

## **Development of Project-Based University Student Work Sheets in Student's Kitchen Management Course**

**Nuwairi Hilda<sup>1\*</sup>, Ana Rahmi<sup>2</sup>, Ismail Jahidin<sup>3</sup>, Dina Ampera<sup>4</sup>, Siti Wahidah<sup>5</sup>**  
Universitas Negeri Medan

**ABSTRACT :** This study aims to produce a Project-based Team-based student worksheet in the Kitchen Management course. This type of research is research and development that refers to model development, with stages (1) self-evaluation stage consisting of analysis and design (2) prototyping stage consisting of expert review, one to one and small group (3) field test stage . The data were collected using quantitative descriptive analysis techniques through questionnaires or questionnaires related to the quality of product development. The results showed that student learning outcomes were seen from the pre-test, post-test and mid-semester exams in the course Evaluation of Kitchen Management Learning Outcomes. Catering Education students experienced a significant increase after using this project-based student worksheet.

**Keywords:** Student Worksheets, Learning Outcomes, Kitchen Management

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**\*Corresponding Author :**

## **INTRODUCTION**

Education as a process or effort to humanize humans is basically an effort to develop individual potential abilities so that they can live optimally both as individuals and as members of society and have moral and social values as a way of life. Education is also seen as a conscious effort made in the form of coaching children so that they develop towards the desired maturity. Intellectual, social, and moral maturity is not merely maturity in the physical sense.

The output of learning activities can be seen from various aspects, both cognitive, affective and psychomotor and is reflected in satisfactory learning achievements. However, the expected reality is not in accordance with reality, education that generally occurs in society is education that is not balanced between intellectual growth and development with student moral imbalance. The fundamental challenge is the incompatibility of teaching materials with the demands of the curriculum as the main component in the learning process. Lecturers prefer to use teaching materials that are already available, only use them without analyzing the suitability of teaching materials with curriculum demands.

Good teaching materials are teaching materials that refer to learning outcomes and graduate achievements. As with the opinion of (Trianto, 2011) that the student worksheet/Lembar Kerja Mahasiswa (LKM) contains a set of basic activities that must be carried out to maximize understanding in an effort to form basic abilities according to indicators of achievement of learning outcomes that must be taken. The initial arrangement of students' knowledge and understanding is empowered through the provision of learning media in each experimental activity so that the learning situation becomes more meaningful and productive, and can be well impressed on understanding. The use of Student Worksheets has a very large role in the learning process, especially practical learning, so it seems as if the use of Student Worksheets can replace the position of a lecturer. The researcher found that Student Worksheets were rarely used and developed so that the Student Worksheets used only a few reviews about kitchen management learning materials, so that their achievements were not maximized.

It was explained that the importance of student worksheets are: 1) making it easier for teachers to manage the learning process, for example teaching transmission from teacher center to student center; 2) help teachers direct students to be able to find concepts through their own activities or work groups; 3) can be used to develop process skills, develop scientific attitudes and arouse students' interest in the natural surroundings; and 4) make it easier for teachers to monitor the success of students in achieving learning goals. In procuring student worksheets which are indispensable in teaching and learning activities, which should be developed with a good learning model. Joyce, B., Weil, M. &

Calhoun, (2011) opinion that by adjusting the teaching model will create meaningful and productive learning conditions so as to eliminate boredom, boredom and discomfort in learning. To foster more meaningful learning, the student worksheets were modified with a Team Based Project-based learning model, in addition, the limited ability of teachers to use a student-centered learning model could affect the achievement of student learning outcomes.

As a result of improper kitchen management learning in the use of teaching materials and the lack of student participation in learning, the achievement of learning outcomes is less than optimal. The unavailability of relevant teaching materials in teaching Kitchen Management, making kitchen introduction problems, ranging from cooking utensils, serving utensils, cooking knowledge and kitchen layouts ranging from air circulation, hygiene and cleanliness arranged in a creative, practical and relevant teaching material. learning held in the form of student worksheets with project-based team-based learning.

## **THEORETICAL REVIEW**

### *Learning and Learning Outcomes*

The definition of learning put forward by experts, namely: the notion of learning according to (Susanto, 2016) states, learning is a mental activity that takes place in active interaction between a person and the environment, and produces changes in knowledge, understanding, skills, and attitude values that are relatively constant and scar. According to Crounback: learning is shown by change in behavior as a result of experience, meaning: learning is seen by changes in behavior as a result of experience (Dalyono, 2009). Furthermore, (Mardianto, 2013): learning is a process by which behavior (in the broader sense originated from charger through practice or training.

So it can be concluded that learning is a process of changing behavior by utilizing all the potentials possessed by individuals based on experience or practice. Learning outcomes are the results achieved from the teaching and learning process in accordance with educational goals. Learning outcomes are measured to determine the achievement of educational goals so that learning outcomes must be in accordance with educational goals (Purwanto, 2011).

Kingsley divides three kinds of learning outcomes: (1). Skills and habits, (2). Knowledge and understanding, (3). Attitudes and aspirations. Each type of learning outcomes can be filled with materials that have been set in the curriculum (Sudjana, 2010). Bloom et al. classifying learning outcomes into three parts, namely cognitive, affective and psychomotor (Kurniawan, 2014). Cognitive learning outcomes are learning outcomes that have to do with memory, thinking

or intellectual abilities. In this category, learning outcomes consist of six hierarchical levels. The six learning outcomes of this cognitive domain include: 1). Knowledge, 2). Understanding, 3). Applications, 4). Analysis, 5). Synthesis, 6). Evaluation, and 7). Creativity.

Effective domain learning outcomes refer to learning outcomes in the form of sensitivity to taste and emotion. The learning outcomes of the affective domain consist of five types in the form of stages. The five types of affective domains include: 1). Sensitivity, namely sensitivity about certain situations and conditions and willing to pay attention to these conditions; 2). Participation, which includes willingness, willingness to observe and participate in an activity; 3). Assessment and determination of attitudes, including accepting a value, appreciating, acknowledging, and determining attitudes. For example, accepting other people's opinions; 4). Organization, the ability to form a value system as a guide or guide to life; 5). Formation of life patterns, including the ability to appreciate values and shape them into patterns of personal life values. Of the five types of effective abilities, it can be seen that there is overlap and also contains elements of cognitive abilities. Psychomotor learning outcomes are in the form of certain movement abilities. This movement ability is also graded from simple movements that may be done reflexively to complex guided movements to creativity. Through the learning process, it is hoped that complex movements can be formed according to certain rules to creativity movements.

#### *Definition of Team Based Project*

Team Based Project is a learning model that has been widely developed in developed countries such as the United States. If translated into Indonesian, Team Based Project means project-based learning. According to Thomas (2000), states "Team Based Projects can be defined briefly as a model that organizes learning around projects". From this understanding it is implied that project-based learning is a model that organizes learning into the form of projects. In addition, Patton in (Prastyawati, 2015) is "Team Based Project refers to students designing, planning, and carrying out an extended project that produces a publicly-exhibited output such as a product, publication, or presentation". This means that Team Based Project-based learning is aimed at students to design, plan and create final products to be published or presented to the general public in groups.

Project-based learning has five characteristics, which are characteristics that can distinguish project-based learning from other learning models, namely:

1. Centrality, the project as a center or central.

2. Driving Questions, Team Based Projects are focused on questions or problems that trigger students to solve problems with appropriate concepts, principles and knowledge.
3. Conscrutive Investigations, projects must be adapted to the abilities of students and projects carried out must provide new skills and knowledge for students.
4. Autonomy, student activities are very important, students act as decision makers and act as problem solvers.
5. Realism, student activities are focused on work that is similar to the actual situation or the real world. This activity integrates authentic tasks and produces a professional attitude (Thomas, 2000:3-9).

The role of the teacher in the Team Based Project-based learning process from the explanation described above shows that the teacher is preferred to act as a companion and facilitator. The teacher must be able to keep the learning process active and controlled, even though the teacher does not have full authority over project work. Teachers must have the ability to provide constructive guidance and advice and make a good and authentic evaluation process (Railsback, 2002).

#### *Student Worksheet/Lembar Kerja Mahasiswa (LKM)*

Student worksheets are teaching materials that contain teaching materials that have been arranged in such a way, so that students are expected to be able to study the teaching materials independently. In the Student Worksheet there are materials, summaries, and assignments related to the material. In addition, students can find structured directions to understand the material given. At the same time, students are given material and assignments related to the material (Prastowo, 2011).

Student worksheets are one of the important teaching materials to achieve success in learning. Student worksheets are teaching materials that have been packaged, so that students are expected to be able to study the teaching materials independently (Eli, 2009). Student worksheets are also learning media, because they can be used in conjunction with other learning resources or learning media, as well as learning resources and learning media depending on the learning activities designed (Damayanti, 2013).

Discussing the importance of Student Worksheets, of course, we will first discuss the functions, objectives, and benefits of Student Worksheets themselves (Prastowo, 2011). First, it will explain the function of the Student Worksheet. Based on the initial explanation of Student Worksheets, we can know that Student Worksheets have at least four functions, namely: 1) As teaching materials

that can minimize the role of lecturers, but activate students more. As teaching materials that make it easier for students to understand the material provided, 2) As teaching materials that are concise and rich in assignments to practice, 3) Facilitate the implementation of teaching to students.

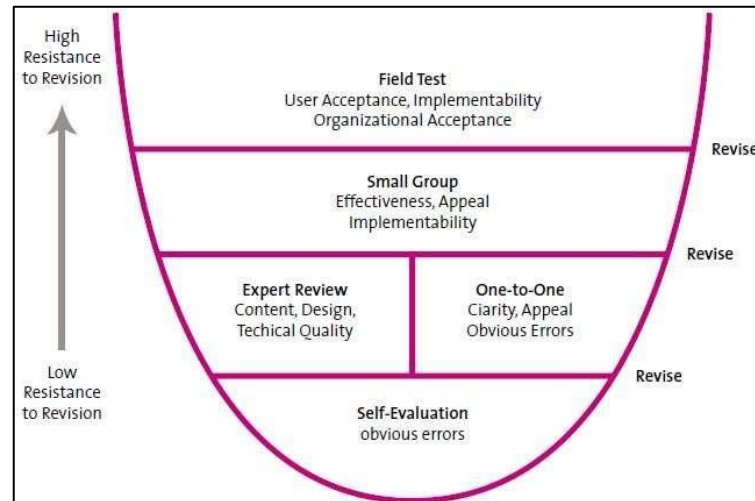
Second, the purpose of preparing Student Worksheets. The preparation of the Student Worksheet has the intention of making it easier for students to learn, especially in terms of interaction with the subject matter, so that there are no errors in understanding. Make it easier for educators to give assignments to students. Third, the use of Student Worksheets for learning activities. Regarding the usefulness of Student Worksheets, of course there are quite a lot of uses. The existence of Student Worksheets gives a considerable influence in the teaching and learning process, so that the preparation of Student Worksheets must meet various requirements, namely didactic requirements, construction requirements, and technical requirements (Darmodjo, H., & Kaligis, 1992).

## **METHODOLOGY**

This research is a development research. According to (Borg, W. R., & Gall, 1983) "Educational Research And Development Is A Process Used To Develop And Validate Educational Product". According to (Gay, L.R., & Diehl, 1992), development research is an attempt to develop an effective product to use, and not to test theory.

The research conducted in this paper was carried out in the Catering Education Study Program because of the Kitchen Management course, where students must have competence in optimal kitchen management, starting from the introduction of kitchen utensils, knowledge of the types of kitchen utensils and dish utensils, managing kitchen, getting to know a hygienic kitchen so that there is conformity with research. The population in this study were 29 students of the Catering Education study program.

The teaching materials development model (LKM) used in this study is formative evaluation where the model consists of 3 steps or stages, namely: (1) Self evaluation which consists of analysis and design, (2) Prototyping which consists of expert review, one -to-one, and small group, (3) Field test. The procedures for this development research are:



**Figure 1.** Formative evaluation design flow taken from Tessmer 1993 in (Plomp, T & Nieveen, 2010)

Briefly, the procedure of this research is: At the self-evaluation stage, an analysis of students, curriculum and materials is carried out and then a product design is carried out to produce prototype I. Prototype I is then revised by testing the prototyping stage, namely validation which consists of material, language and design validation. by an expert review of prototype I. In addition, a one-to-one test of prototype I was also conducted in parallel to one student and produced prototype II. Then prototype II was revised by conducting trials at the small group stage and at this stage the practicality test of prototype II was also carried out and produced prototype III. Prototype III was then revised again by conducting trials at the field test stage and at this stage an effectiveness test was also carried out. The results of the field test are prototypes that have met the criteria of being valid, practical and effective.

The instruments in this study were used, namely: a) Validation sheet; Validation sheets are used to obtain data on the opinions of experts (validators) on teaching materials that are prepared on product development resistance. Then it is used as a reference in revising the teaching materials resulting from the development. Validation of LKM material, language and design using a questionnaire instrument to collect data. The validation set for the LKM used is seen from the results of the agreement of 3 (three) experts in their respective fields. It will then be used to decide whether the developed LKM needs to be revised or not. Student response questionnaire sheets were used to determine the practicality of the product in the form of student worksheets (LKM). This instrument is structured to obtain data regarding students' opinions on learning.

## RESULTS & DISCUSSION

### RESULTS

#### *Research Results Definition Stage (Define)*

The analysis carried out at the definition stage resulted in an initial analysis of the availability of project-based LKM. Based on observations, it is known that experimental-based LKM have not been widely developed in the Catering Education study program. The questionnaire given to students showed that 85% of project-based LKM in the kitchen management course were needed to develop students' knowledge more deeply.

Based on observations on the general characteristics of Catering Education students, they tend to understand the material better through activities that involve them directly so that activities or tasks are needed that can develop psychomotor and affective aspects that lead to students' cognitive aspects, based on the results of observers using team-based LKM based projects can develop these aspects. The content of the project-based LKM is related to kitchen management that focuses on overall buffer management with linguistic expert validation results of 76.67%, in the good category.

#### *Stage of Design (Design)*

Experimental-based LKM in the kitchen management course is designed by determining the design of the LKM which consists of an A4 sheet of paper with a margin of 3.5 cm left, 2.5 cm above, 2.5 cm below and 3 cm right edge, the font used is Comic Sans Ms in the title section size 14 and in the other section font size 12. The introductory components of a project-based LKM include Student Name, Class, and Date. The core components of a project-based LKM are activity titles, objectives, tools and materials, work steps, observations, analyzes and conclusions.

The closing component of a follow-up investigation that contains the design of a project by students includes problem formulation, hypotheses, identification of manipulation variables, response variables, and control variables, operational definitions of variables, procedures, data table design, data collection procedures.

#### *Development Stage (Develop)*

The development of the LKM based on the kitchen management course project was carried out by validating 3 validators of material experts, 3 validators of media experts and 3 validators of linguists. The assessment of the LKM based on the kitchen management course project by the material expert is that the average value of the material expert validator is 88.33% so it can be concluded

that the project-based LKM is declared valid. Suggestions for improvement from material expert validators are as follows: (1) the material does not only reflect an observation but there must be a project carried out by students; (2) the material is more directing students in making conclusions and analyzing data; (3) the material used in the project is the material in the syllabus and semester learning plan (RPS). Assessment of student worksheets (LKM) based on kitchen management course projects by media experts, namely the overall average results of the media aspects contained in student worksheets (LKM) based on kitchen management course projects by media expert validators of 85.83%. The average presentation can be concluded that the media has valid criteria.

The media expert validator gave several suggestions including: (1) the presentation for the introduction section should be clearer, especially for group or individual activities; (2) the location of fonts and images is clarified so as not to confuse; (3) the design of the worksheet is adjusted to the level of the student; (4) The font used should not be too varied to make it clear. Assessment of student worksheets (LKM) based on the kitchen management course project by linguists with the average result of the assessment of student worksheets (LKM) from the language aspect by the validator with the average result of the assessment of student worksheets from the language aspect by the linguist validators of 76.67%, with valid categories. Suggestions and comments regarding linguistics from linguistic validators include the language used is emphasized at the level of student development, which is more communicative, clear and integrated so that the resulting student worksheets have a coherence in the process of student thinking.

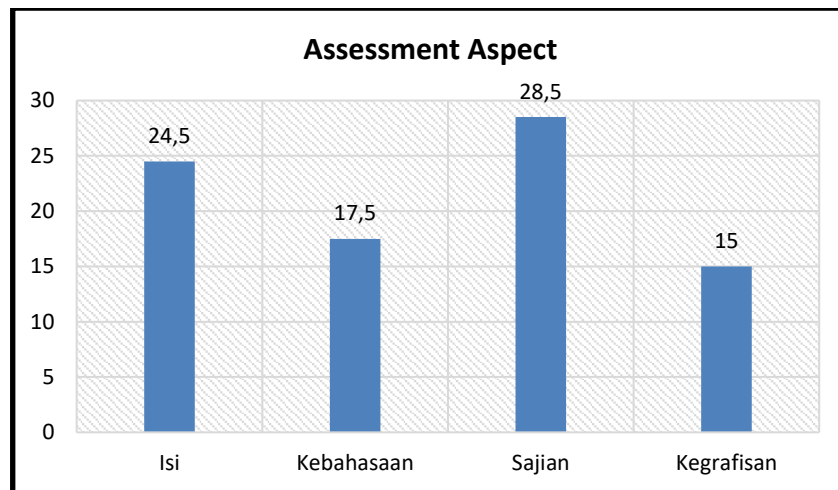
#### *Eligibility of Project-Based Student Worksheets*

##### 1) Phase I Validation

The results of stage 1 validation from the two experts can be seen in Table 1 below.

**Table 1** : Validation score of Stage 1 Student Worksheet (LKM)

No	Aspect	Score Maximum	Score	
			Validator 1	Validator 2
1	Contents	20	17	15
2	Language	16	12	11
3	Serving	24	20	17
4	Graphics	16	10	10
	Amount	76	59	53
	Score percentage	100%	78%	70%



**Figure 2.** Validation Diagram LKM Phase 1

Based on Figure 2 above, that the team-based project-based Student Worksheet (LKM) that has been developed is feasible to use but still needs improvement, this is evidenced by the acquisition of a validation score from the first validator of 59 or 78% and the score of the second validator of 53 or 70%. From the validation score, it was concluded that the Student Worksheet (LKM) developed was feasible to use, but there were still some aspects that needed to be improved.

Some aspects that concern the first validator are the type and size of the font which is too small so it is difficult to read. In addition, the appearance (LKM) that is less attractive is also a validator's concern. Margins that are too large cause a lot of free space on the left and right sides of the paper. In addition, there is a lot of empty space at the bottom of the paper that should be filled in further. The cover of student worksheets (LKM) also needs special attention. The cover of the student worksheet (LKM) seems too ordinary and unattractive. Covers should be arranged more attractively accompanied by pictures or narratives with a proportional layout.

The second validator assessed that the team-based project-based Student Worksheet (LKM) still needed improvements in several parts, such as the completeness of information on syntax or learning work steps. In addition, the second validator suggests completing the LKM with the objectives or learning materials to be achieved so that students know the direction and achievement of clear learning. With clear goals and work steps, it is hoped that they will be able to motivate students to complete their projects. Furthermore, the results of research (Wirda, M, N., Rosni., Berutu, N., Rahmad, 2018) show that clear objectives, materials, and work steps make it easier for students to participate in learning, construct knowledge and think critically in accordance with the expected learning outcomes.

The second validator suggests improvements to the font size and type, spacing and appearance of the Student Worksheet (LKM) to make it more attractive. The attractive appearance of student worksheets (LKM) can certainly generate new interest for students, generate motivation and stimulation of learning activities, and have a positive impact on student psychology (Rahmad, Riki., Yuniastuti, Eni., Wirda, M, 2018). Further details regarding the shortcomings in team-based project-based LKM based on the results of the first validation can be seen in Table 2 below:

**Table 2.** Validation Notes 1 Student Worksheet (LKM) Based on Project

No	Rated aspect	Notes
1	Content eligibility	- LKM does not motivate students to
2	language	- Readability still needs improvement
3	Serving	- Add learning objectives or materials. - Completeness of information and syntax or work steps need to be improved
4	Graphics	- Font type and size need to be changed. - Layout and margins need improvement. - The appearance of the LKM is less attractive

## 2) Phase II Validation

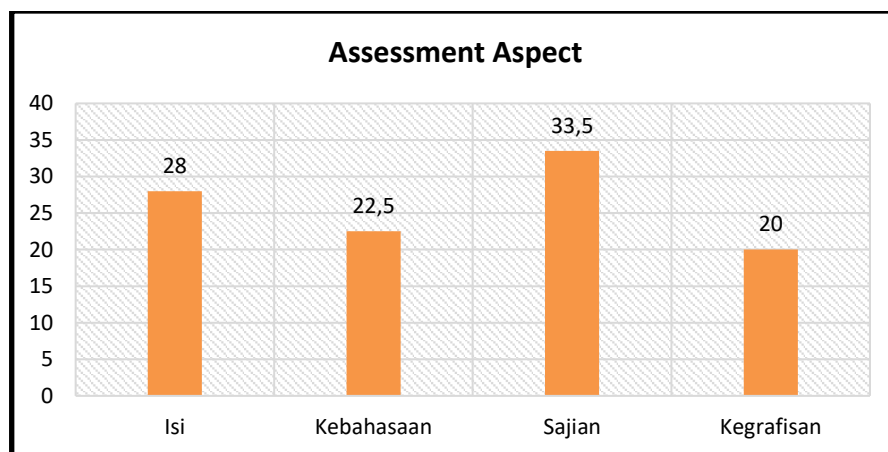
For the perfection of the project-based Student Worksheet (LKM) that has been developed, various improvements have been made in accordance with suggestions and criticisms from the validation team or experts. Some of the improvements made are:

- a. Adding material components and achievement indicators (learning objectives) in student worksheets (LKM).
- b. Completing and clarifying information on work steps in LKM.
- c. Changed the font from calibri size 11 to Times New
- d. Roman size 12 for easier reading.
- e. Changed the space from 1 to 1.5.
- f. Changed the column margins from 2.54 to 1.27 for a better view of the LKM.
- g. Improved the layout of formulas and tables to make them more proportional.

After making various improvements in accordance with the validator's suggestions, a second validation was carried out. The results of the second validation from the two experts can be seen in Table 3 below:

**Table 3.** Analysis of Student Worksheet Validation (LKM) Phase 2

No	Aspect	Score Maximum	Score	
			Validator 1	Validator 2
1	Contents	20	19	18
2	language	16	15	15
3	Serving	24	23	21
4	Graphics	16	14	12
	Amount	76	71	66
	Score percentage	100 %	93 %	87 %



**Figure 3.** Diagram of Student Worksheet Validation (LKM) Phase 2

The results of the second validation show that there is an increase in the percentage of student worksheet eligibility scores (LKM) based on projects from the two validators. The final validation results show that the LKM is very feasible to use. The percentage of team-based project-based LKM eligibility in the first validation by validator 1 was 78%, increasing in the second validation to 93%. The aspect that contributed to the increase in the highest validation score was the graphic aspect, which was 4 points, respectively, the linguistic and presentation aspects were 3 points and the last aspect was the content aspect, which was 2 points. The total score increase is 12 points or 15%.

While the percentage of assessment by the second validator on this project-based LKM is 87%, an increase of 17% from the assessment in the first validation of 70%. Aspects that contributed to the increase in the highest

validation score of 4 points were the aspects of language and presentation, content of 3 points and graphics of 2 points. The total score increase from the second validator is 13 points or 17%. From the assessment of the two validators, it can be concluded that the project-based student worksheet (LKM) is feasible to use with a very good validation value, which is greater than 76%.

#### *Analysis of Learning Device Effectiveness*

The analysis of the effectiveness of learning tools is supported by the results of data analysis from several components of effectiveness, namely (1) student activities, (2) student responses, and (4) complete learning outcomes. Learning tools are effective if they meet 3 of the 4 components above, but the components of learning completeness criteria must be achieved. 1) Description of Student Activity Observations Based on the results of observations, it can be seen that during the team-based project-based kitchen management learning activities, the students showed that they were in the tolerance limit range.

The results of the data analysis of student responses to the implementation of learning were filled by 14 students. There are two aspects that become the focus of student responses to learning activities given to students, namely (1) student responses to learning tools and the learning process consisting of 18 statement items, (2) student responses to student activity sheets consisting of 5 statement items. According to the percentage results of the 18 statement items above with predetermined criteria, the aspects of student responses to learning tools and learning processes are in the "positive" category.

While student responses to student activity sheets are in accordance with the percentage results of the 7 statement items above with predetermined criteria, the aspect of student responses to student activity sheets is in the "positive" category. Based on the data analysis of student responses to learning tools and learning processes and student activity sheets when linked to the criteria for student responses to all components of kitchen management learning based on a team base project to improve learning outcomes, they are in the very good category. 3) Description of learning outcomes, descriptive analysis of test scores after learning kitchen management materials using project-based LKM can be seen that the average score of third semester student learning outcomes of the culinary education study program is 52.8 from the ideal score of 100. The minimum score obtained students are 31 and the maximum score obtained by students is 73. If the existing learning outcomes scores are grouped into appropriate categories, the frequency distribution table is obtained as follows:

**Table 4.** Distribution of frequency and percentage of kitchen management learning outcomes

Score	Category	Frequency	Percentase
0-34	Very low	-	-
35-54	Low	3	21,43
55-64	Currently	8	57,14
65-84	high		21,43
85-100	Very high	-	-

From table 4. the average learning outcomes are in the 55-64 interval. Thus, it is concluded that the learning outcomes of kitchen management are in the "medium" category. This improvement in kitchen management learning outcomes is also shown from the results of the gain test on the students' pretest and posttest results, namely 0.51 (medium). Of the four effectiveness criteria, in the trial only 3 aspects were met, namely: student activities, student responses, and complete learning outcomes, while aspects of improving student kitchen management learning outcomes did not meet the criteria.

#### *Student Learning Outcomes*

The criteria for measuring student learning mastery in the kitchen management course are 80. The measurement stages are: (1) pre-test which is carried out at the third meeting before the student worksheet (LKM) is implemented in class, (2) mid-semester which is held in the eighth week , and (3) the post-test which was held at the 13th meeting after the student worksheets (LKM) were implemented in the classroom.

Student learning outcomes of the Catering Education Study Program at the three stages of the test experienced a significant increase. Furthermore, the comparison of the number of students who completed and did not complete the three tests that have been given is seen in Table 5.

**Table 5.** Comparison of the number of students who completed the three tests

Criteria	Pretest	Midtest	Posttest
Complete	10	16	21
Not Complete	16	10	5
Amount	26	26	26

Judging from the student scores in the three stages of the test, it is illustrated that before using the team-based project-based Student Worksheet, as many as 16 students (61.54%) did not complete. In the second stage the number

of students who did not complete decreased to 10 people (38.46%), and in the third stage (after using the team-based project-based Student Worksheet) the number of students who did not complete was only 5 students (19.23%). Furthermore, this shows that completeness (80%) has been achieved through the use of teaching materials in the form of Student Worksheets.

#### *Student Response*

At the eleventh meeting, students' responses to the use of team-based project-based Student Worksheets were measured through a questionnaire instrument distributed to 29 students. Aspects assessed in this response are material, presentation, linguistic and graphic aspects. Table 6 shows that student responses regarding learning outcomes with the material on the Student Worksheet are very good. The truth of the substance can be trusted and judged well in helping the completion of the student kitchen management project.

**Table 6.** Student Responses to the Material on Student Worksheets

No	Material Indicator	Maximum Score	Score Acquisition	Average
1	The LKM is presented in accordance with the learning outcomes/materials contained in the contract	170	141	4,15
2	This LKM is very helpful in project completion	170	134	3,94
3	The truth of the LKM substance can be trusted	170	134	3,94

Two presentation indicators that received very good responses from students were the systematics and coherence of the Student Worksheet (LKM) components with each value of 4.03. This can be seen in Table 7 below.

**Table 7.** Student Responses to Presentations at LKM

No	Serving Indicator	Maximum Score	Score Acquisition	Average
1	LKM are presented systematically	170	137	4,03
2	the steps and work instructions in the LKM are clear and	170	126	3,71
3	easy to understand	170	135	3,97
4	components in each LKM is complete	170	137	4,03
5	The project objectives in each step of work on the LKM are clear	170	134	3,94
6	The LKM presented made me interested in studying the evaluation of learning outcomes	170	121	3,56
7	The questions asked or the problems given in this lesson stimulated my curiosity	170	125	3,68

The graphic aspect is assessed from five indicators as shown in Table 8. The graphic aspect is considered good with a range of values from 3.10 to 4.00.

**Table 8.** Student Responses to Graphics at LKM

No	Graphic Indicator	Maximum Score	Score Acquisition	Average
1	The type of font used in the LKM is attractive	170	119	3,50
2	The font size is proportional and easy to read	170	132	3,88
3	The LKM layout is balanced and attractive	170	123	3,62
4	Illustrations, graphics, formulas and tables well presented	170	121	3,56
5	Attractive LKM display design	170	130	3,82

The language aspect in student responses is assessed through 3 indicators, namely language clarity, good and correct use of Indonesian and clarity of information in the LKM. This aspect of language received a very good response by students, especially in the use of good and correct Indonesian as well as clarity

and legibility of information with a value of > 4.00. Student responses to language are shown in Table 9 below:

**Table 9.** Student Responses to Language at LKM

No	Language Indicator	Maximum Score	Score Acquisition	Average
1	The language used in the LKM is very clear and easy to understand	170	132	3,88
2	The language used does not violate the correct Indonesian EYD.	170	154	4,53
3	The information in the LKM is very clear and easy to read	170	139	4,09

In general, the results of the student response questionnaires can be seen in Table 10 below:

**Table 10.** Recapitulation of Student Responses to Project-Based LKM Users

No	Category	Score	F
1	Very bad	≤ 30	0
2	Bad	31 - 44	3
3	Enough	45 - 58	2
4	Well	59 - 72	10
5	Very well	≥ 73	19
	Amount		34

From the table above, it can be seen that 3 respondents considered this LKM to be bad, 2 respondents considered it quite good, 10 respondents considered it good, and 19 respondents considered it very good. The percentage of student responses above can be 55.88% of students assessing the LKM as very good to use, 34.00% assessing the project-based LKM in the good category, 5.88% assessing it in the sufficient category and the remaining 8.82% assessing it in the bad category.

## **DISCUSSION**

According to (Febriani, 2016), Student Worksheets (LKM) are printed teaching materials that are able to increase student activity through the form and characteristics of the developed student worksheets. Susanti, S.N., Suyatna, A., Rosidin, (2013) added that student worksheets as learning resources are used in a lesson to assist educators in conveying information that is not possible to be delivered orally. Based on suggestions from the material expert validator, the material on the experimental-based LKM is presented in the form of student activities that design these activities. Project content in a worksheet according to (Purnamasari, R. E., & Poedjiastoeti, 2013) consists of practical instructions using tools and materials as well as questions that must be answered based on the results obtained.

In line with this opinion, the suggestion from material expert validators is that student worksheets better direct students in making conclusions and analyzing data, as developed by Sari, D.A.P., Widodo, W., Martini dan Suyanto (2018) that student worksheets contain data analysis that can develop activities in project activities. Oktaviana, I., Sumitro & Lestari, (2015) added that a teaching material sourced from research and real results can connect theoretical studies with reality and have a very good impact on strengthening students' understanding of concepts from abstract to more real levels of understanding.

According to (Purnamasari, R. E., & Poedjiastoeti, 2013) the illustrations (pictures, tables, and the like) used must be clear, relevant and accurate to support the concept as a requirement of the quality of the presentation of the worksheet. The result of the readability test of the team-based project-based worksheet has a valid category, this is because the student worksheet has been revised following the advice of the expert validator so that it is more interesting and easy to understand. According to (Dewi, N.R., & Arini, 2018). A good level of readability can affect interest in learning, improve memory and maintain reading habits. Reading is closely related to the ease of reading, namely the ease of language (vocabulary, sentences, paragraphs, and discourse), the form of writing or typography, the width of the space, the graphic aspects.

The theory that is developing at this time is the theory of behaviorism which argues that students will become more active and achieve the expected learning goals if they are stimulated. The concepts and pictures or illustrations contained in this team-based project-based student worksheet are expected to stimulate and develop students' imaginations to think, describe concepts and express opinions in accordance with the material contained in the team-based project-based worksheets. The second learning theory is cognitive learning theory, namely the process of describing concepts will improve students' cognitive abilities. According to (Rofiah, 2014) Student worksheets are learning media because they

can be used together with other learning resources or learning media, and as a guide for students to work on certain projects that can improve and strengthen learning outcomes.

Learning that can facilitate students to work both individually and in groups in the standard process is stated that to encourage students' ability to produce conceptual works, both individually and in groups, it is strongly recommended to use a learning model that produces contextual work, it is highly recommended to use a learning model that produces works The real thing is the team-based project-based learning model (Sari, L., Taufina, T., & Fachruddin, 2020). Team-based project-based learning focuses on student activities in the form of gathering information and using it to produce something that is beneficial for life itself and for others, but is still related to the basic competencies and indicators developed.

The findings of (Zulkurnia, D., Sowiyah., & Jaya, 2017) that learning outcomes in product trials increase, this is evidenced by the results of the analysis so that learning using student worksheets is declared effective. Sari, L., Taufina, T., & Fachruddin, (2020) who stated that student worksheets using the project based learning model were declared eligible for the fulfillment of aspects of validity, practicality and effectiveness. Arsana, I. W. O. K., & Sujana, (2021) that the development of project-based student worksheets meets the eligibility criteria for use by teachers as teaching materials so as to create an active, creative and innovative learning atmosphere.

This Semester Learning Plan is contained in the developed Student Worksheet product. In addition to the Semester Learning Plan, it is also equipped with a summary of teaching materials as a guide for lecturers in providing learning materials that must focus on intellectual knowledge and skills, the affective domain is related to attitudes, motivation, willingness to participate, appreciate what is being learned and ultimately live up to these values into real life. daily life, while the skills domain focuses on carrying out motor activities to a certain level of accuracy, fluency, speed, or strength (Eggen, P., & Kauchak, 2012)

## **CONCLUSIONS AND RECOMMENDATIONS**

Based on the results of research and discussion, it can be concluded that the teaching materials are project-based LKM which was developed in the course Evaluation of Kitchen Management Learning Outcomes for Catering Education students is appropriate for use in terms of the feasibility of content, language, presentation and graphics. in the student learning outcomes section, it can be seen from the pre-test, post-test and mid-semester exams in the course Evaluation of Kitchen Management Learning Outcomes. Catering Education students experienced a significant increase after using this project-based LKM. of 26

students, only 5 people or (19.23%) have not completed. Furthermore, this shows that classical completeness (80%) has been achieved through the use of teaching materials in the form of Student Worksheets (LKM). Furthermore, in the realm of student responses to project-based Student Worksheets (LKM), it is classified as good in terms of material, graphic and language aspects.

### **FURTHER STUDY**

Suggestions that researchers want to convey for further research, including learning tools can be developed in other courses and majors to observe the impact and differentiation of the findings in this study.

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