

## **Environmental Education Training Model to Improve Knowledge and Attitudes on the Friendly Environment of Community Organizations Members in Makassar**

Natsar Desi, Mir Alam, Rifdan, Lahming and Nurlita Pertiwi  
Department of Population and Environmental Education,  
Universitas Negeri Makassar, Makassar, Indonesia

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**Abstract:** This research aims to identify, analyze and explain the main points of the learning materials in environmental education training which is required as a training model of environmental education for the community organizations in the city of Makassar. Design a training model for environmental education to increase knowledge and environmentally friendly behavior and tested for the community organizations in the city of Makassar. Analyze the effectiveness of the training model of environmental education to community organizations in the city of Makassar. This research is the Research and Developmental (R&D). The development model used in this research is development stage of education from Plomp with some modifications from Plomp, Dick and Carey, Hannafian, Addie and Ross Morrison Model. The results were obtained, namely: the four criteria of effectiveness achievement from environmental education training models showed good achievement but for the response from trainees has not been fulfilled. In the classroom trials 1, training model for environmental education has not been effective for the implementation of training, the four criteria of effectiveness achievement of the model showed good criteria and for the participant's responses have been met with >85% of the participants responded positively. Next, in the classroom trial 2, the model has already shown that it was effective for implementation. This model in addition can increase knowledge and friendly attitude of the environment on members of community organizations in the city of Makassar in addressing real environmental issues. It also can make participants more active and interact harmoniously with the environment, so as to create the spirituality environment character of participants. This character is expected to be integrated into environmental education training participants themselves as one of the causes of environmental damage in the city of Makassar due to the crisis of spirituality at members of community organizations.

**Key words:** Training model for environmental education, environmental education, community organization, environmental spirituality, Plomp model

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### **INTRODUCTION**

Deterioration of the quality of life of earth's environment continues to this day followed with the development of science, information technology and the rapid population growth show a big problem that will be faced by human today and in the future. Humans every day become more intensive and expansive in exploring natural resources and the environment while the carrying capacity of the planet to provide a source of life for human beings increasingly limited. It is even triggered again by human modern lifestyle who prefers development that brings more benefit in term of material as much as possible. In addition, the crisis of human environment spiritualism today make the surrounding environment is getting neglected.

The development is not balanced with the preservation of the environment and threatening the lives of future generations. Moreover, development has undertaken Indonesia today cannot be separated from the grip of global capitalism that always wants profits without thinking of the risk of damage to the environment (Anonymous, 2012).

Learning and training about the environment for the community has been conducted without having a model, curriculum, syllabus, lesson plan, teaching materials and evaluation of environmental training. This makes the process of education and training is largely only in the form of ceremonial. It is not sustainable and does not include several aspects such as knowledge, attitude and behavior change that is friendly to the environment (Joseph, 2005). It can be seen at the output of the training

environment which is usually held by a higher education institution or institutions that have a mandate from the government to conduct environmental education both formal and non-formal, e.g., training in Environmental Impact Assessment (EIA), the management of hazardous materials and toxic B3 and hazardous wastes and toxic (B3), monitoring of environmental quality, Strategic Environmental Assessment (SEA), environmental audits and more training environment created by government and private institutions. Most of the trainings do not have the significant impact on behavior change of environment-friendly in Indonesia society (Nienke, 1999). This may be caused by such training does not include material of local wisdom, environmental ethics, self-control (locus of control) including spiritual emotional quotient materials.

Understanding the dynamics of the environment that is increasingly complex with components that interact very diversely, requires the involvement of various stakeholders including trained community groups with individual competency in the management and protection of the environmental issues. Therefore, it will need many human resources that must have the knowledge, attitudes and behavior friendly environment through environmental training.

Even the fact that the individuals who were in the city of Makassar, coming from a community group that has a diversity of social, cultural, political aspirations and economic conditions that characterize the mental structure of society Makassar. This fact of course in turn will affect the learning process and learning outcomes. Assessment of environmental education learning model itself is important so that teaching materials greatly affect the atmosphere of learning or training. Therefore, a model of environmental education training based on society needs is required to be build and certainly it is expected to be effective to the people in the city of Makassar in this case who are parts of community organizations in the city of Makassar.

The reason why it is important to have a form of environmental education training with the theme of environmental protection and management of living in community organizations as noted above that there are still many members of community organizations in Makassar that the level of knowledge and attitude towards environmental issues is very low. These lead to many environmental issues raised in the city of Makassar such as low knowledge and attitude of environmentally friendly, the high amount of pollution of water, soil and air, lack of understanding of environmental ethics, EIA as an instrument of the environment to prevent damage to

the environment is not running well, environmental advocacy by civil society organizations in the city of Makassar still low.

## **MATERIALS AND METHODS**

This research is the Research and Developmental (R&D). The model used is the design development stage of education with some modifications that still referred to the steps of research in R&D (Plomp, 1994). Based on these steps and then combined with elements of learning development which is a modification of some model such as Plomp, Dick and Carey, Hannafian, Addie and Ross Morrison. The combinations of these models are meant as follows. For the development of the elements of learning, namely: syntax, reaction principles, social principles, the principle of support and instructional impact and the impact of a companion using joyce and calhoun. To know the criteria (valid, practical and effective) of the learning device made using nieeven. To develop instructional design used in preparing the implementation plan of training, training materials and other training learning device that starts with requirement analysis phase to make a final evaluation using addie (Rosyand, 2007).

The study design will perform modeling of environmental education training to members of community organizations in the city of Makassar, using cycle stages of research and development of the Plomp model. The model will be tested theoretically and empirically in the field after reconciling the model tentatively through preliminary research. Referring to the implementation process in terms of the available time and consideration of efficiency, the development of these is carried out simultaneously. It can be said that a training model developed along with the development of instrument and training tools relating to environmental education training model. If in the process of model development there are aspects of the model components need to be revised, then simultaneously repairs or revisions will be held to aspects of the components contained in the instrument training devices and training.

## **RESULTS AND DISCUSSION**

Based on survey results of pre-study, it is known that the majority of community organizations in the city of Makassar in response to environmental issues has not been done in a planned, purposeful and regular. From the survey, data of pre-study to the needs of civil society organizations in improving the knowledge and environmentally friendly behavior in the City Makassar is presented in Table 1.

Table 1: Analysis of the data needs of mass society organizations towards the training of environmental education in the city of Makassar

Survey items	Respondent	
	Total (people)	Percentage
Attend environmental education training	10	66.67
Have environmental training model and tools	4	26.67
Have knowledge about environmental management and protection	10	66.67
Have awareness of the environmental management and protection	12	80.00
Involve in environmentally friendly activities	7	46.67
Have an etiquette value in involving environmental response	9	60.00

Based on Table 1, it showed that of the 15 members of community organizations as respondents representing each community organizations who provided information, 66.67% (10 people) have participated in environmental education training but still is limited in the form of extension activities, socialization and seminars about waste. A total of 26.67% (4 votes) claimed to have a model and training tool for environmental education but in fact not in the form of models and training devices but still in the form of proposals.

Members of community organizations that have a caring attitude towards management and environmental protection are quite good criteria, i.e., 80% (12 people). Generally, members of community organizations have the desire to respond to the environmental problems in the city of Makassar but they lack the adequate skills.

The involvement of society organization in environmentally friendly activities around 46.67% (7 people). This is caused by the problem of low skills and low awareness of its activities in relation to the environment. Community organizations that already have an etiquette in responding to environmental issues involved by 60% (9 people). The etiquette value is still in the form of statutes and bylaws of the organization. It has not yet had the spirit of moral values of human dependence on the environment.

**Training model validation:** Validation results of the developed training model for environmental education were done by 4 experts, namely: curriculum experts in the field of modeling, linguistic expert instructional media and public management expert and expert practitioner curriculum developer training materials and coach the Ministry of environment ecoregion Sulawesi-Maluku.

**The validation of curriculum expert:** The results of the validation of the models from curriculum expert can be seen in Table 2. Based on Table 2, it can be concluded that the validator expressed designing environmental education training model is based on the relevant supporting theory. Supporting components of the environmental education model are consistent and inter-related.

Table 2: Results of expert validation on environmental education model

Validation components	Mean (X)	Remarks
Fundamental theory	3.4	Valid
Syntax	3.6	Very valid
Social system	3.5	Very valid
Reaction principle (trainer behavior)	3.6	Very valid
Supporting system	3.4	Valid
Instructional impact	3.6	Very valid
The implementation of environmental training	3.4	Valid
Training tasks	3.4	Valid
Evaluation	3.7	Very valid
Mean total	3.5	Valid

Table 3: Results of expert validation on training tools

Training tools	Mean (X)	Remarks
Learning plan	3.4	Valid
Participant worksheet	3.2	Valid
Participant books	3.4	Valid
Test of content mastery result	3.4	Valid
Mean total	3.3	Valid

Table 4: Validity result of environmental education model on trial 1

Validation category	Percentage	Remarks
Relevant supporting theory	87.50	Acceptable
Interrelated model components	≥88.00	Acceptable
<b>Test results on model components</b>		
Validity	74.07	Positive
Reliability	78.89	Positive
Objectivity	73.01	Positive
Systematic	77.78	Positive
Practicality	77.78	Positive

**Expert validation on training tools:** The validation process of environmental education training tools can be presented in Table 3 as follows: it can be seen from Table 3 that the results of expert validation on training tools, in general, showed valid criteria. This means that the tools can be used in training.

**Achievement of environmental education model and implementation of the model and its training tools:**

Achievement of the validity of the environmental education model can be viewed from several criteria such as statement of the validator that training is based on the relevant theory. A validator statement that the components of the training model interrelated. The results of tests on components of the training model.

From Table 4, it can be concluded that the three validity criteria are met. It can be stated that the training model is valid for the implementation of environmental education training in the trial 1 which held on Wednesday, May 18, 2016 in grade building PPK Makassar city center.

To determine the validity of the learning plan, the participant book, participant worksheets and test results of mastery of the material can be done by looking at the average assessment. A summary of the expert validation can be seen as follows: based on Table 5, it can be concluded that the tools of that the training model is

Table 5: Validity of the environmental education training tools on trial 1

Tools of model implementation	Expert validation (%)	Remarks
Books of training participant	89.05	Good
Learning plan	87.21	Good
Participant worksheet	82.91	Good
Test of content mastery result	84.64	Good

Table 6: Practicality results of environmental education model on trial 1

Practicality criterias	The mean of assessment (%)	Remarks
General assessment of environmental education model	It can be used	Achieved
Reliability (this model can be used in any training)	80	Achieved
Model feasibility	75	High

Table 7: Practicality results of training tools of environmental education model on trial 1

Training tools	Mean (%)	Remarks
Learning plan	83.49	Good
Participant book	85.00	Good
Training worksheet	80.00	Good

valid for the implementation of environmental education training in the trial 1 which held on Wednesday, May 18, 2016 in grade building PPK Makassar City center.

**Practicality achievement of environmental education model and implementation of the model and its training tools in trial 1:**

Practicality achievement of environmental education model and implementation of the model and its training tools can be seen on the following criteria: validator consideration that the training model can be applied. The coach states that this training model can be applied. The feasibility level of the training model. Based on the description of the above analysis, it can be summarized that the practicality achievement of the models as presented in Table 6.

The three criterion of practicality achievement of the models as presented in Table 7 have been met. It can be concluded that the training model is practical to be implemented in the environmental education training class trials 1 made on Wednesday, May 18, 2016, Graha building PPK Makassar City center.

To determine the practicality of training devices, it can be done by looking at the average score ratings. Based on the preceding analysis, it can be summarized the achievement of the practicality of the device deployment training models on a trial class 1 as presented in Table 7. From Table 7, it can be concluded that the application of the model is practical for training in trial class 1.

**The effectiveness achievement of environmental education model and implementation of the model and its training tools in trial 1:**

The effectiveness achievement of environmental education model and implementation of the model and its training tools can be viewed by Activities of participants, the learning achievement positive responses of participants, ability to think to solve the problem (Table 8).

Table 8: Results of the effectiveness of environmental education model and training tools

The effectiveness criteria	Mean of assessment (%)	Remarks
Participant Activities	77.76	High
<b>Participant's learning achievement</b>		
Knowledge absorption	74.79	High
Mastery learning	83.33	Mastery
Participant response	76.31	Positive
Ability to think to solve the problem	26.39	Good

Table 9: Results of validity achievement on environmental education model in trial 2

Validation category	Percentage	Remarks
Relevant supporting theory	87.50	Acceptable
Interrelated model components	≥88.00	Acceptable
<b>Test results on model components::</b>		
Validity	87.33	Positive
Reliability	92.80	Positive
Objectivity	84.92	Positive
Systematic	84.92	Positive
Practicality	88.12	Positive

Table 10: Validity of environmental education training device in trial 2

Tools of model implementation	Expert validation	Remarks
Books of training participant	89.05	Good
Learning plan	87.21	Good
Participant worksheet	82.91	Good
Test of content mastery result	84.64	Good

The four criteria of achievement of the effectiveness of the model with the achievement of good but for the response of trainees in environmental education training has not been met only 76.31% below the average value of 80%. It can be concluded that the training model has not yet been effective in the implementation of educational training environment in the test class 1 which had been held on Wednesday, May 18, 2016, date at Graha building PPK Makassar City center.

**Validity achievement of environmental education model and its training tools in trial 2:**

Achievement of the validity of the model and its training tools can be viewed from several criteria, namely; a validator statement that training is based on the relevant theory. A validator statement that the components of the training model are interrelated. The results of tests on components of the training model.

From Table 9, it can be concluded that the three validity criteria are met. It can be stated that the environmental education model is valid for the implementation of environmental education in the training class trials 2 which were conducted on Sunday, May 22, 2016 in the building KNPI Makassar. To determine the validity of the tools (Learning plan, the participant's book and participant worksheet), it can be done by looking at the average assessment. Here is a summary of the expert validation (Chiras, 1991).

Based on Table 10, it can be concluded that the tools of that the training model is valid for the implementation

Table 11: Practicality results of training tools of environmental education model on trial 2

Practicality criterias	The mean of assessment (%)	Remarks
General assessment of environmental education model	It can be used	Achieved
Reliability (this model can be used in any training)	97.50	Achieved
Model feasibility	92.31	High

Table 12: Practicality results of training tools of environmental education model on trial 2

Training Tools	Mean (%)	Remarks
Learning plan	91.15	Good
Participant book	85.19	Good
Training worksheet	85.19	Good

of environmental education training in trial 2 which held on Sunday, May 22, 2016 in the building KNPI Makassar.

**Practicality achievement of environmental education model and implementation of the model and its training tools in trial 2:** Practicality achievement of environmental education model and implementation of the model and its training tools can be seen on the following criteria: validator consideration that the training model can be applied. The coach states that this training model can be applied. The feasibility level of the training model. Based on the description of the above analysis, it can be summarized that the practicality achievement of the models as presented in Table 11.

The three criterion of practicality achievement of the models as presented in Table 11 have been met. It can be concluded that the training model is practical to be implemented in the environmental education training class trials 2 which held on Sunday, May 22, 2016 in the building KNPI Makassar.

To determine the practicality of training devices it can be done by looking at the average score ratings. Based on the preceding analysis, it can be summarized that the achievement of the practicality of the training tools can be applied to the participants in class trials 2 which were conducted on Sunday, May 22, 2016 in the building KNPI Makassar. Based on Table 12, it can be concluded that the tools of that the training model is practical to be used in training trial II which held on Sunday, May 22, 2016 in the building KNPI Makassar.

**The effectiveness achievement of environmental education model and implementation of the model and its training tools in trial 2:** The effectiveness achievement of environmental education model and implementation of the model and its training tools can be viewed by Activities of participants, the learning achievement positive responses of participants, thinking skills in problem-solving in environmental education training (Table 13).

Table 13: Results of the effectiveness of environmental education model and training tools in trial 2

The effectiveness criteria	Mean of assessment (%)	Remarks
Participant activities	92.00	High
<b>Participant's learning achievement:</b>		
Knowledge absorption	81.10	High
Mastery learning	92.00	Mastery
Participant response	86.63	Positive
Ability to think to solve the problem	26.56	Good

Table 14: The achievement results of training tools and model

Assessed aspect	Validity	Practicality	Effectiveness
Environmental education model books	Valid	Practical	Effective
Participant modul	Valid	Practical	Effective
Participant worksheet	Valid	Practical	Effective
Learning plan	Valid	Practical	Effective
Result of content mastery test	Valid	Practical	Effective

The four criterion of environmental education model achievement of effectiveness showed good achievement and the participant's responses have been met with >85% of the participants responded positively. It can be concluded that the training model is effective for the implementation of environmental education training in class trials 2 which were conducted on Sunday, May 22, 2016 in the building KNPI Makassar.

Based on all the stages that have been passed in the drafting process of environmental education training model, it can be inferred that the environmental education training models and the training tools are effective, practical and valid as shown in Table 14.

## CONCLUSION

Based on the results of research, it can be concluded that the environmental education training models and the training tools are effective, practical and valid to be used in the implementation of training. This model, in addition, can increase knowledge and friendly attitude of the environment on members of community organizations in the city of Makassar in addressing real environmental issues. It also can make participants more active and interact harmoniously with the environment, so as to create the spirituality environment character of participants. This character is expected to be integrated into environmental education training participants themselves as one of the causes of environmental damage in the city of Makassar due to the crisis of spirituality at members of community organizations.

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