A Strategic Approach of Sustainable Environmental Education for Interior Design Education

(1) Wang, Ching-Ya (2) Huang, Hung-Chieh
(1) schlhw178@yahoo.com.tw
(2) huanghc@kcg.gov.tw
ChengShiu University, Department of Architecture and Interior design, 840 ChengCing Road, NiaoSong, Kaohsiung County 833

ABSTRACT

Interior design includes a scope of services performed by a professional design practitioner, qualified by means of education, experience, and examination, to protect and enhance the life, health, safety and welfare of the public. Interior design education can be broadly regarded as the integration of professional engineering skills and environmental aesthetics knowledge and professional design training. The 21st century is the environmental era that each interior designer energetically devotes to ecological environment protection and various works for improving the local life in order to seek for the sustainable development. This study is focused on the issue of how to arrange the environmental classes based on the currently educational structure. Through the method of key-informant interview with main stakeholders, we offered a suggestion for the planning of environmental education according to the framework of “Strategic 4P Assessment” including the fields of policy, plan, program and project. The strategic approach for planning environmental education with this globally sustainable view will be coupled with the epochal mission of interior design and environmental symbiosis.

Keywords

Interior design, Sustainable environment, Strategic 4P Assessment

1. Introduction

Interior design is a multi-faceted profession in which creative and technical solutions are applied within a structure to achieve a built architectural space and interior environment. These solutions are functional, enhance the quality of life and culture of the residents, and are aesthetically attractive. Not only designs are created in response to indoor environment and coordinated with the building shell, but also acknowledge the physical location, social context and sustainability. Sustainability means the use of
resources in such a way that they are not depleted; a method of practice or use of materials that is capable of being continued with minimal long-term effect on the environment. Therefore, how to establish a framework of interior design education based on the global view of sustainable environment is the main issue of educational program. The connotation of interior design can be an area of science integrated with engineering profession and environmental aesthetics. Not only designer needs to create a practical space, but to plan harmonious green and sustainable living environment. The objective of interior education is to cultivate the students possessing the ability to execute the spatial design, engineering and environmental planning. Among these professional fields, how to arrange the environmental classes based on the characteristics of interior design education is the main issue of teaching framework. The notion of sustainable environmental planning and development will address the subjects of spatial planning and regional development in an integrated way as well as in accordance with the principles of green and sustainability. The uses of green technologies in the field of interior design give us new potential to monitor and prevent environmental degradation. That is why the environmental education is important for the studies of interior design education. Effective strategies for environmental classes management should connect with the global trend of sustainable development. This study is focused on the issue of planning the environmental classes based on the global action for the interior design education. By the method of key-informant interview with the main stakeholders, we developed and categorized the suggestive program of environmental classes. Through the method of key-informant interview with main stakeholders, we offered a suggestion for the planning of environmental education according to the framework of “Strategic 4P Assessment” including the fields of policy, plan, program and project for planning environmental education.

Figure 1: The framework of interior design education
2. The interior design education

2.1 Interior design culture

The theoretical foundation for the interior design culture is consistent with current descriptions of interior design by Pile (2003) [1] and others (Allen et al, 2004) [2]. Pile describes the knowledge and processes upon which the profession is based: (1) principles of space planning; (2) human factors and social responsibility; (3) the theory and practice of selecting and specifying materials, color, lighting, textiles, furniture, and accessories; (4) the theory and practice of mechanical systems (including building codes); (5) principles and practices of the business of interior design; and (6) a seven-stage design process including project beginnings, programming, concept development, design development, design implementation, project supervision, and post-completion. Based on Pile’s description of the interior design knowledge base and process, the culture of interior design can be described as one in which designers are trained to: (1) understand and value human behaviour and human factors; (2) design in socially responsible and ethical ways; and (3) utilize both creative and rigorous processes that ensure the creation of safe, functional, and aesthetically-pleasing environments for the intended occupants. Pile asserts that designers begin projects by identifying the problem to be solved, undertake programming, develop a concept, develop the design solution, implement the design solution, supervise the project, and evaluate the completed, built environment. The subjective forms of analysis and decision-making that designers utilize in this process are important techniques that, in part, enable them to create the unique solutions.

2.2 Interior design body of knowledge

Interior designers, along with other design practitioners, protect the public’s life, health, safety, and welfare. Guerin and Martin (2005) concluded that the interior design body of knowledge consists of the following seven domains: (1) codes; (2) communication; (3) design; (4) furnishings, fixtures and equipment; (5) human needs, (6) interior building construction; and (7) professional practice. At the core of these seven domains is the public’s health, safety, and welfare. [3] Thompson (2003) also suggested an interdisciplinary theoretical framework as the basis for understanding, developing, and documenting the interior design profession’s body of knowledge. She believes that knowledge gained from interdisciplinary design research offers the benefits of predicting behavior, verifying patterns, and validating design decisions. [4] Interior design is not only a term used to describe the act of designing an interior space as a whole, but more completely describes the process by which all of the components
in an interior are created as well. Not only interior designers provide efficient, functional, and secure environments concerned with health, safety, and welfare, but they also shape and affect people’s experiences. Interior design is an important profession—with interior designers offering expert knowledge, guidance, and service to clients and the public. In this sense, the professionals creating the environments of the public have great influence and responsibility. Because it is through education that these professionals gain the fundamental knowledge in their fields, we tried to examine environmental issues in the educational system of interior design at institutions of higher learning.

Research shows that the designed indoor environment does influence health and quality. According to environmental psychologist Heerwagen, relaxation, social gathering, performance, and well-being are affected by many designed elements such as indoor air quality, space, noise, ergonomics, and exposure to daylight and nature. [5] Quality of life was defined by the following categories: social, happiness, good health, physical, mental, subjective, economic, and independence. [6] Miller and Maxwell (2003) further established the connection between the designed environment and welfare by providing research on family interaction. [7]

2.3 Environmental stewardship of interior design

The World Health Organization (WHO) defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. Protecting the health, safety, and welfare of the public is an often-used language that identifies some of the knowledge required by interior design professions and defines to whom they are all ultimately responsible to the public. Interior designers make decisions during the design process that will prevent harm from coming to people in environments in which they conduct their daily lives. Environmental harm can be prevented by interior designers use of specialized knowledge including green architecture codes, notion of sustainable environment and healthy materials, thereby protecting people’s health and life environment.

The American Society of Interior Designers (ASID) recognizes that sustainability should be an essential part of the interior designer's professional responsibilities. ASID acknowledges that sustainable interior design embraces: [8]

- Integrated building design developed by collaborative multi-disciplinary teams
- Indoor environments that support occupant well-being and productivity
- Resource and energy efficiency
- Social equity at local and global levels
- Protection of the natural environment
Positive economic impact of optimized operational and maintenance practices, and life-cycle cost assessments

ASID endorses the following principles of environmental stewardship:

- Advocacy for safe products and services: Interior designers should advocate with their clients and employers the development of buildings, spaces, and products that are environmentally benign, produced in a socially just manner and safe for all living things.
- Protection of the biosphere: Interior designers should eliminate the use of any product or process that is known to pollute air, water, or earth.
- Sustainable use of natural resources: Interior designers should make use of renewable natural resources, including the protection of vegetation, wildlife habitats, open spaces, and wilderness.
- Waste reduction: Interior designers should minimize waste through the reduction, reuse, or recycling of products and encourage the development and use of reclaimed, salvaged, and recycled products.
- Wise use of energy: Interior designers should reduce energy use, adopt energy-conserving strategies, and choose renewable energy sources.
- Reduction of risk: Interior designers should eliminate the environmental risk to the health of the end users of their designs.

Dealing with indoor environment design must be sustained by dynamic leadership styles and open to various configurations. For example, it should be open to collaborative and bottom-up action. [9] Interior designers become effective public leaders when they serve as catalysts who reach beyond the traditional boundaries to engage, discuss and mediate among broad groups of stakeholders. [10] Lastly, alternative approaches to indoor environmental design must evolve from existing key values of green and sustainability. According to this notion, the other issue is that interior design students need to be trained able to face the public issues and to discuss the environmental issue with clients.

In the study programs of interior design, the students need to acquire design abilities, knowledge, and skills in order to become designers that are capable of fulfilling their role as generalists who can co-ordinate interdisciplinary objectives. The requirement of knowledge includes the cultural and artistic studies, social studies, environmental studies, technical studies and design studies. To be an interior designer, the students need to emphasize the demand to motivate the requirement of social studies and environmental studies. (Table 1)

**Table 1: Interior design education about social and environmental study.**

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Contents of study</th>
</tr>
</thead>
</table>

5
| Social | • Ability to act with knowledge of society, clients, and users.  
• Ability to develop a project brief through definition of the needs of society, users and clients, and to research and define contextual and functional requirements for different types of built environments.  
• Understanding of the social context in which built indoor environments are procured, of ergonomic and space requirements and, issues of equity and access.  
• Awareness of the relevant codes, regulations, and standards for planning, design, construction, health, safety, and use of built environments.  
• Awareness of philosophy, politics, and ethics as related to environments. |
| Environment | • Ability to act with knowledge of natural systems and built environments.  
• Understanding of conservation and waste management issues.  
• Understanding of the life-cycle of materials, issues of ecological sustainability, environmental impact, design for reduced use of energy, as well as passive systems and their management.  
• Awareness of the practice of environmental planning, and their relationship to local and global demography and resources.  
• Awareness of the management of natural systems taking into account natural disaster risks. |

### 3. Establishing a framework of environmental education

#### 3.1. Sustainable environment and the stakeholders

“Sustainable development” and “environmental sustainability” became a cornerstone of human environment in the years after the 1992 Earth Summit for the Global Environment in Rio de Janeiro. The notions of “Sustainable Environment” and “Green Building” are the international languages of the future interior design. Under the trend of international development, the program of interior design education needs to plan the environmental classes for students to establish the sustainable and healthy environmental notion, and to meet this global trend.

As the public health pendulum swings back to its origins, a clear change has occurred in the terminology used and the skills needed from professionals whose purpose is to serve the environmental quality. The environmental quality of building interiors is critical to the health of human beings. According to a research of Human Activity Pattern Survey, the U.S. population spends approximately 18 hours inside of buildings for every one hour it spends outdoors. [11] Importantly, studies have found building environments to be more contaminated with toxic pollution than the outdoor environment. [12] Scientific assessments even suggest that cancer risks from indoor pollution outweigh those.
associated with the more heavily regulated outdoor environment. [13] The interior design profession has spent much time reasserting more effective ways to make a truly positive public health and environment impact. Much of research and practical experience has come out of community-based public health. Specifically, these efforts have developed parameters or commitments for sustainable indoor environment and health that educators interested in organizing and establishing. The professional stakeholder’s groups including decision-makers (government), local residents (organization), local experts and scholars will play an important role on the planning process of local environment action plan (LEAP). [14] The notion integration of these three groups can improve the results of design and address a more feasible alternative. By the assistance of these stakeholders, we can establish suggestive program of environmental program for interior design education.

3.2.Key-informant Interview

The method of this research adopted the ways of key-informant interview. The basic targets of key-informant interview are the professionals or scholars who possess the professional knowledge or technology and are willing to share their opinions with the researchers. For this research, the selected targets of this interview were focused on the main stakeholders. Applying the interview with the selected stakeholders based on the procedure of “Strategic 4P Assessment” for environmental planning and evaluation, which includes the steps of policy, plan, program and project, we developed a suggestive framework of environmental classes’ program for architectural engineering education.

After contacting with the possible interviewers, we selected suitable targets based on the three local stakeholders groups of local organization, decision-makers, local experts and scholars. The individual affiliation of the 12 targets is showed on the Table 2.

Table 2: The targets of Key-informant interview.

<table>
<thead>
<tr>
<th>Category</th>
<th>Background of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision-Makers (4)</td>
<td>• Director General, Economic Affairs Bureau, Kaohsiung County Government</td>
</tr>
<tr>
<td></td>
<td>• Deputy Director, Department of Architectural Management, Kaohsiung City Government</td>
</tr>
<tr>
<td></td>
<td>• Deputy Director, Department of Construction, Kaohsiung City Government</td>
</tr>
<tr>
<td></td>
<td>• Chief of Construction Management, Department of MRT, Kaohsiung City Government</td>
</tr>
<tr>
<td>Local Organization (4)</td>
<td>• Director, Kaohsiung Architect Organization</td>
</tr>
<tr>
<td></td>
<td>• Director, Kaohsiung Interior Treatment and Design Organization</td>
</tr>
<tr>
<td></td>
<td>• Director, Spatial Aesthetics Organization</td>
</tr>
</tbody>
</table>
3.3. Establishing a Strategic 4P Assessment program

According to the consequences of interview, we found out the individual stakeholders’ emphasis on the environmental classes based on their own affiliation and profession. The interview’s result from local organization was emphasized on the studies of the professional field of “plan” and “program”, other than the result from decision-maker on the field of “policy”. After concluding the results of individual interviews, we established the frameworks the environmental classes based on the steps of Strategic 4P Assessment. (Table 3) This suggestive program showed an effective and strategic ways integrating with the interior design education and guided the students to play an important role for sustainable environment development.

### Table 3: The suggestive program of environmental classes for Interior Design education.

<table>
<thead>
<tr>
<th>Step</th>
<th>Basic Objective</th>
<th>Relevant Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>Awareness of connotation, conception, politics and the relevant regulations, and standards for sustainable planning</td>
<td>• Introduction of Sustainable Environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Architectural Management and Treatment Laws</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• EEHW (Ecology, Energy Saving, Waste Reduction, Health)</td>
</tr>
<tr>
<td>Plan</td>
<td>Awareness of environmental context, space, natural resources and ecological planning</td>
<td>• Ecological Planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Green Design of Space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Green and Health Buildings</td>
</tr>
<tr>
<td>Program</td>
<td>Understanding of the practice and technique of green building design, indoor environment and health</td>
<td>• Green Building Material (GBM: ecological, healthy, high-Performance, recycle)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Indoor Environment Quality (IEQ)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Indoor Environment Health (IEH)</td>
</tr>
<tr>
<td>Project</td>
<td>Establishing ability to act with knowledge of built green environments and indoor quality, health</td>
<td>• Practice and Topic of Green Building</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Building Regreen Study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Professional Practice of IEQ and IEH</td>
</tr>
</tbody>
</table>

### 4. Conclusion

The designed and built environment has a profound impact on our natural environment, economy, and health. Breakthroughs in building science, technology, and operations are the main challenge to designers who want to build green and maximize both economic
and environmental performance. Green remodeling is the design and construction of projects that reduce the environmental impacts of remodeling, including energy, water, materials consumption, waste generation, and harmful emissions, both indoors and out. Interior designers would also utilize their educational training, experience, and intuition to design context-specific, uniquely creative spatial solutions that meet both client and end user needs.

By protecting the natural resources of the site and integrating with environmental characteristics, we hope to develop that a grandeur and contemplative spirit govern both health and sustainability, and this approach will have resonance on a much humbler scale as well. An important challenge is to ensure that the program of environmental education by this suggestive action empowers the students able to design green spaces and healthy indoor environment rather than serve as a vehicle for destroying nature. Out of this research, the key approaches are to develop the environmental classes for students who are able to realize the relationships between interior design profession and environment response, and promote their environmental awareness. On the other hand, environmental education of local people is an access of success on the environmental design. Not only the interior design students are trained to be a designer and engineer, but also an environmental educator. By the train of environmental education, the students will play an important role of the environmental planning where satisfies the global trend of sustainable development.

This suggestive program of environmental education for interior design education based on Strategic 4P Assessment will be a cornerstone of sustainable development. From the establishment of notion for environmental protection and sustainable planning, the students can apply the science to design spaces with health and green where integrates with natural resource and expresses a humble spirit with existed environment. The suggestive classes, which were established by the main stakeholders, will promote the students’ awareness of environmental design based on the global notion of sustainable development.

![Diagram](image.png)

**Figure 2:** The steps of environmental classes
5. Reference


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6. Presentation of Authors

Wang, Ching-Ya

• Associate Professor/ Architect, ChengShiu University, Department of Architecture and Interior Design, Kaohsiung County, Taiwan
• Director, Board of Directors, ChengShiu University, Taiwan

Huang, Hung-Chieh

• Associate Professor (Part-time)/ Architect, ChengShiu University, Department of Architecture and Interior Design, Kaohsiung County, Taiwan
• Chief of Architecture Section, Construction Management Division, Mass Rapid Transit Bureau, Kaohsiung City Government, Taiwan