

Enriching environmental education with an art education perspective:  
The personal aesthetics and art activities on learning environmental  
issues.

National Hsinchu Teachers College

Ding-Ming Wang (王鼎銘)

**Abstract**

The aim of this research is to serve as an exploratory study of the knowledge and attitude of art major students towards the environmental issues. It was hypothesized that college students major in art have a more positive attitude and behavior toward environmental issues than non-art major students. A survey of teachers college students reveals several significant findings regarding the students' knowledge and attitude toward environmental issues. This study recommended that art education can counterbalance some of the negative influences by providing positive experiences with nature. Positive experiences with nature are important to the aesthetic development. Art education should teach students about art in a way that promoted and understanding of the interdependence and interconnectedness of environment. Art education should be making a contribution to any approach to develop student awareness of the environmental problem and experimented with radically new ways of interpreting the natural world. Art education should aim to contribute to environmental improvement by teaching students that achieving harmony with nature became critical for survival. Based on these findings, it is hoped that some recommendation on the future art curriculum design can be made.

## 環境保護の議題と芸術教育の関係に於ける研究

国立新竹師範学院

王鼎銘

### 摘要

当研究は、個人における環境保護議題の認識および態度、関連する要因及び芸術教育カリキュラムとの関係について探求するものである。また環境保護の議題を芸術教育生活のカリキュラムに取り入れるフィジビリティについて研究するものである。

近年、環境保護の意識が高まるにつれ、学校のカリキュラムの中でも、環境保護議題に関するカリキュラムが増設されている。生活環境と芸術教育の関連性について、芸術教育に携わる学者らは長い間研究を続けてきた。芸術教育は、一貫して学生が生活環境を観察する能力を培うことに役立つと考えられてきた。芸術教育によって、学生は生活環境の秩序と美的感覚を認識することができ、それによって生活スタイルを改善する事ができると考えられる。芸術教育の主張として、芸術は個人の思考スタイルおよび価値判断方法を表現するとある。学生は住んでいる町の周りや生活環境を認識することによって、生活の価値体系を構築する。芸術学習を通じて学生は、新たな生活の世界を認識し、人間と大自然との関係を探求し、芸術を通して環境に対する関心を示すものである。

当研究は、これからの小学校に於ける芸術教育教師資質の環境保護議題に対する認識とその態度や関連する要因について、アンケート調査を行い分析調査を行った。

# 環境保護議題與藝術教育之關係研究

國立新竹師範學院

王鼎銘

## 論文摘要

本研究主要分析個人環境保護議題認知與態度，及相關因素與藝術教育課程關係之研究，並探討將環境保護議題納入藝術教育生活課程之可行性。

近年來環境保護意識高漲，學校課程也增加對環境保護議題的課程內容。生活環境與藝術教育的關係長久以來一直被藝術教育學者研究討論。藝術教育一直被認為具有培養學生觀察生活環境的能力，使學生認識生活環境秩序與美感，因而影響改變生活型態之功能。藝術教育主張藝術是表達個人思考模式與價值判斷方式。學生經由認識社區與生活環境建立生活價值體系。透過藝術學習過程能使學生重新認識生活的世界，探索人與大自然之關係並透過藝術形式表達對環境之關心。

本研究採問卷調查方式，針對國小未來藝術教育師資對環境保護議題認識與態度，及相關因數分析調查。

**Enriching environmental education with an art education perspective:  
The personal aesthetics and art activities on learning environmental issues.**

National Hsinchu Teachers College

Ding-Ming Wang

**Introduction**

During the recent year, as humans altered their environment, environmental protection has become one of society's major issues and challenges(Clacherty, 1993). It is critical that society are aware of and take responsibility for actions that affect the environment. Education were seen as a key factor of the environmental problem. However, most environmental education curricula focused on the recognition of a environmental issue. Hungerford and Volk(1990) have suggested that more than a recognition of the problem is need for knowledge to be an effective variable in changing behavior. Knowledge must be an in-depth understanding of the issues. Borden(1985) stated that "education should aim to increase not only environmental knowledge and awareness but also ecological systems thinking, ecological conscience, and other aspects of proof-life value systems, and the motivation and ability to take action in accord with all this"(p. 3).

Nature nurtures one's sense of wonder and leads to an appreciation of beauty. This sense of wonder is important for perspective on the relationship to nature and for quality of life. There is a fundamental need to provide students opportunity to experience a sense of connectedness to the natural world(Leeming, et, al. 1993). Citizens who lack of positive experiences with nature can result in a profound indifference toward environmental issues. Miles(1987) suggested that experiences with nature environment foster a

sense of wholeness and understanding of ourselves as integrated physical and mental beings. Positive experiences with nature are important to the aesthetic development. Opportunities for this can be provided through art education at school curriculum. There is a great evidence clearly showing that art education can counterbalance some of the negative influences by providing positive experiences with nature. The most important concept students can learn about the environment is that it is full of beauty and wonder. It is a sense of wonder which will prove to be one of the strongest and most enduring incentives for saving the earth.

McFee(1961) identifies art as a means through which children and adults communicate their values and beliefs to on another. The earliest artists appropriated images from the natural world to express its regenerative powers. Artworks were not conceived as isolated objects but part of rituals that spiritually mediated a balance between human and nature. Art education is a process through which students discover and recognize that achieving harmony with nature became critical for survival. . According to Amdur(1993), art education practice must be congruent with preparing citizens to participate in a democratic society.

Traditionally, educational theories stated that knowledge increases awareness, and with increasing knowledge and awareness one would become motivated to act an environmental responsible manner. Hines(1986) identified three categories of variable: cognitive(knowledge of the issue), psycho-social(including attitudes, personal responsibility, and locus of control), and situation. He suggested various classroom approaches in achieving a desired environmentally responsible behavior. Ramsey(1993) identified specific variables which had been empirically related to responsible environmental behavior. The identified variables include knowledge of

environmental issues, beliefs concerning environmental issues, values related to the environment, individual and group locus of control, environmental sensitivity, knowledge of and skills in environmental action strategies, and knowledge of ecological concepts. Prior research offers some insight into the instructional effects of instruction on responsible environmental behavior. Jaus(1978) showed positive effects of environmental education on teachers' attitudes toward presenting environmental education in their classroom.

Knowledge and attitudes toward environmental issues have long been recognized as important predictors of differences in learning and behavior. Existing empirical studies indicated that responsible environmental behavior is not being met in schools. There is a need to determine which educational variables promote environmentally responsible behavior. It is important for students to develop a sensitivity to the beauty of nature and an attitude of varying about what happens to our natural environment. However, little attempt has been made to establish the conception of attitude towards environmental issues among college student population.

### **Research Objectives**

The aim of this research is to serve as an exploratory study of the knowledge and attitude of art major students towards the environmental issues. Based on these finding, it is hoped that some recommendation on the future art curriculum design can be made. The specific research objective of this study have been formulated as follows:

(a)to investigate the knowledge of Teachers College students towards environmental issues.

(b)to investigate the attitude of Teachers College students towards environmental issues.

(c)to examine whether there is any significant difference in knowledge and attitude toward environmental issues between art major and non-art major students.

### **Local and global Environmental issues**

Caldwell (1970) defined social a issue as “a question or problem that has aroused concern within society and that requires a social or public decision for its resolution. Such issues are social because they require collective action and cannot be solved solely by individual choice” (p. 24). Technologically advanced societies deal with many social issues with environmental dimensions. These issues arise when there are controversies about the problems and their solutions An environmental issue is “a socially or ecologically significant problem, somehow related to the environment, about which there are differing human beliefs and values (Ramsey, Hungerford, and Volk, 1989, p. 26). The rapidly expanding investigation of environmental issues during recent years resulted from a discovery of new environmental threats and problems. The new environmental threats have been discovered almost daily.

The existing environmental issues can be broken into two general categories, global issues and local or regional issues. The issues pressed by popular concerns were often local in the region, dealing with problems such as urban air pollution, reduced water quality in rivers, and the dangers of pesticides. These environmental problems seemed relatively straightforward and easy to understand. However, with technological developments and

numerous research studies, more information has been revealed about the environmental problems (Moore, 1986).

In the 1980's, there was a remarkable increase of interest in environmental issues, particularly those involving the atmospheric environment. Those issues were global or at least hemispheric in magnitude and large-scale compared to the local or regional environmental problems of earlier years. Kemp (1990) noted that the new issues, such as the global warming, green house effect, acid rain, and ozone depletion all included climatological elements. The environmental issues in the 1980's could be characterized as global environmental issues. Fletcher (1990) pointed out that the global environment issues have been around for the past decades since the Stockholm Conference on the Human Environment in 1972. He indicated that "One major outcome of that conference was the establishment of the United Nations Environment Programme (UNEP). However, in the United States and elsewhere, environmental issues have continued to be dealt with primarily in a national context." (p. 7). According to Kemp (1990), "the cumulative effects of a number of high-level national and international conferences, culminating in the study of critical environmental problems (SCEP), produced a growing awareness of global environmental issues" (p. 7). Fletcher (1990) indicated that despite continuing debate over their impacts, these atmospheric changes have been the linchpin in mobilizing public concern over global environmental conditions in general and in stimulating interest in specific issues, such as tropical deforestation and biological diversity" (p. 7).

However, interactions between humans and the environment are unpredictable and complex. Certain elements of the environment problem remain untamed, uncontrollable, and imperfectly understood. The



Conservation Foundation report (1987) stated that "Society must find the wherewithal to understand and protect itself simultaneously from all serious and potentially serious dangers, and to do so even when it is impossible to achieve a consensus for action" (p. 258).

The finding suggested that public understanding of environmental risk must be developed through other channels. A report from the Conservation Foundation (1984) also suggested that "A society confronted with an assortment of environmental issues needs to take stock, to sort out and assess those issues. It needs an overall sense of what must be done and what priorities should be set" (p. 28). Blum (1980), in the study of environmental problems, argued that "Priority should be given to those environmental issues, which are deemed to be the most serious and urgent" (p. 116).

#### **Environmental behavior variables**

Responsible environmental behavior has been identified as the ultimate goal of environmental education (Ramsey, 1993). Studying environmentally responsible behavior, Boerschig and Young (1993) identified eight environmental behavior variables as follow: knowledge of the issue, knowledge of action strategies, knowledge of action skills, attitudes, locus of control, personal responsibility, sensitivity, and social norms. Those variables can be categorized into three categories of variables: cognitive, psycho-social and situation. The attitudes and value of students towards environmental protection were investigated.

According to Borden (1985), environmentally corrective behaviors are linked to sociological factors as well as certain psychological aspects of personality. He indicated that environmental issues have become important attitudinal dimensions of environmental concern as well as potential

determinants of environmental corrective behaviors. Subsequent research on the environmental behavior relationship shows that a substantial knowledge-behavior correlation can obtain when an attitude measure of established quality is employed in conjunction with knowledge measures (Heimlich & Harako, 1994). Knowledge of environmental issues refers to students' understanding and perspective on specific environmental issues. Values refers to the relative worth an individual places on issues related to the environment. Values can influence how an individual feels and behaves with respect to these issues (Ramsey, 1993).

Considered collectively, these studies indicate that issues investigation significantly enhanced students' percent of their knowledge and attitudes towards the environmental issues. Methodologies focusing on issue instruction offer potential utility for training future citizens to deal with the environmental problems.

### **Art education and environmental issues**

Education involves exploring the subjective and aesthetic implications of ecology. It requires relating artistic and natural forms and examining the historical and psychological roots of our attitudes toward humans and nature. Henry (1993) indicated an issue-centered approach to the introduction of aesthetics into the curriculum. According to Henry, an issue-centered approach "begins with the students' observations and thoughts and can include the introduction of related information" (p. 20).

It is essential for creating an ecological society rest to a great extent on our ability to change the way we educate our children. A closer look at the literature revealed that students must first come to know and love the natural world before they can become concerned with its care. Visual imagery has

unique powers to motivate, inform and facilitate long term memorization. Artworks usually are vividly expressive products of their original social contexts, they can be used to bring students to empathic connection with nature. Amdur(1993) suggested that organizing the total curriculum in as interdisciplinary a fashion as possible and making environmental issues and concerns pervasive throughout the educational curriculum.

A review of literature indicated that art education like other school curriculum could contribute to the development of attitudes, values and behaviors toward the natural environment(Henry, 1993). Art education could provide opportunities in awakening students to their environment. Students learn values and ethics by watching the significant surrounding environment and realize that they are a part of the natural world. The artworks are a channel to understanding and appreciating the nature. Feelings are more important than facts when it comes to introducing student to the world of nature. In this respect, it is essential to notice that artistic activities serve to integrate the experiences students have with nature.

Nature-related art activities tend to foster intuitive creative thinking and can help student appreciate and relate to nature in a very personal way. Painting with tree can lead student to a better understanding of the quality of leaves, while creating a collage of seeds and nuts can help them appreciate the diversity of plants. Though exposure to nature in art, students become aware of nature as a source of inspiration for aesthetic development. Though the years, students can look to nature as an artistic and spiritual resource, and not be limited to knowing the natural world in terms of a recreational or economic resource to be used. The arts are a basic and central medium of human communication and understanding. Henry(1993) has commented that the arts are key to building the metaphorical ridge that link us to our

own creative powers. The artist explore his environment in search of the necessary material for his new work. Some artist work in collaboration with the Earth itself to crate their work.

Environmental art emerged during the 1960s. It addressed the notion of art as a static , isolated object to be exhibited in an enclosed gallery space. Artist sought to break out of the confinement and isolation of their studios(Matilsky, 1994). She stated that "environmental art is part of a long tradition whereby artist creatively respond to extreme environmental changes by introducing new art forms"(p. 7). Artists explored the seemingly infinite number of ways that nature could be interpreted. The artists experimented with radically new ways of interpreting the natural world. Some artists , throughout ecological art, proposed solutions to environmental problems. Artists also used performance to address specific environmental problems. While all forms of environmental art help us to understand and renew our vital connection to the earth, ecological art offers creative solutions to environmental problems. Ecological art does not isolate and interpret aspects of nature but integrated them into a total new work of relationships. This approach to art and nature is based n environmental ethics. Art is a way to foster a harmonious relationship between people and nature.

### **Methodology**

The research questions were investigated by means of a questionnaire. A questionnaire was designed and devised based on those used in previous research(Peterson, 1982; Ramsey, 1993). data were collected on the following dependent variables:(a) knowledge of global issues, (b) knowledge of local

issues, (c) attitudes towards environmental protection, and (d) values toward environmental protection.

The questionnaire consisted two parts. The first part of the questionnaire collected information on students' knowledge of global and local environmental issues. Knowledge of environmental issues refers to the understanding of global and local environmental issues. The twelve Likert-scale items were given values from one to five with one representing unfamiliar with the issue and five representing the most familiar with the environmental issues.

The second part of the questionnaire collected information on student' attitudes and values towards environmental protection. Items from several environmental-related attitude scales were arranged for scoring on a five point Likert scale, ranging from 'agree strongly, though 'agree' , 'not certain' and 'disagree', to 'disagree strongly', together with questions concerned with categories variables

The questionnaire was administered on October 1994. It was completed by 150 undergraduate students from Hsinchu Teachers College with 96 students from the Department of Arts and Crafts. Demographic information appear in Table 1. The data were collapsed into two groups, art-major and non-art-major, and were analyzed by means of the SPSSX statistical package, using the correlation and T-test routines. Mean scale scores have been presented for art major and non-art major students separately.

Group	Male	Female	Total
Art	15	81	96
Non-Art	12	42	54
Total	27	123	150

### Finding

Overall mean scores for knowledge variables and behavior variables response were compiled. The mean and standard deviation towards the knowledge and behavior questions is shown in Table 2.

Table 2 The summary of mean and standard deviation towards the knowledge and behavior questions

Variables / Students	Art	Non-Art	Male	Female
Knowledge	4.04 (.55)	3.62 (.67)	4.00 (.71)	3.87(.60)
Behavior	3.83 (.42)	3.72 (.43)	3.76(.46)	3.80(.42)

Table 3 summarizes the variables mean and standard deviation of the questionnaire responses by group and sex.

Table 3 the summary of mean and standard deviation towards the knowledge and behavior variables by major and sex group

Variables / Students	Art	Non-Art	Male	Female
Knowledge(global issues)	3.50 (.85)	3.24 (.93)	3.69 (.93)	3.34(.86)
Knowledge(local issues)	4.31 (.55)	3.84 (.70)	4.18(.74)	4.14(.63)
Behavior(Attitude)	4.03 (.50)	3.89 (.56)	3.86(.54)	4.00(.43)
Behavior(Value)	3.64 (.46)	3.55 (.43)	3.64(.54)	3.60(.43)

Many significant differences were noted. As observed, all students had a positive attitude towards environment protection. This is reflected in the fact that the mean score of each variable was found to be greater than average. The results concluded that students in teachers college realized the significance of environmental problem . Analysis of the data collected for

knowledge of environmental issue and environmental behavior indicated that significant differences existed between the art-major and non-art-major group. A comparison of the means for two groups reveals that art-major students had a relatively higher attitudinal concern towards the environmental issues.

The answers of the students were analyzed by using the Persons' correlation procedure. A Pearson's correlation analysis between these variables was performed. The correlation coefficient between knowledge and behavior cluster is 0.2713\*\* . The correlation coefficient of global issues and local issues is 0.4747\*\*. The correlation coefficient of attitude and value cluster is .5314\*\*. This seems to indicate that the high correlate between the knowledge measures and behavioral measures. Attitude toward environmental issues was significantly related to value. Results of the analysis among four cluster are presented in Table 4. It indicates a strong relationship between environmental knowledge and behavior variables.

Table 4 A summary of the Pearson's correlation analysis between four variables

Variables/ Students	Global issues	Local issues	Attitude	Value
Knowledge(global issues)	1.0000	.4767**	.0709	.2372*
Knowledge(local issues)	.4767**	1.0000	.1717	.3212**
Behavior(Attitude)	.0709	.1717	1.0000	.5802**
Behavior(Value)	.2372*	.3212**	.5802**	1.0000

The relevant correlation coefficient between knowledge and behavior variables among art-major and non-art-major were showed in Table 5 and Table 6. Pearson correlation coefficients were calculated to determine the reliability of the four variables. The correlation patens between the

knowledge scores and behavior scores is consistent with the findings of a number of earlier studies. Attitude toward environmental issues was significantly related to value judgment .

Table 5 A summary of the Pearson's correlation analysis from art-major students

Variables	Global issues	Local issues	Attitude	Value
Knowledge(global issues)	1.0000	.4195**	.0873	.1132
Knowledge(local issues)	.4195**	1.0000	.3034**	.2840*
Behavior(Attitude)	.0873	.3034**	1.0000	.6184**
Behavior(Value)	.1132	.2840*	.6184**	1.0000

Table 6 A summary of the Pearson's correlation analysis from non-art-major students

Variables	Global issues	Local issues	Attitude	Value
Knowledge(global issues)	1.0000	.5044**	-.0010	.4035*
Knowledge(local issues)	.4767**	1.0000	-.0733	.3007
Behavior(Attitude)	-.0010	-.0733	1.0000	.4989**
Behavior(Value)	.4035*	.3007	.4989**	1.0000

### Conclusion

The ultimate aim of environmental education is to enable people to understand the complexities of the environment and the need for nations to adopt their activities and pursue their development in ways which are harmonious with the environment. Research indicated the interdisciplinary nature of environmental education . Environmental concerns were no longer seen solely as an integral aspect of science investigation. The concerns were extended to the human and social areas of inquiry. This meant that



environmental considerations were filtering through to social studies and other areas. Environmental education should be interdisciplinary and should be taught at all levels of education.

There are some implications for curriculum design and classroom practice from this study. First, it strengthens the claim for art to play role across curricula, particularly in environmental education. It is important to demonstrate to students that all phenomena in our environment have aesthetic quality. The teachers' aesthetic interest in and enjoyment of the natural world are critical to the success of an environmental education, for it is the teachers' own sense of wonder which will ignite and sustain the students' love of nature. Education can not change students' environmental attitudes, values, and behaviors by knowledge approaches. The current environmental crisis can be remedied through radical change in the way that future citizens think about and interact with environment. A holistic world view is required for art educators to include a nature perspective.

Second, the results of this study indicate that the knowledge of environmental issues and the attitude toward environmental protection should be considered when designing art curriculum. Art education are an essential connection between humans and nature. Art education should give proper attention to the fact that education is essential to the solution of environmental problems. Most current art education practice is placed within art studios which physically and conceptually limited their creative possibilities.

Art education have opportunities to create learning environments that are sensitive to practices that promote the appreciation of the nature and the sustainability of the environment. Art curriculum should direct students of art to questions concerning the nature and the sustainability of life on Earth.

It is important to have curricula sensitive to the concept of environment, how the surroundings influence viewing and understanding art and ecological aesthetic.

The goal of art curriculum should include teaching students about art in a way that promotes an understanding of the interdependence and interconnectedness of the nature. Art education can play in awakening students to recognize the environment surrounding them. Art education should be part of the creation and construction of environmentally responsible behavior and should significantly contribute to how people live by influencing their perceptions and actions.

#### Reference

- Amdur, D. (1993). Arts and cultural context: A curriculum integrating Discipline-Based Art Education with other humanities subjects at the secondary level. Art Education, 46(3), 12-19.
- Blum, A. (1980) Decision making and environment education. In Bakshi, T. S. & Z. Naveh, (Eds.). Environmental Education: Principles, methods and applications. New York: Plenum.
- Borden, R. J. (1985). Psychology and ecology: beliefs in technology and the diffusion of ecological responsibility. Journal of Environmental Education, 16(2), 14-18.
- Borden, R. J. (1985). Technology, education, and the human ecological perspective. Journal of Environmental Education, 16(3), 1-5.
- Brandy, D. & E. Hoffman. (1993). toward an art education of place. Studies in Art Education, 35(1), 22-33.
- Caldwell, L. K. (1971). Environment: A challenge to modern society. Garden City, NY: Doubleday & Company.
- Clacherty, A. J. (1993). Environmental literacy and the technicist worldview: Towards a new conceptualisation. Environmental Education and Information, 12(2), 107-115.

- Fletcher, S. R. The environment: Moving up on the international agenda. EPA Journal. 16(4), 7-11.
- Hellwege, P.(1993). Aesthetic dialogue:Art and interdesiplinary curriculum. Art Education, 46(5), 25-43.
- Henry, (1993). Philosophical Inquiry:A practical approach to aesthetics. Art Education, 46(3), 20-24.
- Hines, J., H. Hungerford, and A. Tomera. (1987). Analysis an synthesis of research on environmental behavior:A meta-analysis. Journal of Environmental Education. 18(2), 1-8.
- Hines, L. G. (1973). Environmental issues. New York: W.W. Norton.
- Jaus, H. H. (1978). The effect of enviornmental education instruction on children's attitudes toward teachin genvironmental education. Science Education, 62, 79-84.
- Kemp, D. D. (1990). Global environmental issues: A climatological approach. New York:Routledge.
- Matilsky, B. C. (1992). Fragile ecologies:Contemporary artist' interpretations and solutions. New York:Rizzoli.
- Moore, J. W. (1986). 2nd. The Changing environment. New York: Springer-Verlag.
- Ramsey, J. M., H. R. Hungerford, and T. Volk, (1989). A technique for analyzing environmental issues. Journal of Environmental Education, 16(3), 1-5.
- The Conservation Foundation. (1984). State of the Environment:An assessment at mid-decade. Washington, DC:Author.
- The Conservation Foundation. (1987). State of the Environment:A view toward the nineties. Washington, DC:Author.

