

EXAMINING SELF EFFICACY OF PRE-SERVICE PHYSICS TEACHERS IN SOUTH SULAWESI

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ABSTRACT

The purpose of this research is to examine self efficacy of pre-service physics teachers and compare self-efficacy between the early year of pre-service physics teachers and final year of pre-service physics teachers. The sample in this study amounted to 50 students prospective teachers taken through proportional stratified random sampling. The instrument of data collection using questionnaire with a Likert scale which includes self-efficacy questionnaires. Data analysis technique used descriptive analysis and inferential analysis with the statistical test "t". Based on the results of data analysis using descriptive statistics for early year pre-service physics' self-efficacy teachers obtained an average of 72.88 with sufficient category, from the ideal value 96 obtained the lowest score of 57 and the highest value 93 and self-belief student physics final year pre-service physics' self-efficacy teachers obtained the average value 79 with high category, from the ideal value 96 obtained the lowest score 62 and the highest score 91. The inferential statistic states there is a significant difference in self-efficacy between the early year pre-service physics' self-efficacy teachers and the other one.

KEYWORDS: *Self Efficacy, Pre-Service Physics' Self Efficacy Teachers*

INTRODUCTION

Indonesia's national development is essential to build a complete Indonesian human being. This means that development goals in Indonesia are not only in the form of physical facilities but also the quality of human resources. One way to improve the quality of Indonesian human resources is through education. Education is very important in order to create young cadres as the next generation of the nation. In general, education is derived from the learning process carried out in the formal environment but the essence of education can be implemented anywhere. Also, the current technology era that supports the learning process anytime and anywhere.

According to the law No. 20 of 2003 Chapter II Article 3: *National education functions to develop the ability and form the character and civilization of dignified nation in order to educate the nation's life, aims to develop the potential of learners to become human beings who believe and piety to God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen* (President of the Republic of Indonesia, 2003).

According to Sudarma (2007, p.36), in the context of education, teachers play a key role in improving the quality of education because they are at the center of every educational reform effort. In addition to educational qualification factors, factors contributing to the declining quality of education in Indonesia are psychological factors of teachers.

Empirically, there are still teachers who are passive and waiting. Erawati (2012) sees that there is a tendency of pessimistic, fatalist, and pragmatic teachers mentality. In other words, teachers' idealism and morale are considered weak. This feeling of weakness is caused by a sense of inadequacy and unwillingness to do everything possible as a teacher. This is by Bandura identified as a belief in self-efficacy.

If the four teacher competencies contained in the Law of the Republic of Indonesia No 14 of 2005 on Teachers and Lecturers are associated with the theory of Bandura (in Tschannen-Moran et al., 1998, p.219) on the seven dimensions of efficacy, four groups are obtained. First, the efficacy in teaching (instructional self-efficacy) reveals paedagogic competence. Second, the efficacy in disciplinary self-efficacy is used to reveal personality competence. Third, efficacy influences decision-making (efficacy to influence decision making), efficacy to influence school resources, efficacy to enlist parental involvement, and efficacy to enlist community involvement. in line with social competence. Fourth, efficacy creates a positive school climate (efficacy to create a positive school climate) in line with professional competence.

Bandura (1997) refers to the belief in the sense of efficacy as self-efficacy, a psychological construct that describes one's beliefs in his own ability to organize and decide the steps necessary to achieve a particular goal. Teacher's effectiveness means the teacher's self-belief in the ability to organize and decide on the steps necessary to successfully fulfill a teaching and education task in a particular context (Tschannen-Moran et al., 2001). High teacher effectiveness is very beneficial for improving student learning outcomes (Nunn & Jants, 2009), because high-efficiency teachers have the great psychological energy to devote all resources and potential to educational success.

The development of efficacy in the human self-develops in accordance with the period of human development. In accordance with its development period, human beings are given the burden of responsibility for gradual development, the higher the more difficult. Therefore, the efficacy in the individual will not be static, the efficacy can be reduced or increased according to how the individual evaluates each phase of life that has been lived. According to Bandura in Alwisol (2009), the source of behavior control is reciprocal between the environment, sold and personal. Efficacy is an important personal variable, which, when combined with specific goals and understanding of achievement, will be an important determinant of future behavior.

Each Individual has Different Self-Efficacy in Different Situations, Depending on

- Abilities demanded by different situations.
- The presence of others, especially rivals
- Physiological and emotional state

Based on Indonesian English Dictionary (Echols & Shadily, 1996: 207) efficacy literally means efficacy or efficacy. Efficacy by Bandura (1997) is considered the basis of human behavior because its meaning is a belief in one's ability to organize and decide on the set of behaviors needed to achieve a particular goal. The key action aims are how strong the belief is to keep trying regardless of whether the outcome is positive or negative. The definition of teacher efficacy suggested by Campbell (1996) is teacher believes that he can take certain actions to influence student learning outcomes. In the academic field, the importance of self-efficacy theory has been recognized by many researchers although still seen as a relatively new concept. Nevertheless, this concept has been proven to provide a strong impact on teachers'

academic achievement and students (Bandura, 1986, 1997; Tschannen-Moran and Woolfolk Hoy, 2001; Pajares, 2002). It indicates the importance of prospective teachers to have good self-efficacy so that later when plunged into teachers and educators, they will be able to transmit positive energy that will impact on student learning outcomes that taught.

METHODS

This study uses a quantitative approach that is a research approach that emphasizes its analysis of numerical data (numbers) are processed by statistical methods. The population in this study are students who are still active in the Department of Physics Education at one of the universities in Makassar spread over 4 levels of the semester. Based on the characteristic consideration of the study population, the researcher used proportional stratified random sampling technique. The study population of 335 subjects was determined to be taken 15% as a sample. The proportion of subjects of the study sample taken 15% of each stratum can be obtained $N = 50$ as the research sample which means also 15% of the entire population ($N = 335$). Subjects as many as 50 people this will be used as sample research.

To reveal facts about the variables in this study, the authors used a questionnaire method with a research instrument in the form of a scale that Likert scale. The scale used is Self Efficacy Scale with 24 items. Self-efficacy is a data-gathering tool used by researchers to express self-efficacy. The rbt validity score ranges from 0.274 to 0.663 with $p < 0.05$ and the reliability rate $rtt = 0.940$. This questionnaire which includes aspects of belief in the ability to deal with uncertain situations that contain elements of blurring, unpredictable, and full of pressure, confidence in the ability to motivate, cognitive ability and take the necessary action to achieve a result, the confidence to reach the target set. Individuals set targets for their success in performing each task, confidence in the ability to solve problems that arise.

The total of 24 items of questionnaires, consisting of 12 favorites and 12 unfavorable items. Questionnaire of confidence consists of 4 choices of answers are: very appropriate (SS), appropriate (S), less appropriate (KS), not appropriate (TS). Assessment of favorable items moves from score 4 (very appropriate), 3 (appropriate), 2 (less appropriate), 1 (not appropriate). While the assessment of unfavorable item moves from score 1 (very appropriate), 2 (appropriate), 3 (less appropriate), 4 (not appropriate). The arrangement of confidence questionnaire can be seen in table 2.

Table 1: Composition of Self-Efficacy Questionnaire Items

Aspects	Number of Item		Total
	Favourable	Unfavourable	
Aspects of belief in the ability to deal with uncertain situations that contain elements of blurring, unpredictable and full of pressure.	7, 14, 24	2, 18, 23	6
Aspects of belief in the ability to move motivation, cognitive ability and perform actions necessary to achieve a result.	5, 8, 10	1, 13, 22	6
The aspect of confidence reaches a predetermined target.	3, 15, 16	4, 9, 20	6
Aspects of confidence in the ability to overcome problems that arise.	12, 17, 21	6, 11, 19	6
Total	12	12	24

The total score of items for each respondent states the score reached by the respondent.

To test the hypothesis used t-test (t-test). In addition, the hypothesis in this study included the category of non-directional hypothesis (indirect hypothesis) ie the hypothesis that does not indicate a particular direction.

RESULTS AND DISCUSSIONS

The result of data analysis showed that the first stage students obtained an average score of 72.88 while the final students obtained an average score of 79 in the medium category. As for inferential statistical test results that have been done, it can be said that self-efficacy between the early year and final year students in the Department of Physics Education, one of the universities in Makassar, has a significant difference. The difference is very reasonable, given the source of self-efficacy according to Bandura, comes from three things: first, an experience that has been passed (an active mastery experience). Second, the experience of others (vicarious experience). Third, physiological and emotional states (physiological and affective states). These three self-efficacy resources will train students to solve the problems faced now, especially the an active mastery experience. These three aspects enable students who have taken longer courses will have higher self-efficacy.

Moreover, from an analysis result of hypothesis test by using t-test statistic "t" two samples can be seen that there is significant difference self-efficacy between the early and the final year pre-service physics teachers. The test results show that with $df = 50$ t arithmetic obtained greater than 't' table both at a significant level of 5% and a significant level of 1%, ie $2.01 < 4.55 > 2.68$ then research hypothesis accepted, meaning there are significant differences in self-efficacy between the first and final year pre-service physics teachers in the Department of Physics Education, Makassar, so it can be stated that the test "t" is significant and applicable to the population.

SUGGESTIONS

The results of this study are expected to be used to implement learning strategies at effective stages that can improve the outcomes will ultimately have implications for academic achievement and their readiness to become teachers. As an evaluation, similar research is expected to collect data using additional data collection instruments to obtain more accurate data as well as considering the gender aspect.

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REFERENCES

1. Bandura, A. 1997. *Self-Efficacy; The Exercise of Control*. New York: W.H.Freeman and Company.
2. Erawati, M. (2012). *Profil dan Faktor-faktor yang memengaruhi efikasi guru MI peserta Dual Mode System*. *Jurnal Inferensiai* Vol. 6(2) hal. 417-440
3. Alwisol. 2009. *Psikologi Kepribadian*. Malang: UMM Press.
4. Varghese, Reney and Norman, T. Selvin and Thavaraj, Samuel, *Perceived Stress and Self Efficacy Among College Students: A Global Review (December 15, 2015)*. *International Journal of Human Resource Management and Research*, Vol. 5, Issue 3, Jun 2015, 15-24.
5. Megan Tschannen, Moran and Hoy, Woolfolk, A.(2001). *Teacher Efficacy: Capturing An Elusive Construct*. *Teaching and Teacher Education*, hal. 783-805.

6. Nunn, G.D., & Jantz, P.B. 2009. Factors within Response to Intervention Implementation Training Associated with Teacher Efficacy Beliefs. *Education*, 129, 599-607.
7. Campbell, J. 1996. A Comparison of Teacher Efficacy for Pre and in-Service Teacher in Scotland and America. *Education*, 117, 2-11.
8. Nyagorme, Paul, *elearning Perceived Usefulness, Self-Efficacy and Attitude of Distance Learners and eLearning Uptake at the College of Distance Education, University of Cape Coast (February 17, 2018)*. *IMPACT: International Journal of Research in Engineering & Technology*, Vol. 6, Issue 1, January 2018
9. Pajares, F. 2002. *Overview of Social Cognitive Theory and of Self-Efficacy*. Emory University
10. Hartono. 2011. *Statistik untuk Penelitian*. Yogyakarta: Pustaka Pelajar.

