

Environmental Conservation (biodiversity)

NATIONAL STRATEGIC SUPERIOR RESEARCH ARTICLE

Providing national strategic research results of high quality to solve national, regional, regional
government administration and community matters

THE EFFECTS OF OUTDOOR EDUCATION ON DEVELOPING AWARENESS OF
NATURAL ENVIRONMENT CONSERVATION

Research Chairmen:

Prof. Dr. H. Rusli Lutan

Anggota

Dr. Kardjono, M.Sc

Drs. Carsiwan, M.Pd

PHYSICAL EDUCATION STUDY PROGRAM/DEPARTMENT

PHYSICAL EDUCATION AND HEALTH DEPARTMENT

INDONESIAN UNIVERSITY OF EDUCATION

2009

ABSTRACT

The purpose of this research is to develop an educational model for the awareness of natural environment based on sustainable development through outdoor education.

The design of this research consists of experimental methods, with a 2 x 2 factorial design. Subjects are groups of male/female students from the Physical Education and Health Faculty-Indonesian University of Education, who are subjected to hiking in the outdoors, as offered by experiential learning. Data concerning the awareness of natural environment conservation which is the focus of this study, is obtained by 28 questions modified from The connectedness to nature scale: A measure of individual feeling in community with nature compiled by Mayer et al (2004). From the analysis data of Outdoor Education with Hiking learning experience through the experiential learning method on the increase of awareness of natural environment conservation in 16 sessions, it is found that Outdoor Education with Hiking learning experience put forth through the experiential learning method is less effective to develop awareness of natural environment conservation among students.

Key words : Outdoor Education, Experiential Learning, Hiking, Kesadaran.

A. Foreword

It is truly alarming if we consider the scientific facts as revealed by scientists on the effects of global warming. The very extreme prediction pictures the consequences of global warming to an increase of temperature of 2 Centigrades, eliminating millions of people. According to the data shown by the World Meteorology Organization (WMO), this temperature increase will cause “more frequent flood, severe drought, snowstorm and heat waves across all continents, including Asia” (Jakarta Post, 9 December 2009, p.1). Global warming affects the weather and alter climates, which in turn affects agriculture and fisheries, and causing other effects (Kompas, 7 December 2009, p.1). A study has already been conducted by Intergovernmental Panel on Climate Change (IPCC), revealing that “a 1 percent increase in world temperatures would cause harvest failure in developing countries” (Jakarta Post, 9 December 2009, p.1).

To overcome a critical problem of this kind on the macro level, the cooperation of the government is needed through the issue and implementation of public policies, supported by a strong political will such as reducing CO₂ emission. However, the global warming issue may be abstract to the man on the street, particularly the general public in Indonesia, as abstract as essentially reducing carbon dioxide emission, which the Indonesian government proclaim to reduce to 41 percent from the present 21 percent before the year 2020.

The problem that we are facing is this: why does the individual or the community seem to be in a state of stupor? Don't they realize that their lives are threatened by the consequences of damage to their environment because of the acts of their fellow people? The drive “to save the forests” which are destroyed at an average 1.1 million hectares per year in Indonesia, does not succeed to arouse the people's concern, even though laws and regulations are implemented. Therefore, what is the root of the matter?

If Al Gore describes the root of the matter as the dullness of the spiritual aspects of people in understanding the essence of human relations with the environment surrounding them, Goleman (2009) in his book, *Ecological Intelligence*, explains the keyword i.e. the necessity to cultivate “ecological intelligence” in its relation with the understanding of the advantage and potential of the threats that lie under all the products of civilization. Goleman explains further that “our brains have been finely tuned to be hyper vigilant at spotting dangers in a world we no longer inhabit, while the world we live today presents us with abundant dangers we do not see, hear, taste, or smell” (Goleman, 2009). It seems that individual skills to perceive the surrounding world have their limits or “imperceptible limits.” This refers that we have limits to sense something outside the reach of our perception, in particular those things we cannot directly perceive or are evolutionary such as the causes of cancer, the effects of which can only be felt after a period of many years. Goleman explains, “The ecological changes that signal impending danger are sub-threshold, too subtle to register in our sensory systems at all”. Because the surrounding world and our civilization have greatly changed and are even strange to a group of communities considered backward, the impending danger from such environments cannot be

detected through instinctive response only, particularly because the human brain is only capable “to spot danger within its sensory field” (Goleman, 2009). To prevail over this problem so that human beings are able to survive, Goleman offers a conception and that is that we must be able to perceive the threats standing there at the threshold or “threshold for perception.” In other words, “we must make the invisible visible” (Goleman, 2009). This can be achieved through developing our ecological intelligence.

The Dayak Ngaju tribe are very familiar with how to burn a felled tree to open a new field by calculating when the wood is to be burned by observing the wind’s direction. The practice of burning wood in such a manner is classified as ecological intelligence. However, ecological intelligence does not stop there, at the skill of the natives who are knowledgeable in observing their environment by arranging by category and following their regular patterns. The concept of ecological intelligence also means that we ourselves understand science such as among others chemistry, physics and ecology, the principles of which are implemented to grasp the significance of the dynamic system on several proportions from the molecular to global stage. Ecological intelligence enables us to understand a system in all its complexity, such as matters relative between nature and man-made world. The ecological intelligence term is more specifically referred by William Chang (Kompas 7 December 2009, p. 6), i.e. spelled out as “local intelligence with ecological perception.”

What is now required is not ecological intelligence on an individual basis, but it should develop into an intelligence with collective characteristics, which further becomes collective awareness, which leads to a collective ecology also, comprising (1) know your impact, (2) favor improvements, (3) share what you learn. (Goleman, 2009).

From the cognitive psychology perspective, awareness is related to a cognitive function, and from a neuro-science perspective, awareness is the inter-action and the integrated work of the brain (BBC Knowledge, December 2009). Therefore, the main concept which will be investigated in this research is awareness in its relation with our living environment. That awareness does not rise up by itself, it has to be cultivated or educated. That is the reason we need a living environment education. However the matter does not stop there. The central issue is whether the learning experience, including the method of conveying is effective to arouse awareness of living environment.

B. Research Methods

Research methods.

To reveal the influence of Outdoor Education with the Hiking learning experience through the experiential learning on the awareness of natural environment conservation, a method of experimental study is implemented.

Study Sample

Sample are freshman students of the Physical Education and Health Faculty Indonesian University of Education, totalling 40 male and female students divided into two groups i.e. the experimental group and the control group, each 20 students. To measure the scale of awareness of natural environment conservation, a great part of the questions are modifications from “The connectedness to nature scale: A measure of individual feeling in community with nature” compiled by Mayer, et al (2004).

Research Program

The broad outline in carrying out this research is divided in several stages such as stated in the Table hereunder.

The Broad Outline in Carrying Out This Research

Stage	Experimental Group	Control Group	Description
1.	Obtaining Initial Data	Obtaining Initial Data	First Test of Natural Environment
2.	Learning Hiking Experience	Without Hiking experience	16 sessions
3.	Obtaining final Data 1	Obtaining final Data 1	Second Test on Awareness of natural environment
4.	Obtaining final Data 2	Obtaining final Data 2	Third Test on Awareness of natural environment

The Hiking learning experience through the experiential learning is implemented to the experimental group by stages, i.e. from the safest and easiest type of Hiking, up to the moderately difficult and challenging ones. The Sample is encouraged to enjoy, study nature and contemplate it freely with his or her own thoughts and feelings.

Data Analysis

The sample data collected from the results of the initial Test before the experiment is carried out and the results of the Final Test, the Final Test 1 and Final Test 2 respectively, are analyzed by using the average similarity test of the statistic analysis technique between the results of both scores (gain score) of each experimental and control groups.

C. Research Result

Data of the analysis results on the effects of Outdoor Education with the Hiking learning experience through the experiential learning method on the awareness of natural environment conservation is as follows.

Results of the Gain Score Difference Test of the Experimental and Control Groups on Increasing Awareness of the Natural Environment Conservation

Test Period	Gain Score Rerata Experiment	Gain Score Rerata Control	t- value	Conclusion
Initial & Final 1	1.25	-7.5	0.003	Non Significant
Initial & Final 2	-11.8	-13.4	0.62	Non Significant

$t_{0.25} = 0.681$

D. Findings Discussions

The analysis results of the similarity in score rerata on the increase of natural environment awareness on the experiment group, does not show any positive difference compared to the control group. The empirical facts revealed from this research shows a unique influence from intact “experience” directly experienced by a person in regards to his psyche. The outdoors with its various novelties offer stimulation, which will only play an active role when an active process occurs to give meaning to said experience thru the process of reflection. This means that it is quite possible that the influence leaves a mark in each individual who experiences it. In this regard, the function of learning in the contexts of this outdoor education is to optimize the results of learning, because influence is not patterned by itself, in particular to the affective domain.

This research does not quite support the previous research, particularly in regards to the influence of outdoor education on personal development such as self-esteem, self-concept, self-efficacy, etcetera as stated by Neill (1997). It is quite possible that the experiential learning method research conducted by the writer, contain weaknesses in the implementation of the experiential learning method, which after restudy, does not function as should be, because there is an impression that the participants put more importance to the target i.e. as quickly as possible arrive at the point of destination. This refers to the reflective process which is not too in-depth, therefore in the next research, this process must be emphasized.

Another weakness is the implementation of the quantitative positive research paradigma. The framework of this research greatly stresses the assessment of behavior which is very measured, very sensitive not to be able to detect the changes in regards to awareness. Whereas based on the observation of the researcher during the experience in the field, the research subjects show that they are obviously impressed with the environment starting with their deference to the multi-colors of the environment, right through their personal statements to enthusiastically safe-guard the environment. While the male and female students of FPOK wish to repeat the experience in the future.

Based on said experience the research paradigm to reveal the influence of outdoor education is more appropriate if it uses a qualitative research or a naturalistic approach based on participatory observation. The paradigm of this research will be sharper to not only present the behavior of the research subject, but at the same time also provide its meaning.

Another weakness is the ability of the instrument to portrait the changes that occur. The instrument used is adoption and adaptation to the awareness of the environment and which was compiled by foreign specialists.

This weakness partly lies on the statement which contain different cultures and another statement leads the respondent to answer how it ought to be. Thus the internal validity is not quite fulfilled and ensure that the test used is truly able to measure psychological construct, i.e. awareness of the environment.

As a subject, there is a great possibility that FPOK students, although they do not participate in the experimental program, outdoor education, they as athletes in general are used to drastic experiences “outside the classroom.” This experience shows the necessity of greater attention to “developmentally appropriate practice” principles, i.e. the uniformity of the learning experience adjusted to the level of their maturity.

E. Conclusion and Suggestions

Outdoor Education with its Hiking learning experience conveyed through the experiential learning method is from the perspective of quantitative approach analysis less influential to augment an awareness of natural environment conservation among students.

Based on the results of this research, the researcher herewith offer suggestions with the hope that they can contribute and also be considered by education specialists as well as further researchers, i.e.:

1. In the framework of education in particular in developing the affective domain, it is reasonably fair that Outdoor education is made a part of the curriculum in all levels of education, because of its unique (moral) value, complete in its entire educational criteria.

2. Outdoor Education with Hiking learning experience through the experiential learning method, although its influence does not come automatically (dependent on the manner it is implemented) should be popularized in all of Indonesia, because aside from its benefits as relaxation and recreation media, it is also a vehicle to friendship with nature, it teaches to love nature and be active in the preservation thereof.

3. Based on the experience of the researcher, the Hiking participants concentrate more on reaching a goal. Therefore the meditation process in experiential learning which should be able to effect changes, is still very limited. In this regard, to maximize the results of this research,

emphasis is required for in-depth meditation processes, which will directly cultivate and develop spiritual dimensions as a part that has wholly become one with the education process.

REFERENCES

Alexandria Ham (Tt)

Al Gore. (1992) *Earth in The Balance. Ecology and The Human Spirit*. New York, Rodale.

Awareness & Attention. (2009). <http://www.afn.org/-gestalt/aa.htm>

Bucher, Charles A. (1979). *Foundations of Physical Education*, New York: The C.V. Mosby Company.

Calhoun, Cheshire., Solomon, Robert C. (1984). *What is an Emotion. Classic Readings in Philosophical Psychology*. New York: Oxford University Press.

Dewey, John. (Tt). *The Modern Father of Experiential Education*. [http:// www. wilderdom. com/experiential/JohnDeweyPhilosophyEducation.html](http://www.wilderdom.com/experiential/JohnDeweyPhilosophyEducation.html).

Flannery, Diana;dkk. (2003) *Outdoor School:Creating A Passion for The Environment*. California an Journal of Health Promotion.

George Mc Kee. (2009) *The Engine of Awareness : Autonomous Synchronous Representations*. <http://cogprints.org/731/0/ASR9.htm>

Goleman, Daniel. (1995). *Emotional Intelligence*. New York. Bantam Books.

-----, (2009) *Ecological Intelligence*, New York. Broadway Books.

Harianti, Diah. (2007). *Naskah Akademik Pendidikan Jasmani Olahraga dan Kesehatan*. Kepala Pusat Kurikulum Badan Penelitian dan Pengembangan Depdiknas. Jakarta.

Harsono. (1988). *Coaching dan Aspek-Aspek Psikologis dalam Coaching*. Jakarta: C.V. Tambak Kusuma.

Ivan Illich, *The Shadow Our Future Throws*. (Bill Moyers. (1996) *At Century's End, Great Minds Reflect on Our Times*. California, USA. ALTI Publishing.

Kebijakan Pendidikan Lingkungan Hidup.

Mayer, F. Stephan; Frantz, Cynthia McPherson. (2004). *The connectedness to nature scale: A measure of individuals' feeling in community with nature*. *Jurnal of Environmental Psychology* 24.

- Neill, James. (1997). The 10th National Outdoor Education Conference. Paper. Sydney, Australia. International Education (1999) Vol.3. No. 4. <http://www.wilderdom.com/jamesNeil.htm>.
- _____, (1999). Personal development outcomes of outdoor education programs. <http://www.wilderdom.com/abstracts/Neill1999PersonalDevelopmentOutcomesOutdoorEducationPrograms.htm>.
- _____, (2004 b). C:\Documents and Settings\Windowz XP\My Documents\What is Outdoor Education Definition (Definitions).htm
- _____, (2004 c). Enhancing Personal Effectiveness: Impacts of Outdoor Education Programs. C:\Documents and Settings\Windowz XP\My Documents\Enhancing Personal Effectiveness Impacts of Outdoor Education Programs - James Neill, PhD Thesis.htm.
- _____, (2005). "Garden of Eden" Theory. Nature Theory on the connection Between Natural Environments & Human Well-being. <http://www.wilderdom.com/theory/NatureTheory.html>.
- _____, (2006 b). Purposes, Goals & Aims of Outdoor Education. <http://www.Wilderdom.com/definitions/MethodPurpose.html>.
- _____, (2006 c). C:\Documents and Settings\Windowz XP\My Documents\What is Outdoor Education Definition (Definitions).htm.
- _____, (2006 d). C:\Documents and Settings\Windowz XP\My Documents\Philosophy of Outdoor Education.htm
- _____, (2007). History of Outdoor Education. <http://www.wilderdom.com/history.html>
- Nelson, Ethel. R. (1994). Eight Secrets of Health (Delapan Obat Alami). Bandung: Indonesia Publishing House.
- Newberg, Andrew dan Waldman, Mark Robert. (2009). How GOD Changes Your Brain. New York. Ballantine Books.
- Oleson, Eric. (2000). Hiking. <http://www.amazon.com/exce/obidos/redirect-home/hiking/> website.
- Pink, Daniel H. (2006). A Whole New Mind is "Audacious and Powerful" New York. Riverhead Books.
- Prairie Wetlands Learning Center. Environmental Education Strategy. <http://www.edb.utexas.edu/esclstudent/dhsiao/theeries.html#construct>

Robbins, Kelly. (2003) Environmental Awareness: Overcoming Ignorance and Apathy by Getting People 'Out Side'. Kelly.robbs@utah.edu

Takeshi Umehara. The Civilization of the Forest: Ancient Japan Shows Post Modernism The Way. (Bill Moyers. (1996) At Century's End, Great Minds Reflect on Our Times. California, USA. ALTI Publishing.

Taniguchi, Stacy T. (2004). Outdoor Education and Meaningful Learning. Ph.D. Dissertation. Brigham Young University.

Undang-undang Republik Indonesia Nomor 20 Tahun 2003.

Unesco. (1995), Netherlands Commission for Unesco, Netherlands, Tessel Offset.

Usman, Husaini. & Akbar, Setiady R.Purnomo. (2003). Pengantar Statistika. Jakarta: PT. Bumi Aksara.

WALHI (2005-2008) http://walhi-jogja.or.id/index.php?option=com_content&task=view&id=56&Itemid=221.mht

White, Ellen G. (2005). Education (Membina Pendidikan Sejati). Bandung: Indonesia Publishing House.

Wikipedia, the free encyclopedia. (2006).C:\Documents and Settings\Windowz XP\My Documents\Outdoor education - Wikipedia, the free encyclopedia.htm

-----, (2009). Environmental Education. http://en.wikipedia.org/wiki/Environmental_Education

Yumarna. (2003). Kompas, Masalah Filosofis Tujuan Pendidikan Nasional, C:\ Documents and Settings\Windowz XP\My Documents\pendidikan 1.htm.