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A Model for the Instructional Factors of Curatorial Teaching in Design Education

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ABSTRACT

The increased demand for design exhibitions directly reflects the demand for designer-curators to manage cultural policies and social needs. However, in the current design education system in Taiwan, no curation-related curriculum planning exists. Therefore, this study attempted to design a practical curation course focused on "designer curated exhibition" experiential learning. This study encouraged design students to consider the formation of exhibitions from a comprehensive point of view. The teaching and learning process gave rise to a model of the instructional factors of curatorial education. We found a positive correlation between "learning process and motive" and "learning effectiveness." Moreover, positive correlations were observed between "curation theories," "learning processes and motives," and "curatorial experience." This demonstrates that curatorial practice increases the curator's ability to apply curatorial theory, and excites the curator's motivation to learn. However, the performance of self-evaluation reflects a lack of self-confidence and recognition; this lack may be caused by the restrictions of time and space, and by the complexity of curating teamwork communication. This model will continuously be translated and validated through the curriculum in the future, and the course will encourage students' self-learning to enhance practical teaching and planning.

Keywords:
Curatorial Teaching; Instructional Factor; Design Education; Learning Effectiveness

1. Introduction

The thriving development of Taiwan's design industry in recent years has caused the design-exhibition industry to flourish. Taiwan has a growing awareness of the necessity to foster new curators. The National Culture and Arts Foundation of Taiwan has launched the "curator-empowering training system" at Hong-Gah Museum in an attempt to foster curators systematically. Nonetheless, many curatorial scholars in Taiwan have noted the lack of effective learning platforms and channels for fostering curators. Direct contact with people who have practical experience is unavailable. Instead, students receive "experience instruction" or experience in the practical operation of small exhibitions, resulting in a disconnection between theories and practice (Lin Ping 2010). Current design incubation emphasizes trends and demand for talent incubation. Hence, design educators must establish solid foundations in the knowledge and practice of curation.

For this reason, we codesigned a course of "art administration and curatorial practice" with a graduate institute of design. We collaborated with instructors to jointly design the content of a curatorial program for a department of design. This program was based on an instructional core that enables students to experience the roles of curators. Students observed, evaluated, and reflected on the curatorial knowledge learned

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through experiencing curatorial work in person in a learning scenario. Moreover, the study explored the specific factors that influence the learning effectiveness of curatorial education. Thus, the primary objectives of this study were (1) to analyze the correlations between factors that influence the effectiveness of curation learning experiences and indicators of learning effectiveness and (2) to analyze the effect of the correlations of all factors that influence the effectiveness of curation learning experiences. In addition, this study provided conclusions regarding the factors that influence the effectiveness of curatorial education in the department of design.

2. Literature review

2.1 Educational meaning of curatorial design

A curator is an intermediary who makes outbound connections from network nodes, integrates the information within an organization, and reproduces ideas. Curators establish links to launch exhibitions successfully (Lu 2004). The work of a curator not only involves the contents of various projects but also requires numerous talents, including art, history, brokerage, mediating and coordination, publicity, exhibition design, and fundraising skills (Heinich & Pollak 1996). Such work requires fair, equitable, and open coordination with all parties to form a social network effect for the exhibition. Moreover, the curation of an exhibition requires the application of design and art knowledge, writing and verbal expression, work piece selection and planning, the creative skill of presenting the exhibition hall visually and in three dimensions, as well as coordination, communication, and problem solving (Wu C.C. 2011). Lin (2010) specifically mentioned that the incubation of curators requires seven capacities, including history, classics technology, and control of contemporary issues, interdisciplinary technology, field surveying, ethics, and reflectiveness. A contemporary curator must be a responsive and temporary organizer whose role changes at all times to link with different units (Ernest et al. 2009). Moreover, because the conceptual importance of curation in discourse becomes increasingly technical, curatorial education training centers must help curators to establish a foundation in theories, conceptual focus, and the different appearances of topic presentation. Curation instruction is integrated with design instruction to train students to integrate planning with their expertise in design and arts.

2.2 Evaluation indicators for learning effectiveness

Learning effectiveness refers to the changes in knowledge, skills, and attitude manifested within students after instruction (Piccoli 2001). Betz & Klingensmith (1970) proposed the following six dimensions of learning effectiveness: school environment and equipment, administrative measures and planning, instructor characteristics, instructional method, learning effectiveness, and peer relationships. Field & Giles (1980) expanded the six dimensions into the following eight dimensions: academic enlightenment of teachers, academic enlightenment of peers, participation in the school's administrative decisions, interpersonal relationships with peers, teacher–student relationships, freedom of planning activity, academic achievement, and study pressure. Ma (1989) discussed four dimensions, namely teachers, courses, learning effectiveness, and international relationships. Various subsequent studies have adopted these four factors of effectiveness for evaluation (Wu W.R. 1992; Zheng 1995; Chen 1995; Wang 2003).

Scardamalia & Bereiter (2006) suggested that learners must be motivated to learn and that the psychological learning process is a mediator that should not be neglected for its influence on learning effectiveness. Hence, "learning processes and motives" is also included as one of the metrics for learning effectiveness. The constructs for learning effectiveness are as follows: theoretical enlightenment, course design, teacher instruction, learning environment, learning outcome, faculty, interpersonal relationships, administrative measures, and teacher–student interaction. In the current study, diverse viewpoints on the evaluation of learning effectiveness were compiled from the literature; four factors of curatorial learning effectiveness are listed in Table 1, in accordance with the planning and content of curation instruction. These factors include curatorial theories, learning processes and motives, self-evaluation, and curatorial experience. The six evaluation indicators of learning effectiveness are given in Table 2.

Table 1. Influence factors on learning effectiveness of curation (23 items)

Curatorial Theories	A1. Improve my planning capacity for curation through learning. A2. Help me think and express the concepts for curatorial issues. A3. Understand the work content of curation. A4. Improve my thinking capacity for curatorial issues through learning. A5. Enhance my comprehension of the implementation process of curation thorough learning. A6. Improve my proposal skills through learning.
Self-Evaluation	A7. Perceive satisfaction toward self-performance after learning. A8. Understand self-characteristics and capacity after learning. A9. Review and revise flaws. A10. Compile team opinions and collectively solve the problems and difficulties encountered. A11. Improve my capacity for topic research and creative thinking A12. Enhance my philosophy of teamwork.
Learning Processes and Motives	A13. Course planning offers systematic and organizational learning. A14. Course planning and content are intermediate for me. A15. Overall improvement of my acquaintance with and hands-on experience of curation. A16. Collaborative teaching with instructors helps me learn in-depth and understand curatorial courses. A17. The professionalism of instructors helps me learn curatorial knowledge. A18. The arrangement of curatorial reflection helps me comprehend myself and enhances learning effectiveness.
Curatorial Experience	A19. Practical drills enhance my creative aspiration for curation. A20. Practical drills help me understand the method for focusing on issues. A21. Professional theories and practice are introduced and applied. A22. Curatorial experience helps me use, plan, and learn about exhibition space. A23. Practical drills help me in thinking and facilitate my effective interaction with the audience.

Table 2. Evaluation indicators of learning effectiveness (6 items)

Learning Effectiveness	B1. Emphasis on both the theories and practice of curatorial planning. B2. The content of curatorial course helps with practical learning. B3. Helping me with the expansion and learning of new knowledge. B4. Enhancing my understanding and acquaintance with curation. B5. Meeting my learning expectation and goals in curation. B6. Improving my professional skills related to curation.

3. Research method and implementation of curation instruction

3.1 Research process

The curation instruction and research process is shown as figure1. The instruction included two parts, which were curatorial planning theory and curatorial practice. The content of curricula curatorial planning theory was composed by curatorial thesis, international curating case studies, proposal writing and spatial decoration. After the course, which included first-hand experience of actual curating an exhibition, the students completed a questionnaire survey regarding the effectiveness of the instruction. This study adopted semi-structured questionnaires as the evaluation method for instructional performance. The subjects were 11 students, including first and second-year master's program students and senior undergraduate students majoring in industrial design.

The questionnaire survey scale included two parts, namely factors influencing the learning effectiveness of curation and indicators of learning effectiveness. After the questionnaires had been completed, they were analyzed through SPSS software. In addition to a general descriptive statistical analysis of teaching effectiveness, the statistics were analyzed for the correlation between the indicators of the two parts; relevant coefficients were examined for analysis of the factors influencing curatorial education. Moreover, the contents of interviews before and after the instruction were compared and incorporated to expound the teaching content for reference and for the development of curation teaching.

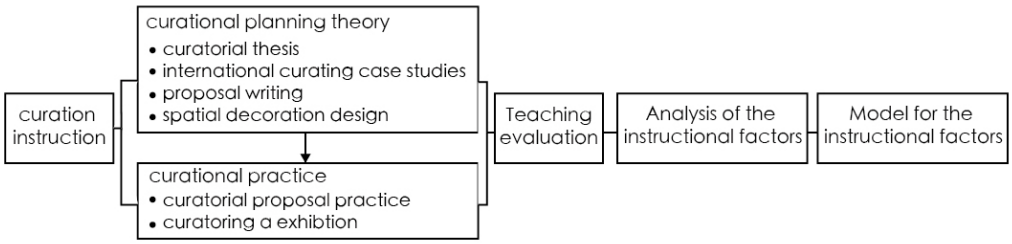

Figure 1. Instruction and research process

3.2 Research model and hypotheses

This study emphasized a relationship model between the factors that influence learning effectiveness and the indicators of learning effectiveness, as shown in figure 2. Specifically, the four influence factors of the learning effectiveness of curation (curatorial theory factors, self-evaluation, learning processes and motives, and curatorial experience) were explored in terms of the indicators of learning effectiveness. The research model of the study is shown in H1–H6.

H1: Analyze the correlations between the factors of effective learning of curation and the indicators of learning effectiveness.

H2: Analyze the relevant influence of curatorial theory factors on learning effectiveness.

H3: Analyze the relevant influence of self-evaluation factors on learning effectiveness.

H4: Analyze the relevant influence of learning processes and motives factors on learning effectiveness.

H5: Analyze relevant influence of curatorial experience factors on learning effectiveness.

H6: Analyze the correlation between the factors of curation learning effectiveness.

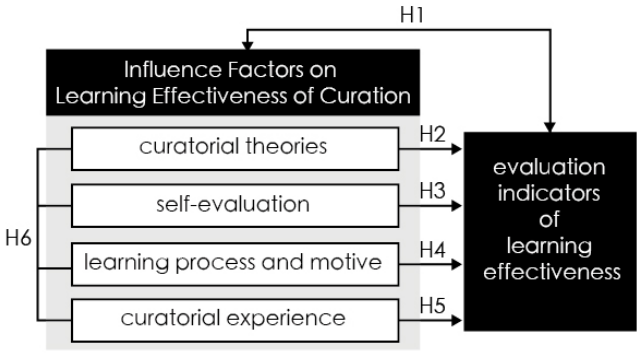

Figure 2. Research model

4. Results and analysis

Eleven questionnaires were collected from the students who received instruction; nine of the questionnaires were valid. The respondents were all from the same department and they were aged between 21 and 23 years. Despite the small sample size, the samples had a high level of similarity and a centralized background; hence, the results of the questionnaires underwent a statistical analysis of variance. The statistics were then incorporated with the qualitative data from in-depth interviews to draw conclusions regarding the instructional factors of curatorial education through quantitative comparison.

4.1 Overall performance of curatorial education

The overall evaluation of curation instruction is shown in Table 3. The highest possible positive evaluation for questionnaire results was 7. B2 received the highest overall score in the evaluation of learning effectiveness, followed by A22, A21, and B4, which obtained relatively high evaluations. Moreover, among curation instruction factors, A7 received the lowest evaluation, followed by A8, A6, and A19, which obtained relatively low evaluations.

Table 3. Means and standard deviations of the questionnaire items for curation instruction factors

Factors	Evaluation Indicators of Learning Effectiveness						Curatorial Theories							Self-Evaluation					Learning Process and Motive						Curatorial Experience				
Questions	B1	B2	B3	B4	B5	B6	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23
Means	6.0	6.5	6.1	6.2	5.8	6	6	6.1	6.1	6	6	5.5	5.1	5.3	5.7	5.7	5.6	6	5.8	5.7	5.6	6	5.8	6	5.5	6.1	6.2	6.3	6.1
Standard Deviation	0.8	0.5	0.7	0.6	0.7	0.7	0.5	0.6	0.9	0.5	0.5	0.8	0.9	0.7	0.4	0.8	0.7	1	0.6	0.9	0.8	0.7	0.6	0.7	1	0.6	0.8	0.7	0.6

These data regarding curation instruction reveal that the understanding of and acquaintance with theories of curation and the perception that instructors were integrated resulted in positive evaluations. However, the post-learning self-evaluation, self-performance, the learning of proposal skills, and acquaintance with self-capacity all had relatively low evaluations. Moreover, the level of difficulty for the course also received a relatively low evaluation. On the basis of overall feedback from the precourse and postcourse interviews, it was inferred that the expectations for exhibitions could not have been met due to the limitations of time, space, and the complexity of curating teamwork communication. Brief curatorial practice could not provide the actual and comprehensive execution of the detailed operations and practices of curation. These findings should be considered when making adjustments and corrections in future courses.

4.2 Factor correlation analysis

The reliability and validity of the questionnaire scale were analyzed prior to analysis of the correlation coefficients. This study verified the reliability and validity of all the factors of teaching effectiveness. The overall Cronbach's alpha coefficients reached as high as 0.962 (Table 4). Moreover, the reliability and validity of the factors was also greater than 0.950, suggesting that questions of the same factors were homogeneous and that the measuring questions of the factors were reliable.

Table 4. Reliability and validity

Cronbach`s Alpha	Cronbach`s Alpha Cronbach's Alpha Based on Standardized Items	No. of Items
.955	.962	29

4.2.1 Correlations between the factors of learning effectiveness

The correlation coefficients of the correlations between learning factors of curatorial education are shown in Table 5. The table reveals a positive correlation (0.536) between "evaluation indicators of learning effectiveness (B1–B6)" and "learning processes and motives (A13–A18)." A positive significant correlation (0.667*) exists between "curatorial theories (A1–A6)" and "Curatorial Experience (A19–A23)." A positive correlation (0.553) exists between "Self-Evaluation (A7–A12)" and "learning processes and motives (A13–A18)." A positive significant correlation (0.690*) exists between "learning processes and motives (A13–A18)" and "Curatorial Experience (A19–A23)." Moreover, the table also reveals a negative correlation (−.283) between "evaluation indicators of learning effectiveness (B1–B6)" and "Self-Evaluation (A7–A12)."

Table 5. Correlation coefficients for the correlations between the factors of learning effectiveness

	Evaluation indicator of learning effectiveness (B1-B6)	Curatorial theories (A1-A6)	Self-evaluation (A7-A12)	Learning process and motive (A13-A18)	Curatorial experience (A19-A23)
Evaluation indicator of learning effectiveness (B1-B6)	1	.281 .463	-.283 .460	.536 .137	.167 .668
Curatorial theories (A1-A6)	.281 .463	1	.289 .450	.446 .228	.667* .050
Self-evaluation (A7-A12)	-.283 .460	.289 .450	1	.553 .122	.488 .182
Learning process and Motive (A13-A18)	.536 .137	.446 .228	.553 .122	1	.690* .039
Curatorial experience (A19-A23)	.167 .668	.667* .050	.488 .182	.690* .039	1

* Correlation is significant at the 0.05 level (two-tailed)

4.2.2 Correlations between the factors of curatorial learning effectiveness

Regarding the correlation of questions between factors, the correlation coefficients reveal a positive significant correlation between the questionnaire items for three factors, namely curatorial theories, self-evaluation, and learning processes and motives. These correlations are interpreted in this section. A positive significant correlation (.678*) exists between B5 of the evaluation factor of learning effectiveness and A18 of the learning processes and motives factor, suggesting a positive influence of course planning that provides systematic and organizational learning (A18) instruction for the goals in curatorial learning (B5). However, a highly significant negative correlation was observed between the evaluation factors of learning effectiveness of A7 (−.612) and A12 (−.722*), which are factors of self-evaluation, indicating the influence of a negative significant correlation on self-satisfaction and teamwork in terms of the actual execution of curation.

The questionnaire items for the curation planning and learning of A1 (curatorial theory) revealed a high level of positive significant influence on A13, A15, and A17 (learning processes and motives). Moreover, positive correlations were observed for the content of curatorial planning instruction with the aspiration of curatorial creativity (.832**), the expansion and application of curatorial theories and practice (.866**), and helping students think and interact with the audience (.832**). A high level of positive significant correlation exists for A2 (curatorial theory factors) with A20 (1**) and A19 (.818**; curatorial experience), A14 (.904**) and A15 (.801**; learning processes and motives), and A10 (.804**; self-evaluation). The results suggested positive correlation between helping students with curatorial thinking, conveying acquaintance with curation, level of hands-on difficulty and focus of curatorial topics, theories and practice, and problem solving in teams. A positive significant correlations exist for A3 (curatorial theories) with A13 (.697*) and A17 (.697*); learning processes and motives), suggesting that, for the understanding of curatorial work, a positive correlation of practical drills operates between the creative aspiration and thinking in curation as well as with the interaction with the audience.

A4 and A5 were significantly correlated with the curatorial theories and learning processes and motives factors with the exception of A18, suggesting that the thinking training for curatorial issues and the comprehension of curatorial process in curatorial teaching have a positive correlation with the theoretical and practical application in learning process and actual curatorial operations. A6 (curatorial theories) was only significantly correlated (.802**) with A23 (curatorial experience factors), suggesting that enhancing curatorial skills positively correlates with the comprehension and outcome of self-learning.

High levels of positive correlation exist between A9 (self-evaluation) and A13 (.839**; learning processes and motives) and between A16 (.802**), A17 (.839**) and A13 (.839**), suggesting that the review and correction for self-deficiency in curatorial practice drills have influence on the positive correlations between enhancing creative aspiration for curation, spatial application and design, and the interaction with the audience in curatorial thinking. A high correlation exists between A2 (.804**) and A10 (curatorial theory), A14 (.857**; learning processes and motives), and A20 (.804**), A21 (.800**), and A22 (.778**; curatorial experience), suggesting that the concept and expression of learning curation, focus on curatorial issues, and the professionalism of instructors will help increase acquaintance with curation, thus enabling students to solve problems and difficulties in the curatorial practice training.

Among the factors of learning processes and motives, a high level of positive significant influence operates between A13 and A1 (.832**), A4 (.832**) and A5 (.832**; curatorial theories), and A9 (.839**; self-evaluation) and A21 (.804**; curatorial experience). This significance suggests that some positive correlation operates between curatorial planning capacity, thinking regarding curatorial topics, and comprehension of curatorial processes within the creative aspiration of curation. A2 (.904**) and A4 (curatorial theories), A10 (.857**; self-evaluation), and A19–A22 (curatorial experience) exhibit high levels of significant correlation, suggesting that students learning the concepts and expressions of curatorial issues and the collaborative teaching of instructors have a positive significant influence. Among the questions for A15, curatorial theory factors have high levels of positive significance except for A3. A high level of positive significant correlation exists between A11 (.816**; self-evaluation) and A20 (.801**; curatorial experience). The results reveal positive correlations between the comprehension of curatorial work, theories, and practical applications, as well as between the research and creative thinking capacity for curatorial issues and the upgrade of overall acquaintance. A positive significant correlation exists for A17 with A1 (.832**), A4 (.832**) and A5 (.832**;

curatorial theory), A9 (.839**; self-evaluation) and A21 (.804**; curatorial experience), suggesting that positive correlation exists between curatorial planning, thinking ability in curatorial issues, comprehension of curatorial process, collaborative instructor teaching, and thinking and interaction with the audience; in addition, these qualities affect self-performance and confidence in curating execution.

The high level of positive correlation for A19 (curatorial experience factors) with A2 (.818**; curatorial theories) and A14 (.809**; self-evaluation) suggests a positive correlation between the instructional plan for the comprehension of concepts in curatorial topics and methods and the level of learning difficulty in students. Positive significant correlations exists for A20 with A1–A4 (curatorial theory factors) and A10 (.804**), A14 (.904**), and A15 (.801**; self-evaluation), suggesting a positive correlation between the acquaintance with and practice of curation, curatorial planning, and the thinking and comprehension for the process and issues. A21 has a positive significant correlations with A9 (.832**) and A10 (.800**; self-evaluation) and A13 (.804**), A14 (.840**), and A17 (.804**; learning processes and motives), suggesting that the collaborative teaching methods of instructors has positive correlations with the self-examination and cooperation in teams, focus on curatorial issues, creative thinking, and interaction with the audience. A positive correlation exists between A23 and A4–A6 (curatorial theory factors), suggesting that the arrangement of reflective instruction for curation has a positive correlation with the learning and reflection of self-curatorial theories.

4.3 Model for instructional factors of curatorial education

The correlation analysis reveals that the following model can be formed (Figure 4) based on the learning factors of curatorial education. The findings demonstrate that a positive correlation exists between the factors of "learning processes and motives" and "evaluation indicators of learning effectiveness," suggesting that this specific correlation exerts some influence on learning effectiveness and particularly that an organizational learning process can enhance the expectations and objectives of learning. Moreover the relationships between the four factors of curatorial teaching reveal a close and significant positive correlation between "learning processes and motives" and "curatorial experience." Further analysis of the relevant coefficients suggested that the thinking and focus of curatorial issues and the repurposing of outcomes from curatorial theories and actual curatorial experience in the learning process are positively correlated, thus enhancing the acquaintance of students with curatorial work overall and helping teams solve problems jointly.

Furthermore, a positive correlation exists between the upgrading of curatorial skills in the instruction and the comprehension and outcomes of self-learning. However, mutual positive correlations exist between "self-evaluation," "learning processes and motives," and "curatorial experience." The coefficients for all questions specifically indicate that the method of instructors' collaborative teaching has a key influence on the exhibition design and teamwork execution; this can assist students to examine their roles in their teams, to reflect on their doubts regarding curatorial execution, and to correct themselves. Likewise, the negative correlation between self-evaluation and learning effectiveness must be considered. Future course planning can consider this negative correlation to boost students' self-satisfaction, sense of achievement, and guided teamwork through the execution of curatorial practice.

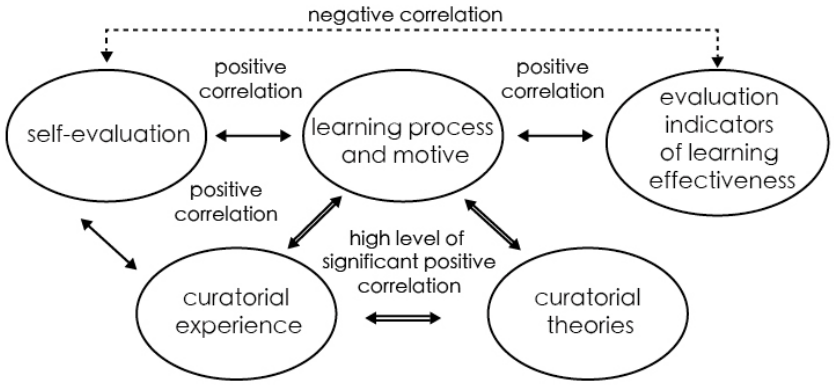

Figure4. Model for the instructional factors of curatorial education

5. Conclusion and suggestions

With the expansion of curation, every item in a collection can be curated (Lu 2013). The concepts and issues of curation constantly transform, regenerate, and overturn through physical, digital, cloud, and virtual natures by constant self-improvement. Because Taiwan currently faces a substantial demand for curators, courses for curatorial education urgently require expansion and development. Few courses focus on the characteristics of designers or introduce curatorial education into the context of design incubation. The course planning within this study considers the characteristics of design students and the required professional knowledge related to curation. The study also incorporates the practical experience of instructors and explores curatorial teaching to enable students to minimize the difference between their cognition and hands-on experience through learning and application. Two main research contributions of this study are summarized as follows.

The study reviewed the literature regarding curation instruction and proposed four factors of curatorial learning effectiveness (curatorial theories, learning processes and motives, self-evaluation, and curatorial experience), and six indicators of learning effectiveness. The aforementioned factors can provide reference for scalable, statistically reliable research on curation instruction effectiveness. Moreover the analysis of these factors' correlation coefficients showed positive correlations between the four curatorial learning effectiveness factors with learning processes and motives and learning effectiveness. The study emphasizes the systematic design of curatorial courses and enables students to apply the knowledge they acquired from coursework. For practical apprenticeship with actual curatorial experience, the cooperation with instructors has a positive influence on learning effectiveness. This influence notably improves creative thinking for curatorial topics, relevant thinking, and focus with specific evaluation of the learning effectiveness.

The correlation analysis of curatorial learning effectiveness includes a model of curation instruction factors. In particular, learning processes and motives, curatorial theories, and curatorial experience show high levels of significant correlation. The concept of curation has increasingly surpassed the technical dimension in previous studies. This study adopted a curatorial experience approach to establish a foundation in students. Theories were applied to implement the concepts in the form of practical drills presented in the context of specific topics. Design students have skills in product design and printing as well as in professional product development, and they used those skills in the curation course.

Nonetheless, the curation of an exhibition is an integrated series of tasks involving conceptual thinking, the deepening of ideas, proposal for self-perspectives, the exhibition of integration, context layout, and categorization, spatial design and movement planning, and exhibition activity planning. These tasks involve social concepts, historical context, and art design background. Such concepts are closely related to curatorial education. Hence, for future course planning, the design and execution of the three factors should be closely connected.

Moreover, in the curatorial practice drills, students have little experience in accessing and handling multiple curatorial affairs within a short period of time, which can affect the self-evaluation of learning. Therefore the execution time for practical curation should be divided into short intervals. The execution should be divided into small drills. Consequently students will be able to accumulate and familiarize themselves with the actual planning work of curation sequentially during the different stages of learning. This will enhance the validity of curatorial education.

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