

Implementation of Affective Domain Evaluation Tool Assisted Macros Program

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Abstract— The specific purpose of this research is: The implementation of affective domain evaluation tool assisted macros program. The method used in this research followed the procedures is research and development by ADDIE. Population analysis has conducted at student high school, pre-service teacher and teacher. The results of the research and application development of macro program-based affective evaluation model in this section is response of macros program based affective evaluation model in senior high school. The data used in the form of questionnaires for student, pre-service teacher and teacher. Data obtained from student with 11 items question, student gave a good response. Response data from pre-service teachers and teachers also provide a good response.

Keywords— Evaluation, Affective, Teacher, Macros

I. INTRODUCTION

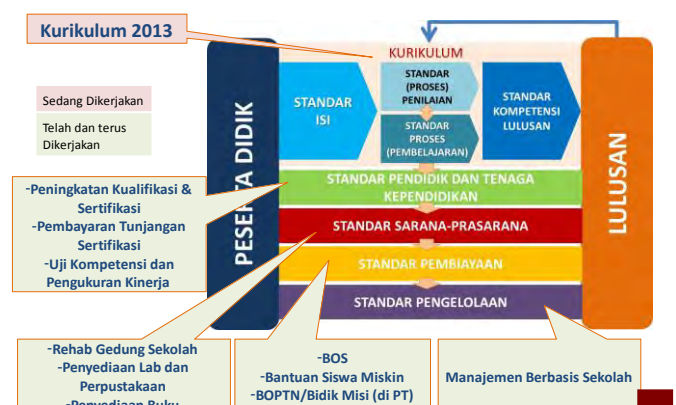
Computer technology remains an indispensable infrastructure (Chen, X. 2009). It is used for designing learning activities, making ICT-assisted learning media, learning process using computer facilities (called as JARDIKNAS), and also for conducting computer-based evaluations (Kemendiknas. 2011). The Research and Development (R&D) about macros program in the cognitive domains was once carried out by Purnomo (2015). The results of the study provide the information that the macros program can be used effectively to improve the cognitive abilities of pre-service teachers. Purnomo's research really needs to be developed further considering the importance of the three learning outcomes, that are: affective, cognitive, and psychomotor domains.

The affective domains developed in the 2013 curriculum relates to the attitude of religiosity (KI-1) and social attitude (KI-2), which is described in basic competencies (KD). Religiosity and social attitudes are the foundation for the formations of student characters. The character that would to be developed for student from Universitas PGRI Semarang include Unggul (excellent), Peduli (caring), Gigih (persistent), Religius (religious), Integritas (integrity), Sinergis (synergy) and it is abbreviated as UPGRIS. Today's demand for

measuring learning outcomes leads to use the ICT for supporting evaluation (Brown, S. 2001).

Development of 2013 Curriculum is carried out on the basis of several main principles. First, graduate competency standards are derived based on needs. Second, content standard are derived from graduate competency standards through core competencies that are subject-free. Third, all subjects must contribute to the formation of students' attitude, skills, and knowledge. Fourth, subjects are derived from the competencies to be achieved. Fifth, all subjects are bound by core competencies. Sixth, there are the harmony of the demands of graduate competencies, learning content, learning process, and assessment. Educational demand refers to 8 National Education Standards.

This research is a follow-up study of a superior research program for university that was conducted for 2 years. In the first year, the research related to the cognitive domain (professional competency) and the results showed the need for an ICT-assisted evaluation model. The urgency of this study is develop the indicators of affective domains, that include the attitude of religiosity and social attitudes related to the formation of students character at Universitas PGRI Semarang. The indicator will be arranged in a model of assisted evaluation using macros program through e-learning. The development of the affective domain indicator to measure the student character was in line with the development of the *tridharma* of higher education, which Universitas PGRI SEMARANG added the dharma of model and then called as *caturdharma* Universitas PGRI Semarang.



II. LITERATURE REVIEW

A. Affective Domain

According to Anderson (1981), the affective domain is the domain that deals with attitudes and values. Affective domains include behavioral traits such as feelings, interests, attitudes, emotions, and values. Some experts say that a person's attitude can be predicted if someone has a high level of cognitive power. The affective domain becomes more detailed into five levels, namely:

- 1) Receiving or attending is a person's sensitivity in receiving stimuli from the outside that come to him in the form of problems, situations, symptom, etc.
- 2) Responding means there is active participation. So, the ability to respond is the ability possessed by a person to actively involve his role in certain phenomena in making one way to react about it. This level is higher than the receiving stage.
- 3) Valuing is a higher level affective level for receiving or responding.
- 4) Organizing means bringing together different values so as to form new universal values, which lead to general improvements. Organizing is the development of values into an organizational system, including the relationship of one value with another.
- 5) Characterization by value or complex value is the integration of all the value systems that have been owned by someone, which affect the pattern of personality and behavior.

B. E-Learning

E-learning as any teaching and learning that uses electronic circuits (LAN, WAN, or the internet) to convey the contents of learning, interaction or guidance (Ritz, J. M. 2009). Onno explained that the term "e" or abbreviation of electronic in e-learning is used as a term for all technologies used to support teaching efforts through internet technology. According to Haughey (Isjoni et al., 2008: 10) there are three possibilities in the development of internet-based learning, as follows:

Web course is the use of the internet for educational purposes, and there is no need for face to face meetings. All teaching materials, discussions, consultations, assignments, exercise, examinations, and other learning activities are fully delivered via the internet. In the other words, this model uses a remote system.

Web centric course is the use of the internet that combine distance learning with face-to-face meeting (conventional). Some materials are delivered via the internet, and some are through face-to-face meeting. Its function is complementary. In this model the teacher can give instructions to students to learn the subject matter through the web that they have made. Students are also given direction to find other sources from relevant sites.

Web enhanced course is the use of the internet to support the equality of learning carried out in the classroom. The function of the internet is to provide the enrichment and communication

This research funded by Kemenristekdikti between students and instructors, fellow students, group members, or students with other resource persons. Therefore, the role of the teacher in this case is required to master the technique of searching the

information on the internet, guiding students to find relevant site with learning materials, presenting the learning material using interesting website, serving guidance and communication through internet, and the other skill required.

C. Character Education

Character education is a planned effort or system of inculcation behavioral values (character) to the school community which includes the components of knowledge, awareness or willingness, and actions to implement these values, both towards God Almighty, oneself, fellow human beings, environment, as well as nationality, so as to make someone a whole person (Abu su'ud, dkk. 2011: 115).

According to Suyanto (2010: 2) there are nine character pillars that are derived from universal values that need to be instilled in students, including: 1) character of love for God and all of His creations; 2) independence and responsibility; 3) honesty; 4) respect and courtesy; 5) generous; 6) confident and hardworking; 7) leadership and justice; 8) kind and humble; 9) character of tolerance, peace, and unity. These nine character pillars must be taught systematically in a holistic education model that uses methods of knowing the good, feeling the good, and acting the good.

D. Macros Program

The macros program is presented in the form of a programmed link with PowerPoint. This program will be able to evaluate the learning on cognitive domain, and we can know the cognitive skill of the student on the last slide. This evaluation model can be used repeatedly by same students. If the end result is increase, we can assume students already understand the reasoning of each question in one slide. If students just try the answers, the final results will not show an increasing trend of answers, until they pass the minimal completeness criteria. The advantages of this program can be used online through e-learning, or on a LAN in computer laboratory, or in the form of a flash disk which is injected into each laptop or computer.

III. RESEARCH METHODOLOGY

This research has been carried out for 2 years. In the first year, the research activities focused on the preparation of affective diagnostic evaluation model assisted by macros through e-learning. Whereas the second year, the research focused on implementation of evaluation model of affective domain based on macros program, which has been compiled the first years. The research method following Cohen, L., Manion, L., & Morrison, K. (2007) procedure.

A. Research Subject

The subjects of this research product trial were students from mathematics education program at Universitas PGRI Semarang, who were carrying out 3rd internship in the Semarang city.

B. Research Instruments

In an effort to get accurate data, the instruments used are:

- (1) Validation sheet. This instrument is used to obtain data on the experts opinions (validators) on product design (evaluation tools assisted macros program) compiled in

draft-I, so that it becomes a reference or guideline in revising (Ghirardini, B. 2011).

- (2) Questionnaire for students responses. This instrument is used to obtain data of student opinions on learning using evaluation tools assisted macros program.

C. Data Analysis Techniques

Universitas PGRI Semarang takes the *catur dharma* policy in the administration and management of Higher Education. Assume that student character in the affective domain related to the attitude of religiosity, social attitude, and scientific attitudes will increase from year to year. Then, this research measured the character differences between 2nd year students, 3rd year students will be measured, using an average test of two parties to determine the significance of character differences for each of the 2 consecutive force, and F-test using analysis of variance (ANOVA) to determine the significance of characters students participate in 1st and 3rd internship (2 years).

IV. RESULT AND DISCUSSION

This research is a series of activities that have been planned for 2 years. In the first year, the design of the development of the affective domain evaluation assisted macros program has been developed until the proof of validity. In the second year, according to the research plan is to find out the effectiveness of the affective domain evaluation assisted macros program for pre-service teachers. The steps taken include conducting research preparation by analyzing the research subject before trial, the subject of the product trial, and implementing the design test of the affective domain evaluation assisted macros program.

1. Research Preparation

The preparations made before the trial are as follows:

a. Research Coordination dan Licensing

The researchers submitted permission to the school and the mathematics education study program at the Faculty of Mathematics Education, Natural Science and Information Technology, Universitas PGRI Semarang. Next, the researcher coordinated with head of the mathematics education program related to the schedule and examiners off 1st and 3rd internship. Researchers contacted supervisor and class leaders in each class to coordinate trials of evaluation affective domain assisted program macros.

b. Conduct Initial Observation

The researcher conducted interview with 2 lecturers from 1st internship and 2 lecturers from 3rd internship to find out the conditions, and the situations of students who would be subjected to a trial evaluation affective domain assisted macros program. The data obtains that students have never done an affective domain evaluation. The instruments of evaluation tool made in their affective domain assessment, because what is usually allocated in the learning plans is cognitive tests. In addition, the instruments in affective assessment are still poorly understood by students' descriptive form.

2. The subject of Product Trial

Product testing subjects of evaluation affective domain assisted macros program are pre-service teachers or students. The populations in this study were students of mathematics

education programs and samples for research were selected 4 classes students from 4th semester and 4 classes students from 6th semester.

3. Trial Implementation

The implementation of the trial as part of the research data collection was carried out for 3 months, namely June, July, and August. The implementation of this study starts from the testing of evaluation affective domain assisted macros program instruments to students who are taking 1st and 3rd internship. The researchers taken students from 4 classes of 1st internship (4th semester) and students from 4 classes of 3rd internship (6th semester). After students use the evaluation tool, students fill out their use questionnaire. In addition, to find out the actual implementation of the school was also conducted a trial at the Lab school of Universitas PGRI Semarang and MAN 2 Semarang (Wagner, N., Hassanein, K., & Head, M. 2008). The following is an explanation of the implementation of the trials that have been carried out.

Test on Pre-service Teacher

a. Performing Instrument Tests

The trial of instrument was carried out in 4 classes of 1st internship as many as 38 students and 4 classes of 3rd internship as many as 39 students. The form of the test is given in the form of shelf-evaluation and peer-evaluation as many as 30 items. The trial aims to obtain the affective domain data from 4th semester and 6th semester students. all classes get average learning outcomes that are well above the graduation standard (Guskey, T. R. 2015).

b. Instrument Test Result Analysis

The hypothesis test is used the average difference test, the right one test party with the t-test formula. This test is used to determine the comparison of the results of the affective domain value trial.

$H_0 : \mu_1 = \mu_2$ (the average of affective domain students from 4th semester is equal with student from 6th semester)

$H_1 : \mu_1 \neq \mu_2$ (the average of affective domain students from 4th semester is not equal with student from 6th semester)

The hypothesis is not rejected if $t_{hitung} < t_{tabel}$.

Table 1. The Comparison Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil	Equal variances assumed	.080	.779	-2.012	75	.048	-7.068	3.514	-14.067	-.069
	Equal variances not assumed			-2.010	42	.048	-7.068	3.516	-14.074	-.062

From table 1, we know that the significance of varian value is 0,779 > 0,05 so H₀ is not rejected, or we can say that varian of the student from 4th semester is equal with students from 6th semester. Then, we can do the average difference test of affective domain value of students from 4th semester and students from 6th semester using t-test. From table 1 we get t_{true}

score = $-2.012 < t_{table} = 1,69$ so the hypothesis is not rejected. Electronic learning has a different impact on each generation as expressed by Anderson, T., & Dron, J. (2011).

We choose the assumption that *equal varian assumed*, sig for t-test is 0,048 or 4,8% less than 5% so the significance of H_0 is rejected, or there is difference of average affective domain value between experiment class and control class. The differences can be explained by table 2.

Table 2. The difference between control class with experiment class

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error
Hasil	1	38	71.34	15.878	2.576
	2	39	78.41	14.949	2.394

From table 2 can be explained that average of affective domain value of students from 6th semester is 78,41 and the affective domain value of student from 4th semester is 71,34; so affective domain value students from 6th semester is greater than affective domain value students from 4th semester.

After the pre-service student using the affective domain evaluation tool assisted macros program, then they fill the response questionnaires about the affective domain evaluation tool. The following is the results about the responses from re-service teacher.

No.	Criteria	SMT		averager
		4	6	
General aspect		4	6	
1.	Affective domain evaluation tool assisted macros program in implementing evaluation process is a development of creative and innovative evaluation tools.	3.9	3.8	3.8
2.	This evaluation tool is easy to understand and uses good and effective language.	4.0	4.0	4.0
3.	This evaluation tool has several advantages than using the conventional methods.	4.2	4.1	4.1
4.	This test tool can make students comfortable in doing tests.	3.1	3.1	3.1
Software engineering aspect				
5.	Effective and efficient in development and use in the evaluation process.	3.2	3.2	3.2

6.	Ease of manufacture and can be distributed in flash format.	3.2	3.3	3.3
7.	The evaluation tool is easy to use and simple to operate.	4.7	4.7	4.7
8.	The evaluation tool is not jammed or errors during playback.	3.6	3.6	3.6
9.	This evaluation tool can be installed or run on another computer.	4.2	4.1	4.1
10.	This evaluation tool program can be developed again.	4.0	4.0	4.0
11.	Evaluation tool have clear, concise, and easy to use instructions	4.9	4.8	4.8
Visual Communication Aspect				
12.	The sentence used is easy to understand.	4.9	4.7	4.8
13.	The illustration in the question describes the content or learning material and reveals the character of the objects.	3.5	3.6	3.5
14.	Complete layout element.	4.3	4.2	4.3
15.	Audio back sound of the evaluation tool is interesting.	2.9	2.9	2.9
16.	Good colors composition and attractive display of evaluation tool.	4.2	4.2	4.2
17.	Animation is nor excessive and does not interfere with the readability of the questions.	4.3	4.4	4.4
18.	Layout of design is proportional.	4.1	4.1	4.1
19.	The letters used can be read, proportional and the composition of the letters is good.	4.1	4.2	4.1
20.	Mathematical symbols can be clearly understood.	4.2	4.2	4.2

The questionnaire given to the pre-service teacher to the 8 classes gave an agreed response and agreed enough (Manuela

Paechter, Brigitte Maier. 2010). The average score of the questionnaire is 4.05, which means the pre-service teacher agrees with the affective domain evaluation tool assisted by the Macros program. The inputs given by pre-service teachers have been grouped into several sections, so that the same input items will not be rewritten. Some input from prospective teachers is

1. The number of items is not too much because it will affect the inefficient working time.
2. It is necessary to have instructions to turn on the enable Macros enable settings so that if the program has not been running it can know the instructions from the program directly.
3. Sound in the evaluation tool is lacking. Regarding sound in \affective domain evaluation tool assisted macros program, it does not include sound, it aims to not interfere with student focus.

ACKNOWLEDGMENT

Our thanks go to the Directorate of Research and Community Service of the Directorate General of Strengthening Research and Development at the Ministry of Research, Technology and Higher Education (Kemenristekdikti) who has funded this research. LPPM Universitas PGRI Semarang which has helped to carry out this research so that it runs smoothly.

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