THE UNDERSTANDING OF ENVIRONMENTAL ISSUES AMONG TRAINEE TEACHERS IN BATU LINTANG TEACHERS' COLLEGE

by

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ABSTRACT

The introduction of environmental education in formal education is the first step in producing an environmentally literate society. Education is vital in instilling knowledge and creating a pro-environment attitude among the younger generations. Teachers are important agents in transferring the correct knowledge regarding the environment to the future generations. The questionnaire used in this study to assess the knowledge and attitude of trainee teachers consisted of two sections. The first section is in quantitative format while the second section consists of open-ended questions. 140 questionnaires were distributed and of these, 80% were returned completed. The study shows there is a significant relationship between knowledge and attitude. The finding on knowledge awareness shows that there was pro-environmental attitude among the respondents. The respondents understood the importance of environmental knowledge locally and globally. Environmental education in our country needs an action-oriented approach rather than just a knowledge-based approach.

INTRODUCTION

Environmental Education (E. E.) is a multidisciplinary field of study with local, national and global importance. Environmental Education is a process of developing a world population that is aware and concerned about the total environment and its associated problems and which has the knowledge, skills, attitudes, motivations and commitment individually and collectively toward solutions of current problems and the prevention of new ones. It is widely agreed that education is the most effective means that society possesses for confronting the challenges of the future. Indeed education will shape the world of tomorrow. Progress increasingly depends upon the products of educated minds; upon research, inventions, innovation and adaptation. Of course, educated minds and instincts are needed not only in laboratories and research institutes, but in all walks of life. Indeed, access to education is the *sine qua non* for effective participation in the life of the modern world at all levels. (UNESCO-EPD 1997:15: Cited in John Fien (2000)

Statement of Problems

The evolution of environmental education has required closer and renewed investigation into learning processes. It has become customary to define the components of learning relevant to environmental sustainability. These are sometimes described misleadingly, as 'stages'. Even though they may seem to follow a natural sequence and be discrete in themselves, people's encounter with issues of sustainability can begin and develop from any of these components. They should be seen as cyclical and interactive, with periods focused on reflection, research, development and action. Market research into environmental issues consistently confirms what educators have long held as a first principle of operation, starting from where the students (or consumers, citizens, decision makers) are.

The focus of my research is trainee teachers, who are regarded as important agents in bringing social transformation and environmental awareness to students. These students will grow up to be entrepreneurs, law makers, development planners and future leaders of the country who will shape the country based on their knowledge and understanding from the formal education system. Thus the focus of research has to focus on questions such as:

(i) What do they want to achieve by learning environmental issues?
(ii) How do these attitudes relate to environmental issues?

These are the starting points for any useful process of problem solving as well as meaningful and life-long learning.

Awareness-raising is not just a matter of shaping attitudes; it must also be about the development of knowledge. The questions that have to be addressed are:

(i) Is this view legitimate?
(ii) What information supports it?
(iii) Is that information relevant and reliable?

The Objectives of the Study

The general objective is:
To evaluate trainee teachers' understanding of environmental issues.

The specific objectives are:

(i) To find out trainee teachers' level of knowledge of environmental issues.
(ii) To assess trainee teachers' attitude towards creating a sustainable environment.

Significance of the Study

The findings of the study will help the teachers' training college to improve the methods and approaches in implementing environmental education. The findings of the study will be used to make recommendations to improve the curriculum on environmental education in teacher training colleges.

It will also help the educators in the environmental field to analyze the efficiency of our actions from a global viewpoint, taking into account their repercussions in the short, middle and long term on both ourselves and for the whole of humanity.

The findings also will help educators to find the best scientific approach in transforming environmental issues among trainee teachers. It will help us to understand the manner in which trainee teachers from various ethnicity report their experiences or understanding of a phenomenon associated with the situation in which they find themselves and on which they are focusing. Most importantly it will help us to identify the effective method in E. E. as an integrated curriculum that cuts across discipline. The findings will enable us to determine the knowledge level of trainee teachers' in order for the presence of misconceptions regarding every contemporary environmental issues to be discovered and in the process to achieve the goal of environmental literacy among our future citizens.

Environmental Knowledge among Teachers

"Teaching is about knowing…" (Harrington, 1994) not just knowing about content and teaching of content but also about self and how to use this knowledge. Teachers construct their knowledge built upon previous knowledge. Coupled with experience, their knowledge transform and evolves. Harrington (1994) argues that beginning teachers must be provided with opportunities to struggle with the nature and development of this knowledge, what it means to know, what knowledge is worth most and what implication the answer to these questions have for educating student and learning communities.

The notion that the education of teachers should involve an environmental dimension was first agreed at the 1971 IUCN conference in Switzerland where representatives of over a hundred countries recognized that teacher education forms one of the most important and significant aspects in the development of environmental education programmes, and recommended that:

- the training of teachers provide them with essential basic knowledge of ecological facts and an adequate background of sociology and its relationship to human ecology;
- efforts should be made to develop in teachers a critical awareness of environmental problems to enable them to promote responsible attitudes concerning environmental matters in their pupils;

- environmental conservation is recognized as an essential part of teacher training and that developments started in pre-service training should be continued by in-service training;
- as teacher training in E. E. involves the use of many techniques and methods, all prospective teachers should be given training in the use and evaluation of pedagogical methods, including those relating to inter-disciplinary approaches and team teaching.
- media banks should be established at national and international level for the exchange of information, training and teaching materials.

(IUCN/UNEP/WWF 1972, 3)

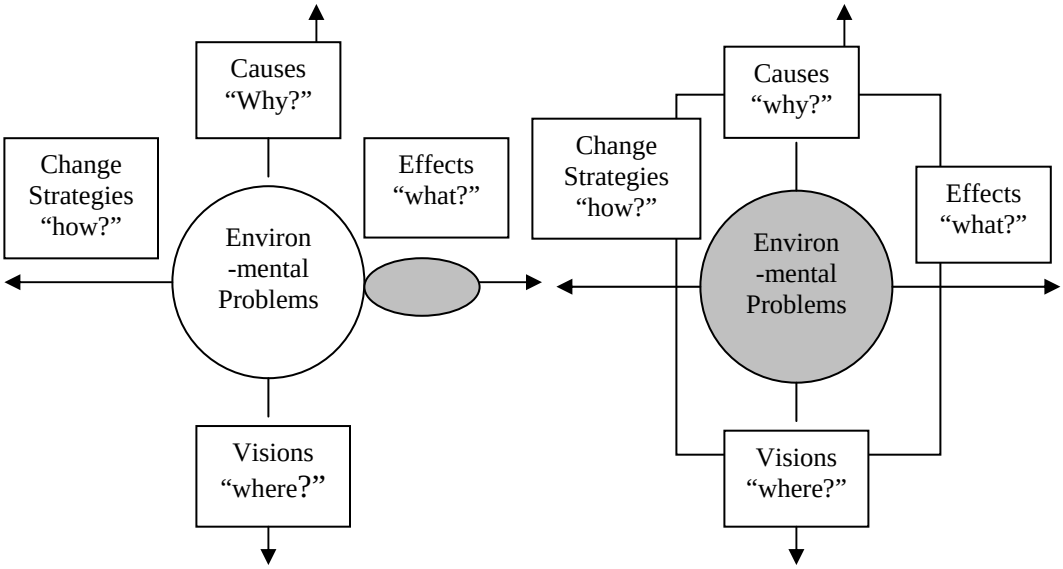

Figure 1: Model of landscapes for traditional (left) and action-oriented (right) knowledge. Source: Schmidt, 1999, Two Landscapes of Knowledge

Figure 1 is a model of landscapes for traditional and action-oriented knowledge. The first dimension shows what kind of problem is related to knowledge about environmental problems. Knowledge might help to arouse concern and attention, thereby creating the starting point for a willingness to act. The second dimension is the analysis, the associated social factors influencing behavior. This knowledge belongs mainly to the sociological, cultural and economic sphere. The third dimension deal with both knowledge about how to control one's own life and how to contribute to changing living conditions in society at large, and embraces directly as well as indirectly knowing how to encourage cooperation. The fourth dimension deals with the necessity of developing one's own vision. Seeing real possibilities for forming and developing one's dream and idea for the future in relation to one's own life, work, family and having the support is an important requisite for the motivation and ability to act and change. This dimension includes knowing

about how people go about things in other cultures and other places. Knowledge about other possibilities can be powerful sources of inspiration for developing one's own vision.

Fishbein and Azjen (1980) further stress that attitudes do not determine behavior directly but rahter, they influence behavioral intentions which in turn shape our actions as shown in Figure 2. Intentions are not only influenced by attitudes but also by social pressures. Thus the ultimate determinants of any behavior are the behavioral beliefs concerning its consequences and social beliefs concerning the prescription of others.

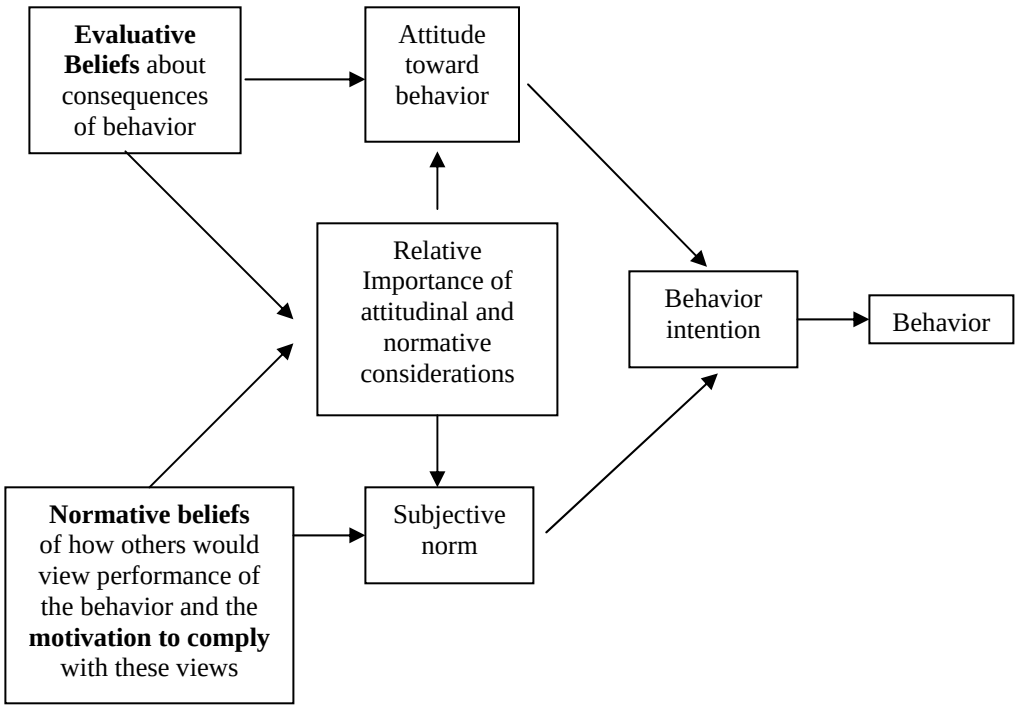

Figure 2: Theory of reasoned action (Azjen & Fishbein, 1980) Source: David Regis D. (1990) http://helios.ex.ac.uk/~dregis/

Their model has been the most influential attitude behavior model in social psychology, probably because they developed a mathematical equation that expressed their model which led researchers to conduct empirical studies. (Regis, 1990)

Eisen and Miller (1987) developed the models of altruism, empathy and prosocial behavior which has been another framework for analyzing pro-environmental behavior. Pro-social behavior is defined as voluntary intentional behavior that results in benefit for another. The motive is unspecified and may

be positive, negative or both. Altruism is a subject of prosocial behavior as quoted by Lehmann(1999) in his hypothesis that:

(i) People with a strong selfish and competitive orientation are less likely to act ecologically.
(ii) People who have satisfied their personal needs are more likely to act ecologically, because they have more resources to care about bigger, less personal social and pro-environmental issues.

Methodology and Design

This research is based on a qualitative research criteria because of the phenomena studied. The valuation and use of environmental awareness have no clear boundaries. The boundary between the phenomena and content is not easily identified (Yin, 1982). “Such a lack of explicit boundaries is one of the conditions that procludes the use of experimental or quasi-experimental research design (Yin & Gwaltney, 1982)

This study investigates the research questions related to the level of environmental knowledge and their attitudes towards environmental issues which are outlined below.

(i) What are the environmental knowledge that has been the priority in the process of learning environmental issues?
(ii) How do they evaluate the importance of these issues according to their understanding. Is there a correlation between the knowledge and the demographic characteristics of respondents?
(iii) How does the environmental knowledge influence their attitudes towards environmental issues?
(iv) How do trainee teachers play a role in promoting environmental awareness?

Limitations of the Study

The study was confined to one out of 27 teacher training colleges throughout the country. The study is also limited to the trainees in the pre-service course in Sixth semester pursuing their Malaysian Diploma in Education. These trainees were enrolled in Batu Lintang Teachers’ College in January 2001 and completed their training in December 2003. The findings are only relevant to that particular group of trainees. The findings may not reflect the actual level of knowledge and attitudes towards environmental issues due to various factors such as geographical background, ethnicity, exposure in environmental issues and the interest in environmental issues.

Demographic Characteristics of the Sample

A total of 100 respondents from Batu Lintang Teachers’ Training College took part in this study. All the respondents comprised of primary school trainee teachers. They were from four different types of course majors. Of the

respondents 75 (75%) were majoring in Chinese studies, 2 (2%) in Music, 6 (6%) in English studies and 17 (17%) in Mathematics.

Relationship between Knowledge and Attitude

Attitude was measured by combining 10 items since each item was measured on a five point Likert scale. The minimum score was 10 and the maximum score was 50. Hence the range was 40. The neutral point was 20. The same formula applies to items measured on knowledge. A mean score of 20 and above denoted the positive attitude of the respondents. As shown in Table 1, the mean for measuring attitude is 26.9 and for knowledge is 35.79. The mean is above the neutral point. Therefore we can conclude that there is a positive attitude and knowledge among the respondents on environmental issues. A Pearson correlation analysis was used. It shows there is a significant correlation between knowledge and attitude among the respondents (c=.554) and (p=0.000)

Table 1. Correlations between Attitude and Knowledge

	Attitude	**Knowledge**
N	97	96
Mean	26.9	35.79
Standard Deviation	4.2	5.07

These findings are important in answering the first hypothesis that there is a relationship between building environmental positive attitudes and the level of knowledge in environmental issues.

Demographic Characteristics with reference to Attitudes and Knowledge

Demographic characteristics with reference to attitude and knowledge is shown in Table 2 is an interesting subject to be explored in terms of gender. The male respondents shows poor attitude and knowledge with the highest percentage in the lowest category (29.4%) and (17.6%) respectively. At the same time female respondents, have the higher in attitude and knowledge, for the knowledge (71.8%) and attitude (45.6%). Thus the female respondents are moderate in terms knowledge and attitude.

In terms of ethnicity the Malays (66.7%), Ibans (50%) and the Chinese showed the highest positive attitude towards environmental issues. At the same time the Bidayuh (100%), others (100%) and the Melanau (50%) shows the lowest attitudes. As for the Orang Ulu (100%) and the Malays (33.3%) are

the leaders. However the sample for the Bidayuh, Orang Ulu and Malays are small and might not represent the overall findings.

Table 2. Relationship between Demographic Characteristics, Attitudes and Knowledge

	Attitude (%)			Knowledge (%)		
	Low	Medium	High	Low	Medium	High
Gender						
Male	29.4	35.3	35.3	17.6	70.6	11.8
Female	17.7	45.6	36.7	12.8	71.8	15.4
Ethnic group						
Iban	25.0	25.0	50.0	12.5	75.0	12.5
Chinese	15.6	48.1	36.4	11.8	73.7	14.5
Malay		33.3	66.7		66.7	33.3
Bidayuh	100				100	
Melanau	50.0	25.0	25.0	75.0	25.0	
Orang Ulu		100				100
Others	100				100	
Education						
S.P.M.	19.0	42.9	38.1	14.6	72.0	13.4
S.T.P.M	25.0	50.0	25.0	7.7	69.2	23.1
Home town						
Rural	10.5	31.6	57.9	5.6	66.7	27.8
Urban	18.2	51.5	30.3	12.1	69.7	18.2
City	25.6	44.2	30.2	18.6	74.4	7.0
Working Experience						
Yes	22.5	43.7	33.8	14.1	70.4	15.5
No	12.5	45.8	41.7	13.0	73.9	13.0
Parents' Occupation						
Unemployed	33.3	33.3	33.3	33.3	66.7	30.4
Farmers	4.5	40.9	54.5	4.3	65.2	17.4
Self-employed	21.7	60.9	17.4	17.4	65.2	5.9
Govt. servant	23.5	29.4	47.1	11.8	82.4	7.4
Private company	24.1	41.4	34.5	18.5	74.1	

One of the questions requires the respondents to answer on the importance on introducing environmental education among trainee teachers. The analysis was made among 6 different ethnic groups and the interesting remarks that shows positive attitude towards environmental issues are mentioned below.

"For the trainee teachers to instill the awareness to preserve the nature and transform those values to students"

Iban ethnic trainee teacher

"To instill the sense of responsibility and independent in facing the challenges in the education sector"

Malay ethnic trainee teacher

"To familiarise trainee teachers on the technique of integrating environmental knowledge with other subjects taught in schools"

Melanau ethnic trainee teacher

"The trainee teacher will able to transform the knowledge to students"

Orang ulu trainee teacher

"To create awareness on the importance of preserving the environment and to transform the knowledge to younger generations whom are future leaders"

Bidayuh trainee teacher

"*Trainee teachers are future teachers whom will be the agent in transforming knowledge to the society and the students"*

"Teachers are the role model to students whom will enable an effective knowledge transformation"

Chinese trainee teacher

The remarks by various ethnic groups of trainee teacher on the importance of environmental education among trainee teachers is a clear interpretation on the needs of building a positive attitude in introducing environmental education among trainee teachers.

The following question on attitude requires the respondents to state the needs for introducing environmental education in schools. All the respondents responded positively to the needs to introduce environmental education in school. Some of the reasons given are such as:

"Students are able to absorb the environmental knowledge faster and easily"

"Students always have the positive attitude to explore deeper on knowledge that has been instilled in them"

"If we can educate the students in early stage on the importance on environmental issues, the environmental degradation will be minimized since they knew the consequences"

Those were some of the opinions given by the respondents on the need to introduce environmental education in schools.

The Knowledge on Environmental Issues

This study shows that the understanding of environmental issues among the respondents in terms of their knowledge is very favourable. The first level of knowledge tested using a Likert scale on a quantitative method, reflects a positive approach in acquiring knowledge on environmental issues. The second level is the qualitative method to measure the short answers on environmental issues locally and globally. There is a standard pattern in the answers where the respondents have been exposed to issues related to the environment.

For example, the most endangered species in our country has been recorded as the Kenyalang bird (refer to Table 3). It is a sign that they must have acquired this knowledge in a same pattern. The most commercialized endangered animal species is quoted as the deer, which is the reflection of what they had read and observed in their daily life in the state of Sarawak. The highest percentage cited flash flood as the reason for the environmental disasters in our country due to human negligence, shows that they could analyze the answers based on national environmental disaster.

Table 3. The Endangered Animal Species in Malaysia

	Choice of answers	**Valid (%)**
1	Kenyalang bird	16.2
2	Orang Utan	13.1
3	Sea turtle	13.0

The Attitudes on Environmental Issues

The attitude shown by the respondents on environmental issues are very positive. The significant level of the knowledge and attitude shows that acquiring knowledge can lead to positive attitude towards the environment. The attitude measurement starts with Likert scale which was further strengthen by the short answers in structural form. The respondents are able to identify and analyze the cause and attitude of others in order to answer the questions. For example high demand from the public has been identified as the main reason for killing of the endangered animal (refer to the Table 4). The respondents are also able to analyze the importance of recycling programs. They are able to provide analytical answers such as to reduce waste disposal and also to minimize the usage of natural resources.

Table 4: Reasons for Purchasing and Consuming Protected Animals

	Choice of answers	Valid (%)
1	High Demand	25.0
2	Delicious	18.1
3	Enthusiasm	14.1

The demographic patterns of the respondents from rural areas showed a higher positive level of attitude towards environment compare to those whom are from urban areas and the city. The urban and city background respondents are more moderate in their attitudes towards the environment. The rural students are more positive towards the environment due to their background that are dependent on the environment for their daily life. Among the male and female respondent, the female respondents show a more positive attitude towards the environment compared to the male respondents.

Summary of the Study

Environmental education is a process of acquiring information and building positive attitudes in championing the environmental concerns. The understanding of environmental issues is very complex. The environment is part of our history, culture, the governing body of our country, and development. As a developing country our society are caught in the process of development as well as protecting the environment. A more balanced approach is needed to balance the development and at the same time to educate and instill the positive values among the society in protecting the environment. A sustainable development needs a systematic approach in designing the country's development so that the future generations will benefit from the development. Incorporating E. E. into the education system in our country and integrating the subject with other subjects taught in schools will help to produce an environmentally literate society. The knowledge acquired in schools will change the societies perceptions on the meaning of development and the type of development they prefer.

This study shows that E. E. is important in achieving a environmental literate society in future. The lack of knowledge in planning and implementing projects in our country cause more damage than the lack of understanding of environmental issues. Lack of environmental exposure among the industrialist and the irresponsible attitude among them are the major cause of environmental pollution in our country.

The ignorance of the rural community and the lack of environmental education among them needs to be addressed with the help of experts in this field to assist them in achieving a more environmental literate community. The governing agencies in environmental affairs need to be more pro-active in educating the students and the society. The Department of Environment and

other NGOs have to shoulder the responsibility in educating the public. This could be carried out with an understanding to implement their programs collectively.

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