PPKM (*PENGEMBANGAN PERANGKAT BERBASIS KURIKULUM MBKM*) AS THE PRACTICE OF DISTANCE LEARNING

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Abstract: *The covid-19 pandemic causes the need of distance learning. As in offline learning, its learning objectives have to be fulfilled. In the learning process, lesson plan is very important. The aim of this study is to develop the MBKM based lesson plan as the implementation of distance learning. The method of this study is research and development which implements the development model of Thiagarajan that is modified into three stages, namely: define, design, and develop stages. The methods in collecting data are documentations, questionnaires, and achievement tests. Based on the analysis results, the modification of developed learning tools using 4-D model produces MBKM based learning tools which is implemented in the distance learning using Moodle. The learning tools are valid based on the experts and the results of pretest that show the positive responses on learning and the achievement results that fulfilled the criteria of validity, reliability, and sensitivity test items.*

Keywords : *MBKM based Learning Tools, Distance Learning, Statistical Method*

Abstrak: *Pandemi covid-19 menyebabkan perlunya pembelajaran jarak jauh. Seperti dalam pembelajaran offline, capaian pembelajaranpun harus terpenuhi. Dalam proses pembelajaran, RPP sangatlah penting. Penelitian ini bertujuan untuk mengembangkan RPP berbasis MBKM sebagai implementasi pembelajaran jarak jauh. Metode penelitian ini adalah penelitian dan pengembangan yang mengimplementasikan model pengembangan Thiagarajan yang dimodifikasi menjadi tiga tahap, yaitu: tahap define, design, dan develop. Metode pengumpulan data dengan dokumentasi, angket, dan tes prestasi. Berdasarkan hasil analisis, modifikasi perangkat pembelajaran yang dikembangkan menggunakan model 4-D menghasilkan perangkat pembelajaran berbasis MBKM yang diimplementasikan dalam pembelajaran jarak jauh menggunakan Moodle. Perangkat pembelajaran tersebut valid berdasarkan ahli dan hasil pretest yang menunjukkan respon positif terhadap pembelajaran dan hasil pencapaian yang memenuhi kriteria validitas, reliabilitas, dan sensitivitas item tes.*

Kata Kunci: *RPP berbasis MBKM, Pembelajaran Jarak Jauh, Metode Statistik*

INTRODUCTION

The 2 years of pandemic in Indonesia drives the changes of several fields such as educational field. The government has created policy related to the alternatives for students who cannot attend the face-to-face learning.

According to Bustomi (2020), the implication of Covid-19 has caused the learning process to be virtual learning. Based on the the Government Letter no. 4 of 2020 about the education policy in the era of covid-19 pandemic. It is stated

that the learning strategy is changed into distance learning using online system.

The online learning is educational innovation which includes technology information in learning. Mustofa and Sayekti (2019) says that online learning is a system of distance learning with various learning methods in which the teaching activities are separated from learning activities. It enables students to study whenever and wherever. They are able to interact with teacher using several applications such as e-classroom, video conference, live chat, zoom meeting, google meet, or WhatsApp group (Dhull & Sakshi, 2017). The distance learning has to provide quality and success assurances as in the face-to-face learning.

The quality of learning process has been influenced by several factors such as learning tools to support the learning process. According to Amir (2015), the use of appropriate learning tools influences the success of learning process in the classroom. Punamasari (2016) argues that learning tools help teachers in delivering materials to students. Borich (2007: 112) states that Planning is the systematic process of deciding what and how your students should learn. The developed learning tools in this study are able to fulfill the need of learning which is appropriate with the approach used (in this case: the distance learning). So, students are able to study effectively. In the learning tools, it is explained the method of delivering learning materials in each meeting. The students can be more directed in studying, so the learning objectives can be obtained. According to Yelyani dan Roeminingsih (2021), the success of distance learning not only hinges on the teacher's materials, but also on the process of delivering it to make students understand it.

The distance learning tools are different from face-to-face learning tools. The differences are related to learning method, evaluation system, and assessment. The students' assessments include knowledge, attitude, and skill assessments. To meet the need of method, evaluation, and assessment, the MBKM based learning tools in distance learning have to be developed, so it can be implemented to support MBKM program.

Based on those explanations, the researchers are interested to develop the MBKM based learning tools to be implemented in distance learning.

RESEARCH METHOD

This study involves the third year students in Mathematics education department as the research subjects. According to Thiagarajan, et.al, the model utilized to develop the learning tools explains the operational steps in developing tools. The researchers choose this model by modifying it in the learning tools. The 4D model is utilized because it is systematic and suitable to develop the learning tools. However, the researchers modify it. It is carried out because it is designed for exceptional students, while the research subjects are normal students. The modifications are stated as follows:

a. Simplifying the model from 4 steps into three steps, namely define, design, and develop steps. After the third step, it has obtained good learning tools, so the purpose of development has been fulfilled in this step.

b. The analysis of concept and assignment has been changed sequentially from concept analysis to assignment analysis. It is carried out because the mathematics materials are structured. The sequence of

assignment depends on the sequence of materials/concepts.

c. The term 'concept analysis' is changed into 'material analysis' because the learning tools will be developed. The materials have wider scope than concepts. One material can consist of several concepts.

d. In the development stage, readability test is added. It aims to investigate students' understanding and language used in the learning tools.

The modification of developed learning tools with 4D model is presented in picture 1.
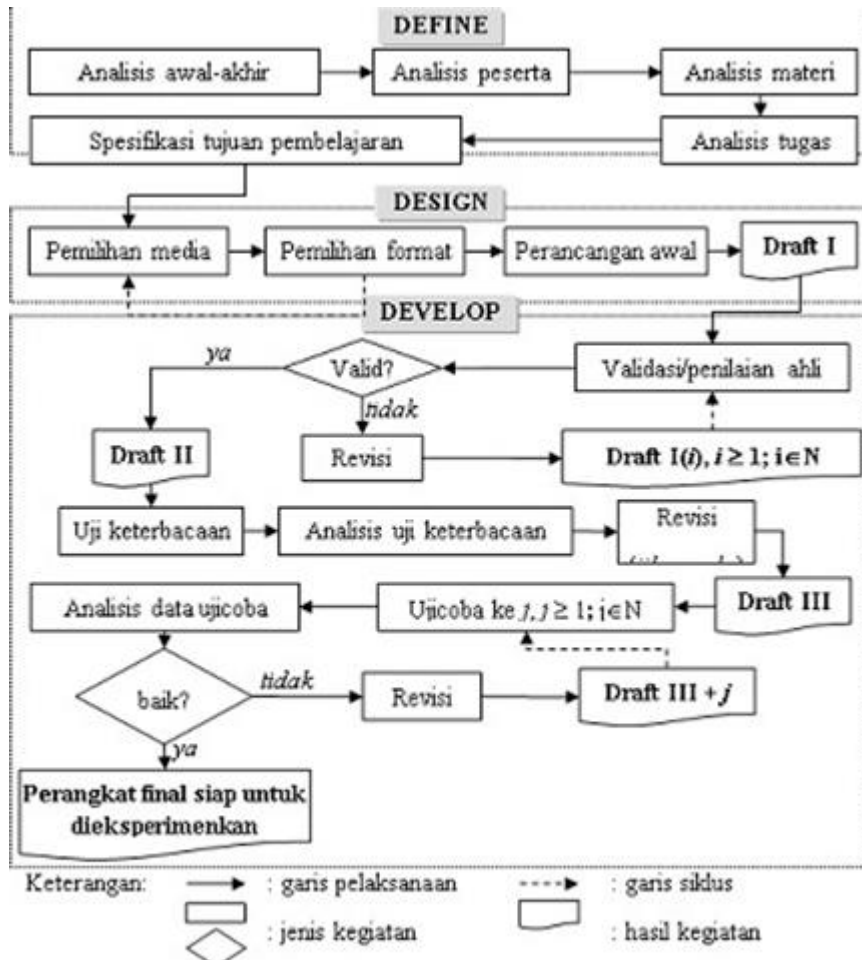
Picture 1. The modification of developed learning tools with 4D model

RESULTS AND DISCUSSION
A. Result of Developed Learning Tools and Research Instruments
1. Description of Defining Stage
a. Initial – Final Analysis
The definition of Statistical Method course in Mathematics education department is to understand the basic knowledge of statistics, i.e. descriptive statistics in forms of data description, technique in collecting data, and its presentation. Moreover, it calculates central value, location size, and data distribution which

directs to normality and homogeneity tests.

b. Students Analysis

This analysis is carried out to study about students' characteristics in Mathematics education department at IKIP PGRI Bojonegoro. It includes their knowledge background. It reveals that the materials about statistics have ever been taught in Junior High School.

The results of analysis are used as consideration in creating questions of problem solving, so students are not unfamiliar with the questions given.

c. Material Analysis

In this analysis, the material topics are defined. The results of analysis can be viewed in picture 2.
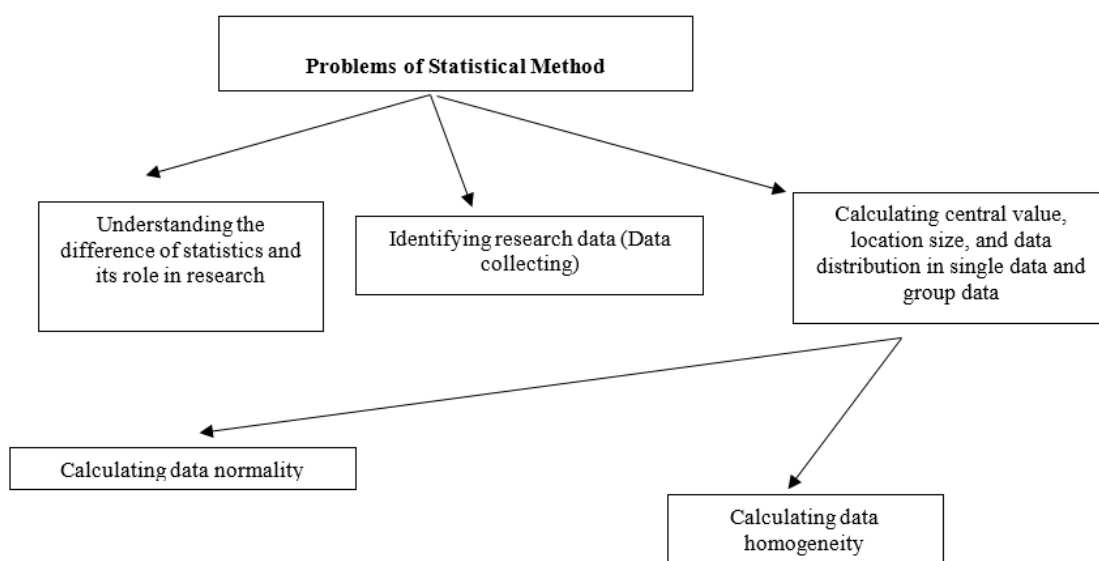
Picture 2: Material Analysis of Statistical Method

d. Assignment Analysis

Results of assignment analysis in statistical method materials are as follows:

1. Compiling data to implement the technique in collecting data.
2. Analyzing data and presenting it in forms of tables or graphics and describing it in sentences.
3. Analysing data whether it is normally distributed and has homogenous variance or not.

e. Specification of Learning Objectives

Based on the analysis of material and assignment, the learning objectives are arranged as follows:

1) Students are able to practice the way to collect data.
2) Students are able to present data communicatively based on the data obtained.
3) Students are able to determine the normality and homogeneity of the data.

2. The Description of Designing stage

a. Composing Test

Based on the learning objectives, test or evaluation tool is composed. It is in form of essay test which belongs to benchmark-based test because it is utilized to measure the achievement of

learning objectives. In this study, the test is cognitive test or product evaluation.

b. Choosing Media

Media used in this study is Moodle because it is distance learning.

c. Initial Design

The main activity in the last stage of designing step is to write the learning tool. In this stage, three designs of lesson plans, three worksheets, achievement test with its scores and key answers are produced. All of it is called Draft-I.

3. Description of Developing Stage

There are two steps of this stage, namely expert validation and try out validation.

a. Expert Validations

Expert validation is carried out to investigate the content validity. Its results are utilized as a basis of revising the learning tools. Moreover, it is being tryout to students.

Based on the validators' suggestions, the learning tool is revised to be Draft II

Tabel 5.1. Revision of Lesson Plan

Before revised	After revised
There is no scoring rubric	There is scoring rubric

Students' worksheets are good enough and can be utilized without revision.

b. Try out

The revised learning tool has to be trying out to the students of Mathematics education department. It is carried out to investigate the time suitability. Moreover, it improves the learning tool before implemented to the experiment.

The try out in this developing stage is a try out of learning tool which

is carried out by the researchers. The learning tool being tried out is lesson plan, worksheet, and achievement test. It aims to investigate the clarity, legibility, and time suitability. The results will be utilized to revise and improve the initial learning tools, so it produces Draft III.

c. Data Analysis of Try Out Result

The data analysis aims to describe the learning process in the try out which includes achievement test, ability to manage class, and students' responses. The data analysed are as follows:

a. Achievement Test

1) Validity

The measurement of instrument validity can be viewed in attachment A. Based on the formula of product moment correlation, the validity of each test item can be viewed in table 5.4.

Tabel 5.4. Validity of Test Items

No. of question	1	2	3	4
r_{xy}	0,42	0,49	0,85	0,77
Validity level	Adequate	Adequate	Very High	High

In table 5.4, the validity of each test item is fulfilled the valid criteria.

2) Sensitivity

The measurement of test instrument sensitivity can be viewed on attachment. Based on the formula of sensitivity, the results of each test item are as follows:

Tabel 5.5. Sensitivity of Test Items

No. of question	1	2	3	4
Sensitivity	0,32	0,43	0,54	0,47

In table 5.5, each test item is sensitive to the learning. In other words, the test items are appropriate to be used without revision.

3) Reliability

Based on the result of test reliability, the value of α = 0,60. It means that the achievement test has adequate reliability. Therefore, it can be utilized to measure the level of students' mastery.

b. Students' Responses on Learning

The result of students' responses in the questionnaire can be viewed in table 5.6.

Table 5.6. Percentage of Students' Responses

	Aspect	Agree (%)	Disagree (%)
a.	Learning material	90,63	9,37
b.	Students' worksheet	84,37	15,63
c.	Learning using Moodle	81,25	18,75
d.	Teaching style	87,5	12,5

In table 5.6, more than 85% of students state that they just achieve the learning of statistical method using Moodle. In the aspect of understanding language in the worksheet, more than 80% of students are able to understand it. Therefore, their responses on the component of learning statistical method using developed MBKM based learning tools in Moodle are stated to be positive responses.

In other words, the learning tools including lesson plan, students' worksheets, research instrument of achievement test, and students' responses in the questionnaire are ready to be experimented. Those learning tools and research instruments can be viewed in the attachment.

B. Descriptive Analysis of Research Results

The results of this study are analysed descriptively which include the students' responses on distance learning using MBKM based learning tools and their learning outcomes. The analysis results are presented as follows:

1. Students' Responses on Learning

Students' responses can be viewed in table 5.7.

Table 5.7. The Percentage of Responses

Aspect	Agree (%)	Disagree (%)
a. Learning Material	87,5	12,5
	96,87	3,12
b. Students' Worksheet		
c. Learning using Moodle	90,62	9,37
	96,87	3,12
d. Teaching style		

Based on the data in table 5.7, more than 85% of students on each learning component state that they just achieve the learning of statistical method using Moodle with MBKM based learning tools. In the aspect of understanding language in the worksheet, more than 90% of students are able to understand it. Therefore, their responses on the component of learning statistical method using developed MBKM based learning tools in Moodle are stated to be positive responses.

2. Learning Outcomes

The measurement of students' learning outcomes in experimental class is carried out once. The comparison data of their learning outcomes can be viewed in table 5.8

Table 5.8. Learning Outcomes

Description	Result
Average of learning outcomes	17,03
Number of	28

students who finish studies	
Percentage of students who finish studies	87,5
Classical mastery of learning	Finished

In table 5.8, the mastery learning of experimental class is stated to be finished.

CONCLUSION

Based on the research findings, it can be concluded that the development of learning tools using modified 4D model produces a good MBKM based learning tool. It is a valid learning tool based on experts' opinions and the results of try out which show the positive responses on the learning. Moreover, the results of achievement test are stated to have good criteria for validity, reliability, and sensitivity of test items. The learning tools produced are syllabus, lesson plans, students' worksheets, and scoring rubrics.

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