The Local Culture-Based Learning Model To Improve Teaching Abilities For Pre-Service Teachers

Susnaini Julita¹, Sudarwan, Abdurrobbil Falaq Dwi Anggoro¹

¹Universitas Bengkulu, Jl. W. R. Supratman, Kandang Limun, Muara Bangka Hulu, Bengkulu 38371

*susnainiunib@gmail.com

Abstract. The purpose of the study was to determine the influence of local culture-based learning models and inquiry approaches to the ability to learn about pedagogics. This is a quasi-experimental study with factorial design. The population is all pre-service teachers in Bengkulu. A sample of 80 participants were randomly selected. This research instrument is a test of the ability to understand pedagogy. Data were analyzed using ancova. The result is a model of local culture-based learning better than conventional learning to improve the ability of pedagogical understanding. Also, the inquiry approach is better than non-inquiry.

1. Introduction

The Indonesian government has focused on improving teacher competencies. One program that is currently running is the pre-service teacher professional education. The government through teacher professional education seeks to provide guidance to teachers to create qualified and professional teachers [1]. According to him, professional educators are not enough to only have a diploma - as a marker of ownership of intellectual capital, but must be accompanied by other markers, namely educator certificates. This marker can be achieved through teacher certification in office. But in reality there are still many certified teachers who are able to become professional teachers. Therefore we need the right learning model for pre-service teachers.

Learning models that allow pre-service teachers to achieve complete competencies should be based on local culture. This encourages pre-service teachers to understand the real conditions of learning in school. According to Best, at al. [2], the pre-service teacher development process requires varied learning. It aims to produce sensory sensing resources to stimulate interaction, coordination, and fine motor skills for students. The results of the study indicate that location-based learning facilitates opportunities for meaningful educational and social connections between communities and other communities. Such learning has a positive impact, namely through involvement in authentic special education contexts. Place-based learning is enabling pre-service teachers to develop a sense of responsibility. Also, improve community values with citizens at the local level. The involvement of students in place-based learning shows a deeper and richer level of understanding in supporting individuals and communities in such a way as to create a preferred future.
The other findings, indicate that participation in cultural-based learning activities is part of a complex decision-making process [3]. Culture-based learning improves cognitive [4] and metacognitive [5] abilities. The cultural diversity that exists in schools is requiring new teachers to acquire and implement a set of skills that promote maneuverability through, and an understanding of many cultural definitions [3]. Students have been able to process the abstraction of mathematical concepts correctly through culture-based learning [6]. A better understanding of a process was able to strengthen the curriculum. Also, improving learning for teacher education programs and further enhancing higher education partnerships with related institutions [3].

The implementation of strategic training for untrained teachers must be supported through an internship program in schools. This is to meet the requirements for pre-qualification education and pre-service training. The experience of working as a teaching assistant will reduce some weaknesses, strengthen their competence. Also, it allows those who are not eligible to be chosen more effectively [7].

Thus, a model of local culture-based learning can be a good effort to improve the ability of pre-service teachers to manage learning [8][9]. Therefore, School-based training has been well implemented in the modern state system. Good pedagogical and professional teacher development through training is held in a potentially attractive work environment. This is directly related to practical problems. Also, it can be directly fostered by teachers who have been successful, and are accustomed to learning in professional norms and standards [7].

Based on a community-based and multicultural teacher education framework, it is necessary to analyze the problems that exist in the current curriculum, content, and practicum in traditional teacher education programs. This is mainly about cultural knowledge and competence in preparing pre-service teachers in a multicultural society [10]. Local culture-based learning models are important, because according to Singh [11] globally, the current education system has disappointed Indigenous students undermine their human rights and academic justice.

The local culture-based learning improves students' ability to understand concepts [4][12], representations [13], metacognition [5], problem solving [14], communications [8], and abstractions [6]. Based on the description, we conducted research on the application of local culture-based learning models to improve the ability of pre-service teachers, and we wrote in this article.

2. Methods
The research was a quasi-experimental. We implemented a local culture-based learning model for pre-service teachers in Bengkulu. The sample was selected by random sampling technique. The total sample is 80 pre-service teachers. The research design is 2x2 factorial. The research instrument is a test of the ability to understand pedagogical material. Data collection techniques through tests. Data analysis with ANCOVA. Covariates are the initial ability to understand pedagogics. Initial ability tests are carried out before treatment.

3. Results and Discussions
We implement a local culture-based learning model for pre-service teachers with inquiry and non-inquiry approaches. There are four classes, each of which contains twenty pre-service teachers. First class, we apply the local culture-based learning model and inquiry approach. Second class, local culture-based learning model and non-inquiry approach. Third, we apply the conventional pursuit model to the inquiry approach. Finally with conventional learning models and non-inquiry approaches.

Based on the data of pedagogic ability, it was analyzed by using ANCOVA. This analysis is done by controlling students' initial ability to understand pedagogic concepts. The results are presented and described below.
Table 1. Levene’s Test of Equality of Error Variances

|   | F   | df1 | df2 | Sig. |
|---|-----|-----|-----|------|
|   | 0.153 | 3   | 76  | .127 |

Based on Table 1, the Levene’s test shows variance errors with $F = 0.153$, df (3, 76) and $p$-value $= 0.127 > 0.050$. Based on this statistical test means that $Ho$ is accepted. Because $Ho$ is accepted, it can be concluded that the average parameter of the four groups of sample data is to have the same (homogeneous) variance.

Table 2. Tests of Between-Subjects Effects

| Source        | Type III Sum of Squares | df | Mean Square | F      | Sig. |
|---------------|------------------------|----|-------------|--------|------|
| Corrected Model | 8967.152               | 7  | 1281.02171  | 120.569 | 0.000 |
| Intercept     | 7896.457               | 1  | 7896.457    | 743.209 | 0.000 |
| A * B         | 254.765                | 3  | 84.921667   | 7.993  | 0.000 |
| X             | 1759.356               | 1  | 1759.356    | 165.589| 0.000 |
| A * B * X     | 6.761                  | 3  | 2.2536667   | 0.212  | 0.761 |
| Error         | 764.987                | 72 | 10.6248194  |        |      |

Based on data analysis Table 2 in column $A * B * X$ shows that $F = 0.212$ with df (3, 72) and $p$-value $= 0.761 > 0.05$. This analysis means that $Ho$ is accepted. Thus it can be concluded that the regression coefficients of the four groups are homogeneous. So, the four regression equations are parallel.

Based on the similarity test of variance and regression alignment. Data on the ability of pedagogic understanding is homogeneous. Also, all four groups form parallel regression equations. Therefore, the covariance analysis can be continued as follows.

Table 3. Estimates Parameters

| Parameter | B     | Std. Error | t      | Sig. |
|-----------|-------|------------|--------|------|
| Intercept | 37.576| 1.879      | 19.998 | 0.000|
| X         | 0.875 | 0.062      | 14.113 | 0.000|
| A1B1      | 12.564| 2.075      | 6.055  | 0.000|
| A1B2      | -3.675| 1.137      | -3.232 | 0.000|
| A2B1      | 9.987 | 1.278      | 7.815  | 0.000|
| A2B2      | -4.993| 1.125      | -4.438 | 0.000|

Note Table 3. In line A1B1 shows that $t = 6.055$ and $p$-value $= 0.000 < 0.05$ which means that $Ho$ is rejected. Therefore, the ability to understand pedagogic pre-service teachers is taught through a culture-based learning model that is higher than that of teachers taught conventionally for groups that study with the inquiry approach. In the table for lines A1B2, shows that $t = -3.232$ and $p$-value $= 0.000 < 0.05$, which means that $Ho$ is also rejected. This condition states that the ability of pre-service teachers to understand pedagogical concepts taught through local culture-based learning models is lower than pre-service teachers who are taught conventionally for learning groups with non-inquiry approaches. In lines A2B1 obtained $t = 7.815$ and $p$-value $= 0.000 < 0.05$; this is also $Ho$ refused. Thus, the ability to understand the pedagogical concept of pre-service teachers who learn through an inquiry approach is higher than those who learn a non-inquiry approach, this right occurs for students who are taught local culture-based learning models. The last line (ie A2B2), shows that $t = -4.438$ and $p$-value $= 0.000 < 0.050$, $Ho$ is rejected. This implies that the ability to understand pedagogical concepts of pre-service teachers who
learn through inquiry approaches is lower than students who learn non-inquiry approaches for groups taught by conventional learning models.

These results recommend local culture-based learning models and inquiry approaches that can have a positive effect on improving understanding of pedagogical theories. The results of the study reveal statements that support previous research. The ability of mathematical understanding of students who are learning oriented ethnomathematics higher than students who learn is not ethnomathematical oriented after controlling the cognitive style of students [15]. There were differences in the ability of mathematical representation between students who were taught by realistic mathematical approach and conventional learning after controlling students' early ability; there is a difference in the ability of mathematical representation between students who are ethnomathematical and non-ethnomathematical oriented after controlling students' early abilities; there is an interaction effect of the learning approach and the orientation of mathematical material on the ability of mathematical representation after controlling the student's early ability [13]. In addition, according to Spishock [16] the idea of pre-service teacher education and its suitability with the education system considers the most important is the need for all those concerned to improve their communication with each other.

Finally, we conclude that the pedagogical abilities of pre-service teachers taught through local culture-based learning models and inquiry approaches are better than conventional learning. Furthermore, an effective teacher has a broad repertoire of various learning models, strategies and techniques. Also, the teacher was understanding how to create the right conditions for learning [17]. The choice is determined by the nature of the learning objective.

4. Conclusion
The conclusions of this study are the ability to understand pedagogical pre-service teachers taught through a higher culture-based learning model than conventionally taught by teachers who study with an inquiry approach, but on the contrary, lower for groups taught by non-inquiry approaches. The ability to understand the concept of pre-service teacher pedagogy that learns through inquiry approaches is higher than those who learn non-question approaches, this right occurs for students who are taught local culture-based learning models. The opposite is also true, lower for groups taught by conventional learning models.

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