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A Study of the Influence of Campus Ecological Environment Integrated Art Education on Learning Attitudes and Effectiveness

Shenghua DUAN¹, Ruoyi ZHAO²

Abstract

Natural ecology is the basis of social development. The destruction of natural ecological environment would limit the development of society. Environmental issues have become the commonly concerned problems internationally and globally. Promoting the public knowledge and awareness of environmental problems as well as understanding of the correlations among living environment, resources, and humans through education would absolutely be urgent for educators. Campus environment is the best place for students' ecological education and learning; therefore, a campus with good ecological environment would to-some-degree assist in the overall campus ecology. To maintain the overall balance between campus ecological environment and biological conservation, build natural landscape, and create aquatic and terrestrial habitats, traditional ecological environment engineering should be regulated to suit the sustainable development of ecological campus environment with biological conservation and ecological restoration environment. With college students in Guangxi as the research objects, total 288 students from two classes each in universities, as the experimental research objects, are preceded the 16-week (3 hours per week for total 48 hours) experimental teaching research. The research results conclude that 1.campus ecological environment integrated art education would affect learning motivation, 2.campus ecological environment integrated art education would affect learning effectiveness, 3.learning motivation presents significantly positive effects on learning effect in learning effectiveness, and 4.learning motivation shows remarkably positive effects on learning gain in learning effectiveness. According to the results to propose suggestions, it is expected to establish students' identification and the successive belongingness through environmental integrated art education to assist students in overcoming the personality development stage for the positive psychological development.

Keywords: ecological environment, art education, learning attitudes, learning effectiveness, social development, social problem.

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Introduction

When human life gets civilized, the enhanced material life increases the environmental problems of random toxic material discard, deforestation, and air, soil, and air pollution. Problems of animal and plant extinction, resource consumption, and ecological unbalance resulting in huge environmental crises have induced serious concerns in the world. Natural ecology is the basis of social development. The destruction of natural ecological environment would limit the development of society. Environmental issues have become the commonly concerned problems internationally and globally. Promoting the public knowledge and awareness of environmental problems and understanding of the correlations among living environment, resources, and humans through education becomes absolutely urgent for educators. With correct cognition and value of ecological environment, the public could become the practitioners to maintain the balance of ecology and the quality of environment to achieve the sustainable utilization of resources and leave safe and healthy living environment for next generations. The correspondence to environmental issues in the history of art started in the development of art schools, e.g. environmental art, earth art, conceptual art, and pop art, after 1960s. Artists started to create works related to living environment and pursue the discussion different from past concepts and spiritual phenomena. The trend of art education changed from early creative art education in children centers to discipline-based art education and society, culture, and life centered art education theories (such as social-oriented art education, visual culture art education, and integrated art education) to the mutually correlated, socially responsible, and ecologically concerned aesthetic, which paid attention to more integrated value system composed of thinking and action under the control of contemporary ethics of care. It aimed to enhance learners' holistic development in order to cultivate art and humanity.

Campus environment is the best place for students' ecological education and learning that a campus with good ecological environment would to some degree assist in the entire campus ecology. In order to maintain the overall balance between campus ecological environment and biological conservation, build natural landscape, and create aquatic and terrestrial habitats, traditional ecological environment engineering requires regulation to achieve the sustainable development of campus ecological environment with biological conservation and ecological restoration environment. A campus, with so rich ecological environment, intangibly cultivates certain aesthetic and quality; it is regarded as the meaning and value of "environmental education". In other words, connecting art and authentic daily life and applying artistic creation and innovation to approach social problems could better attract students' attention. In this case, art would be able to effectively change the society. This study therefore intends to discuss the effect of campus ecological environment integrated art education on learning attitudes and effectiveness, expecting to establish students' identification and the

successive belongingness through environmental integrated art education so as to assist students in overcoming the personality development stage for the positive psychological development.

Literature review

Li *et al.* (2017) proposed the direct and close correlation between ecological art education and ecological problems that ecological art education presented the function of ecological conservation, while it was not necessarily with other environmental art. Ecological art education, as the integration of art education and environmental education, was the tactic to develop awareness and participate in environmental concepts and issues. Zeki, Chen, & Romaya (2018) stated that the existence of ecological art education partially responded to the development of environmental art in 1960s, when artists started to create works related to ecological environment in order to show the concern about the environment. Cardaor & Pratt (2018) defined ecological art as “presenting the interaction among creatures and between creatures and environment with art”. Hammond *et al.* (2019) also defined ecological art as “the art presenting the relations among creatures or between creatures and environment”. For more precise definition, “creature” was further replaced by “life” so that the definition of “the art for the relations among life or between life and environment” became more definite; because “people” were a part of ecology and could influence the development.

Horsman (2018) indicated that ecological environment integrated art education provided a dynamic method to enhance the power and correlation of environmental education, as an alternative to enhance students’ ecological literacy and learning attitudes. Goto, Shigemoto, & Ishida (2019) revealed that “ecological literacy and attitudes” should be connected to broad topics, e.g. art, to gradually deliver to students. Art education, as the value based emotional learning with subjective tendency, would change students’ learning attitudes towards the concern about ecology as well as change the environmental behaviors. Aktar *et al.* (2019) defined the objective of ecological environment integrated art education as to have students understand the interaction between environment and humanities as well as the correlation between art and living environment. Environmental art education integrated the concepts of humanities, art, and environment, i.e. interdisciplinary courses of humanity, art, and environmental education. Ecological art education, as the integration of art education and environmental education, was the tactic to develop awareness and participate in environmental concepts and issues. In comparison with environmental art education, ecological art education focused more on “realistic considerations”, “ecological conservation”, “ecological literacy”, “special space”, “people’s participation”, and “social movement”. Elliot (2018) mentioned that ecological environment integrated art education guided students to precede ecological thinking with art where art became a movement and

education to awake people's learning attitudes and respect of natural environment and maintain ecological balance. Bharanitharan *et al.* (2018) stressed on the importance to create courses matching local contexts based on each community's texture. They further emphasized that teachers should cultivate learners' ideology of environmental comprehension, especially students' interpretation and value of the environment. An experienced, interactive, creative, and imaginary method was the best approach for learning ecological art education, as it would develop learners' perception of empowerment and interconnectivity and improve students' learning attitudes. Accordingly, the following hypothesis is proposed in this study.

H1: Campus ecological environment integrated art education would affect learning motivation.

Rogers, Edwards, & Perera (2018) found out two types of ecological artists internationally. One concerned the actual effect of works, including positive functions of influence, reminding, and even change; the other referred to a creator's performance on ecological art playing the role of clue provider for aesthetic stimulation and inspiration. Spieldenner *et al.* (2018) explained that they presented the good of natural ecology on the public and reminded the public that the conservation of natural creatures or natural environment would result in better quality of life for humans. Such a type stressed on developing reflection and thinking of ecological conservation from the perception of form aesthetics. Orlandi *et al.* (2019) mentioned the annual increase of art creations related to environmental concern in ecological environment integrated art education. Ecological environment integrated art education did not simply teach students about art works about environmental issues; more importantly, it provided an aesthetic frame for students in the process to enhance students' learning effectiveness. Baer *et al.* (2018) found out the direct causal relationship between increasing environmental decay and humans' neglect of environmental issues. They therefore appealed to art educators for establishing a new relationship among "art, community, and environment" with students. For this reason, they focused on ecological theories and community based art education and definitely defined that ecological art education aimed to enhance students' mutual dependence and mutual connection with all affairs, through art, so as to enhance students' learning effectiveness. Litchfield *et al.* (2018) proposed ecological environment integrated art education to cultivate learners' school and community environmental literacy. They mentioned that ecological art education, as the integration of environmental education and art education, aimed to enhance the ecological literacy of teachers and students so as to promote students' learning effectiveness. Eva *et al.* (2019) pointed out the existence of ecological environment integrated art education for several decades; nevertheless, not until past years was it introduced into course teaching to inspire art discussion and art scientific and ecological ideas used by teachers and students. Moreover, ecological environment

integrated art education innovatively integrated “art education and environmental research, ecology, art education” to enhance the power in each field and further support the common goal. It explained that students better comprehended the surrounding world could enhance the learning effectiveness. As a result, the following hypothesis is proposed in this study.

H2: Campus ecological environment integrated art education would affect learning effectiveness.

Schuh *et al.* (2018) discussed senior high school students’ English learning motivation and discovered that students’ English learning motivation did not come from the preference, but was for certain practical goals, such as entering good universities. The research indicated that students with more positive learning motivation presented better performance on English learning, were gladder to learn, and would continuously learn English in the future. Apparently, learning motivation could promote learning effectiveness. Pandey, Gupta, & Gupta (2019) found out the positive effect of students’ learning motivation on learning effectiveness. Battistelli *et al.* (2019) mentioned that students with high learning motivation presented more definite goals and strong desire to learn, showed higher expectation on the outcome, and revealed better self-efficacy; therefore, students with high learning motivation appeared better learning effectiveness. Michialak, Kiffin-Peterson, & Ashkanashy (2018) discovered that college students’ English learning motivation would be affected by course contents and instructors; in other words, students’ extrinsic motivation was generally higher than the intrinsic motivation; besides, students with stronger intrinsic motivation presented higher willingness to learn and learning effectiveness. Felix *et al.* (2018) proposed that enhancing students’ learning motivation could enhance students’ learning effectiveness. Tarman (2018) stated that students with interests would understand and participate in learning activity with positive and affirmative learning attitudes. Students’ learning motivation should be considered in the teaching design; well applying beneficial factors in students’ learning motivation to teaching would promote learning motivation and learning effectiveness. Consequently, the following hypotheses are proposed in this study.

H3: Learning motivation presents significantly positive effects on learning effect in learning effectiveness.

H4: Learning motivation shows remarkably positive effects on learning gain in learning effectiveness.

Methodology

Measurement of research variable

Learning motivation. According to the research of Zhang, Cheung, & Law (2018), students' learning motivation is divided into two dimensions in this study.

- Intrapersonal orientation: including favoring challenging courses, regarding learning as interest and hobby, considering learning being able to broaden the horizons, being active to learn new courses, and regarding learning being able to develop self-potential and realize the ideal.
- Interpersonal orientation: covering learning to receive others' affirmation, acquire better performance, pass examinations or evaluation, show off to others, compete with classmates, be appraised and noticed by the elderly or people of the opposite sex, prevent from being punished and scolded, avoid the shame of failure, and enter an ideal school.

Learning effectiveness. Referring to Qin *et al.* (2018), learning effectiveness contains two dimensions in this study.

- Learning effect, including test performance, time for completing schedule, and term performance.
- Learning gain, covering learning satisfaction, achievement, and preference.

Research object and sampling data

Taking college students in Guangxi as the research objects, total 288 students from two classes each of universities are preceded the 16-week (3 hours per week for total 48 hours) experimental teaching research. The retrieved questionnaire data are analyzed with SPSS, and factor analysis, reliability analysis, regression analysis, and analysis of variance are applied to test the hypotheses.

Analysis method

Analysis of variance is used for discussing the effect of campus ecological environment integrated art education on learning motivation and learning effectiveness, and regression analysis is further applied to understand the relations between learning motivation and learning effectiveness.

Results

Reliability and validity analysis

With factor analysis, learning motivation is extracted two factors of “intra-personal orientation” (eigenvalue=2.836, $\alpha=0.87$) and “interpersonal orientation” (eigenvalue=2.451, $\alpha=0.85$). The covariance cumulated achieves 72.638%.

With factor analysis, learning effectiveness is extracted two factors of “learning effect” (eigenvalue=1.942, $\alpha=0.83$) and “learning gain” (eigenvalue=2.752, $\alpha=0.86$). The covariance cumulated reaches 78.691%.

Effects of campus ecological environment integrated art education on learning motivation and learning effectiveness

Variance analysis of campus ecological environment integrated art education on learning motivation: Analysis of variance is applied in this study to discuss the effect of campus ecological environment integrated art education on learning motivation. From Table 1, different teaching methods show significant effects on intrapersonal orientation in learning motivation; campus ecological environment integrated art education (4.32) reveals higher effects on intrapersonal orientation than general teaching (3.77). Different teaching methods present remarkable effects on interpersonal orientation in learning motivation; campus ecological environment integrated art education (4.26) appears higher effects on interpersonal orientation than general teaching (3.69). H1 is therefore supported.

Table 1. Variance analysis of campus ecological environment integrated art education on learning motivation

variable		F	P	Scheffe post hoc
campus ecological environment integrated art education	intrapersonal orientation	14.582	0.000*	environmental integrated(4.32) >general teaching(3.77)
	interpersonal orientation	22.381	0.000*	environmental integrated(4.26) >general teaching(3.69)

* stands for $p < 0.05$

Variance analysis of campus ecological environment integrated art education on learning effectiveness: Using analysis of variance for discussing the effect of campus ecological environment integrated art education on learning effectiveness, Table 2 shows notable difference of distinct teaching methods in learning effect. Campus ecological environment integrated art education (4.41) presents higher effects on learning effect than general teaching (3.96). Different teaching methods show remarkable effects on learning gain; campus ecological environment

integrated art education (4.32) reveals higher effects on learning gain than general teaching (3.84). As a consequence, H2 is supported.

Table 2. Variance analysis of campus ecological environment integrated art education on learning effectiveness

variable		F	P	Scheffe post hoc
campus ecological environment integrated art education	learning effect	18.753	0.000*	environmental integrated(4.41) >general teaching(3.96)
	learning gain	31.475	0.000*	environmental integrated(4.32) >general teaching(3.84)

* stands for $p < 0.05$

Correlation analysis of learning motivation and learning effectiveness

Correlation analysis of learning motivation and learning effect: To test H3, the analysis result, Table 3, presents significant effects of intrapersonal orientation ($\beta=1.833^*$) and interpersonal orientation ($\beta=2.046^*$) on learning effect that H3 is supported.

Correlation analysis of learning motivation and learning gain: To test H4, the analysis result, Table 3, reveals notable effects of intrapersonal orientation ($\beta=2.127^{**}$) and interpersonal orientation ($\beta=2.274^{**}$) on learning gain that H4 is supported.

Table 3. Analysis of learning motivation to learning effectiveness

Dependent variable→	learning effectiveness			
	learning effect		learning gain	
Independent variable↓	β	Beta	β	Beta
learning motivation				
intrapersonal orientation	1.833*	0.175	2.127**	0.203
interpersonal orientation	2.046**	0.196	2.274**	0.216
F	31.437		37.896	
significance	0.000***		0.000***	
R2	0.283		0.337	
Adjusted R2	0.031		0.037	

Note: * stands for $p < 0.05$, ** for $p < 0.01$.

Data source: self-organized in this study.

Discussion

The campus ecological environment integrated art education applied in the experimental research stresses on the connection among humanity, life, and environment to affect students' learning attitudes and effectiveness. In the experimental process, students' connection with life and art is emphasized; in addition to campus identification and belongingness, students' attitudes, value, and life experience in the art learning are also emphasized. Such internalization experience is far more precious than formative, disciplinary, or technological abilities. Ecological environment is a part of student life; art teachers should help students cultivate keen ecological art awareness to effectively promote ecological environmental protection and environment beautification education, i.e. establishing real harmony between people and nature through art. What is more, students receiving campus ecological environment integrated art education present better confidence on personal learning effectiveness and consider the course model being able to help the learning and comprehension of art knowledge and skills. Campus ecological environment integrated art education therefore could promote students' art learning effectiveness. It is considered in this study that learning of campus ecological environment integrated art education does not have test pressure like other subjects, but is suitable for guiding value learning with more time and flexibility. For this reason, future study could attempt to plan courses combined with contemporary life and close to students' experience to guide the core value and to have integrated curricula develop various possibilities. It conforms to the flexibility and openness of art education and the tolerance and acceptance of multicultural. Besides, campus ecological environment integrated art education could attract students' attention, enhance the learning attitudes, change students' learning styles, as well as increase teacher-student interaction, student-student interaction, and human-computer interaction. When various resources are integrated and experts and scholars in different fields are invited to co-design and plan learning resources, such as wetland study tour and beach cleaning, instructors would enhance the teaching quality and students would appear positive interests in learning.

Conclusion

Ecological art is the major idea for the learning content in this experimental research, in which the correspondent unit goal, specific goal, and teaching content are based on art and campus ecological environment, and the course content and teaching process design for the experimental group and the control group are self-edited. The course units contain "Subunit 1: Knowing ecological art", "Subunit 2: Learning from ecological artists", "Subunit 3: Ecological art V.S my campus", and "Subunit 4: ecological art creation and outcome sharing". The teaching resources

for the control group include common classroom resources of Power Point, flashcards, blackboard writing, audiovisual media, Internet resources, and learning sheets. For the experimental group, in addition to general teaching resources, the integration of campus ecological environment is emphasized, e.g. the building and application of natural elements, natural objects, local materials, environmental materials, person-environment interaction, campus cultural art environment, spirit of place, and campus identification and belongingness. Within the same experiment period, students' works reveal that students in the experimental group realize and practice the creation of ecological artists, understand the art performance of taking from nature and returning to nature, and think of the correlation with ecological environment. Moreover, students also integrate local materials into the works; during the material seeking, they personally experience campus ecological environment from contact, knowing, to comprehension, to intangibly create the campus identification and belongingness.

Recommendations

Aiming at above research results, the following suggestions are proposed in this study.

- Teachers are suggested to integrate campus ecological environment into teaching activities in various fields and practice teaching with suitable units. Such a teaching tool could provide more teaching resources and learning with sensory stimulation to make students' learning more complete and meaningful to further achieve the learning goal.
- Well applying campus ecological environment integrated art teaching could provide non-traditional classroom visual art learning as well as reinforce the comprehension, usage, and mission of art and ecology through the thinking of ecological and environmental issues. In this case, campus ecological environment integrated art teaching could provide students with multiple local learning channels and is an important medium to induce cognitive learning.
- Art education nowadays is different from past unified learning, but stresses on multiple and topical learning. Teachers without enriching the specialty would result in teaching problems. To plan course topics for campus ecological environment integrated art education, from the definition and content of ecological art to ecological conservation issue in current world, to develop the real function, and to really conform to the course needs to achieve the teaching goals require instructor' constant self-training and enrichment as well as constant attempt and reflection.
- Teachers should well apply campus ecological environment to the teaching, emphasize the connection between students' life and art to generate connective aesthetics and appear campus identification and belongingness, as well as stress on students' attitudes, value, and life experience in art learning. Such internal-

ization experience is far more precious than formative, disciplinary, or technological abilities. Teachers therefore should familiarize ecological environment on campus and enrich the ecological and geographical knowledge for the effective integration with art to achieve effective ecological art teaching.

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