, affective and psychomotor learning outcomes in the valid category; and (3) for learner responses and classroom learning management in the very valid category.

The suggestions made in this study are that (1) fellow teachers can use the PjBL model as an alternative to be used in the learning process; (2) PjBL-based learning tools developed after improvements and revisions can be tested in several other schools based on the

characteristics of the problems in each school.

REFERENCES

- Annafi, N., & Agustina, S. (2018). Pengembangan model pembelajaran Project Based Learning (PBL) Berbasis kearifan lokal untuk mempersiapkan calon pendidik yang berbudaya. *QUANTUM: Jurnal Inovasi Pendidikan Sains*, 9(1), 1-10.
- Didiharyono, D., & Qur'ani, B. (2019). Increasing Community Knowledge Through the Literacy Movement. *To Maega/ Jurnal Pengabdian Masyarakat*, 2(1), 17-24.
- Fariroh, A., & Anggraito, Y. U. (2015). Pengembangan Perangkat pembelajaran berbasis Problem Based Learning pada materi virus kelas X SMA. *Journal of Biology education*, 4(2).
- Fatkhurrokhman, M., Permata, E., Ekawati, R., & Rizal, S. U. (2017). Pengembangan perangkat pembelajaran teknik digital berbasis project based learning di jurusan pendidikan teknik elektro. *Jurnal Pendidikan Vokasi*, 7(1), 101-109.
- Hadi, C. F., Suprianto, B., & Santosa, A. B. (2019). Pengembangan Perangkat Pembelajaran Sistem Operasi Berbasis Project Based Learning Untuk Sekolah Menengah Kejuruan. *CIRCUIT: Jurnal Ilmiah Pendidikan Teknik Elektro*, 3(2), 103-114.
- Hadis, Abdul dan Nurhayati B. (2014). *Psikologi Pendidikan*. Bandung: Penerbit Alfabeta.
- Hartini, A. (2017). Pengembangan Perangkat Pembelajaran Model Project Based Learning Untuk Meningkatkan Kemampuan Berpikir Kritis Siswa Sekolah Dasar. *ELSE (Elementary School Education Journal): Jurnal Pendidikan dan Pembelajaran Sekolah Dasar*, 1(2a): 1-9.
- Haryono, D. (2014). *Filsafat Matematika (Suatu Tinjauan Epistemologi dan Filosofis)*. Bandung: Alfabeta.
- Khanifah, L. N. (2018). Pengembangan Perangkat Pembelajaran Dengan Pemanfaatan Cerita Rakyat Melalui Model Project Based Learning (Pjbl) Berbasis Role Playing Dalam Meningkatkan Keterampilan Sosial Peserta Didik. *MIDA: Jurnal Pendidikan Dasar Islam*, 1(1): 1-16
- Kusumaningrum, S., & Djukri, D. (2016). Pengembangan perangkat pembelajaran model project based learning (PjBL) untuk meningkatkan keterampilan proses sains dan kreativitas. *Jurnal Inovasi Pendidikan IPA*, 2(2), 241-251.
- Muskania, R. T., & Wilujeng, I. (2017). Pengembangan Perangkat Pembelajaran Project-based Learning untuk Membekali Foundational Knowledge dan Meningkatkan Scientific Literacy. *Cakrawala Pendidikan*, (1), 34-43.
- Qur'ani, B. (2015). *Pengembangan Model Pembelajaran Dasar Boga Berbasis Project Based Learning di SMK Negeri 6 Makassar*. (Tesis Pascasarjana UNM).
- Syamsidah, S. (2016). Pengembangan Perangkat Pembelajaran Dengan Model Project-Based Learning Untuk Meningkatkan Soft Skill Mahasiswa Calon Guru. *Jurnal MEKOM (Media Komunikasi Pendidikan Kejuruan)*, 3(1): 53-60.

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