

Enhancing Prospective Teachers' Character through Reflective Learning

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Abstract

This research aims to examine the achievement and enhancement of prospective teachers' character (PC) through reflective learning. By using a quasi-experimental method with nonequivalent pre-test and post-test control group design. The subject of this study were students of Mathematics Education Program in one of private universities in Palembang, consisting of 155 students. Based on instructional factors, there were two groups of samples used in this study: experimental and control groups. The experimental group was given reflective learning (RL), while the control group was given conventional learning (CL). This study was conducted in odd semester, 2013/2014 academic year. The instruments in this study were PC questionnaire, observation sheet, and interview guide. The data analysis used were t'-test and Mann-Whitney U test with significance degree $\alpha = 0.05$. Based on the result of data analysis, the results obtained in this study are: 1) There is no significant difference in character achievement between prospective teachers who were taught by RL and prospective teachers who were taught by CL; 2) there is significant difference in character enhancement between prospective teachers who were taught by RL and prospective teachers who were taught by CL.

Keywords: *Prospective teachers character, reflective learning*

1. Introduction

Historically, character education is not new matter in national education system in Indonesia. All legislations prevailed (Act of 4/1950; 12/1954; 2/1989) with its different formulation substantively contains character education (Saepudin, 2010). The effort to revive this character education is a mandate which has been underlined in National Education System Decree (NESD) Number 20, 2003. Article 3 of NESD states that national education is functioned to develop capability and shape character and nation civilization which has dignity as an effort to educate people. The mandate of NESD that education not only generate people who is smart intellectually, but also develop their character.

In fact, moral and character decadency occur in our community. Various phenomena of destructive behaviour occur in various sphere of community such as: mass riot, oppression, criminal

acts, narcotic and drugs, corruption, etc. According to Sirajuddin (2009), destructive spontaneous behaviour in community today reflects the mindset “without thinking ahead” as an effect of lack of reflection experience. He claimed that education field in Indonesia today is falling short as result of ignoring reflective dimension in learning.

Mulyasa (2012) stated that character education has higher meaning than moral education because character education not only related to right-wrong problem, but also how to inculcate good habits in life. This is in accord to Aristotle (1958) who said that character is strongly related to habit which is continually practised and applied. Thus, human who has character is one who has awareness, higher level understanding, caring and commitment to apply virtues in daily life.

The value of character which is practised and habituated through learning process will be internalized in individual into attitude. This character and attitude are still abstract because they are still being inside in individual. This attitude will occur in concrete form of behaviour. God has given common sense potency to human being to live the life in this world. Through this common sense, human have thinking ability so they are able to make decision for themselves about which is good and right and which is bad and wrong. Through thinking, human are able to understand the environment of their life and fulfil various needs of their life.

Fennerty (in Kurnia, 2006) revealed that reflection is ability to synthesize information learned and used as important concept in various situation and condition. Beside, King in Coughlan (2007) described reflection as a deliberate process by involving learners in various activities and self focused on ability enhancement, learn to think carefully toward thinking which will be realized into action, learn about what had happened and learn experience acquired. All of them are basic of what they can do in the future. Therefore, reflection becomes important for each individual, particularly learner because it can enhance the ability to think through their experience to consider the right decision in their life. This reflection process is done continually by involving cognitive and affective aspects concurrently so individual show the right action/behaviour in his/her life.

According to Insuasty and Castillo (2010), reflection should become part of teacher development foundation because teacher has obligation to be able to evaluate and rearrange teaching ability in order to optimize teaching-learning process. A reflective teacher also should be able to be critical to his/her teaching ability in order that students can acquire learning experience which is dynamic, valuable and meaningful for their life. Therefore, enhancing prospective teachers to reflect is an anticipation step to enhance teacher ability and professionalism.

Reflective learning is learning by involving reflective thinking activity in its process. Reflection in learning context is formulated by Boud, et al. (in Sirajuddin, 2009; Kurnia, 2006) as “a generic for those intellectual and affective activities in which individuals engage to explore their experiences in order to learn a new understanding and appreciations.” When reflective thinking occurs in learners, they learn what they confront, argue, judge, behave and apply their understanding. This is very important because if this is going on continually, then finally this thinking activity will arrive to deep understanding, change of thinking, and at the end solve the problem. Hmelo & Ferrari (Song, Koszalka and Grabowski, 2005) concluded that reflection helps student/college student to build higher order thinking skill. Beside, Zeichner and Liston (in Radulescu, 2013) stated that reflective learning concept as a means to develop teacher professionalism ability. This is because of reflective learning concept consists of some processes which are generally aimed to grow exploration and investigatory attitude so it is able to rise prospective teachers awareness and become factor which influence their learning process.

Based on the background stated earlier, the general problem in this study is: “Can reflective learning enhance prospective teachers character?” The general problem is elaborated into research

question namely: “Is character achievement and enhancement of prospective teachers who were taught by reflective learning better than prospective teachers who were taught by conventional learning?”

2. Theoretical Study

2.1. Character

According to Kevin Ryan and Karen Bohlin (in Gelphi, 2008), the term “character” is derived from Greek word “*charassein*”, which means “a carving on jewel stone or surface of hard metal”. From here, then the definition of character is developed and defined as a special sign. In human, it is defined as individual’s pattern of behaviour which is reflection of his moral constitution. Prayitno and Khaidir (in Budimansyah, 2012) defined character as personal nature which is relatively stable in individual and becomes foundation for behaviour performance in value standard and higher norm. They stated that life with character is life which is desired, that is by going through straight way following value norm and norm which agrees to human disposition oriented to the truth and nobleness.

According to Ryan and Bohlin (in Megawangi, 2007), a person who has character is anyone who applies good values in his/her action, and resourced from kind heart. In Ignatian Pedagogy Paradigm (ICAJE, 1993), human who has character is intact individual who possesses competence, conscience, and compassion. He/she can differentiate which one is right and which one is wrong. He/she has spiritual action (attitude) and physical action (behaviour) which are always based on the truth and courage in implementing that truth. Beside, Douglas (in Samani and Haryanto, 2012) asserted that character is not inherited but something which is build continually day to day through thinking and action, thinking by thinking, action by action.

Based on various reference above, it can be concluded that character is not values beyond human but realization/manifestation/reflection of all values of virtue which have existed in human (called disposition). But this disposition does not occur automatically to become character but has to be generated deliberately by building thinking ability continually. Human who has character is anyone whose spiritual and physical attitude is reflection of all virtues which have been existed in themselves. Thus, character is realization of all virtues and virtues potency which exist in human.

2.2. Character Education

In application of character education, teachers faced by dilemma because character education is positioned as hidden curriculum. As stated by Narvaez and Lapsley (2010) that:

Dilemma that faces teacher educators, then, is whether it is acceptable to allow character education to remain part of a school’s hidden curriculum, or whether advocacy for the value commitments immanent to education and teaching should be transparent, intentional and public.

Bearing in mind that it is not simple thing, this anxiety can be understood. If character education is positioned as hidden curriculum, it means that character education is not material which stands alone, not something structured, and something planned.

Character education should be taught in class together with various concepts and should be evaluated. Something which should be taught in class should be done with planning and application step systematically. In the time of evaluation, teachers are also confused how to evaluate something hidden. If character education is planned, opened, and structured/systematic then it should have

concept and measurement tool. It means that it's not hidden material anymore. This is dilemma faced by teachers in field.

Su'ud, et al. (2011) asserted that value is not taught but developed. This means that learning material used as material or media to develop character values. Therefore, lecturer does not need to change existing subject matter and should not develop learning process specially to develop value. One thing should be remembered is that one activity of learning can be used to develop ability in cognitive, affective and psychomotoric domains.

Therefore, it can be concluded that character education is an effort to upgrade learner character by shaping thinking ability. Learner's thinking ability is shaped through a learning systematically. This can be described as follow:

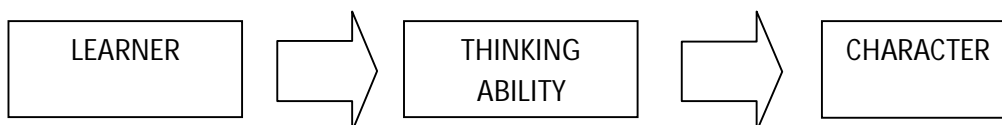


Figure 1
Process to Shape Learner's Character

2.3 Values in Character Education and Its Development

As revealed before that character is virtue values which exist in human, that values cannot emerge automatically but need to be cultivated/aroused. Some characters are virtue values which exist in human.

Samani & Hariyanto (2012) stated that values which shape character are as follow: 1) religious; 2) honest; 3) tolerance; 4) discipline; 5) hard work; 6) creative; 7) autonomous; 8) democratic; 9) curious; 10) spirit of nationhood; 11) love motherland; 12) respect achievement; 13) communicative; 14) love peace; 15) fond of reading; 16) care about environment; 17) care about social; and 18) responsible.

Private institution that handles character education in United States, *Character Counts*, develops values as curriculum in character education training in elementary school. Those values are well known as Six Pillars of Character Education, namely: 1) trustworthy; 2) respect; 3) responsibility; 4) fairness; 5) caring; 6) citizenship. Beside those six values above, for grade 7 until 12, honesty, courage, diligence and integrity values are added (Samani & Hariyanto, 2015).

Megawangi (2007), the pioneer of character education in Indonesia through Indonesia Heritage Foundation (IHF), has arranged 9 pillars of lofty character which are deserved to become reference in character education both in school and out of school, namely: 1) love God and His creatures; 2) autonomy and responsibility; 3) honesty/trustworthy, wise; 4) respect and polite; 5) generous, like helping others and cooperate; 6) self confidence, creative and hard worker; 7) leadership and fairness; 8) kind and low profile; 9) tolerance, peace and unity.

Lickona (1992) understands character as moral value that should be taught in school/education institution which consist of two principle values namely respectful and responsible, and some another values which belong to those two values. The form of another values are: honesty, fairness, tolerance, wisdom, self discipline, help each other, care each other, cooperative, courage, and democratic.

Based on basic character values which have been revealed by some experts above, this study focuses on examination toward characters which are basic character in human. Those characters not only can become foundation for various mathematical thinking abilities but later are very needed by

each individual when they live in community, namely: 1) honest, 2) discipline, 3) hard work, 4) autonomous, 5) democratic, 6) curious, 7) communicative, 8) responsible, 9) never give up 10) perseverance, and 11) self confidence. It is hoped that those character values can be arise through mathematical learning process.

2.4 Reflective Learning

Reflective learning has been developed by many education experts. So, there are many variations of reflective learning. As revealed by Poblete (1999), today it is very hard for us to be able to acquire clarity of appropriate definition about reflective teaching because there are so many perspectives and conceptualisations about reflective teaching which are offered by many authors.

One of reflective learning models is formulated by The International Commission on the Apostolate of Jesuit Education (ICAJE) namely Ignatian Pedagogy Paradigm (Sirajuddin, 2009). This Ignatian Pedagogy Paradigm (IPP) has been applied to Ordo Jesuit schools in a whole world. According to Drost (Sirajuddin, 2009), reflective thinking concept through reflective learning is the core of IPP. IPP comprises of three main elements, namely: experience, reflection, and action, as can be seen in the figure below.

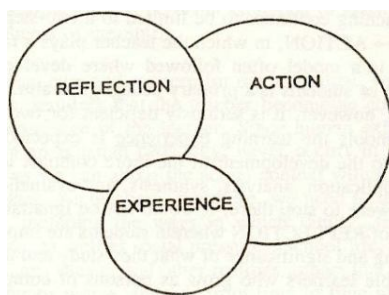


Figure 2
Ignatian Paradigm
(Source: ICAJE, 1993:11)

In order that all the three elements can be applied well, then pre-learning element is needed: context and post-learning element namely evaluation. So, in its complete application, IPP is applied systematically through five steps of reflective learning: 1) context; 2) experience; 3) reflection; 4) action; and 5) evaluation.

The introduction of context can be done by lecturers in the time of apperception, by connecting the material learned with real world situation, and by fostering students to make connection between their prior knowledge with its application in daily life. The aim of context is to enable lecturers to understand their quality and capacity and also the quality and capacity of their students. The presentation of **experience** aims to help students to be able to use their cognitive and affective aspects concurrently. Experience is everything acquired by students through cognitive understanding and affective reaction. Next, the step of **reflection** aimed to enable students to have ability in using memory, understanding, imagination and feeling and capable to find the connection among those things to catch the meaning and essential values from what have been learned. The process in this step is review wisely all learning materials, experience, ideas, responses or spontaneous reaction in order to understand its meaning completely. **Action** is the growth of attitude and action showed by students based on experience which has been reflected. The aim of action is to train students to reflect on their experience in order to be able to choose right attitude

and manifest it in their behaviour. **Evaluation** is the step to find out the extent development of cognitive and affective aspects which have been achieved by students. Evaluation is not only in the form of test, but it is also need to be done by giving reflective journal to students to record and comment on their experience in learning.

3. Research Methodology

This study is experimental research with Quasi-Experimental type (Sugiyono, 2009). The experimental design used is Nonequivalent Pre-Test and Post-Test Control Group Design (Creswell, 2012; Sugiyono, 2009). In short, this experiment design can be described as follow:

$$\begin{array}{ccc} O & X & O \\ \hline O & & O \end{array}$$

Annotation:

O : Initial data/final data of PC

X : Reflective Learning

The subject of this study is undergraduate students of semester III who enrolled in Mathematical Statistics I course, 2013/2014 academic year in Mathematics Education Study Program, in one of private colleges in Palembang City. Total of 155 students became the subject of the study, consisting of 4 parallel classes. Before conducting the study, equity of those four classes was tested, and it was showed that those four classes were not different. The selection of experiment class and control class were done randomly. Total of 79 students become the subject of this study in experiment class, whereas total of 76 students were involved in control class.

The instrument used was PC questionnaire which consists of 35 statements. Those statements contain 19 positive statements and 16 negative statements. Response for each statement is based on Likert Scale which is modified into four categories, namely: really agree (RA), agree (A), not agree (NA), and really disagree (RD), without neutral choice. This is intended to avoid students feel in doubt to choose a statement posed. Scoring for each positive statement (favourable) are 1 (RA), 2 (NA), 3 (A) and 4 (RD). In contrast, for negative statement (unfavourable) are 1 (RA), 2 (A), 3 (NA), 4 (RD). The steps of PC questionnaire development are as follow:

- a. Arranging PC syllabus.
- b. Arranging draft of PC syllabus.
- c. Validating questionnaire (content and face validation).
- d. Revising questionnaire which is developed.
- e. Testing questionnaire toward students who are not subject of study.
- f. Analysing the result of questionnaire test.

Based on calculation of validity and reliability test, the PC questionnaire has fulfilled characteristics which are adequate to be used in study.

The data of the study is analysed quantitatively and qualitatively. Quantitative analysis is used to find out achievement and enhancement of prospective teachers' character who got reflective learning. Meanwhile, qualitative analysis is used to find out the process of PC achievement and enhancement by using data from observation sheet and interview result as supporting data.

4. Result of Study and Discussion

4.1. Result of Data Analysis

PC data was collected and analysed to find out PC in initial and final treatment. The data score of PC have been converted from ordinal data into interval data by using the Method of Successive Interval (MSI), under Microsoft Office Excell 2007. To obtain the description of PC quality, the data is analysed descriptively in order to know average and standard deviation of pre-test score, post-test score, and n-gain of PC. Descriptive statistic of PC data is completely presented in Table 1 below.

Table 1
Descriptive Statistic of SC data

Type of Learning	N	Initial		Final		N-Gain		Category of N-Gain
		\bar{x}	s	\bar{x}	s	\bar{x}	s	
RL	79	113.41	12.83	122.97	14.08	0.20	0.16	Low
CL	76	113.93	10.23	120.68	11.28	0.14	0.12	Low

Annotation : Ideal Maximal Score = 163.8

Based on Table 1, it seems that achievement and enhancement average of PC who got reflective learning (RL) is higher than students who got conventional learning (CL). The initial data analysis of PC was done to find out whether, two groups (experiment and control) have similar or different PC prior to given different learning. Below is the summary of test result of PC initial data statistic.

Table 2
Summary of Test Result of PC Initial Data Statistic

Type of Learning	n	Initial		Normality (K-S)	Homogeneity (Levene)	Difference (t^f -test)
		\bar{x}	s			
RL	79	113.41	12.83	Normal	Not homogeneous	There is no difference
CL	76	113.93	10.23	Normal		

Annotation: $\alpha = 0.05$

From Table 2, it is known that PC initial data is normal distributed but its variance is not homogeneous. To find out whether there is difference in initial data average of PC, then parametric statistic data namely t^f -test is used. The result shows that there is no significant difference between PC initial data average of students who got RL and students who got CL. The result gives conclusion that before different treatment was given between experiment class who got RL and control class who got CL, those two group of students have PC which is relatively similar in degree of significance $\alpha = 0.05$.

Table 3
Summary of PC Final Data Statistic Test

Type of Learning	n	Final		Normality (K-S)	Difference (Mann-Whitney U)
		\bar{x}	s		
RL	79	122.97	14.08	Normal distributed	There is no difference
CL	76	120.68	11.28	Not normal distributed	

Annotation: $\alpha = 0.05$

Result of test Kolmogorov-Smirnov in Table 3 above show that there is final data of PC which is not normal distributed. Therefore, to find out whether there is average different in final data of PC, non parametric statistic test namely Mann-Whitney U test is used. The result shows that there is significant difference between PC achievement data average of students who got RL and students who got CL. It can be concluded that RL does not give significant influence to PC achievement.

Table 4
Summary of PC N-Gain Statistic Test

Type of Learning	n	N-Gain		Normality (K-S)	Difference (Mann-Whitney U)
		\bar{x}	s		
RL	79	0.20	0.16	Normal distributed	There is difference
CL	76	0.14	0.12	Not normal distributed	

Annotation: $\alpha = 0,05$

From Table 4, it can be seen that the data of PC enhancement based on group of learning is not normal distributed, so Mann-Whitney U test is done. The result shows that there is significant difference between PC enhancement data average of students who got RL and students who got CL. By considering the result of PC enhancement data descriptive statistic in Table 1, it can be concluded that PC enhancement of prospective teachers who got RL is better than prospective teachers who got CL.

4.2 Discussion

The result of study showed that there is no significant difference in character achievement data means of students who got RL and students who got CL. One factor which might influence this result is time which is not long enough in enhancing. This is in accord to the statement of Kusumah and Suherman (1990) that forming affective domain (character) as result of mathematics learning is slower than cognitive domain and psychomotoric domain, because the change of affective domain needs longer time and it is a result of forming in cognitive and psychomotoric domain.

Based on the finding of this study, it can be stated that learning factor gives influence to student activity in class during learning process. This is supported by statistic test result which stated that there is significant difference in character enhancement data average between students who got RL and students who got CL.

Based on characteristic between reflective learning and conventional learning, it is normal if there is difference in PC enhancement acquired by students after receiving learning. In reflective learning, the student is trained and habituated to think mathematically through problem solving items and reflection questions from lecturer and teaching material. Therefore, students will be skillful in collecting relevant information, analyzing information, and realizing how important to retest the result which has been obtained. Through this activity not only mathematical thinking ability which is developed, but also character values will be internalized in students to become attitude. Character values which have potential to be grown are hard work, curious, never give up, honest and diligent.

In reflective learning, students are given opportunity to play active role in learning process, particularly when holding discussion (group discussion and class discussion). Student organizes ideas and knowledge he/she possesses related to problem, and he/she can ask the question or reveals issue around the problem. Next, students are given opportunity to say what they understood or not. When group discussion takes place, lecturer walks around the class observing the discussion. Lecturer acted as facilitator by giving direction or scaffolding for students to make connection among mathematical concepts and procedures. Scaffolding which is given by lecturer is a kind of reflective questions which help students when they experience difficulty in problems solving. The atmosphere of class which is friendly will encourage students to argue, ask questions and describe their thinking without hesitating. Character values which are enhanced from such activity are: communicative, self confidence, democratic, responsible, discipline, and autonomous.

The writing of reflective journal can record connections and meanings acquired by students during learning process, so help student to unite reflection process which has been done. As revealed by Coughlan (2007) that reflective journal is used by students to record the progress of their study which help them to find their learning strategy as evaluation of students' performance.

Another strength of reflective learning is the capability of facilitating cognitive aspect and affective aspect concurrently (ICAJE, 1993). This is seen when learning process takes place. Students respect each other, have positive view and sensitive toward other members. Students respect each other when implementing learning, give opportunity to take turn when asking and answering question in group discussion and class discussion, or when presenting the result of the discussion in front of the class.

5. Conclusion and Suggestion

5.1 Conclusion

Based on the formulation of problem, the result of study, and discussion as have been revealed earlier, it can be concluded that:

- a. Learning factor does not give influence to achievement of prospective teachers character. In other word, there is no significant difference in character achievement of prospective teachers who got reflective learning and prospective teachers who got conventional learning.
- b. Learning factor gives influence to enhancement of prospective teachers character. In other word, there is significant difference in character enhancement between prospective teachers who got reflective learning and prospective teachers who got conventional learning. Furthermore, it can be concluded that character enhancement of prospective teachers who got reflective learning is better than prospective teachers who got conventional learning.

5.2. Suggestion

- a. Other researchers can follow up this result of study among other to: a) develop character values other than which have been examined in this research; b) apply reflective learning in other courses.
- b. This result of study is not sufficient to achieve optimal result, it is expected that the causing is the time duration of treatment which is relatively short (a half of semester). Therefore, it is need to conduct study in longer time duration, for example one semester or more.
- c. Another researcher is suggested to optimize function of reflective journal in evaluating the progress of student's thinking ability and character in the end of semester through project assignment or student's portfolio.

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