**European Journal of Molecular & Clinical Medicine**
**ISSN 2515-8260 Volume 09, Issue 02, 2022**

# TRAINING SCENARIO DEVELOPMENT ON ENVIRONMENTAL EDUCATION USING THE STSE MODEL TO IMPROVE POSITIVE ATTITUDES OF PROSPECTIVE EARLY CHILDHOOD EDUCATION TEACHERS TOWARDS THE ENVIRONMENT

**Dr. MA. Muazar Habibi, S.Psi., M.Psych., M.Pd**
Mataram University
Email : muazar.habibi@unram.ac.id
Lenterahati Islamic Boarding School
Jl. Ireng Jaya Jatisela Gunungsari Lombok Barat NTB
Mobile phone : 0818361219

M. A. Muazar Habibi, 2013. *Developing Environmental Education Training with Science-Technology-Society-Enviroment (STSE) Model Integrated into Science Studies to Improve Prospective Early Childhood Education Teachers Programs Positive Attitude on Environment*. Research. Early Childhood Education Study Program (S1), Faculty of Teacher Training and Education, Mataram University. researchers: (1) Habibi, MA. Muazar , (II) Fahruddin, (III) Jaelani, Abdul Kadir (III) Buahana, Baiq Nada

**ABSTRACT**: The purpose of this research is to develop training scenarios on environmental education using Science, Technology, Society, Environment (STSE) model integrated into scientific thematic lessons, particularly for prospective early childhood teachers. In addition, product efficiency on the positive attitudes of the trainers towards the environment was examined. The above-mentioned objectives are possibly achieved with the following activities: 1) initializing the Borg & Gall model (1999) and 2) assessing the resulting product value using t-test, termed pre-test and post-test. Therefore, the applied simulations were declared suitable for use after series of developmental events.
The results involved three expert assessments in the field of early childhood, environmental education, and educational technology, although further analysis is required. Subsequent investigation conducted on the subject user group, indicating a positive value of 83.3%, in support of the product.
Therefore, the efficiency test results showed the training on environmental education using the STSE model and integrated with scientific thematic lessons, were known to enhance 32.44% of all aspects of the prospective teacher's positive attitudes on the environment.

**Keywords:** training, environment education, *Science-Technology-Society-Enviroment* (STSE) model, *Science Studies,* positive attitude to environment

Currently, severe damage to the environment appears to be a disturbing situation, due to inadequate display of positive mentality. This is probably attributed to the pathetic appreciation of environmental education. One possible approach to

overcome this challenge is to train prospective early childhood teachers to inculcate constructive behavior towards the environment from a very young age. As a result, a community of positive-minded individuals campaigning for sustainable development is assumed to emerge. Moreover, the orientation for elementary teachers is enhanced by modifying early childhood curriculum, through incorporating environmental education in academic courses, and also providing stand-alone trainings as alternatives due to effective and direct implementation. (Tal, 2001)

## METHOD

Borg & Gall (1999) model was applied to develop the product, and the effectiveness was analyzed using t-test, termed pre-test and post-test. The development processes include: 1) preliminary research and data collection, 2) planning, 3) sample design, 4) primary field testing, 5) initial product revision, 6) further field testing and 7) operational product review. However, 8) operational testing, 9) final product revision, and 10) dissemination, were not employed due to certain adjustment to the needs, time, and objectives. Furthermore, effectiveness experiment was used to determine the product utility in order to increase the positive attitude.

The analysis of the development results based on expert and user group assessments were provided. The specialist's category includes: utility, feasibility, and accuracy. These were performed in the fields of early childhood, environmental education, and educational technology, with the processing of qualitative and quantitative data. Subsequently, the user group was involved with undergraduate students of early childhood education major, through closed interviews and specifying written suggestions on: 1) product contents, 2) writing systematics, 3) layout, and 4) follow-up obtained from the processed data.

## RESULT

### A. Analysis of Expert Assessment

### 1. Quantitative Data

This data was obtained from expert assessment using questionnaires. Also, the analysis includes: utility, feasibility, and accuracy, as conducted by three professionals of early childhood, environmental education, and educational technology.

The results originated from the examination of utility, feasibility and accuracy on training scenarios on environmental education using STSE model integrated into scientific thematic lessons. However, further use and development are possible.

These provisions are therefore, employed to train prospective teachers (undergraduate students of early childhood education) to exhibit positive behaviors towards sustaining the environment using Natural Sciences (IPA) learning approach.

**1. Qualitative Data**

This data was obtained from input or opinions of experts after careful study of the training scenario draft.

**a. Expert I (Early Childhood Education)**

The specialist expressed certain dominant ideas and suggestions, including: 1) adequate use of training brochure for prospective teachers in developing learning tools by integrating environmental education into scientific thematic lessons and STSE model, 2) to facilitate simple comprehension, the book provided several illustration based on the presented material. 3) the integration method appeared practical and easy to follow, 4) lesson plans and concrete examples were included in order to enhance comprehension.

In terms of feasibility, early childhood education expert stated the training scenario on environmental education with STSE model, is already sufficient for application. This is captured in a comprehensive discussion between various materials in the publication. Furthermore, in terms of accuracy, the document was considered significant and appropriate for prospective teachers, although there is need to cater for elementary school.

**b. Expert II (Environmental Education)**

The expert was handed the training scenario draft and within of 2 weeks to study, was able to provide significant contributions as follows: 1) there was no clarity of concept in order to ascertain the level of accepted for low or high class, 2) models and materials are based on studies or learning experiences of elementary school, and 3) theme or topics of environmental education are expected to be more specific.

Based on the suggestions and main concepts, efforts at improving the draft are in accordance with provisions from the professionals.

**c. Expert III (Educational Technology Expert)**

The consultant was provided with corrective input on the draft guidebook and training materials, with specified appreciation.

Also, certain opinions are deemed urgent based on expert's submission, including: 1). In the manual, the specific objectives to achieve through the training are clearly outlined, 2) pictures are required to facilitate action in each stage, 3) from a technical perspective, the cover design, both in the guidebook and the material, is expected to contain 3 - 4 images, and presented in enlarged format depending on the page, 4) book titles at home appear as a guidebook and material put together, and not barely as attachment, 5) the need to pay careful attention to consistency in terms of using upper and lower case letters, particularly in the book , and 6) layouts are considered, therefore lesser pictures are extended, especially for the cover.

Apart from the above suggestions, experts appreciate the benefits of the book, including: 1) the value for prospective teachers as a breakthrough in training systems using STSE approach, 2) appropriate for use due to simpler language and easily comprehended contents, and 3) sufficiency in terms of presentation.

## B. User Group Test Analysis

1. Quantitative Data

The analysis result conducted by the user group subjects was specified at 83.3%, and was declared suitable to the product. In addition, the assessments were described as follows:

**Table 4.19 : Tabulation of the field test interviews results**

| **Description** | **Sb 1** | **Sb 2** | **Sb 3** | **Sb 4** | **Sb 5** | **Sb 6** |
|---|---|---|---|---|---|---|
| The number of yes answers | 5 | 4 | 5 | 5 | 5 | 6 |
| The number of no answers | 1 | 2 | 1 | 1 | 1 | 0 |
| *The total yes answer* | *30 = 83.3 %* | | | | | |
| *The total no answer* | *6 = 16.7 %* | | | | | |
| *Total Answers* | *36* | | | | | |

Description: Sb = subject

Based on the above table, the subjects generally offered **yes** answers up to 30 or 83.3%. This denotes several respondents agreed, understood and stated the product as useful. Meanwhile, the **no** outcomes were barely 6 or 16.7% of the total 36 responses.

Specifically, the results are described as follows:

a. Is this product easy to understand? A total of 6 respondents answered **yes**.

b. Is this product useful to prospective teachers? Out of 6 respondents, only 1 provided a **no**. This shows the other 5 stated the draft was considered quite significant.

c. Is this training product important to apply in order to increase the prospective teacher's knowledge on environmental education? This question was responded with 6 **yes** answers, indicating absolute agreement.

d. Can environmental education be integrated into scientific thematic lessons in elementary schools? This question was responded with 6 **yes**, therefore the total number were in support.

e. Do you understand the STSE concept? The respondents did not actually comprehend the concept, as observed from the reactions. However, out of 6 submissions, only one selected **yes** (understand), while the remaining 5 said **no**.

f. Do teachers need to acquire special education, in order to train students on integrated science lesson model of environmental education with STSE model? Overall, the respondents specified **yes**.

## C. The Results of Product Effectiveness Test

The effectiveness test result is believed to be the success of training on environmental education, using the STSE model integrated into scientific thematic lessons, as observed in the increase of average score from 2.80 to 3.71, or by 32.44%. This implies the training on environmental education using STSE model, and integrated with scientific thematic lessons, is significant in enhancing positive attitudes of prospective early Childhood teachers towards the environment.

Specifically, the results are described as follows (according to the instrument developed by Harlen (1993), termed: 1) the training tends to advance by 21.95% in terms of concern for prospective teachers towards the environment, 2) an increase by 36.40% based on appreciation 3) the inclination by 34.94% in terms of prospective teacher's responsibility towards the environment, and 4) the training enhanced 37.69% of the prospective teacher's attitudes to protect the environment, 5) the capacity to expand 32.44% of all positive attitudes aspects on prospective early childhood teachers.

## CONCLUSION

Based on results and discussions, the constraints in implementation were identified as follow-up or continuity. The development model appeared absolutely effective in enhancing prospective teacher's attitudes towards the environment. Eventually, the participants are sufficiently equipped to provide appropriate environmental learning and advocacy on sustainable and eco-friendly awareness. As the trainings are not delivered continuously through lectures, integrating with scientific thematic lessons (science), was therefore aimed at easily transforming these knowledge using the STSE approach. However, only the participants are expected to feel the impact.

This weakness occurs due to the difference in concept between training and education, as training is barely conducted incidentally and outside the lecture system, with unpredictable continuity. Furthermore, the application of training concept on the objectives of this study in terms to lecture systems, is possible by including environmental education materials for Bachelor of Early Childhood Education. Therefore, more effective and sustainability are guaranteed as the implementation is performed continuously and in a structured manner.

Based on the results of the above conclusions, necessary recommendations were provided, including: 1) the need to expand the implementation of model to match with the activities of elementary school teachers. This is possibly conducted using *LPMP* (Educational Quality Assurance Agency) or the Local Education Office in collaboration with Higher Education, 2) The model developed through this training was unable to guarantee continuity/follow-up as a result of existing outside confines of the lecture system. Therefore, there is need to develop the environmental education concept in Bachelor of Early Childhood Education by adopting an environmental education training model using STSE approach, and integrating scientific thematic lessons into the curriculum, and 3) the development is only limited to testing changes in attitudes towards prospective teachers or training participants. Therefore, further extension is recommended on the ability of training system both in service or through outside lectures to measure changes in attitudes towards the environment in students after teachers are adequately trained.

**REFERENCES**

Ben-Zvi, O. & Orion, N., Development of system thinking skills in the context of earth system education, Journal of Research Science Teaching, 42(5), 518-560, 2005.

Borg, W. D. & Gall, MD. 1999. *Educational Research: An Introduction*. New York : Longman

Goleman, D. 2009. Ecological Intelligence-How Knowing the Hidden Impacts of What We Buy can Change Everything, Broadway Books, The Crown Publishing Groups

Keraf, A.S. 2002. Etika Lingkungan. Jakarta : Penerbit Buku Kompas.

Kamen, M. Editorial: Do we need more science education research?, Electronic Journal of Science Education, 15, 2, 2011

Kirkpatrick, D.J. 1994. Evaluating Training Program: The Four Level. San Francisco: Berret Koehler Publishing, Inc.

KLH. 2005. Data lingkungan hidup, (http://www.menlh.go.id/), diakses pada tanggal 17 Februari 2012

KLH. 2009. Data lingkungan hidup, (http://www.menlh.go.id/) diakses pada tanggal 17 Februari 2012

KLH. 2010. Agenda 21 Indonesia, 2010. Strategi Nasional untuk Pembangunan Berkelanjutan. Jakarta: Kantor Menteri Negara Lingkungan Hidup

Laws, D., Scholz, R., Shiroyama, H., Susskind, L., Suzuki, T. & Weber O., Expert Views on Sustainability and Technology Implementation, International Journal of Sustainable Development in World Ecology, 11(3), 247-261, 2004

Levy Nahum, T., Azaiza, I., Kortam, N., Ben-Chaim, D., Herscovitz, O. & Zoller, U., "Does STES-Oriented Science Education Promote 10th-Grade Students' Decision Capability?", International Journal of Science Education, 32(10), 1315-1336, 2010.

Tal, T., Dori, Y. J., Keiny, S., & Zoller, U., Assessing conceptual change of teachers involved in STES education and curriculum development, e STEMS Project approach, International Journal of Science Education, 23(3), 247-262, 2001

Zoller, U., Donn, S., Wild, R. and Beckett, P., "Students' Versus eir Teachers' Beliefs and Positions on Science/Teaching/Society (S/T/S)- Oriented Issues", International Journal of Science Education, 13(1), 25-36, 1991a

Zolle, Uri. Science, Technology, Environment, Society (STES) Literacy for Sustainability: What Should it Take in Chem/Science Education?/ Journal CHEMISTRY EDUCATION AND SUSTAINABILITY, 207-213, © Universidad Nacional Autónoma de México, ISSN 0187-893-X