



Ecopsychology Elements in Environmental Education as to Strengthen Attitudes towards the Environment

Tiwi Kamidin¹, Azizi Muda², Samsilah Roslan³, Mohd Majid Konting⁴

Faculty of Environmental Studies,
Universiti Putra Malaysia, Malaysia

viezz05@yahoo.com

Abstract

This study assesses the effects of inception ecopsychology elements in an environmental education as to strengthen the attitudes towards the environment among teacher trainees based on the affective learning domain. A mixed method design was used to evaluate the effects of the inception ecopsychology element in environmental education. Initial findings showed that there was a significant difference on attitudes towards environment between experimental and control groups. Qualitative findings also showed that the respondents from the experimental groups believed they were considered to have changed after participating in the class. Findings from this study suggested that the implementation of environmental education should incept ecopsychology elements.

Keywords: Ecopsychology, Environmental Education

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1.0 Introduction

More than 10 years of Environmental Education (EE) has been implemented in the Teacher Education Institutes in Malaysia as to strengthen knowledge, attitudes, skills and commitment into action. However, experts in the field still encounter that after years of effort of trying to integrate environmental education, studies keep revealing that Malaysians still have not reached a certain level of the desired commitment towards their environment (Daniel et al., 2006). Some of the findings also indicated that even though the teachers agree that environmental education is important, it is still not reflected in their commitment into action (Petergem et al., 2005; Meredith et al., 2000; Kunz, 1997; Wilke et al., 1980). The biggest challenge faced by environmental educators nowadays is to extend beyond the awareness of environmental and sustainability problems with a commitment into action. In addition, some findings revealed that our planet's health depends on our mental health and our destructive environmental behaviors stem from our sense of disconnection to the natural world (Canty, 2007; Osman, 2007; Metzner, 1999; Macy & Brown, 1998; Howard, 1997; Clinebell, 1996; Roszak et al., 1995; and Roszak, 1992). We need to deeply feel that responsibility to take care of the environment is similar to taking care of ourselves or our beloved family and siblings. We should develop more experience on our surroundings and neighborhood as part of our life.

Thus, ecopsychologists believe that ecopsychology can derive people's sense of ownership because it is rooted in three insights: 1) There is a deeply bonded and reciprocal relationship between humans and nature. Ecopsychology has presented two metaphors for this relationship: (a) nature as home and family (e.g earth as mother, animals as siblings); and (b) nature as self, in which self-identifications are broadened; 2) The illusion of a separation of humans and nature leads to suffering both for the environment (as ecological devastation) and humans (as grief, despair, and alienation); 3) Realizing the connection between humans and nature is healing with both. When we consider the physical and natural environments as self, we will care for the environment the same manner we care for ourselves, and not hurt the environment. That is why the inception of the ecopsychology elements in EE is very important to build people's sense of ownership and interconnectedness with nature. Ecopsychologists believe there is an emotional bond between human beings and the natural environment out of which we evolve. In this study, a modification of Ginanjar's (2005) concepts of spiritual quotient to the area of Psyche Cleaning Zone (PCZ) is made without denying the existing elements and approaches in EE. In order to strengthen the Attitudes Towards Environment (ATE), humans need to go through the PCZ areas. In this model, the PCZ area is the process of having a clear relationship with nature between humans and nature with the connection of spiritual values and emotions.

This study assesses the impact of incepted ecopsychology elements in EE as to strengthen ATE based on the affective learning domain only. In this study, ATE is based on 5 categories in the affective learning domain which are acceptance, respond, evaluation,

organizational and internalization. The teaching and learning activities in this study are modified based on recent ecopsychology researches of Canty (2007); Fisher (1999); Macy and Brown (1998); Clinebell (1996); Calahan (1995); Conn (1995); Greenway (1995); Macy (1995); and Shapiro (1995). Content validity for the treatment activities was approved by the same experts who validated the affective attitude instruments as shown in Figure 3. In order to strengthen the inner self towards the environment, some activities incepted ecopsychology elements without denying the existing activities in the syllabus. Control groups are taught using the existing activities suggested in the syllabus.

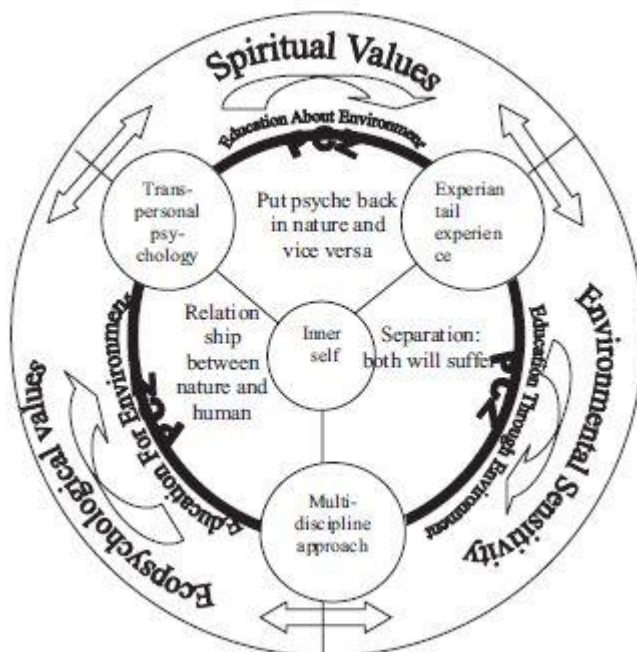


Figure 1: Inception of ecopsychology elements in Environmental Education

Objectives

One purpose in this study is to examine the level of ATE (based on the 5 affective learning domains) before and after the inception of the ecopsychology elements in EE for the experimental group. The intent is to determine that the incepted ecopsychology elements in EE activities can significantly strengthen the attitudes towards environment. The objectives

of this research are as follows:

1. To determine the level of ATE (based on the 5 affective learning domain categories) before the inception of ecopsychology elements in EE between experimental and control groups.
2. To determine the level of ATE (based on the 5 affective learning domain categories) after the inception of ecopsychology elements in EE between experimental and control groups.

2.0 Methodology

Mixed method design was used in this study. Both the quantitative and qualitative methods were used to evaluate the programme with priority given to the quantitative method. Qualitative data collection was used to support the quantitative findings. Figure 2 shows the mixed method design used in this study. For the quantitative portion, the existing instruments were modified and used to evaluate the respondent's ATE which was considered as the programme outcome to capture ideas on how the EE programme with the inception of ecopsychology elements influenced teacher trainees. A quasi-experimental design was used as the quantitative tool in this study and a triangulation with the qualitative tools using modified embedded design was carried out. The qualitative methods were utilized before, during and after the intervention (adopted from Cresswell & Clark, 2007). Qualitative data was collected from selected trainees (both groups) before the intervention using structured interviews to elicit their understanding of the meaning of ATE. Interviews and personal notes were used as the qualitative portion after the intervention to elicit their understanding of the meaning of ATE besides eliciting their experiences on the ecopsychology activities in the treatments. Therefore, after the intervention, only informants from the experimental groups were interviewed.

2.1 Sample

Purposive sampling was used to choose the samples. The samples were chosen among the trainees of the Batu Lintang Teacher Training Institute (TTI) during the January 2008 Graduate Teacher Education Programme (Kursus Perguruan Lepaslan Ijazah) intake. Even though there were 23 Teacher Education Institutes (TEI) in Malaysia, based on the enrollment data until 31 December 2007, only 4 TTI were considered to have an ethnicity of 7:2:1 (Malay, Chinese, Indian) and religion balance of 7:3 (Muslim and others). Six groups (N=115; Male=50; Female=65) in semester two were chosen and divided into two groups (experimental and control groups) randomly. Three classes (n =58) received the inception of ecopsychology in activities in the EE classes and the other three classes (n =57) received the traditional activities in the EE classes. One hundred and fifteen respondents (115) were involved in this study based on Gpower, by using $d=.80$, power $(1 - \beta)=0.95$ with a significance value of 0.05 (two tails); the Gpower analysis for the independent t test

showed that 84 persons (42 persons in each group) was enough sample for the experimental research.

2.2 Measuring Attitudes towards Environment

Attitudes towards the environment in this study were limited to five affective components of attitudes in the affective learning domain taxonomy which were acceptance, respond, evaluation, organization and internalization. The instruments used to evaluate the attitudes towards the environment (affective domain) were modified from Leeming et al, (1995) and Bloom, Krathwohl & Masia (1988) affective learning domain taxonomy. The format of the instruments was four Likert scales. The reliability test for the attitudes towards the environment test was $r=.965$. The factor analysis conducted showed the appropriate values (KMO = .647; Barlett's test = .000). All data were analyzed using the independent sample t test and descriptive analysis. The affective attitudes towards environment instrument were validated by Dr. John Davis (Naropa University) – a specialist in ecopsychology; Prof. Dr. David St. John (Detroit Mercy University) – a specialist in ecopsychology and psychology; Prof. Azizan Burhanuddin (University Malaya, Malaysia) – a specialist in environmental ethics; Assoc. Prof. Dr. Rahil Mahyuddin (University Putra Malaysia) – a specialist in psychology; and Assoc. Prof. Dr. Ahmad Makmom Abdullah (University Putra Malaysia) – a specialist in tropical rainforest.

3.0 Findings

3.1 Research Objective 1

The independent sample t test was used to compare the differences of the ATE values between the experimental and control groups before the treatment for the experimental group. Finding shows that there is no significant difference on ATE between the experimental ($M=121.01$, $SD=9.01$) and control groups ($M=118.35$, $SD=10.61$; $t(113)=1.453$, $p=.149$) before the inception of ecopsychology elements in EE for the experimental group with a magnitude of the differences in the means very small ($\eta^2 = .001$). In order to answer the first objective, the level of ATE based on the 5 categories in the affective learning domain, the scores mean are divided into three categories based on four Likert scales: low level (1.00 - 2.00), moderate level (2.01 – 2.99), and high level (3.00 – 4.00). The results (Table 1) indicated that the respondent's acceptance category scores mean were at the high level for the experimental (3.27) and control (3.19) groups; but were still at the moderate levels for the scores mean of ATE respond, evaluation, organizational and internalization for both groups.

Based on Bloom, Krathwohl and Masia (1988), the acceptance level in the affective learning domain means that the persons are aware of the existing phenomena, start giving attention on certain phenomena and are ready to accept the phenomena. At this level,

there is not guarantee the person will change his or her action according to the phenomena.

Table 1. ATE based on affective learning domain categories scores mean for experimental and control groups before inception ecopsychology elements for experimental groups

Variables categories	Experimental groups			Control groups		
	Mean	SD	Level	Mean	SD	Level
Acceptance	29.46	2.05	3.27	28.75	2.04	3.19
Respond	23.72	2.84	2.63	23.63	2.91	2.63
Evaluation	24.32	3.02	2.70	23.75	3.65	2.64
Organizational	23.86	2.41	2.98	23.14	2.82	2.89
Internalization	19.64	2.82	2.80	19.14	2.59	2.73

The independent t test results presented that there was no a significant difference in the ATE based on the 5 categories scores mean between the experimental and control groups. It showed that there was a significant difference in the ATE of the acceptance category between the experimental ($M=29.46$, $SD=2.05$) and control groups ($M=28.75$, $SD=2.04$, $t(113)=1.86$; $p=.07$) with small effect size (.02). The results also indicated that there was a significant difference in the ATE of the respond category between the experimental ($M=23.72$, $SD=2.84$) and control groups ($M=23.63$, $SD=2.91$, $t(113)=-.172$; $p=.86$). The magnitude of differences for the means was considered no effect size (.00). The findings also indicated that the ATE of the evaluation category for the experimental ($M=24.32$, $SD=3.03$) and control groups ($M=23.75$, $SD=2.64$; $t(113)=-.916$; $p=.36$) indicated no significance difference with small effect size (.01). The ATE of the organization category scores mean also presented there was no significant difference after the treatment for the experimental group between experimental ($M=23.86$; $SD=2.41$) and control groups ($M=23.14$, $SD=2.82$; $t(113)=1.45$; $p=.14$) with small effect size (.02). Besides that, there was a significant difference in the ATE of the internalization category between the experimental ($M=19.64$, $SD=2.82$) and control groups ($M=19.14$, $SD=2.59$; $t(113)=.984$; $p=.33$). The magnitude of differences for the means showed a small effect size (.01). This showed that it was homogenous between the two groups before the inception of ecopsychology elements in EE for the experimental group.

The qualitative data collection results reported that of the 12 individuals interviewed, 6 reported put themselves at scale4 (good) but even though there were 6 respondents who put themselves as having good attitudes towards the environment, most of them concentrated on a certain aspect as a good attitude toward the environment. All respondents defined good attitudes towards the environment by using themes like getting involved in greening (planting flowers or gardening), had a proper rubbish disposal system (but still not separating wet and dry waste), economical use of electricity and water but still not being members of any environmental NGOs, still used polystyrene packages to buy food, used plastic bags while shopping and chose products based on interests and price.

3.2 Research Objective 2

Result of findings indicated that there was a significant difference on the ATE between experimental ($M=136.88$, $SD=11.10$) and control groups ($M=123.81$, $SD=7.07$, $t(96.91)=7.55$, $p=.00$). The magnitude of the differences in the means was very big (.61). This result showed that after the inception of ecopsychology elements in the EE activities for the experimental group, its ATE scores mean increased slightly thus indicating that there was a significant difference in the ATE scores between the experimental and control group.

The independent t test results presented that there was a significant difference in the ATE based on the 5 categories scores mean between the experimental and control groups. It showed that there was a significant difference in the ATE of the acceptance category between the experimental ($M=31.18$, $SD=2.27$) and control groups ($M=28.98$, $SD=3.22$, $t(113)=5.180$; $p=.00$) with a large effect size (.19). The results also indicated that there was a significant difference in the ATE of the respond category between the experimental ($M=27.22$, $SD=3.08$) and control groups ($M=24.72$, $SD=2.15$, $t(102.11)=5.064$; $p=.000$). The magnitude of differences for the means was considered large (.18). The findings also indicated that the ATE of the evaluation category for the experimental ($M=27.74$, $SD=3.88$) and control groups ($M=24.63$, $SD=2.27$; $t(92.26)=5.253$; $p=.000$) were significantly different after the treatment for the experimental group. The ATE of the organization category scores mean also presented there was significant difference after the treatment for the experimental group between experimental ($M=27.86$, $SD=2.53$) and control groups ($M=24.38$, $SD=2.17$; $t(113)=8.003$; $p=.000$). Besides that, there was a significant difference in the ATE of the internalization category between the experimental ($M=22.86$, $SD=2.69$) and control groups ($M=21.14$, $SD=2.38$; $t(111.7)=3.632$; $p=.000$). The magnitude of differences for the means showed a large effect size.

Therefore, these research findings indicated that there was a significant difference in the ATE scores mean based on the 5 categories in the affective learning domain. This presented the effect of the inception of the ecopsychology elements in EE on ATE based on the 5 categories in affective learning domain. The experimental group which was taught EE using the inception of ecopsychology elements in EE showed an increase in its ATE. The results also indicated that the ATE acceptance category scores mean maintained at the high level for the experimental (3.46) and control groups (3.22). But, the level for the respond category for the experimental group increased to a high level (3.08) but maintained at the moderate level for the control group (2.75). The evaluation category scores mean for the experimental group also increased to a high level (3.02) compared to the control group which maintained at the moderate level (2.74). The findings also represented that the level of ATE for the organization category increased to a high level (3.48) and was also at the high level for the control group (3.04). the ATE of the internalization category for the experimental and control groups also increased to a high level (3.27 & 3.02 respectively). Therefore, this finding showed that the experimental group presented an increase scores mean of the ATE based on the 5 categories of affective learning domain.

The qualitative results also indicated that there was an increase in the ATE scores

mean values. In describing the ways in which they believed their ATE increased, the participants discussed exemplifying themes pertaining to an increased attitude towards environments such as: 1) Expanding definition of positive attitude towards environment, 2) More sensitive with nature – example they tried to say thank you to nature, always asked themselves to show proof for that thank you, 3) Feel guilty when making some decision regarding environment, for example while shopping. The certain actions they have taken are: 1) using less plastic bags while shopping, 2) bringing their own bags while shopping, 3) using less polystyrene containers when buying food but spending more time eating at the canteen with friends, 4) reading the labels while purchasing things and feeling guilty while choosing products in the market, 5) using electricity and water economically, 6) thinking and considering the environment in some decisions they make – automatically saying thank you while using water, electricity or during the breathing process. One of the respondents described the following:

“Before this...I never say thank you to water while I using (sic) it, I know I should (sic) thankful but never says (sic) it or argued what I have done ..knowing but not doing. After participate (sic) in your class, every time I switch on the water pipe (sic), automatically I remember to say thank you to water and especially God because giving this kind of resources to fulfill (sic) our need. I think it reflected from our activities (emm...Who am I, fantasy communication). What I think it (sic) is an achievement for me is I closed (sic) the water pipe if I saw the water pipe is not closed correctly...and I think that is reflected from saying thank you. For me, this is an achievement in my life.” (SR02, interviewed on 25 October 2008)

4.0 Discussion and Significance of Findings

The post test scores mean of the ATE (5 affective domain) was significantly higher for the experimental group, which probably resulted from the experimental approach. The results indicated that the inception of ecopsychology elements in EE did significantly promote ATE based on the 5 affective learning domains. The research findings indicated that the inception of ecopsychology elements could slightly strengthen EE as part of the crucial elements in promoting a positive ATE and commitment to take positive action on the environment. Existing EE teaching and learning activities should be inceptioned with ecopsychology elements to strengthen or nurture the self and human relationship with nature. These findings were also supported by recent research in almost similar area of studies done by Bradley (1997); Cauty (2007); Miranda (2007); Merkl (1995); and Howard (1997). These findings tried to reflect to the EE model by injecting inner self towards the environment. In order to strengthen the commitment to take action, these findings suggested that concentration should be given to three aspects (put psyche back into nature and vice versa, interconnectedness relationship with nature and assume nature as self,

family and siblings; awareness that separation will make both suffer) without denying the existing model. These three aspects were important to go through the Psyche Cleaning Zone. Spiritual values are needed to strengthen our feelings that we are answerable to a Super Force that we must try to secure divine pleasure that our actions must be in accordance with the Super Force's laws. This will make us extra careful with what we do, and be aware of our responsibilities to work or do something to fulfill the responsibility given by the Super Force. Ecopsychological values are important in order to strengthen the relationship with nature by assuming nature as self, family and siblings. Ecopsychology also concentrates to build awareness that human and nature will suffer both. These research findings suggested teaching and learning activities to strengthen environmental sensitivity. Hungerford and Volk (1990) stressed that in the Environmental Responsibility Behavior (ERB) model, environmental sensitivity was the first entrance required to obtain ERB.

Besides that, the findings would also help the Teacher Education Department (Bahagian Pendidikan Guru) to review the existing syllabus by introducing ecopsychological elements in the EE subjects for KPLI. These findings could also help BPG to review and enhance EE teaching and learning activities either in the classroom or outdoor. Automatically, it would enhance the lecturer's guidelines in EE teaching and learning activities. The findings could also enhance research and knowledge in EE. Besides that, it could help teacher trainees to strengthen their inner self toward the environment. Hopefully the teacher trainees would be more committed and environmental friendly in their daily lives.

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