
Computer-Based Instrument for Evaluation of Professional Teacher Program (PPG)

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Abstract: The Teacher Professional Program (PPG) is one of the program created by Government in empowering teachers and teachers candidates in conducting a good teaching. The curriculum and evaluation for this program was developed by the government. There are 12 aspects that will be evaluated for each participant, an evaluation forms are available to be used by the instructor. The problem encounter by instructor in doing evaluation is time consuming and calculation error because the number of aspect to fill in the form. This research is aim to developed computer-based evaluation instrument that not only easier to fill but also less time consuming and prevent the error calculation. This development used 4D Model which included define, design, developed and dissemination. Analysis of available instrument is done in defining phase, it found that the indicator of scoring is needed to have a better grading. Based on this finding, scoring indicators are developed along with computer based form in design and develop phase. There are nine form were developed by adding the indicators and revising the appearance, five of them used for document analysis, four used for observation. The computer-based evaluation forms that been developed are recommended to used by the PPG isntructors.

Keywords: PPG, Computer-Based Evaluation, Proffesional Teacher Evaluation

1. Introduction

Professional teachers are expected to generate excellent graduates and are ready to face the demands of the times. The development of educationalneed requires the government to improve the ability of teachers with various programs including the Teacher Professional Program (PPG). This program is developed to fulfill the teachers responsibility as an educators, teachers, guides, counselor, trainer as well as assessor for students at all level of education.

The launching of the PPG program aims to educate participant to be a professional teachers. PPG is a tertiary education after an undergraduate program that prepares scholars to have jobs with special skills requirements in becoming teachers. PPG must be taken for one to two years after a candidate graduating from an undergraduate of education department or other department. Furthermore, the PPG participant candidates must meet the academic and administrative requirements as specified in the Minister of Education and Culture Regulation No. 37 of 2017 concerning Certification for In-service Teachers Appointed Until the End of 2015 and the Minister of Research, Technology and Higher Education Regulation Number 55 of 2017 concerning Teacher Education Standards. They are required to attend PPG with a weight or study load of 36 to 38 credits.

PPG is an effort to improve teacher quality both in terms of pedagogical competence, personality, social, and professional competence. The series of preparation for teacher

certification patterns with PPG in 2018 has been carried out since November 2017. There were around 206,086 teachers who were invited to participate in the Selection of PPG 2018 Prospective Participants based on teachers database that fulfilled the requirements and 28,045 passed. FKIP University of Riau has run the PPG program for Mathematics subject teachers starting 2018. PPG program participants will join all the activities for one year, for the first six months they will participate in workshop activities on campus and for the next six months they will go to school to do a teaching practice. In the campus activities PPG participants will get a deepening of the material for mathematics subjects, developing learning instruments in the form of syllabi, lesson plans, teaching materials, media, students worksheet and learning evaluation instrument, as well as classroom action research.

The PPG curriculum was developed with reference to the principle of activity based curriculum or experience based curriculum instead of curriculum subject matter as in academic education. The implication of this principle resulted in learning in the PPG program in the form activities, namely in the form of a learning device development workshop as a form of implementation of the TPACK concept, namely technological pedagogical content knowledge (Koehler & Mishra, 2008). The learning tools that will be prepared by PPG participants will cover all Basic Competencies (KD) in the junior and senior high school / equivalent to mathematics curriculum. It is expected that when going to school all participants have complete the learning tools. The PPG program curriculum contains several activities spread in the first semester and in the second semester, both in the form of academic and non-academic activities. The first semester academic activities are in the form of workshops to develop learning tools, presentations on the results of the development of learning tools, and peerteaching, as well as deepening or strengthening the material in the field of study/expertise. The second semester academic activities are in the form of Field Experience Practices (PPL), Classroom Action Research (PTK), and for PPG vocationally there are practical activities in the industry.

PPG program assessments include processes and products. Process assessment includes the activities of participants in group discussions, group/individual work, and peer-teaching. Product assessment in the form of a portfolio that contains a plan for implementing learning, learning media, assessment instruments, teaching materials, and management of the learning environment. If needed, an in-depth assessment can be done through interviews.

The problem faced is the availability of instruments for evaluating learning devices that have been made by PPG participants. In the guidebook several formats have been provided, but it will be difficult and time consuming if the assessment is done manually. Based on the above facts, the researchers plan to make a computer-based assessment instrument that can be used integratively for all assessment components. In addition to accelerating the work of the assessor, this instrument will also ensure that the calculation of points for assessment will be more accurate and avoid calculation errors. This instrument will use the format in accordance with the learning tools that refer to Permendikbud Number 22 of 2016 concerning the Standards of the Learning Process. The items in this device will be programmed using Microsoft Excel using inter-cell links so that it is easier for the assessor to calculate the final result.

The main goal of this research is to develop the computer-based instruments for assessing the learning achievement of the PPG participant. This product will be used by PPG instructors in department of Mathematics FKIP Universitas Riau. This product not only will make the grading easier but also prevent them from calculation error.

2. Methodology

This Development Research used the 4-D model which had define, design, develop and disseminate phases. The object on each phases is showed on the following figure:

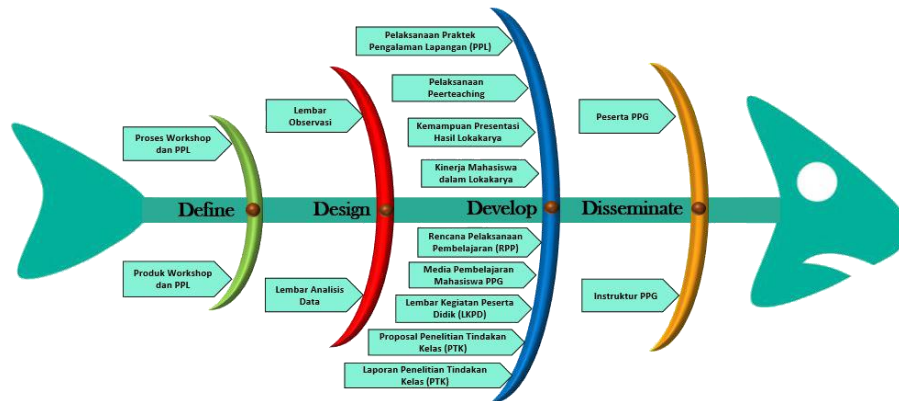


Figure 1. Phase of Development

On Define phase, all of the available form for PPG is analyzed to define the need of development. The evaluation form is divided into two categories which are evaluation form of PPG process and evaluation form of PPG product. These computer-based evaluation forms are designed to suit the Excel application. The are nine evaluation forms are developed, those forms are disseminated into the participants and Instructors of program PPG.

3. Result and Discussion

The development of an Computer-based assessment instrument for the PPG program in mathematics which is carried out refers to the Guidelines for Assessment of Student Learning Processes and Results of the Teacher Professional Education Program published by the Directorate of Learning Kemenristekdikti 2017. The finding on each phases (define, design, develop, and disseminate) is presented as follow:

3.1. Define Stage

At this stage, researchers examine the process and outcomes produced by PPG students. The learning process undertaken by PPG students is in the form of workshops and PPL processes. While the products produced are learning devices (Lesson Plan, student worksheet, learning media), PTK proposals, PPL reports, and PTK reports. The process evaluation refers to four competencies that professional teachers must possess, namely pedagogical competence, professional competence, social competence, and personality competency. Product assessment includes product completeness and product quality.

At this stage it was found that the available criteria were not given the assessment criteria. Observation sheets and document content analysis sheets only contain scores 1-4 where 1 = very bad, 2 = bad, 3 = good, and 4 = very good. The addition of assessment criteria aims to facilitate the assessor in providing the right score for each aspect assessed. From the above findings it was defined that the PPG assessment instrument was developed in the form of a non-test measuring instrument in the form of observation sheets and document content

analysis sheets. The PPG assessment instrument was developed based on computer application Microsoft Excel that is linked to all elements of assessment.

3.2. Design Stage

The design stage is divided into two stages: design for assessment criteria and design of assessment instruments using Microsoft Excel. There are nine assessment instruments designed, as presented in the following figure:

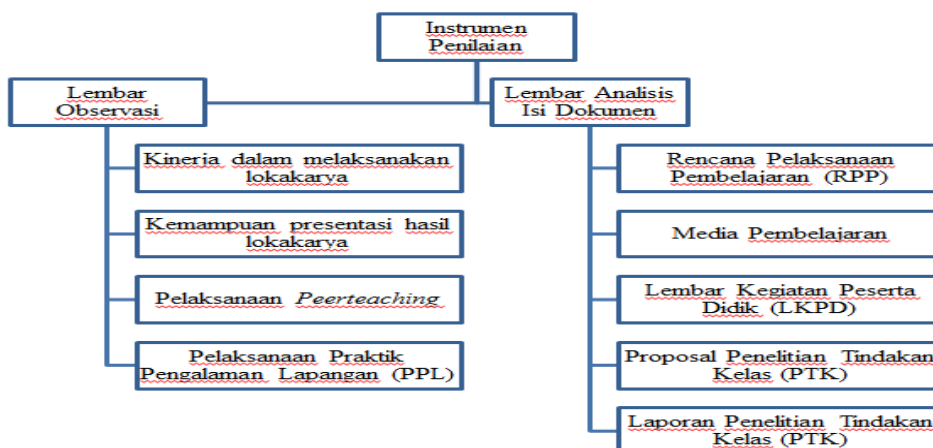


Figure 2. Instrument designed

a. Design of Scoring Indicator

The assessment criteria referred to in this study are giving explanations in the form of sentences to describe certain score weights related to assessment aspects and indicators. For example, if a score of 1 = very bad, then the explanation in the form of sentences will be different for the number 1, number 2, and so on.

In this study, the assessment criteria for observation sheets were designed differently with the document content analysis form. For the observation form, researchers only make assessment criteria for weighting scores 1 and 4. Appraisers simply match which scores match the results of observations. Whereas for the document content analysis sheet, the researcher makes assessment criteria for all score weights 1 to 4.

b. Design of Instrument

Each assessment element is assessed on one Microsoft Excel sheet, so the researcher designs 12 form consisting of nine forms for the assessment instrument and one form for the final assessment, one sheet for the front page and one sheet for the identity of the participants and assessors. On each sheet there is a link that connects with the sheet before and after it. The link between the first and the second sheets aims to identify students (names and register numbers) that are assessed as being done once in the first sheet. Link available from the first sheet to the last sheet because the assessment in the first sheet contributes to the final assessment. In each sheet, a cell is also available to enter the comment.. In the final assessment sheet, the comment can be printed along with the score.

3.3. Development Stage

At the development stage, researchers developed an computer-based PPG assessment instrument in accordance with the draft that had been prepared. At this stage the assessment instrument contains assessment criteria and is presented in Microsoft Excel format. The calculation of the final score is done automatically and can be immediately known to the student's achievement and ability.

The computer-based PPG assessment instrument that has been developed is then validated by assessment experts and IT experts through the Focus Group Discussion. In this case the validation aspect is the addition of assessment criteria as well as the ease of accessing Microsoft Excel and inter-sheet links. Sampel of the product is presented below.

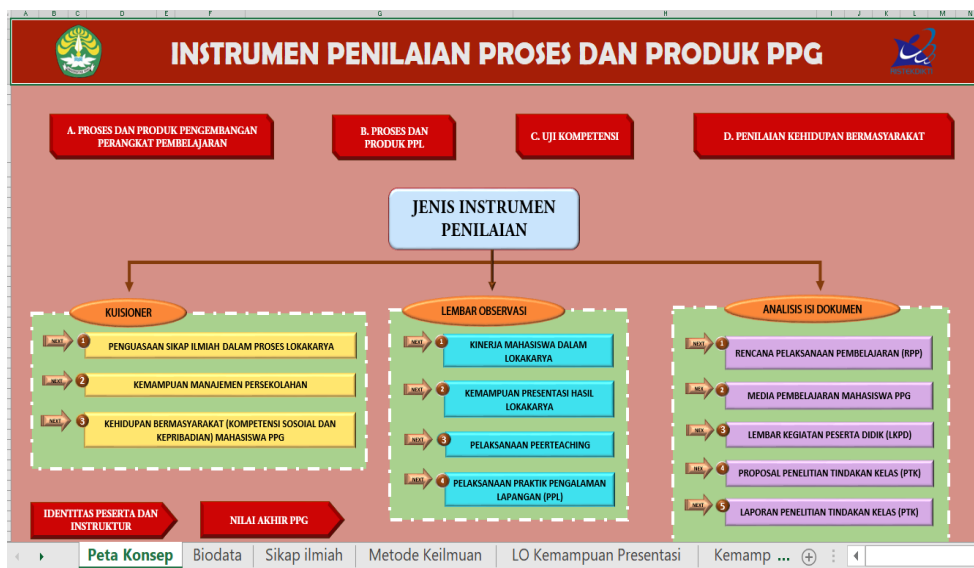


Figure 3. Cover Page

In the cover page user will find the main menu to go around the application, user can choose one of the sheet that contain the form to be filled. Before going the each sheet, the user recommended to fill in the sheet of Participant and Instructor Identity. This action will make all the sheet automatically has identity of instructor and participant. The sample of developed form presented in the following figure:

ANALISIS ISI DOKUMEN LEMBAR KEGIATAN PESERTA DIDIK (LKPD)			
A. Aspek Kelayakan Isi			
No	Indikator	Kriteria Penilaian LKPD	NILAI
1	Kesesuaian materi dalam LKPD dengan KI/KD	4 Semua materi yang ada dalam LKPD sesuai dengan KI/KD	
		3 Ada satu materi dalam LKPD yang tidak sesuai dengan KI/KD	
		2 Ada dua materi dalam LKPD yang tidak sesuai dengan KI/KD	
		1 Ada lebih dari dua materi dalam LKPD yang tidak sesuai dengan KI/KD	
2	Kesesuaian materi LKPD terhadap kemampuan siswa	4 Materi dalam LKPD sesuai dengan kemampuan siswa	
		3 Ada satu materi dalam LKPD sesuai dengan kemampuan siswa	
		2 Ada dua materi dalam LKPD tidak sesuai dengan kemampuan siswa	
		1 Ada lebih dua materi dalam LKPD tidak sesuai dengan kemampuan siswa	
3	Kesesuaian materi dalam LKPD dengan perkembangan ilmu pengetahuan	4 Semua materi dalam LKPD sesuai dengan perkembangan ilmu pengetahuan	
		3 Ada satu materi dalam LKPD yang tidak sesuai dengan perkembangan ilmu pengetahuan	
		2 Ada dua materi dalam LKPD yang tidak sesuai	
		1 Ada lebih dari dua materi dalam LKPD yang tidak sesuai	

Figure 4. Instrument of Analysis of Student Worksheet

Above figure show the form developed for assessment of participants product of student worksheet. Each aspect to be scored are given four different criterion to choose, the score input on the right side of the criteria. The cell for score is filter by only number between 1 and 4 to prevent out of range score. Reminder is presented when the mistake is occur.

LEMBAR OBSERVASI PELAKSANAAN PEERTEACHING										
Nama Peserta	:									
Nama Instruktur	:									
No.	Aspek Kinerja dan Kriteria Penilaian	Nilai								
1	Keterampilan membuka pelajaran									
	<table border="1"> <tr> <td>4</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td colspan="2">Baik</td> <td colspan="2">Tidak Baik</td> </tr> </table>		4	3	2	1	Baik		Tidak Baik	
	4		3	2	1					
Baik		Tidak Baik								
<table border="1"> <tr> <td>Guru dapat menarik dan mengalihkan perhatian murid ke pelajaran yang akan dimulai</td> <td>Guru membuka pelajaran tapi siswa masih sibuk dengan aktifitas sebelumnya</td> </tr> </table>	Guru dapat menarik dan mengalihkan perhatian murid ke pelajaran yang akan dimulai	Guru membuka pelajaran tapi siswa masih sibuk dengan aktifitas sebelumnya								
Guru dapat menarik dan mengalihkan perhatian murid ke pelajaran yang akan dimulai	Guru membuka pelajaran tapi siswa masih sibuk dengan aktifitas sebelumnya									
2	Keterampilan menarik perhatian dan memotivasi siswa									
	<table border="1"> <tr> <td>4</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td colspan="2">Baik</td> <td colspan="2">Tidak Baik</td> </tr> </table>		4	3	2	1	Baik		Tidak Baik	
	4		3	2	1					
Baik		Tidak Baik								
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Figure 5. Instrument of Observation of Peerteaching

Above picture show the appearance of the observation form, which only give indicator for the two places. This style of form give the instructor the chance to decide on his own the condition between the two categories. All observation forms are presented using this style.

4. Conclusion

There are 13 evaluation forms now available in the computer-based forms using Excel application. These forms are divided into 3 groups, the first part is evaluation form to be used by the participant for self evaluation, no change done for this group. The second groups is the

forms used for evaluation of the proses of PPG, indicators and appearance of the forms is revised. The 3rd groups is the forms use for evaluation the product of PPG's participant, the appearance and indicator of these forms also revised. These computer-based evaluation forms is recommended to be used for participants and instructors of PPG Programs especially at Department of Mathematics Education FKIP UNRI.

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