
การบูรณาการการเรียนรู้แบบกรณีศึกษา รายวิชา “การออกแบบพื้นที่อยู่อาศัย” ของวิทยาลัยอาชีวศึกษาระดับสูงเพื่อพัฒนาความสามารถด้านการออกแบบและความรับผิดชอบต่อสังคม

Research on the Excavation and Integration of Case-based Learning in the “Residential Space Design” course in Higher Vocational Colleges to Improve Design Abilities and Social Responsibility

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์ 1) เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนที่เกิดจากการจัดการเรียนรู้แบบกรณีศึกษา (Case-based Learning) ในรายวิชา การออกแบบพื้นที่อยู่อาศัย และ 2) เพื่อพัฒนาความสามารถด้านการออกแบบและความสำนึกใน

ความรับผิดชอบต่อสังคม โดยใช้การจัดการเรียนรู้แบบกรณีศึกษาในรายวิชาดังกล่าว กลุ่มตัวอย่างที่ใช้ในการวิจัย คือ นักศึกษาชั้นปีที่ 1 สาขาวิชาออกแบบตกแต่งภายใน สถาปัตยกรรม ปีการศึกษา 2567 จำนวน 36 คน ได้จากการสุ่มตัวอย่างแบบง่าย (Simple Random Sampling) โดยใช้ชั้นเรียนเป็นหน่วยการสุ่ม เครื่องมือที่ใช้ในการวิจัยประกอบด้วย 1) แบบทดสอบวัดผลสัมฤทธิ์ทางการเรียน (ค่าความยากอยู่ระหว่าง 0.35–0.80 ค่าอำนาจจำแนกอยู่ระหว่าง 0.28–0.86 และมีค่าความเชื่อมั่นเท่ากับ 0.86) 2) แบบประเมินความสามารถด้านการออกแบบ และ 3) แบบประเมินความสำนึกใน ความรับผิดชอบต่อสังคม การวิเคราะห์ข้อมูลใช้สถิติ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที (t-test)

ผลการวิจัยพบว่า 1) นักศึกษาที่ได้รับการจัดการเรียนรู้แบบกรณีศึกษา มีคะแนนเฉลี่ยหลังการเรียน (96.5, S.D. = 1.57) สูงกว่าคะแนนเฉลี่ยก่อนการเรียน (65.8, S.D. = 2.11) อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 2) ความสามารถด้านการออกแบบ และความสำนึกในความรับผิดชอบต่อสังคมของนักศึกษา มีการพัฒนาเพิ่มขึ้นอย่างมีนัยสำคัญหลังจากได้รับการจัดการเรียนรู้แบบกรณีศึกษา ซึ่งเป็นแนวทางที่มีประสิทธิภาพในการเสริมสร้างทักษะวิชาชีพและจิตสำนึกทางสังคมในนักศึกษา อาชีวศึกษา

คำสำคัญ: การเรียนรู้แบบกรณีศึกษา, ความสามารถด้านการออกแบบ, ความรับผิดชอบต่อสังคม, รายวิชาการออกแบบพื้นที่อยู่อาศัย

Abstract

This research had objectives to: 1) to compare the learning achievement resulting from case-based learning management in the Residential Space Design course; and 2) to develop design ability and awareness of social responsibility by using case-based learning management

in the course. The sample group used in this research consisted of 36 first year students in the Architectural Interior Design program of the 2024 academic year. They were selected by simple random sampling, using the classroom as the sampling unit. The research instruments consisted of: 1) a learning achievement test (with difficulty values ranging from 0.35–0.80, discrimination values ranging from 0.28–0.86, and a reliability value of 0.86); 2) a design ability assessment form; and 3) an awareness of social responsibility assessment form. The data were analyzed by using mean, standard deviation, and t-test.

The research findings revealed that: 1) the students who received case-based learning management had a post-learning mean score (96.5, S.D. = 1.57) higher than the pre-learning mean score (65.8, S.D. = 2.11) with statistical significance at the .05 level; and 2) the students' design ability and awareness of social responsibility were significantly improved after receiving case-based learning management, which is an effective approach in enhancing professional skills and social consciousness among vocational students.

Keywords: case- based learning, design abilities, sense of social responsibility, Residential Space Design course

Introduction

Today, the world is experiencing far-reaching and unparalleled changes. The escalating repercussions of the COVID-19 outbreak, the re-emergence of anti-globalization attitudes, and the escalation of regional

strife, coupled with long-standing problems like unilateralism, have notably influenced the progress of a modern socialist country and the general prosperity of its citizens. In his address at the 20th National Congress of the Communist Party of China, President Xi Jinping remarked:

“Our country has now entered a critical period characterized by the coexistence of historical opportunities and severe challenges, with rapidly increasing uncertainties,” and “the changes in the world, the era, and history are unfolding in ways that surpass our imagination.” He further emphasized that: “A strong youth leads to a thriving nation,” and “the fundamental issue of education is what kind of people to cultivate, how to cultivate them, and for whom to cultivate them.” (Jinping, 2022)

These statements underscore the pivotal role of university students as a key force in ensuring the longevity of the Party’s governance and the nation’s long-term stability. Proper education and guidance of university students are essential not only for addressing the “two overarching situations” faced by the Party and the state but also for advancing sustainable development. This is a political imperative for the continued progress of the nation.

The cultivation of new-generation talents requires an emphasis on moral integrity and public virtue, as well as the development of strong value-oriented and civic and ethical values. Accordingly, the incorporation of moral and political instruction into specialized courses is not a novel reform in the context of contemporary higher education. Rather, it reflects the implementation of the spirit of President Xi Jinping’s speeches and educational philosophy.

For students majoring in architectural interior design, this integration is particularly vital, as they are expected to contribute to the creation of a better living environment for society. In his report to the 19th National Congress of the Communist Party of China in 2017, President Xi Jinping stated that socialism with Chinese characteristics has entered a new era, and the principal contradiction in Chinese society has evolved into the tension between people’s growing needs for a better life and unbalanced, inadequate development (Jinping, 2017) Furthermore, in the 20th National Congress, he emphasized that in order to fully build a modern socialist country, it is imperative to “adhere to the path of socialist cultural development with Chinese characteristics, enhance cultural confidence, strengthen spiritual strength, and realize the great rejuvenation of the Chinese nation”

Thus, architectural interior design programs in higher education institutions must aim not only to produce professionals with technical expertise but also to ensure that students are equipped with value-oriented and civic-minded consciousness aligned with the values of socialism with Chinese characteristics. Educators should therefore focus not only on teaching professional skills but also on reinforcing value-oriented and civic-minded education, fostering value-based learning alongside knowledge acquisition. The ultimate goal is to nurture morally grounded and professionally competent individuals “virtuous and talented” design professionals—who can contribute to national development and social stability. (Wu, 2017; Zhao, 2018; Zhang & Li, 2018)

Against this backdrop, this study adopts the framework of “Curriculum Value-oriented and civic-minded Education” to investigate the incorporation of Value-oriented and civic-minded factors within interior design courses in higher education. It aims to explore effective strategies for such incorporation to build a new landscape of holistic education that combines professional competency with civic responsibility.

Along with the fast growth of the social economy and the steady rise in living standards, people’s demands for residential spaces have gone beyond simple functionality. Increasing emphasis is now placed on comfort, aesthetics, and personalization. This trend presents substantial opportunities for the residential space design industry but also imposes higher demands on the professionalism and creativity of practitioners.

As an essential platform for cultivating applied talents, the course Residential Space Design carries the responsibility of supplying society with high-caliber design professionals. However, conventional teaching methods tend to concentrate mainly on imparting theoretical knowledge, frequently overlooking the cultivation of students’ practical abilities and creative thinking. Consequently, numerous students struggle to put theory into effective use in actual design situations or to satisfy the practical needs of the industry. (Zhao, 2018; Zhang & Li, 2018)

Zhao (2018) and Zhang and Li (2018) emphasized that case-based instructional approach—a teaching method that involves students through the analysis, discussion, and application of real-life cases—provides a useful option. By integrating real design cases into the course, students acquire a

more straightforward grasp of theoretical concepts and learn to use them to tackle practical problems.

This method promotes active participation and interaction, stimulating learners' interest, fostering critical thinking, enhancing problem-solving abilities, and encouraging teamwork. Additionally, it prompts students to consider broader societal issues such as aging populations and sustainable development, thus instilling a sense of social responsibility. (Wu, 2017; Zhao, 2018; Zhang & Li, 2018)

Accordingly, this study applies a case-based learning approach into the Residential Space Design course within the context of higher vocational education institutions. The objective is to explore how real-life case integration can enhance students' design abilities and social awareness, thereby offering innovative approaches to the development of skilled professionals in residential space design who are attuned to the evolving needs of contemporary society.

Research Objectives

1. To compare the learning achievement based on the Case-based learning approach in the Residential Space Design course.
2. To develop design abilities and sense of social responsibility through the implementation of a Case-based learning approach in the Residential Space Design course.

Research Framework

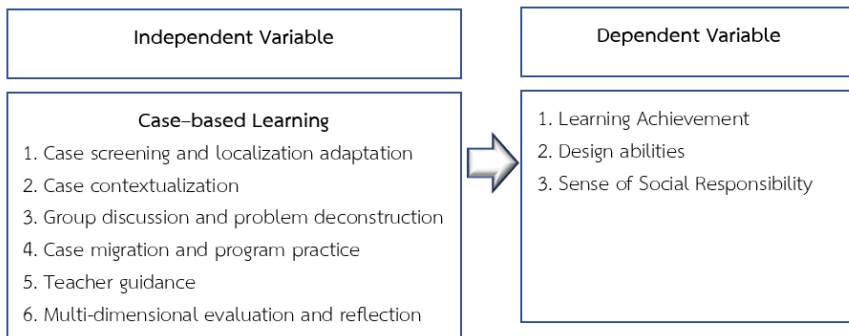


Figure 1: Research Framework

Research Methodology

1. Research Design

This research adopted a quasi-experimental study design, utilizing the one-group pretest- posttest design. The experimental process was carried out in accordance with the structure described as follows:

Table 1: Research Design

Pretest	Experiment	Posttest
T_1	X	T_2

Symbols used in the research:

T_1 represents the pre-test administered prior to the instructional intervention

X represents learning activity implemented during the study

T_2 represents the post-test administered after the instructional intervention

2. Population and Sampling

The population used in this study comprised 253 students enrolled in the Architectural Interior Design program in the academic year 2024. The study sample consisted of 36 students from Class 1 of the 2024 cohort in the Architectural Interior Design program, selected through simple random sampling, with the classroom serving as the sampling unit.

3. Area of study

Chongqing Vocational College of Telecommunications: A higher vocational college located in Chongqing, Southwest China.

4. Study Execution Time

Second semester of the 2024-2025 academic year (March 2025). It will last 4 weeks, 8 credit hours per week for a total of 32 credit hours.

5. Research Instruments

5.1 Pre-test and post-test

The pretest-posttest comparison method is a research approach used to evaluate the effectiveness of an intervention by comparing participants' status or performance before and after the intervention or treatment. A **pre-test** is administered prior to the intervention to establish a baseline measure of the participants' knowledge, attitudes, or behaviors. Following the intervention, a **post-test** is conducted to assess changes and evaluate the impact of the intervention on the research subjects.

5.2 Interview Form

The interview-based survey method is a qualitative research method that entails gathering information by engaging in direct interaction with study participants, either face-to-face or via telephone. Interviews may be structured, in which the interviewer follows a predetermined set of questions in a fixed order, or semi-structured, which allows the interviewer to adapt or modify questions based on the flow of the conversation.

One of the primary advantages of the interview survey method is its ability to provide in-depth insights into participants' opinions, experiences, and emotions. Interviewers can probe further based on respondents' answers, thereby obtaining richer and more nuanced information. Furthermore, interviews can foster a trusting relationship between the researcher and the participants, which often leads to the collection of more authentic and meaningful data. However, this method can be time-consuming, and the processes of data collection and analysis tend to be more complex compared to other methods.

6. Data Collection

6.1 Pre-test-post-test comparison method

The objective of this research is to examine ways to effectively enhance students' design competence and social responsibility awareness by integrating and analyzing case studies in the "Residential Space Design" course at vocational colleges. The pretest-posttest comparison approach was adopted to contrast and assess shifts in students' abilities before and after case study implementation, aiming to offer empirical evidence for teaching reform.

6.2 Interviews and case analysis

Interviews with teachers, designers, and front-line managers of residential spaces to understand how they integrate social responsibility into the design process and the impact of these elements on residential spaces. At the same time, typical cases are selected for in-depth analysis to discuss the specific application and effect of the element of responsibility in the design of living space. Interviews and case studies can provide rich background information and empirical support for quantitative research.

Research Results

1. Results of the analysis on the comparison of students' learning achievement through the implementation of Case-based learning.

This section presents the analysis of students' learning achievement before and after participating in the case-based learning activities in the Residential Space Design course. The comparison aims to assess the effectiveness of the instructional approach on students' academic performance.

Table 2: Results of the analysis on the comparison of students' learning achievement through the implementation of Case-based learning

Test	Sampling	Total score	Mean	S.D.	t	Sig
Pre-test	36	100	65.8	2.11	184.84	0.00**
Post-test	36	100	96.5	1.57		

** Statistically significant at the .05 level

According to the table, students who received instruction through a case-based learning approach had a post-test mean score of 96.5 with a standard deviation of 1.57, which was significantly higher than the pre-test mean score of 65.8 with a standard deviation of 2.11. The difference was statistically significant at the .05 level.

2. Results of the analysis of students' design abilities through the implementation of Case-based learning.

The result of the analysis of the progress in students' design abilities through the implementation of case-based learning are presented in the following table.

Table 3: Results of the analysis of students' design abilities through the implementation of Case-based learning

Total number of student	Average score of design abilities		
	Pre-test (100)	Post-test (100)	Percentage
36	65.97	97.42	47.66%

In terms of design abilities, students average scores have risen significantly from 65.97 to 97.42 points, representing a significant improvement of 47.66%. This data clearly demonstrates that the implementation of case-based learning methodology has achieved breakthrough improvements in multiple dimensions of students' design abilities. By examining specific metrics, we can comprehensively and

intuitively validate these enhancements, thereby providing robust evidence for the significant role of case-based learning in cultivating design abilities.

Furthermore, the analysis of mean scores for each aspect of design abilities was conducted and is presented in the following table.

Table 4: Results of the analysis on design abilities by each aspect

Each aspect of design abilities	Average score of design abilities		
	Pre-test (100)	Post-test (100)	Percentage
Master basic design knowledge	65	96	47.69%
Understanding the basic functions of living space	70	98	40.00%
Application of ergonomics	65	95	46.15%
Lighting and lighting design	70	97	38.57%
Space planning and layout	62	94	51.61%
Dynamic partition design	65	96	47.69%
Storage space design	60	93	55.00%
Innovative design thinking	60	98	63.33%
Smart home system applications	55	97	76.36%
Variable space design	60	99	65.00%
Mean	63.2	96.3	
S.D.	4.73	1.88	

Specifically, students have demonstrated significant progress across ten key dimensions: the breadth of design thinking, innovative conceptualization, rational spatial layout, material selection appropriateness, proficiency in ergonomic application, scientific approach to lighting design, integration of smart home systems, skillful incorporation of traditional cultural elements, depth of sustainable design implementation, and practical feasibility of project execution. The post-test scores in all dimensions were higher than the pre-test scores.

3. Results of the analysis of students' sense of social responsibility through the implementation of Case-based learning.

This section sets out the findings of the analysis regarding students' social responsibility awareness after they participated in case-based learning activities, with the aim of evaluating how this teaching method affects their social responsibility awareness.

The findings of the analysis concerning the progress in students' social responsibility awareness achieved through the implementation of case-based learning are presented in the table below.

Table 5: Results of the analysis of students' sense of social responsibility through the implementation of Case-based learning

Total number of student	Average score of sense of social responsibility		
	Pre-test (100)	Post-test (100)	Percentage
36	66.08	96.00	45.27%

In terms of social responsibility awareness, the average score of students rose significantly from 66.08 to 96.00 points, a notable increase of 45.27%. This data clearly shows that the application of case-based learning has achieved significant improvement in multiple dimensions of students' social responsibility awareness. By examining specific indicators, we can comprehensively and intuitively confirm this enhancement effect, thus offering strong support for the important role of case-based learning in cultivating social responsibility.

Furthermore, the analysis of mean scores for each aspect of sense of social responsibility was conducted and is presented in the following table.

Table 6: Results of the analysis on social responsibilities by each aspect

Each aspect of sense of social responsibility	Average score of sense of social responsibility		
	Pretest (100)	Posttest (100)	Percentage
Care design for vulnerable groups	63	97	53.97%
Accessibility design for the elderly	65	98	50.77%
Safe design for children	70	96	37.14%
Cultural confidence and inheritance	62	99	59.68%
Chinese traditional culture elements are integrated	60	96	60.00%

Each aspect of sense of social responsibility	Average score of sense of social responsibility		
	Pretest (100)	Posttest (100)	Percentage
Understanding the characteristics of Chinese style design	60	100	66.67%
Exploration and innovative design	60	99	65.00%
Sustainable development	55	95	72.73%
Exploring the future of lifestyle	60	92	53.33%
Mean	61.67	96.89	
S.D.	4.15	2.47	

Conclusion and Discussion

1. Conclusion

1.1 Students who received instruction through a case-based learning approach had a post-test mean score of 96.5 with a standard deviation of 1.57, which was significantly higher than the pre-test mean score of 65.8 with a standard deviation of 2.11. The difference was statistically significant at the .05 level.

1.2 The students' design abilities and sense of social responsibility improved significantly after the application of case-based learning, as shown by post-test scores that were higher than pre-test scores.

2. Discussion

2.1 The findings revealed that students who participated in case-based learning achieved notably higher post-test results than their pre-test results at the 0.05 level of statistical significance, which aligns with Hypothesis 1. This improvement may stem from the characteristics of case-based learning, which emphasizes exposure to diverse comprehensive design cases that match the learning goals specified by teachers. Such an approach likely deepened students' comprehension and knowledge mastery, thereby boosting their academic performance. This finding is consistent with the study by Hua and Ming (2018), titled "A Study on the Use of Case Teaching in Higher Vocational Education Instruction," which examines how case teaching can arouse students' interest and enhance classroom engagement through real cases. Their research points out that students take a more active part in classroom activities, and this in turn leads to better academic performance.

The marked progress in students' academic performance after participating in case-based learning (CBL) can be accounted for by several educational theories that underpin active and experiential learning methods. Kolb's Theory of Experiential Learning (1984) suggests that effective learning takes place via a cyclical process comprising concrete experience, reflective observation, abstract conceptualization, and active experimentation. In the context of this study, case-based learning offers learners authentic design situations (concrete experiences), encourages them to reflect on different design strategies (reflective observation), helps them develop conceptual understanding (abstract conceptualization), and

enables them to apply what they have learned in practical tasks (active experimentation). This cycle strengthens cognitive processing and fosters deeper learning.

Furthermore, Vygotsky's Sociocultural Theory (1978) emphasizes the importance of social interaction and the Zone of Proximal Development (ZPD) in learning. CBL promotes collaborative discussion, peer interaction, and teacher scaffolding—mechanisms that support learners in constructing knowledge beyond their current capabilities. This aligns with the observed results, where students showed measurable academic progress following case-based instructional interventions.

Additionally, Constructivist Learning Theory, particularly as articulated by Piaget (1972) and Bruner (1966), supports the use of case-based methods by advocating for learner-centered environments where students actively construct meaning from real-world problems. The exposure to diverse, context-rich design cases helped students connect prior knowledge to new information, enabling them to construct their own understanding and apply it meaningfully in design tasks.

These theoretical perspectives reinforce the finding that case-based learning is a powerful pedagogical strategy for enhancing not only content knowledge but also higher-order thinking skills, such as design reasoning, problem-solving, and reflective judgment. The results of this study add to the expanding body of evidence supporting CBL as an effective instructional approach in design education, particularly within vocational and practice-oriented programs. (Vygotsky, 1978; Kolb, 1984; Zhao, 2018; Zhang & Li, 2018)

2.2 The outcomes of this study show that students' design abilities improved significantly after participating in case-based learning activities. This improvement is evident in post-test scores that were higher than pre-test scores, suggesting that the instructional method effectively enhanced students' design skills. The use of real-world design cases allowed students to engage in analytical thinking, problem resolution, and the application of knowledge in authentic contexts. This approach facilitated deeper understanding and promoted the development of both creative and practical competencies. These results align with the study conducted by Zhao (2018), "The Influence of Case-based learning method on the Design Ability of Higher Vocational Students," which reported that case-based learning positively influences students' design ability. The consistency between the two studies supports the pedagogical relevance of case-based learning in vocational education, particularly in design-related discipline.

2.3. The results of the analysis regarding students' sense of social responsibility, developed through case-based learning, are consistent with the findings of Wu (2017) in the study titled "*How the case method can foster a sense of social responsibility.*" Wu examined social welfare design cases, such as barrier-free housing, to illustrate how students can become more aware of the need for designers to consider the needs of disadvantaged groups. The study emphasized that case-based learning plays a crucial role in fostering students' awareness and responsibility toward society. Similarly, in the present research, the use of socially relevant design

cases encouraged students to reflect on ethical and inclusive design principles, thereby enhancing their sense of social responsibility.

Recommendation

1. Deepening Research on Case-Based Learning: Future studies could further investigate the application outcomes of case-based learning methods across different courses and their synergistic interactions with various instructional approaches. Through comparative analysis, the study aims to identify optimal teaching combinations that comprehensively enhance students' overall competencies.

2. Expanding Approaches for Cultivating Social Responsibility: Beyond case-based learning, schools can explore other effective means such as social practice activities and volunteer work to further strengthen students' social responsibility awareness. Meanwhile, an evaluation framework for social responsibility can be established to comprehensively assess students' learning results.

3. Strengthening School-Enterprise Cooperation : Schools can establish closer cooperative relationships with enterprises to jointly develop teaching resources and internship training bases. Through school-enterprise cooperation, students can better understand industry needs and development trends, and enhance their employment competitiveness and innovation ability.

References

- Bruner, J. S. (1966). *Toward a theory of instruction*. Harvard University Press.
- Hua, Z., & Ming, L. (2018). Research on the application of case-based learning method in the teaching of higher vocational colleges. *Vocational Education Research*, (5), 45–48.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.
- Piaget, J. (1972). *The psychology of the child*. Basic Books.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Wu, F. (2017). How the case method can foster a sense of social responsibility. *Educational Exploration*, 9, 56–58.
- Xi, J.P. (2017). Report at the 19th National Congress of the Communist Party of China. Peoples Daily, 1.
- _____. (2022). Speech at the 20th National Congress of the Communist Party of China. Peoples Daily, 1.
- Zhang, H., & Li, M. (2018). Research on the application of case-based learning method in the teaching of higher vocational colleges. *Vocational Education Research*, (5), 45–48.
- Zhao, M. (2018). The impact of case-based learning method on the design ability of higher vocational students. *Theory of Vocational Education*, (7), 67–69.

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