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# IMPLEMENTATION OF REFLECTIVE PEDAGOGY TO PROMOTE PROSPECTIVE MATHEMATICS TEACHERS' ENTHUSIASM

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**Abstract**
In this study described the implementation of Reflective Pedagogy in psychology of learning course to promote prospective mathematics teachers' enthusiasm. To obtain data learning enthusiasm, researcher gives questionnaire of learning enthusiasm to prospective mathematics teachers and also asks them to do reflection. The result of questionnaire of learning enthusiasm is described quantitatively and supported by data of reflection. The result of learning enthusiasm questionnaire shows that the average of prospective mathematics teachers' enthusiasm in cycle 2 is higher than cycle 1, that is 78,19 > 76,15 and the average is in "good" category. It is also supported by the results of student reflection which states that students' learning enthusiasm is improved after they learn psychology of learning course based on Reflective Pedagogy. So, the implementation of Reflective Pedagogy in psychology of learning can foster prospective mathematics teachers' enthusiasm.

Keywords**:** reflective pedagogy, learning enthusiasm

**Introduction**

Psychology of teaching and learning is a course in mathematics education majors that discuss topics of learning concepts, learning theories, factors that influence the learning process, cultural and linguistic impacts on learning, multicultural education, gender influences, classroom management, and strategy the management of students behaved difficult. Thus, the material will be very useful for prospective mathematics teachers when they later become a teacher and face students in the classroom. The purpose of this course is to develop the ability of mathematics teacher candidate in understanding learning process and mentoring/management of learning process as education activity. So, prospective teachers of mathematics should be enthusiastic in learning the material, then later when they become a teacher will have the spirit of loving students.

Based on the observations made by researchers, most of the prospective mathematics teachers tend to be less enthusiastic in following the courses of education. They have less prepared before attending college. In addition, students

also appear less active to ask or think in the lesson. Students are also less enthusiastic in following the lesson. Thus, it is necessary for teacher to use a learning approach that can foster enthusiasm, spirit of learning, and caring for others.

Learning with a Reflective Pedagogy approach that has 3C pillars, namely competence, conscience, and compassion is believed to be an appropriate approach to help students understand the concept of learning psychology and foster student enthusiasm in learning. Learning with a Reflective Pedagogy approach has key elements: context, experience, reflection, action, and evaluation. With such learning cycles, it is expected to really help students to be more active and more enthusiastic in learning. Therefore in this paper will be discussed how the impact of the implementation of Reflective Pedagogy to foster the enthusiasm of learning mathematics teacher candidate.

The word pedagogy (*paideia* - Greek) means methodology or how to accompany and help the learner grow and develop based on the view of life and the vision of the ideal human person (LPM USD, 2012: 4). Reflective Pedagogy is learning that integrates the development of human values and personality formation into the curriculum. Reflective Pedagogy is a process by which teachers accompany learners in the lifelong pursuit of competence, conscience, and compassionate commitment (Kolvenbach, 2005: 2-3).

The main objectives of Reflective Pedagogy are: 1) to develop the students' inner knowledge and attitudes, 2) the pupils are able to see the correlation between their inner science and their environment, 3) the students are able to care for the society and the environment in which they live and give it life. Practically, the application of the Reflective Pedagogy is formulated in a system that has the principal elements (Jesuit Institute, 2014: 4-7, LPM USD, 2012: 10-34; Gallagher & Musso, 2006: 6-8; Kolvenbach, 2005: 2): context - experience -reflection - action - evaluation.

Context is personal care and concern for the individual (cura personals). Teacher must know as much as you can about the world. At the stage of ignition, students are invited to perform activities that contain cognitive aspects (comprehension) of the material, affective aspects (feelings / appreciation) and conative aspects (intention / will). Thus, the whole person (intellect, taste, and will) of the students is honed so that they can gain a fuller knowledge. The memory, the understanding, the imagination and the feelings are used, at the deep level of reflection, to capture the meaning and the essential value of what is being studied, to discover its relationship with the knowledge and human activity, and to appreciate its implications in the ongoing search for truth and freedom. In the process of learning, the meaning of action is to interpret the learning outcomes with the mind and heart to realize his knowledge in real life practice. Evaluation in learning is an activity to monitor student academic progress. Based on this cycle, a teacher can guide the students to facilitate the learning process and foster learning enthusiasm.

According to Webster in Wijajanti (2009), enthusiasm is a great feeling of excitement to reach something. When a person has enthusiasm in him, then he will be made great pleasure in achieving something. Humans need enthusiasm and

enthusiasm to make them do the job with joy. According to Samuel (2015), enthusiasm is energy, fuel, a flame that brings about successful results. If you want to achieve great things; if you want to realize a big goal; if you want to live a great life, you must have enthusiasm for everything you do.

In addition, Samuel (2015) also mentions enthusiasm as a choice of feelings that arise and in selection are then continued and strengthened, because enthusiasm can be generated from and within ourselves or by circumstances outside ourselves, the strongest is the choice alone, because when you has decided to choose to be enthusiastic, then the program will run in the mind instantly generate energy. According to Baum (2002), in addition to the enthusiasm of students in learning, teacher enthusiasm in teaching is also important, a teacher's involvement and excitement communicate themselves to the students, helping to engage them in the learning process. From the description, the enthusiasm of learning is a feeling of pleasure that produces energy to reach a goal.

**Method**

This activity aims to determine whether Reflective Pedagogy-based learning can foster learning enthusiasm. The method of this research is descriptive quantitative to describe the implementation of Reflective Pedagogy based learning to foster the enthusiasm of learning. The subjects of this research are 26 students in G-Class in Psychology of teaching and learning course at the mathematics education program of Sanata Dharma University. The object of this research is the prospective mathematics teacher enthusiasm. Technique of collecting data in this research is by giving questionnaire learning enthusiasm and doing reflection. The instrument of data collection is questionnaire of learning enthusiasm and reflection sheet. Questionnaire of learning enthusiasm consists of 20 items of statement containing aspects of pleasure, student interest, and student involvement. The reflection sheet consists of 3 questions related to what students get during the lesson, whether the students' learning enthusiasm increases after learning, and whether learning is beneficial when they become teachers.

The technique of data analysis of learning enthusiasm determines the total score obtained by each student. Converting quantitative data into qualitative data with conversion table as follows.

Table 1. Actual Score to five scale

| Score Interval | Category |
|---|---|
| $X > \overline{X_i} + 1,8 Sbi$ | Very Good |
| $\overline{X_i} + 0,6 Sbi < X \leq \overline{X_i} + 1,8 Sbi$ | Good |
| $\overline{X_i} - 0,6 Sbi < X \leq \overline{X_i} + 0,6 Sbi$ | Good Enough |
| $\overline{X_i} - 1,8 Sbi < X \leq \overline{X_i} - 0,6 Sbi$ | Not Good |
| $X \leq \overline{X_i} - 1,8 Sbi$ | Very bad |

(Widoyoko, E.P, 2009: 238)

**Note :**

$\overline{X}_i$ (ideal mean) $= \frac{1}{2}$ (maximum score ideal + minimum score ideal)

*Sbi* (standard deviation ideal) $= \frac{1}{6}$ (maximum score ideal – minimum score ideal)

*X* $=$ real score

After that, determine the percentage of the number of students in each category. Student reflection analysis is reducing data, presenting data, and drawing conclusions. Data reduction is done by the process of sharpening, classifying, eliminating unnecessary and organizing data so that can be drawn conclusion. The presentation of data includes the classification and identification of data. The conclusion gives meaning and explanation to result of data presentation.

**Findings and Discussion**

Below are the implementation of Reflective Pedagogy-based learning.

**In Cycle 1**

*Context*

At the beginning of the lecture, the lecturer dig up the early knowledge of the students so that they can know the extent to which their understanding of what learning means and examples of learning and learning activities are in their minds.

*Experience*

Lecturer stimulates students to learn teaching materials and provide subjects that will be discussed students in groups. Lecturer divide students in groups consist of 3-4 people according to students' own choice, so that students are expected to work together. The main subjects studied in cycle 1 are learning concepts, behavioral learning theory, cognitive learning theory, social learning theory, factors influencing learning and learning (internal and external factors). Each group will present a material. In addition to the presenter group determined, also determined the group of discussants and questioners. The discussion group aims to discuss whether the material presented is appropriate or needs to be added several things. The questioner group is given the opportunity to ask first, then all students may ask. The goal is determined by the discussion group and the questioner so that the other students will also learn the material that will be presented by their friend. With group discussions, students will be more active in asking questions, expressing opinions, answering questions, and actively taking part in lectures.

*Reflection*

Lecturer ask students to reflect on what knowledge they have received, what benefits have been gained as a teacher candidate, how the enthusiasm of learning and caring for others after half semester, and what obstacles are experienced.

*Action*

Lecturer guide students to make solutions to obstacles encountered during the lecture so as not to be a barrier in the next learning process.

*Evaluation*

Lecturer provides evaluation through assessment of process observation, assessment of tasks done, and written tests.

**In cycle 2**

*Context*

Students have an understanding of the concepts of learning and learning, learning theories, and the factors that influence the learning and learning process. Therefore, at the beginning of this third lecture, the lecturer explores students' experiences on culture and language as well as gender in relation to the learning process and student learning outcomes at school. Context digging is done with question and answer.

*Experience*

Lecturer stimulates students to learn teaching materials and provide subjects that will be discussed students in groups. Lecturer divides students in groups consisting of 3-4 people according to students' own choice, so that students are expected to work together. The main subjects studied in cycle 2 are cultural and linguistic impacts in learning, multicultural education, gender influences and personality in learning, and strategies for managing students behave very difficult. The material learned in cycle 2 is more real and often the students encounter in everyday life, so that more and more students are actively involved in learning, conveying their experiences at school time regarding differences in Language, culture, religion, gender, and so on. By learning the material, the students are increasingly aware that in Indonesia there is a lot of diversity, but it is increasingly enriching the nation's culture. By recognizing diversity in Indonesia, students are increasingly appreciating diversity.

*Reflection*

The lecturer asks the student to reflect on the learning process that has been experienced by questioning the extent to which cultural, linguistic, and gender impacts on the learning and learning experience are beneficial to you and how to appreciate cultural differences, the language associated with the present situation in Indonesia.

*Action*

Lecturer asks students to create a video containing a campaign of values in Multicultural Education to appreciate diversity (within the family, school or community) as the final project. Student videos are then uploaded YouTube accounts of each group. It is expected that students can make a real appreciation of the diversity that exists around them especially in Indonesia.

*Evaluation*

The lecturer provides an evaluation through the assessment of process observations, as well as an assessment of the tasks performed, and the final project video assessment. After elaborating Reflective Pedagogy-based learning, the following is the result of questionnaire of student's enthusiasm in cycle 1 and 2.

Table 2. Results Student Enthusiasm Questionnaire

| No | Name of Student | Cycle 1 | | Cycle 2 | |
|---|---|---|---|---|---|
| | | Total Score | Category | Total Score | Category |
| 1 | Student 1 | 91 | Very good | 91 | Very good |
| 2 | Student 2 | 96 | Very good | 96 | Very good |
| 3 | Student 3 | 67 | Good enough | 71 | Good |
| 4 | Student 4 | 87 | Very good | 93 | Very good |
| 5 | Student 5 | 65 | Good enough | 65 | Good enough |
| 6 | Student 6 | 67 | Good enough | 70 | Good |
| 7 | Student 7 | 72 | Good | 72 | Good |
| 8 | Student 8 | 81 | Good | 83 | Good |
| 9 | Student 9 | 76 | Good | 82 | Good |
| 10 | Student 10 | 71 | Good | 77 | Good |
| 11 | Student 11 | 76 | Good | 78 | Good |
| 12 | Student 12 | 69 | Good | 71 | Good |
| 13 | Student 13 | 61 | Good enough | 68 | Good enough |
| 14 | Student 14 | 78 | Good | 78 | Good |
| 15 | Student 15 | 75 | Good | 75 | Good |
| 16 | Student 16 | 78 | Good | 78 | Good |
| 17 | Student 17 | 86 | Very good | 86 | Very good |
| 18 | Student 18 | 88 | Very good | 92 | Very good |
| 19 | Student 19 | 82 | Good | 82 | Good |
| 20 | Student 20 | 73 | Good | 75 | Good |
| 21 | Student 21 | 69 | Good | 70 | Good |
| 22 | Student 22 | 72 | Good | 74 | Good |
| 23 | Student 23 | 70 | Good | 70 | Good |
| 24 | Student 24 | 70 | Good | 70 | Good |
| 25 | Student 25 | 76 | Good | 77 | Good |
| 26 | Student 26 | 84 | Good | 89 | Very good |
| | **Average** | **76,15** | **Good** | **78,19** | **Good** |

Based on the result of this research, it can be seen that the average of questionnaire result of learning enthusiasm in cycle 2 is higher than the average in cycle 1, that is 78,19 > 76,15. The mean of questionnaire result of learning enthusiasm in cycle 2, that is 78,19 in "good" category. Similarly, the average

questionnaire results of learning enthusiasm in cycle 1, i.e. 76.15 include into the category of "good". The following will be presented the questionnaire analysis of student learning enthusiasm.

Table 2. Analysis of Results Questionnaire Enthusiasm Learning

| No. | Cycle 1 | | | Cycle 2 | | |
| | Category | Number of students | Percentage | Category | Number of students | Percentage |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Very good | 5 | 19,23% | Very good | 6 | 23,08% |
| 2 | Good | 17 | 65,38% | Good | 18 | 69,23% |
| 3 | Good enough | 4 | 15,38% | Good enough | 2 | 7,69% |
| 4 | Not good | - | - | Not good | - | - |
| 5 | Very bad | - | - | Very bad | - | - |

From the table, it shows that there is an increase of the percentage of students who are categorized as "excellent", initially 19.23% to 23.08%. Similarly, there is an increase in the percentage of students in the "good" category and the decrease in the percentage of students in the category quite well. When viewed from the average of the questionnaire results and the percentage of the number of students in each category there is an increase. This happens because at first the student's enthusiasm is low, students tend to be quiet and passive. Therefore, in the experience stage, lecturer involve students to present lecture materials so that students become more active, can interact with lecturer, other students, and explore the source of learning.

In addition, the lecturer also links the material being studied with the daily experience of the students, so that it is more easily understood by the students. This is in line with Levy's opinion (2017), there are 6 ways to ignite enthusiasm in your students: 1) show your enthusiasm for the works, 2) demonstrate the value of learning the material, 3) allow for students interaction with teacher, other students, 4) allow for student chosen project, 5) connect to the real world: guest speakers, field trips, and 6) permit students to use their expertise. In the final project of making videos, students also experience real and interact with the environment and society. In addition, according to Sullo (2009, 62), "negative energy can bog a school down; positive energy and enthusiasm for teaching enhance performance". So as a teacher must be enthusiastic in teaching and transmitting positive energy and enthusiasm to students.

The results of the questionnaire of enthusiasm of learning have shown an increase in student learning enthusiasm. It is also supported by the results of student reflection. Most students stated that their learning enthusiasm increased when compared to early learning. This happens because the beginning of their learning to take the course of learning psychology will be boring with theoretical material, but the material is related to everyday life that makes them enthusiastic. In addition, the presence of group discussion makes them enthusiastic about discussing a particular topic. But there are still students who are still less enthusiastic to follow the learning because the students are still lazy to participate in group discussions. This is an input for teachers to improve the next learning

cycle. So the students' final assignments make the campaign videos appreciate diversity. With that students will mingle with the community, interview the resource person, think creatively how to package the video, and so that the enthusiasm is increasing.

Based on the results of the average questionnaire enthusiasm of learning, the percentage of students and the results of student reflexes, it can be concluded that the implementation of Reflective Pedagogy-based learning can foster student learning enthusiasm.

**Conclusions**

Based on the results of research that has been done, then some things that can be concluded is as follows. Reflective Pedagogy-based learning can foster learning enthusiasm and caring for others. It can be seen from the result of questionnaire of learning enthusiasm shows that the average of questionnaire of cycle 2 is bigger than cycle 1, that is 78,19 > 76,15 and the average is included in "good" category. Reflective Pedagogy-based learning can be combined with other learning models so as to further enhance students' enthusiasm. The next researcher can review other attitudes such as self-efficacy, mathematics learning anxiety, and others.

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