บทความวิจัย

DEVELOPING STRATEGIC MANAGEMENT GUIDELINES FOR ENHANCING INNOVATIVE ABILITY OF STUDENTS MAJORING IN ENVIRONMENTAL ART DESIGN IN SHANXI UNIVERSITY OF MEDIA AND COMMUNICATION, SHAN XI PROVINCE

Zhang Ze[1*] and Nithipattara Balsiri[2]
Faculty of Education, Dhonburi Rajabhat University, Bangkok, Thailand

*E-mail: nithipattara.b@dru.ac.th

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ABSTRACT

The objectives of this research were 1) to investigate problems and needs of innovative abilities of students majoring in environmental art design, 2) to develop strategic management guidelines to enhance the innovative abilities of students majoring in environmental art design. The samples consisted of 500 students and 40 teachers obtained through stratified random sampling at Shanxi University of Media and Communication. The instruments employed a questionnaire and questions of focus group discussions. The statistics were frequency, percentage, mean, and standard deviation. The research results indicated that 1) the problems and needs of innovative abilities in students majoring in environmental art design for students were at moderate and high level, respectively (Mean = 3.21, 3.68 SD = 0.55, 0.60), for teachers were at moderate level (Mean = 3.19, SD = 0.48), 2) strategic management guidelines to enhance the innovative abilities of environmental art design students consisted of 2.1) the assessment of the curriculum and educational environment, 2.2) the teaching methods, tools, and student engagement strategies, 2.3) needs analysis to understand the specific challenges students in enhancing their creative skills, 2.4 the understanding of the existing resources and support innovation, 2.5 policy development and the use of technology and innovation within the classroom, 2.6) policies on academic integrity, intellectual property rights, and collaboration,

2.7) implementing data privacy and cybersecurity, and 2.8) to create a safe and ethical environment with innovation.

Keywords: Strategic Management Guidelines, Innovative Ability, Environmental Art Design

INTRODUCTION

The importance of innovative teaching strategies and curriculum development tailored to the unique needs of environmental art design students. Liu (2018) emphasizes the need for art colleges to adapt to the times by integrating traditional cultural resources and optimizing teaching conditions to enhance high-quality, innovative talents. Luo Zhong-xi (2015) identifies existing gaps in innovation ability cultivation within environmental design education, advocating for a shift towards ability-focused, innovative, and independent thinking in teaching goals. Xin (2020) studied the innovative ways of teaching environmental art design under the Outcome-Based Education (OBE) concept, suggesting a reformation in teaching concepts, systems, and objectives to foster innovation. Cheng-yuan Ren and Jin (2016) concluded the importance of inspiring students to use innovative thinking and engage in diverse artistic innovations through social practice activities. Shi, Nie, and Du (2018) proposed a new practical teaching method at Xi'an University of Science and Technology, aimed at closely combining innovation training projects with thesis work to enhance students' innovation abilities.

Lei (2020) concluded that the current situation of innovative ability education in China, according to the data of the previous survey report, there was a serious lack of innovative thinking and cultivation of innovative spirit in our country. Therefore, at present, China is still in the stage of cultivating innovative talents at a superficial level, and there is no effective way to carry out the operation. Most colleges and universities in the middle school and university have set the number of scientific and technological inventions as a goal to cultivate students' innovative ability. Although over the years, the party and state governments have paid more attention to education and repeatedly emphasized and declared that education with some innovative methods of TRIZ this theory is gradually being promoted in a pilot in a very small number of colleges and universities.

Zeng (2021) concluded that analysis of the current situation of practical teaching

courses for environmental, lack of innovative and inspiring new teaching methods environmental design was a creative discipline that describes the blueprint of life for people to create a lifestyle. At present, the environmental design major in China basically follows the traditional paradigm of arts and crafts education, emphasizing the education of basic theory and basic skills. Most of them are based on the classroom teaching methods of teachers' speaking and students' listening, and lack of heuristic and dialogic interactive discussions and projects.

In the current highly competitive job market, innovation and entrepreneurship literacy play a pivotal role in students' personal growth and career planning. However, there are still some shortcomings in the innovation and entrepreneurship literacy of students majoring in environmental art design in higher vocational colleges. Lack of innovation consciousness and entrepreneurial spirit, constrained by traditional educational concepts, students tend to pay too much attention to the accumulation of theoretical knowledge in the learning process, while neglecting the cultivation of innovative thinking and entrepreneurial potential. As a result, when facing specific problems, students lack novel and unique solutions and the courage to dare to start businesses. (Pan,2025)

Zhou (2015) concluded that environmental art design education that responds to market demands and emphasizes life experience, design thinking, and the innovation of traditional culture. Given this context, there is a significant need for Shanxi University of Media and Communication to develop strategic management guidelines that align with these educational imperatives. The goal is to produce graduates who are not only proficient in environmental art design but also equipped with the innovative abilities required to address contemporary environmental challenges effectively. This research aims to bridge the gap in current educational practices by developing a comprehensive guideline that incorporates innovative teaching methods, curriculum design, and student engagement strategies tailored to the evolving field of environmental art design.

RESEARCH OBJECTIVES

1. To investigate problems of innovative abilities for students majoring in environmental art design.

2. To develop strategic management guidelines to enhance the innovative

abilities of students majoring environmental art design.

RELATED CONCEPTS AND THEORIES

1. The Importance of Innovative Ability in Environmental Art Design

Innovative ability is not only an advantage but also a necessity in the environmental art design industry. This goes far beyond traditional artist techniques, allowing students to develop solutions that are innovative and environmentally sound. Yin (2010) a call to entrench innovative ability within art and design education at both the N + 3 and N + 5 levels — demanding an overhaul of not just curricula and frameworks but our ways of thinking about delivery as a breeding ground for innovation. Yet it is precisely this shift that is the impending [change] we need, since the environmental challenges for the age require more than just traditional tools, it requires the regeneration of the industry through creative artistry married to sustainability. Environmental art designers must be idealists, translating beauty and environmentally conscious morality into form. The competencies, educators can equip the next generation of designers to take agency in eco-design, and make meaningful contributions in the field of environmental stewardship and sustainability (Yin, 2010).

2. Educational Strategies for Enhancing Innovative Ability

To cultivate innovative ability in environmental art design students, a comprehensive educational strategy is needed that integrates theory and practice. At the intersection of education and environmental design, discussed innovation cultivation in the present environment design education, and that there is a demand for education to change its paradigm to focus more on cultivating skills, creative thinking and autonomy. The aim is to shape students into not only designers but innovators who can traverse and tackle the layered dilemmas of environmental design. An interdisciplinary approach prepares students to understand the environmental implications of their designs, and to embrace sustainable practices. Moreover, promoting independent thought-challenging and professional practices, educators can empower students to develop the intrapersonal and intellectual skills necessary to generate innovative creations. (Luo, 2015).

3. Challenges and Opportunities in Teaching Innovative Ability

The ever-changing character of environmental problems would be a challenging, yet also an opportunity for the creative ability education in environmental art design. Yang (2011) indicates that with the changing environment, there is a need for new teaching and reformation of curricula for new challenges and evolving era in context of technology. Interdisciplinary environmental art design can further broaden knowledge interactions and the range of student projects through cooperation across disciplines. Finally, the rise of interest in sustainability in the public space means students can design for real world applications, leading to the possibility of seeing a physical product showcasing their early work. (Yang, 2011).

4. Improving the teaching concept and paying attention to the cultivation of students' innovative thinking

To improve the teaching effect of environmental art design, the primary task of teachers is to master the characteristics of environmental art design and make it clear that environmental art design is a comprehensive field integrating art, function and skills. Therefore, in the teaching process, teachers need to realize the organic integration of multi-disciplinary content in the teaching content, promote the exchange and collision of ideas of different disciplines, and the mutual penetration of interdisciplinary knowledge. In addition, teachers should be "student-oriented," fully respecting and giving play to the principal position of students in the learning process, specifically, teachers should follow the principle of teaching students according to their students' actual situation and individual needs, timely adjust the teaching content and methods, to ensure the pertinency and effectiveness of teaching. (Pan, 2025)

5. The Main Content of Innovative Thinking Training

Design comes from life and above life. As a result of production, life, worship and aesthetic needs, our ancestors created a series of products that met the needs of the time. So the design first appeared in people's lives and served the people's life. With the economic development, the primary task of a designer is to have the clearest understanding of the pace of social development. However, this cognitive activity requires its full devotion to the course of social development. Offering art design courses at university helps students develop a deep understanding

of the nature of design, the relationship between design and humanity, and how to use creative thinking to design art. In the traditional design teaching, teachers often simply train innovative thinking through this basic design teaching, such as the form training in the plane composition, the color and psychology in the color composition, etc., teaching students some form and color, confined the development of divergent thinking students. (Li, 2018)

RESEARCH HYPOTHESISES

1. The problems of innovative abilities of students are at the high or highest level.

2. The strategic management guidelines to enhance the innovative abilities of students are complete and suitable.

CONCEPTUAL FRAMEWORK

To improve the administration and teaching effect of environmental art design, the primary task is to master the characteristics of environmental art design and make it clear that environmental art design is a comprehensive field integrating art, function and skills. Therefore, in the teaching process, teachers need to realize the organic integration of multi-disciplinary content in the teaching content, promote the exchange and collision of ideas of different disciplines. In addition, teachers should be student-oriented, fully respecting and giving play to the principal position of students in the learning process, specifically, teachers should follow the principle of teaching students according to their students' actual situation and individual needs, timely adjust the teaching content and methods, to ensure the pertinency and effectiveness of teaching. (Pan, 2025) Conceptual framework was shown in figure 1.

RESEARCH METHODOLOGY

Population consisted of 500 students and 40 teachers in Shanxi University of Media and Communication in Shan Xi province, China.

Samples were 230 students from the environmental art design program, and 35 teachers involved in the program. The sampling method was stratified random sampling, ensuring a representative distribution of participants from different years of study and teaching levels.

Research Instruments

Questionnaire was divided into 2 parts 1) general information 2) needs on enhancing innovative abilities of students majoring in environmental art and design. The reliability was assessed

with a Cronbach's Alpha coefficient 0.82 (Cronbach, 1951).

A set of questions for focus group discussion, in order to formulate the strategic management guidelines for enhancing innovative ability of students, three experts were invited to check the correctness and applicability of the guideline. The results were presented in the form of IOC (Index of Project Objective Congruence).

Data Collection Researcher collected data and information through emails, submitted a letter of permission in advance to the university administrator requesting permission to collect data and information.

Data analysis The statistics were frequency, percentage, mean ($\bar{X}$), standard deviation (SD). The criteria defined at the range of the mean scores. Rating reference were (Srisa-ard, 2002) mean range 4.51 – 5.00 were highest level, 3.51 – 4.50 were high level, 2.51 – 3.50 were middle level, 1.51 – 2.50 were low level.

RESEARCH RESULTS

1. General Information of Students: It is evident that the majority of students (52.00%) are aged between 19-20 years, and the distribution between male and female students is fairly even. Similarly, the respondents are evenly spread across all three years of study.

2. General Information of Teachers: The majority of teachers (28.00%) are between the ages of 36-40 years, and 59.00% of the respondents are male. These teachers come from diverse educational backgrounds, contributing to a comprehensive understanding of the issues related to teaching innovation.

3. Problems Identified in the Environmental Art Design Program

Problems of students in improving innovation, overall Questions - 28 was at moderate level (Mean = 3.21, SD = 0.55). The highest was BIM standards can promote innovation in environment art design projects (Mean = 4.55, SD = 0.55), the second was dissatisfied with the practical training arrangements (Mean = 4.45, SD = 0.60), the others were the course does not help in your development (Mean = 4.44, SD = 1.25), the teaching hours schedule is inadequate (Mean = 4.10, SD = 1.14), and the course is not important (Mean = 3.95, SD = 1.00)

Problems of teachers in improving innovation, overall Questions 1 – 28 was at moderate level (Mean = 3.19, SD = 0.48). The highest was BIM standards can promote innovation in environment art design projects

(Mean = 4.60, SD = 0.48), the second was teaching innovative abilities requires process&summative assessment (Mean = 4.50, SD = 0.54), the others were ISO standards can enhance environment art design innovation among students (Mean = 4.30, SD = 0.65), and teaching innovative abilities requires functional assessments (Mean = 4.25, SD = 0.56), teaching innovative abilities needs to consider students' cooperation level (Mean = 4.10, SD = 0.60).

4. Needs for improving innovation

Needs of students in improving innovation, overall Questions 1 – 28 was at high level (Mean = 3.68, SD = 0.60). The highest was requiring more hands-on practice to improve innovation (Mean = 4.80, SD = 0.38), the second was integration of environmental themes would improve creativity (Mean = 4.70, SD = 0.40), the others were teachers to provide more one-on-one mentorship (Mean = 4.60, SD = 0.66), and real-world case studies from the art industry for deeper learning (Mean = 4.55, SD = 0.56).

Needs of teachers in improving innovation, overall Questions 1 – 28 was at moderate level (Mean = 3.19, SD = 0.48). The highest was BIM standards can promote innovation in environment art design projects (Mean = 4.60, SD = 0.48), the second was teaching innovative abilities requires process & summative assessment (Mean = 4.50, SD = 0.54), the others were ISO standards can enhance environment art design innovation among students (Mean = 4.30, SD = 0.65), and teaching innovative abilities requires functional assessments (Mean = 4.25, SD = 0.56).

5. Strategic Management for Environmental Art Design Students to Improve Innovation

Building on the SWOT analysis, the survey data, and the IOC results, the following strategic management aim to enhance innovative abilities among Environmental Art Design students and support teachers at SUMC. Each guideline follows a consistent structure: Objective and Rationale, Key Actions for Implementation, Evaluation and Continuous Improvement, Success Indicators, Strategy Management Process, Innovative Ability of Students.

Where relevant, references to ISO, BIM, or specific digital media teaching methods are highlighted. These guidelines are organized into nine modules, reflecting the multi-faceted demands of environment-art synergy, resource management, and modern pedagogical strategies.

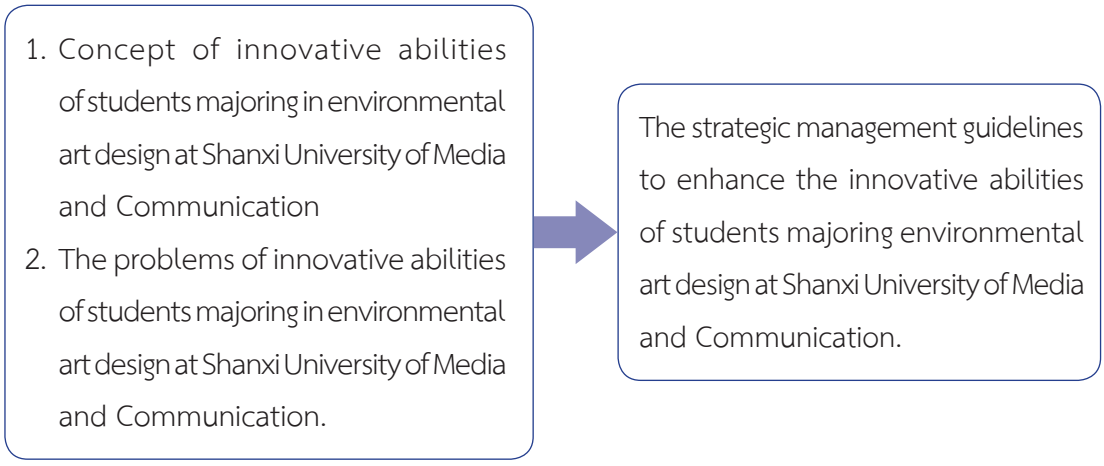


Figure 1 Conceptual Framework

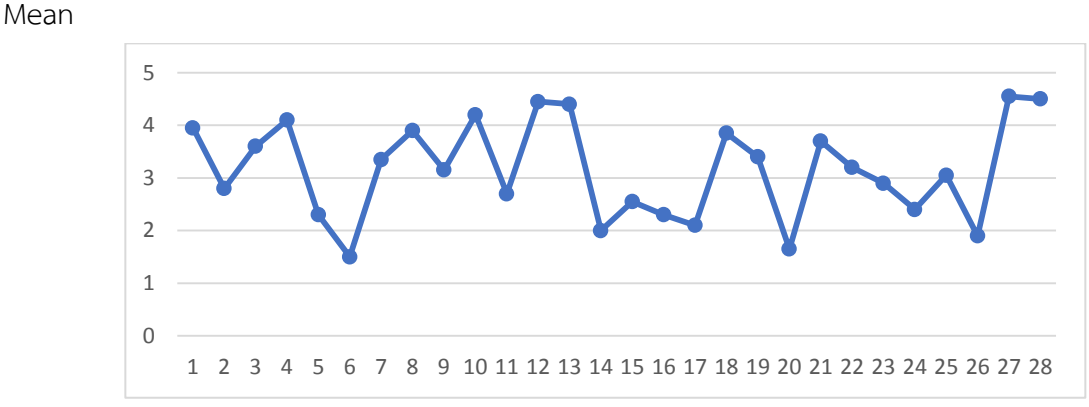


Figure 2 Mean scores of problems identified in the environmental art design program for students

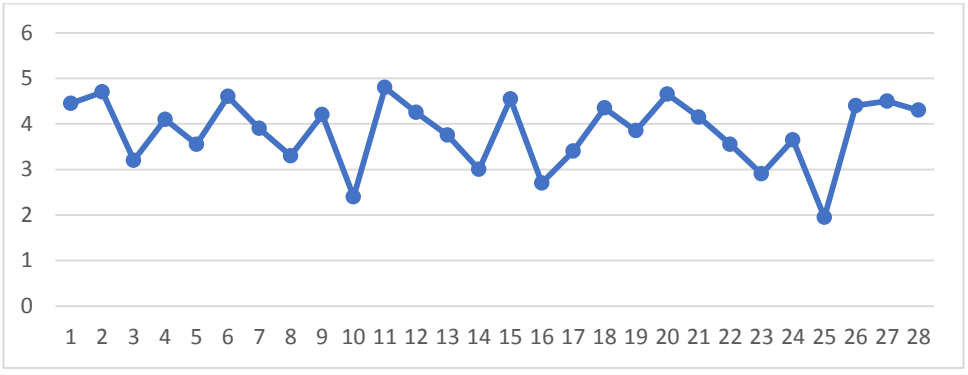


Figure 3 Mean scores of needs identified in the environmental art design program for students

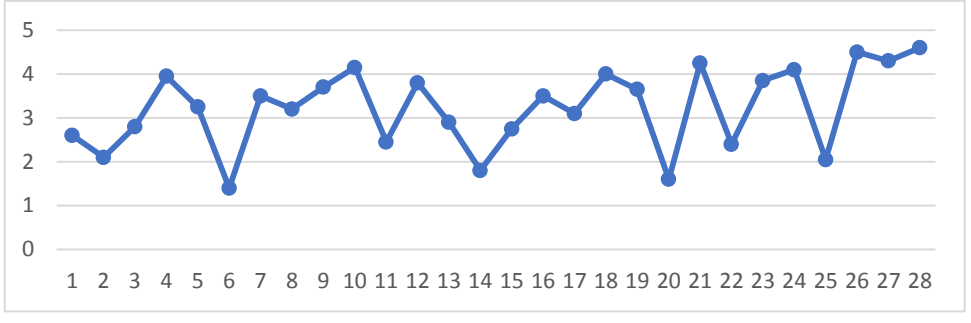


Figure 4 Mean scores of problems identified in the environmental art design program for teachers

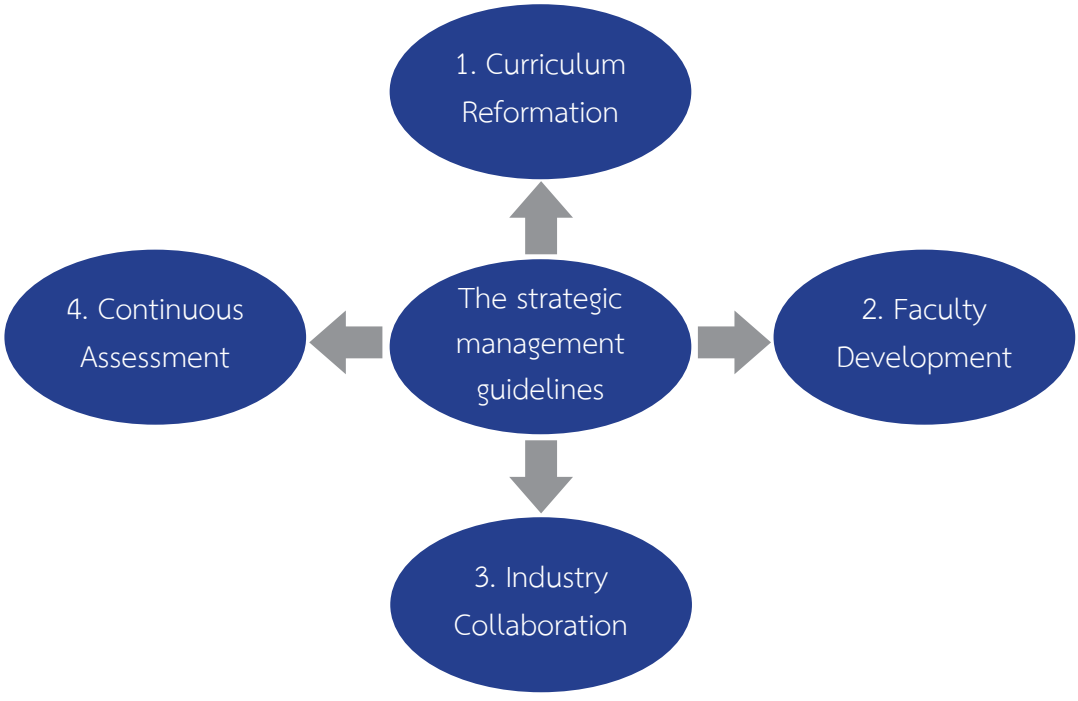


Figure 5 The strategic management guidelines to enhance the innovative abilities of students majoring environmental art design

DISCUSSIONS

1. Students' Innovation Development Needs

This study showed that students in the EPAD program face a lot of obstacles in fostering their innovative power. The shortcomings that students experience in utilizing advanced design technologies, partaking in interdisciplinary projects, and engaging in hands-on, practical learning opportunities severely restrict their innovative capabilities, parallel to some of the obstacles discovered in earlier studies of creative disciplines. This is not conducive in developing creative problem-solving skills in students. The syllabus undoubtedly contains theoretical knowledge; however, it lacks practical components, which in turn offers students too few chances to implement their knowledge in real life. Students also state that limited access to state-of-the-art design tools and technologies immensely limits their ability to experiment with innovative design solutions.

Zeng (2020) concluded that explored on the cultivation of students' innovative ability in environmental art design in colleges and universities. It is a very important system engineering for colleges

and universities to build their own college students to cultivate innovative ability. Therefore, with the help of colleges and universities, it is extremely important to cultivate the innovative ability of students majoring in environmental art focuses on the feasibility, current situation and practical experience of cultivating the innovative ability of environmental art design students, and analyzes the innovative ability of the college students majoring in environmental art design.

2. Faculty's Role in Fostering Innovation

The finding also reinforces the importance of the faculty role in delivering innovation in the Environmental Art Design program. Faculty is the main contributor to students' learning experience and their ability to include creative delivery methods is necessary in promoting students' innovative skills. However, the results show that teachers have numerous difficulties in achieving this. Despite their extensive professional background within their disciplines, many teachers grapple to infuse traditional design technologies and cutting-edge pedagogical models into their instruction.

According to Zeng (2021), it can be concluded that in the teaching course of environmental art design major, students were required to have a higher level of professional accomplishment. There were still many shortcomings in the course teaching of environmental art design in domestic colleges and universities. The main problems in the teaching of environmental art design major in China were mainly the poor adaptability of teaching methods, the gap between teaching methods and talent training objectives.

3. Administrative Challenges in Supporting Innovation

Innovation in education needs the right infrastructure and policy support, which is why administrators are key players in the process. These challenges involve the execution of educational policies, the administration of technological infrastructure, and the communication between the departments. One of the key administrative challenges is the open implementation gap between policy and practice. Although the importance of nurturing innovative enterprise and similar creative skills in the Environmental Art Design program is recognized, the policies that are designed to facilitate it are not always well exercised. And this becomes particularly challenging for administrators in translating the goals set strategically into concrete measures, resources, reforms

or collaboration across disciplines. Yet this has caused inconsistency in the program, as certain departments are supported more in pursuing creativity and innovation than others due to this implementation gap. The management of tech infrastructure is another vital issue. It always requires more from chancellors and administrators to keep up with the growing pace of design technologies to ensure students and faculty have the tools and resources.

According to Li (2018) concluded that art design reflects the form and aesthetics of art in many aspects of society, culture, economics, science and technology, and makes it not only have the aesthetic function but also have the function of using it. Art design first is to serve people, big space environment, small clothing, food, shelter, transportation, use and so on. Art design should be the perfect combination of certain material and spiritual functions in human society. Along with the development of the times, art and design should not only meet people's material needs, but also meet contemporary aesthetic and even humanistic needs. This also forces art education to innovate on the basis of the existing technical education. Thinking training has become the core of art design education. In recent years, all major design institutes have injected innovative thinking training into the curriculum of design education to meet the market demand under the new social situation.

4. The Strategic Importance of Innovation for Shanxi University of Media and Communication

The conclusions of this study highlighted the necessity of innovation nurturing the environmental art design discipline of Shanxi University of Media Communication. Creativity & Design Studies in the era of change, one of the key skills that students should learn is Creativity. The most critical competence among them in design. The universities that do not embrace these innovations will yield graduates that are not ready to tackle the challenges which these students will face in their career. In order to combine the university innovation model with the identified challenges at the study, the Strategic Management Guideline proposed in this study can offer a structured approach to promote and develop innovation in the university levels. This guidance not only supports students but also faculty in creating a culture of innovation, as it points all efforts towards achieving long-term goals of the university.

According to Pan (2025) concluded that with the development of the era and the deepening of educational reform, the concept and mode of talent training in higher vocational education urgently need to be reformed. Higher vocational environmental art design major needs to cover art, architecture and other fields of knowledge, in the gradual development and progress of society at the same time, people's requirements for the environment is also gradually improved, the market needs high-end environmental art designers. The teaching reform of environmental design major in higher vocational colleges from the perspective of double creation, briefly summarizes the value of talent training in innovation and entrepreneurship education.

KNOWLEDGE AND INNOVATION

Strategic management guidelines to enhance the innovative abilities of students majoring environmental art design were presented in Figure 5:

1. Curriculum Reformation: At the same time launch inter-disciplinary modules that string environmental science, sustainability, and art together. It's important to strike a balance between theory and practice.

2. Faculty Development: Run regular training session on new teaching practices and innovative design-related technologies. Infrastructure Enhancement, build an innovation lab with top-notch equipment.

3. Industry Collaboration: Extend collaboration with top design firms and sustainability organizations for experiential learning.

4. Continuous Assessment: Implement a feedback mechanism to assess the efficiency of new strategies and adjustments. In addressing these challenges and capitalizing on the opportunities identified through the SWOT analysis, these guidelines seek to strengthen the innovation capabilities of students pursuing the Environmental Art Design major.

The study analysis showed that students and teachers also agreed on the objective if the Environmental Art Design course refined the property for further innovation in classroom teaching, teaching information, and course content. Both groups have a clear need for more interactive and engaging teaching methodologies, and both agree that innovation in the curriculum is vital to prepare students for their subsequent careers.

RECOMMENDATIONS

1. Recommendations for implementation

1.1 Revision and Development of Curriculum

The university should bring about an overhaul to adapt the existing curriculum to launch innovation-centric courses, instilling ideas like design thinking, creativity and sustainability.

1.2 Faculty Development Programs

Regardless of the innovation initiative being implemented, the success of it in large part comes down to faculty members' abilities to create spaces for creativity and innovation in their classrooms.

1.3 Technology Infrastructure Investment

To foster the creativity of their students, the university will need to enhance the technological assets at its disposal.

1.4 Improved Communication and Collaboration

To support innovation across the university requires open lines of communication and collaboration.

2. Recommendations for further study:

2.1 To investigate the current challenges and uncovering opportunities, major obstacles all of which play a crucial role in cultivating creativity and innovation skills.

2.2 To apply modern design tools and technologies essential for unlocking their creativity.

2.3 The implementation of innovators teaching methods in their classes, professional development programs and technical hindrance.

2.4 The management of the technological infrastructure required to sustain innovation.

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