COMPARATIVE STUDY OF INTERIOR DESIGN PROGRAMS IN SOUTH KOREA AND THE UNITED STATES

BY

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To the Faculty of Washington State University:

The members of the committee appointed to examine the thesis of **SOEUN LEE** find it satisfactory and recommend that is to be accepted.

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Chair

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COMPARATIVE STUDY OF INTERIOR DESIGN PROGRAMS IN SOUTH KOREA AND THE UNITED STATES

Abstract

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This thesis explores the ways in which to compare interior design programs between separate national educational systems, through a study of South Korea and the United States. Primarily, it addresses three different methods for making comparisons between such programs. The first attempted method was the qualitative comparison of published curricula in each country. The limitations of the first method were discovered as follows: institutions are different, housed in different units, years of study in the major are different, and the accreditations mechanisms are different. The second attempted method was to develop an instrument for a quantitative survey of professors in each country. The survey questionnaire was designed carefully, but then rejected due to complexity, biases of participants, inappropriate sample power, and length of time involved in this type of research. The last

attempted method was to design a rubric for interior design projects using the modified Delphi method. The Delphi process consisted of two rounds. The responses of participants from each round were analyzed to prepare the next round and produce the rubric. Even though the Delphi was successful in producing the rubric, several limitations of the method were also found, including the time frame involved, degrees of commitment of respondents, difficulty of presenting projects, and size of panels.

By testing three different types of methods throughout this study, the Delphi method emerged as having the highest potential among the three because it could overcome statistical errors such as differences of sample power. It is concluded that the Delphi method could be used to design and develop rubrics, curriculum, and programs in interior design. Based on the research described in this thesis, I firmly believe that, if the Delphi method is conducted over sufficient time and with a large sample of participants from programs of each country, the study could effectively build a significant comparison between programs in S. Korea and the United States.

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This thesis is dedicated to my parents, parents-in-law, and husband

who provided both emotional and financial support.

ONE

INTRODUCTION

The fundamental goal of interior design education is to prepare students for the profession of interior design by teaching skills and knowledge. Interior design students learn subjects like drawing, theory, lighting, programming, design analysis, space planning, aesthetics, construction, building codes, equipment, materials, and furnishings. Students also learn how to creatively solve interior design problems (Grupe, 2004). In recent years, the interior design profession has changed significantly. Because interior designers take many different approaches to meet the demands of rapidly changing society and diverse requirements of clients, interior design education has been specialized in diverse ways (Interior Design, 2004). The purpose of this study is to explore ways interior design programs in two countries can be compared.

This study will compare interior design programs from the United States and South Korea. There are two reasons for selecting those two countries. The first is that they represent different cultural backgrounds; the United States represents Western interior design education and Korea represents the Eastern. Second, the interior design programs in each

country appear to be different. Compared to American, technical skills such as digital designing appear to be regarded as important in Korean interior design education. On the other hand, the interior design academic programs in four-year universities in the United States appear to be more conceptual than their Korean counterparts.

For this thesis, three different methods for making comparisons between interior design programs in Korea and the United States were identified and tested for appropriateness. The first attempted method was the qualitative comparison of published curricula in each country. The second attempted method was the instrument development for quantitative survey of the professors in each country. The final attempted method was designing the rubric for interior design projects by using the modified Delphi method.

The results of this thesis may have significant contributions to both countries and the people who are associated with interior design fields such as professors, students, professional designers and their employers. This study can be a good pilot study for testing three different methods related to the construction of comparison between educational programs in different cultural backgrounds. At the conclusion of this research, the Delphi method was finalized to establish a rubric for interior design projects. Adopting the Delphi method in interior design provides many appropriate uses for further related studies.

TWO

CONTEXT

2.1 Introduction

Before comparing current Korean and the United States interior design academic programs, it is necessary to review the history as well as the present conditions of interior design education in both countries. Furthermore, it is important to know what efforts have been made to develop interior design programs in both countries.

2.2 Interior Design Education

2.2.1 The State of Interior Design Education in the United States and Korea

The interior design major was established around 1930 in colleges and universities in the United States. At the beginning, interior design was treated as a part of architecture, so students learned mostly about how to decorate interior spaces. However, interior design education has changed since World War II due to the increase of population and the booming construction. It has become necessary to have specialized organizations to accredit the profession of interior design. Since the establishment of the American Institute of Interior

Decorators (AIID) in 1931, a number of important organizations have been founded in the United States (Park et al., 2002).

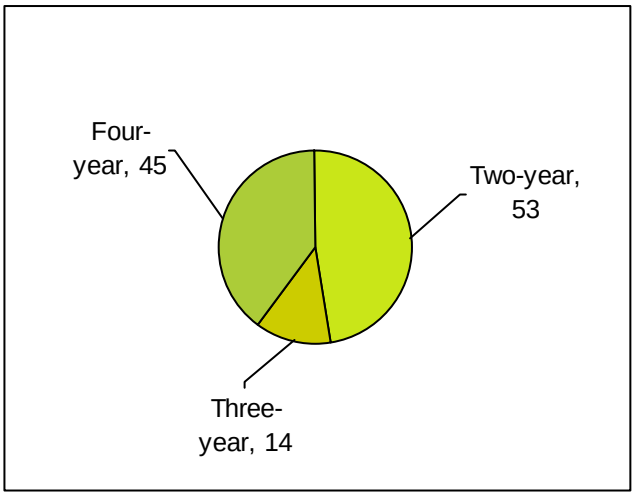
Those organizations include the Foundation for Interior Design Education Research (FIDER), the Interior Design Educators Council (IDEC), the American Institute of Interior Designers (AID), and the National Society of Interior Designers (NSID). The AID and NSID merged in 1975 to form the American Society of Interior Designers (ASID). The purpose of the founders of ASID was to "support excellence by developing standards for interior design education and to acknowledge the increasing demands of an emerging profession in the United States" (History and organization).

Interior design programs are currently taught at over 300 universities, colleges, and institutes in the United States, but only 129 programs from 39 states are accredited by FIDER (Accreditation programs). To be a professional interior designer, a certification or license is generally required and this is issued upon passing the National Council for Interior Design Qualification (NCIDQ) examination. The minimum requirements for exam eligibility are to have at least a baccalaureate degree in programs of no less than 120 semester credits which are interior design-related and a total of 3,520 hours of applicable experience, as required for IDEC completion (NCIDQ exam eligibility requirements).

The first known project where interior design was treated as independent from

architecture in Korea was the construction of the Bando Hotel in 1953. Since then some organizations of interior design have been active, but the full-scale organizations were started in late 1974. The Korean Society of Interior Architects/ Designers (KOSID) was founded on September 28, 1979 with the object of contributing to the development of Korean interior architecture by improving the designers' position and quality, enhancing mutual friendship, and promoting international exchange (What is KOSID). In 1988, the first dedicated interior design program was established in Korea. From 1994, interior design programs spread out rapidly, corresponding to the government's new educational enforcement of the independence of universities (Han, 2002).

Now, through both the establishment of new interior design programs and major separations from other majors such as architecture, industrial design, art, and applied art, technical interior design programs are taught in many universities and colleges. Fifty-three two-year junior colleges, 14 three-year junior colleges, and 45 universities (4-year) currently offer interior design programs in South Korea (see the Figure 2-1 for detail). However, there is a lack of specialty among these programs as compared to programs in the U.S. Only 18 universities have dedicated interior design departments (Related majors in interior design). Interior design is still offered as part of other majors in many universities, so it is a problem to produce quality professional interior designers in universities (Park et al., 2002).



[Figure 2-1] Number of Programs in Korea

As briefly summarized above, South Korea and the United States have different histories, sizes, and approaches of study in their interior design programs. While the United States has had interior design programs in universities for over 70 years, it has been only 16 years since independent interior design majors in Korean universities were established. The numerical difference of interior design programs is noticeable between Korean and American universities. Over 300 universities – including junior colleges – offer education in interior design disciplines, and the Foundation for Interior Design Research (FIDER) accredits 129 programs in the US. On the other hand, 112 universities offer education in interior design discipline, and the Korean Institute of Interior Design (KIID) accredits 45 programs in Korea. However, Korean accredited regulations are relatively loose. If the more rigorous FIDER standards were used, the number of accredited programs in Korea might be actually lower than 45.

2.2.2 Studies of Interior Design Programs

The first thing was to find literature which shows similar studies related to this research for making comparisons between programs in two countries. Methodologies found in similar studies might therefore be adapted to this research. There have been numerous studies on interior design programs or other educational disciplines that can be a starting point of the comparative study of interior design education.

The methodology utilized in the study reported in the article of Nussbaumer and Guerin is the survey questionnaire (2000). The authors believe that there is a relationship between learning style and visualization skills among interior design students, so they tested 578 interior design students at 13 universities. The authors conclude that the number of years in major and the cultural backgrounds of students are significant factors influencing visualization skills. They also find that visualization skills improve greatly between the sophomore and senior years.

There was a study using a survey instrument like Nussbaumer did, but with different samples. Birdsong et al. surveyed interior design practitioners' perceptions of selected components of their profession, including accreditation of undergraduate programs, state licensing, the NCIDQ examination, research, and gradate education. According to this paper, practitioners believe that those components are beneficial to the profession; however,

individual practitioners may not want to make the commitment to achieve these components for themselves. This paper claims that educators and professional organizations have to work more diligently to help practitioners understand the importance of graduate education and its relevance to the continuing and successful growth of the profession (Birdsong et al., 2001).

In Korea, there have been several more comparative studies of interior design programs between countries than in the United States. Young-Ho Han and Tae-Hwan Kim discussed academic interior design programs in the article “A study of the program of specialization for interior design education” (2002). In this article, the authors defined the elements of specialization for interior design education by investigating samples and analyzing situations in Korea and other countries. The authors also classified the specialization categories for interior design education in Korea, and they introduced successful factors from institutions in other countries. Three main schemes of specialization included materiality classification of specialization, condition of specialization, and survey and analysis of specialization. After the authors surveyed universities and employers, they concluded that the specialization conditions in Korea were at a relatively low level compared to other countries. Since the satisfaction of new employees in interior design is low among Korean employers, the Korean universities need to develop the programs corresponding to

current needs in the interior design field.

Han continues to discuss the interior design academic programs in his article “A study on the innovation of course contents and instruction of advanced design in interior design education” (2003). He suggests a possible way for a new setting of interior design education by analyzing educational situations of Korean interior design societies. In his article, Han analyzed interior design programs in South Korea only. The idea suggested in Han’s article may be understood as a bridge between the educational reality and its ideal in interior design teaching. The author believes that this could be done by enforcing internship participation; by employing experienced professionals in industrial fields as faculty members; and by bringing faculty members into actual industrial fields and providing lectures to practitioners in the field.

In “Issues and problems of interior design education in Korea for the 21st century” published in 2002, Young-Sook Lim points out the problems of interior design education in Korea. Especially, she discusses the professional identity, curriculum structure, and creative scholarship including interdisciplinary approaches regarding to standards of interior design by the Foundation for Interior Design Research (FIDER). She claims that it is necessary to define interior design major more clearly in Korean society, to include environmental issues, regulations, ethics, and business strategy courses, and to develop the interior design

educational system in depth.

The article “Analysis on the curriculum for specialized courses of interior design education” by Park et al. reports a similar study to this thesis, and was used as a methodological reference. The authors discuss the problems of Korean interior design programs in comparison to programs of the United States, Canada, and Japan. The article concluded that two-year colleges in the United States and Canada focus on practical programs, three-year programs focus on digital programs, and four-year universities focus on conceptual programs. In the same way, Japanese two-year colleges focus on licensing and four-year universities focus on professional and practical programs. However, Korean interior design curricula lack specialty. Two-year and three-year college programs are just abbreviated versions of four-year university programs (Park et al, 2002).

To summarize the existing literature on interior design education, most published articles in America examining academic programs focus on certain aspects and elements of curriculum, like issues of using CAD and a particular learning style, rather than comparison of different curricula. Unlike the American, several articles published in Korea compare the academic program in other countries or other universities to develop better curriculum and programs. Those articles could be the basis of the first part of this thesis, but most of them focused on the qualitative comparison of curricula.

2.3 Conclusion

Since I have studied interior design in both curricula in Korea and the United States, I want to find out how to impact Korean curriculum as it continues to grow and change in universities and colleges. However, it is not easy to discover without identifying an appropriate examination tool for comparing in both programs. From the literature reviews, we found that there are few tested methods for comparative studies or curriculum assessment within the interior design discipline. In the 2002 study “Meaning and preference of interior color palettes among four cultures” (Park et al.), the authors show that there exist few comparative studies between countries. There are also studies to test specific curriculum for a class such as “Assessment of teaching styles of Auto CAD in interior design” by Maria E. Cruz-Perez (2003), and “Analysis on the curriculum for specialized courses of interior design education” by Park et al. (2002). Therefore, I decided to compare published curriculum and credit hours of each programs in South Korea and the United States.

THREE

METHOD 1: QUALITATIVE STUDY

3.1 Introduction

In this study, several different ideas to develop a pilot study were narrowed down to three methodologies for making comparisons between the chosen countries. Since most of the existing studies comparing programs between different countries pertain to courses, the first attempted compares the curricula of interior design between universities in South Korea and the United States. Especially, the article “Analysis on the curriculum for specialized courses of interior design education” was used as a framework and inspiration because the aim of their study was similar to that of this study. They compared courses of interior design programs in four different countries, and of those countries, two were selected from Western and two from Eastern cultural backgrounds. In addition, the way of presenting the results in that article will be followed in this study.

The authors of the article “Analysis on the curriculum for specialized courses of interior design education” analyze the courses of interior design in four countries and calculate the accumulated number of courses following interior design course classification by

the Korean Institute of Interior Design. Tables 3-1 and 3-2 show examples of how the authors analyzed their results (Park et al, 2002).

	2-year	3-year	4-year
Fundamental of ID	drawing & sketch-13* execution drafting-1 drafting-36 rendering-7 expression technique-33 perspective-17 draft theory-2 basic modeling-4 photo & editing-7	basic theory-1 Drafting-11 expression technique-2 photos-2 beginning Drawing-2 perspective-2 execution drafting-3	drafting-24 perspective-9 rendering-8 expression technique-23 basis theory-3 drawing & sketch-6 basic modeling-3 photo & editing-5 execution drafting-2
Digital design	CAD 2D-61 CAD 3D-1 CAID-4 computer application design-11 3D computer utilization-3 3D Max-3 computer graphics-14 computer planning-6 construction program-1 computer simulation-1 computer introduction-2 animation-1	digital application system-2 digital photo-1 digital space design-2 digital expression technique-2 web space design-1 3D simulation-1 design & computer-4 CAD-18 computer animation-4 image media practice-1 computer graphic-3 digital portfolio-2	CAD 2D-36 CAD 3D-2 computer graphics-14 computer application design-11 3D computer utilization-3 construction program-1 computer simulation-1
History	history of arch.-8 history of ID-13 history of ID decoration-1	history of arch.-4 historic ID-1 history of art-1	history of ID-21 history of modern design.-2 history of arch. ID-5 history of ID decoration-1 history of art-1 history of arch. In Korea-1 history of arch. In western-3 history of residential in Korea-6

[Table 3-1] Sample Chart of Courses Analysis in Korea (Park et al, 2002)
(*The numbers indicate accumulated courses not credits)

	2-year	3-year	4-year
Fundamental of ID	drawing-11* 2D,3D design-6 drafting-18 rendering-5 expression technique-6 sketching-2 visual dimention-2 surface design-1 ID graphic-1 fundamental of ID-1	beginning design-4 interior arch. Drafting-15 expression technique-11 visual language-2 arch. Drawing-5 perspective & rendering-4 quick sketching for interior-1 compositon-3 graphic design-2 freehand drawing-2	drafting-14 drawing & perspective-6 rendering-3 expression technique-2 design-8 drawing-7 2D design-1 3D design-4 4D design-1 model making-1
Digital design	CADD-21 computer graphics-1 computer space modeling-1 ID software-1 computer introduction-2	CAD-17 3D computer modeling-1 ID CAD-3 3D digital image-1 computer introduction-1	CAD-11 3D Cad-2 digital imaging-1 AutoCAD plan-1 digital rendering-1
History	history of art-11 history of furniture-1 history of ID-10 furniture style introduction-3 history of art&ID-1 residential space style-1 historical style-2 modern arch. & design-2	history of ID & furniture-2 historic ID-1 history of ID-3 history of art-6 history of design-4 design in 20th centry-1	history of furniture-4 history of arch.-2 history of art-7 traditional design-1 modern art introduction-1 modern arch. & design-3 history of ID-7 history of LA-1

[Table 3-2] Sample Chart of Courses Analysis in America and Canada (Park et al, 2002)
(*The numbers indicate accumulated courses not credits)

From the charts (results) in the article, I calculated the percentages of four-year colleges in the United States, Canada, and Korea (see the Table 3-3 for detail). However, the numbers did not prove anything about the hypothesis of this study, which is that Korean interior design programs highlight more technical skills than American interior design programs which are more conceptual. This might be because of the sample size or data selecting criteria of that study. Their samples were six universities in the United States and Canada, and 25 universities in Korea. It means their samples do not represent the whole population. Therefore, the methodology was adopted for this study, but sampling data

criteria was not.

	The U.S. & CANADA	KOREA
Fundamental of ID	21.4%	11.5%
Digital design	7.3%	7.8%
History	11.8%	5.5%
Theory	7.7%	17.8%
Space planning	16.4%	25.8%
Elements of ID	11.8%	14.3%
ID techniques	10.9%	10.8%
Environment psychology	2.3%	2.5%
Design management	2.7%	1.9%
Design practice	7.7%	2.2%

[Table 3-3] Percentages of 4-year Colleges in the U.S. & Canada and Korea

*Sample size: 6 universities of the U.S. & Canada, and 25 universities of Korea

3.2 Methodology

The method of my study was designed based on the above mentioned study by Park et al. Data of published curricula were collected in each country. Sampling data criteria were similar in both countries – it cannot be exactly the same in reality. In the United States, 9 four-year universities among 129 accredited programs by Foundation for Interior Design Education Research (FIDER) were selected by its location, size and reputation. In Korea, 9 four-year universities among 18 accredited programs by Korean Institute of Interior Design (KIID) were selected (see table 3-4 for detail). Sampling data criteria was relatively simple because Korean Universities have relatively simple hierarchy. Mostly, the rank or academic reputation of the University is commensurate with its size. In other words, the rank of a

university is a single parameter. Therefore, large universities have well established graduated programs, and they are research universities, and small universities are mainly teaching universities in Korea.

	America	Korea
Total Number	9 from FIDER Universities	9 from KIID Universities
Nationwide	3 – East Coast 3 – Mid-West, South 3 – West Coast	N/A
Levels of School	1 – Private School 1 – Research Universities 1 – Teaching Universities	3 – Top Level 3 – Middle Level 3 – Lower Level

[Table 3-4] Sampling Data Criteria

Once data collection criteria were established, information on each academic program was collected via Internet and conventional library research. In Korea, academic curricula were collected from the following institutions: Hong-Ik University, Kyung-Hee University, E-Wha University, Kon-KuK University, Kyung-Won University, Myung-Ji University, Ga-Ya University, Sung-Shin University, and Han-Sung University. In the United States, academic curricula were collected from Arizona State University, California State University, the University of California at Berkeley, Illinois State University, Michigan State University, Cornell University, the Columbus College of Art & Design, Drexel University, and Washington State University.

Like Park's charts (Park et al., 2002), collected data were laid out according to the standards of interior design courses as classified by the Korean Institute of Interior Design (KIID). These classifications are fundamental of interior design, digital design, history, theory, space planning, elements of ID, ID techniques, environment psychology, design management, and design practice. Qualitative and comparative analysis of similarities and differences in interior design education at the four-year college level were extracted from the data.

3.3 Limitations

This method is good for comparing courses of each program, but it is not sufficient for drawing strong comparative analysis between programs in different countries. There are several reasons why this method was rejected for this thesis. The first difficulty for comparing academic curriculum is that institutions are different, so it is very difficult to identify all different institutions in both countries with the same standard. The second is that programs are often housed in different units in both countries. In some universities, interior design programs are established as individual departments, but some universities treat interior design as a part of architecture or general design discipline as a program. Consequently, this also affects the years of study in the major (interior design courses) are different. The third

reason is that the accreditations mechanisms are different. While there is a well-established accreditation system in the United States, Korean interior design organizations are still in the process of developing such a system. Thus, to compare academic curriculum in Korea and the United States, I need to survey a greater number of programs or education systems in both countries.

FOUR

METHOD 2: SURVEY INSTRUMENT

4.1 Introduction

The first approach about making comparison between academic curricula in Korea and the United States was rejected since samples were too large and complex to compare. For the next step we attempted to narrow down the direction of this thesis. To compare interior design programs in Korea and the United States, we attempted to analyze professors' perceptions of the strengths and weaknesses of recent graduates in each country. The inspiration for this second study was found in the article "Perceptions of professionalism: Interior design practitioners working for the top 100 firms" (Birdsong, 2001). The authors designed and tested their own survey instrument for collecting people's perceptions.

There have been several papers published which address the designing of survey instruments for such studies. Dillman's method was used for conducting appropriate survey form and sentence, and Bloom's Taxonomy was used for understanding levels of achievement of educational objectives. Merriam's book, Qualitative research in practice published in 2002, was a good reference for understanding the basics of qualitative research, such as

sample size, variables, and general types of statistics.

In the book, Mail and Internet Surveys: The Tailored Design Method, Second Edition, the author outlines effectively planning and conducting surveys for students and professionals (Dillman, 1999). He introduces the methods for increasing response rates of surveys on computers, electronic mail, and the World-Wide-Web. The majority of the book discusses correctly formulating and writing questions and constructing the actual questionnaire because the author believes well organized (proper order of questions) and clear sentences of self administrated questionnaire could increase the response rate. Dillman also suggests writing a cover letter and a second contact letter following his format. He highlights the importance of pre-testing the survey questionnaire before it is actually sent to participants.

To narrow down the survey questions, we adopted Bloom's taxonomy. The taxonomy provides a useful structure to categorize test questions, and is good for an educational study. In 1948, Benjamin Bloom introduced a new classification of "the goals of the educational process". Then, Bloom and his co-workers established a hierarchy of educational objectives from the classification, which is generally referred to as Bloom's Taxonomy. Bloom's taxonomy is for categorizing the level of abstraction of questions that commonly occur in educational settings (Anderson, 2001). Bloom's taxonomy consists of six categories: knowledge, comprehension, application, analysis, synthesis, and evaluation.

See the Table B-1 at the Appendix B for detail. For the purpose of this study those six categories are further subdivided into practice, interdisciplinary experience, building technology, design, communication, human interaction, history, and theory/research/application.

For the type of research addressed in this paper, sampling is important because it is able to make generalizations about an aggregate population based upon the smaller sample group. Many researchers believe that the larger the sample size, the better the results. However, the main key is not size, but representativeness. In other word, large sample sizes which are non-representative are useless. According to Merriam, the normal sample size is 30 people per group, but this number can vary depending on the study. The other important thing found in Merriam's book was scale of measurement. There are four different kinds of measurement to categorize how the participants' responses will be translated into numerals: nominal, ordinal, interval, and ratio (Merriam, 2002).

4.2 Methodology

Since it was not possible to access the appropriate survey form from the Foundation for Interior Design Education Research, we needed to design our own. By reviewing the existing literature, and adapting it to our purpose, we developed a survey questionnaire

consisting of 19 questions, including the open-ended questions. The first four questions were developed from Bloom's taxonomy, which were application, analysis, synthesis, and evaluation. Survey questions were going to be sent via e-mail to professors in design institutions in both countries. In addition, written interviews or oral interviews were going to be added if necessary. See the Table C-1 at the Appendix C for detail.

4.3 Limitations

The survey questionnaire, however, was rejected because of its complexity. Even though this questionnaire consists of 19 primary questions, the secondary associated questions bring the total to 59. This is too long to encourage complete, accurate answer from the sample group. The major pitfalls were our inability to guarantee that we were working with similar programs at similar institutions with similar goals and aspirations. We were also unable to demonstrate a common understanding or "consensus building" around the levels of knowledge represented in Bloom's taxonomy from the survey questionnaire. Another question that came up was how to overcome all participants' tendency to claim superlative knowledge at all levels. In other words, since we were going to be asking about participants' individual programs and the abilities of their graduates, participants may give responses with unrealistically high ratings of their programs and students. In this case, inflation of the

results from the participants can not be ignored. Time was another limitation of this method. Just as Dillman suggested, we lacked the time to test the survey questionnaire to get acknowledgement. Commonly, this acknowledgement process requires the two steps: testing the questionnaire with a small group of people as a pilot study, and running the questionnaire to actual participants. However, the survey instrument for this study needs an additional step because our participants are selected from two different countries. We must also translate the questionnaire and test its consistency—whether or not the meaning of each sentence is the same in both Korean and English. The last limitation was sample selection. Since this survey method relied heavily on the personal experiences of each observer (i.e., interior design professors who have educated students) to extract general knowledge about the interior design curriculum, we needed to have the same percentages of samples in both countries to assure equal comparison. However, both the theoretical sample size and the actual sample size in Korea are both too small, as compared to the United States sample. This may reduce the reliability of data.

FIVE

METHOD 3: DELPHI METHOD

5.1 Introduction

For the last attempted methodology, the Delphi method (technique) was chosen as a suitable preliminary research method because it addresses many of the problems that were encountered in the previous two methods. First of all, the Delphi method makes it easy to collect opinions of participants from different areas—even different countries. Secondly, the sample size does not depend on statistical power, but rather on the dynamics for responding in each round among experts (Okoli et al., 2004). This means that for our study we could rely upon relatively smaller samples. Third, the length of interaction is short to medium, compared to other group communication techniques (Linstone et al., 1975). In addition, this method may increase the reliability in this study because the Delphi method is an appropriate survey tool for confirming participants' opinions throughout two or more rounds. Lastly, choosing the Delphi method as a research tool enhances the richness of the results due to the carefully selected group of expert respondents.

5.2 Literature Review

The Delphi technique can achieve reasonable consensus from participants on the expert panel (Cuhls, p. 6). The history of the Delphi technique goes back to the early 1960's when it was originally developed by the RAND Corporation, in Santa Monica, California, as a forecasting methodology (Gordon, 1994). Then, the US government enhanced this technique as a group "decision-making" tool (Cline, 2000). Since its inception, the Delphi technique has been used over a wide geographic area.

Delbecq, et al. (1975) described a number of Delphi method objectives as follows:

1. To determine or develop a range of possible program alternatives.
2. To explore or expose underlying assumptions or information leading to different judgments.
3. To seek out information which may generate a consensus on the part of the respondents group.
4. To correlate informed judgments on a topic spanning a wide range of disciplines.
5. To educate the respondent group as to the diverse and interrelated aspects of the topic.

Among those objectives of the Delphi, the goal of this thesis falls into the categories of number 2 and 3.

This technique does not require bringing the experts together face to face in one place.

Therefore, the Delphi technique has been used in diverse fields to generate forecasts in technology, education, and other fields (Gunaydin). It is also well suited in various fields ranging from business, politics, and science to medicine (Armitage, 1999). Linstone, et al. introduced a variety of application areas in which the Delphi forecasting procedure would be useful (1975). One of the examples found in the article is that Delphi could be used for planning university campus and curriculum development.

The Delphi process is usually conducted largely in three stages. Stage one is the selection of the expert panel. Stage two consists of the submission, assessment and feedback of the questionnaires. The final stage consists of the final analysis and conclusion (Kerr, 2001). All stages are subdivided into ten steps. Fowles describes the Delphi technique by the following process (1978), which is the process I followed in the research for this thesis:

1. "Formation of a team to undertake and monitor a Delphi on a given subject." The team will be responsible for the Delphi on a given subject, so the team will be monitoring the entire exercise, choice of experts, development of questionnaires, analyzing the questionnaires, giving feedback to participants, and preparing report.
2. "Selection of one or more panels to participate in the exercise." Customarily, the panelists are experts in the area to be investigated. To be successful with the Delphi technique, the most important step among these ten steps is the selection of participants

because the results are heavily dependent on the participants' knowledge and opinion. In other words, participants are selected from experts to represent a large population.

3. "Development of the first-round Delphi questionnaire." The first round Delphi questionnaire could contain open-ended questions. The first questionnaire is very important since the participants' interpretations of the questions and obtained answers can be forecast by the results. In some cases, in-depth interviews, quantitative simulation models, and group meetings with experts are acceptable in this step (Gordon, 1994).
4. "Testing the questionnaire for proper wording." The first round Delphi questionnaire must be sharp and answerable. Ambiguity errors and vagueness of the questionnaire must be checked before sending it to participants.
5. "Transmission of the first questionnaire to the panelists." Since the first questionnaire consists of the open-ended questions, essay-type answers could be reserved at this step. Participants' brief and concise ideas do not need to be fully developed at this point.
6. "Analysis of the first round responses." The typical response rate from the panelists is known to range from 40 to 75 percent (Linstone, 1975). Responses to the first round questionnaire could be grouped or categorized by frequency or other criteria.
7. "Preparation of the second round questionnaires and possible testing." This second round questionnaire is developed from the first questionnaire responses. It may be

necessary to request that the respondents review responses that have been categorized and rate them according to a scale to develop priorities in each category. This second questionnaire is also important to refine each participant's idea, clarify issues, and identify areas of agreement or disagreement, so these issues should be addressed in the second questionnaire (Delphi method).

8. "Transmission of the second round questionnaire to the panelists."
9. "Analysis of the second round responses." Once again, all responses are summarized and analyzed to achieve stability in the results. Steps 7 to 9 are reiterated as desired or as necessary to get consensus. Usually, the Delphi technique goes to a third round questionnaire.
10. "Preparation of a report by the analysis team to present the conclusion of the exercise."

Anonymity, iteration, controlled feedback, and statistical aggregation of group response are the main features of the Delphi (Kerr, 2001). According to the article on the "Delphi method," this method can give participants an equal chance to express their opinions, so it can prevent the biases related to position, status or dominant personalities.

Some literature shows how the Delphi method was adopted and used for educational settings. Linda Garavalia and Margaret Gredler believed that the Delphi technique is a useful instrument to collect rich evaluation data. As teachers, Garavalia and Gredler

demonstrated how the Delphi technique can be utilized in the education field. In their 2004 paper, “Teaching evaluation through modeling: Using the Delphi technique to assess problems in academic programs” the authors introduce two cases in which the Delphi technique was successfully implemented. The underlying background for the first case is that students must enroll in a program evaluation course during their course work, but they often have difficulty understanding how the Delphi technique is useful and how it differs from other instruments. Eleven doctoral students in educational psychology and research participated in a process with the goal of making informed decisions about modifying and clarifying the program evaluation course. From the first round results, the currently significant problems were identified. A Likert scale range from 1 to 4 was then added into the second questionnaire. For the third round of the Delphi technique, the calculated median and mode for each item were added. Thus, using the refined questionnaire, the major problems needing to be addressed were identified.

The second case also illustrates how the Delphi technique can be applied to the educational field. In this case, identifying problems related to the classroom and school-wide learning community and environment were the main issues confronting a medium-sized Midwestern university. Through the two cases, Garavalia and Gredler believe that the Delphi method is an effective tool to invoke thoughtful responses from participants and to

identify problems which have not been previously known.

There is evidence that the Delphi method could be an appropriate tool for collecting the opinions of panels with different cultural backgrounds. In Chitu Okoli and Suzanne D. Pawlowski's "Factors Affecting the Adjustment of Koreans Studying in Australia," published in 1999, the panels were comprised of Korean students studying in Melbourne, Australia and their teachers. The purpose of this research was to investigate the factors affecting Koreans living and studying in Australia, with the goal of helping Australians to understand cultural, social, historical, and educational differences of Korean students and to help the Korean students to adjust to living and studying in Australia.

Okoli and Pawlowski's article published in Information and Management (2004) addresses the Delphi method as a research tool. The authors highlight that the Delphi method is a good research tool compared to traditional research tools such as surveys and interviews. The Delphi method is especially well-suited for new areas of research or exploratory studies. Therefore, the authors encourage researchers to consider the Delphi method as a significant and useful tool among their other research methodologies.

There have been numerous studies on the Delphi method in various areas world-wide. In the US, Delphi has been used for research involving international affairs, education, urban areas, law and order, science, technology, management of change, economy, and so on

(Linstone et al, 1975). Especially, the Delphi method has been used in educational settings for a variety of purposes due to its unique features compared to the traditional survey instruments. A literature review tells us additionally that there is no fixed use of the Delphi method, so the interpretation and analysis from the results throughout the Delphi process differ case by case.

5.3 Methodology

5.3.1 Introduction

The Delphi method was employed to develop a rubric among professors in institutions in South Korea and the United States. Qualitative and comparative analysis of similarities and differences in evaluation standards of a junior studio project between South Korea and the US constitutes the first procedure.

5.3.2 Round 1

Step 1: Panel Selection

In choosing panelists for this study, the following criteria were considered:

- All participants must have a minimum of five years teaching experience in interior design or a related design discipline.

- In America, participants must be faculty members of programs accredited by the Foundation for Interior Design Education Research (FIDER).
- In America, participants must be active Interior Design Education Council (IDEC) members.
- In Korea, participants must have published research which compares the study of interior design education between Korea and America in journals, unless their educational background includes studying in America during their masters or PhDs.
- All of the American and Korean participants are from different institutions and they do not know each other.

Based upon these criteria, four respondents from American institutions, and nine respondents from Korean institutions were formally invited to participate. Then, two American professors and two Korean professors completed the required two rounds of the Delphi survey.

Step 2: Development of the first round Delphi questionnaire

For developing the rubric for junior studio projects, two main projects were taken from my junior studio were used for evaluation in the first round. The first project was completed in the first semester of my junior year and is a residential project presented in construction documents. The second project was completed in the second semester of my

junior year and is a commercial project ("hotelling" office) presented in a collage of plans, sections, elevations, materials, and perspective drawings. Another notable point regarding these two projects is that the first project was done by hand-drawing, and the second project was done mostly using Auto CAD. See the Appendix E for detail.

Participants were asked to go to the website where I posted the images of two projects. Then, as professors of interior design, they were asked to evaluate the projects as they would their own students' projects. The questionnaire of the first round consisted of five open-ended questions, so participants could evaluate the projects only from their own viewpoint without affecting any pre-made evaluation form. The five questions are:

1. What do you look for when you grade a project like this?
2. What is the standard?
3. How do you assess?
4. What are the strengths you identity in this project?
5. What are the weaknesses you identify in this project?

Step 3: Analysis of the first round responses

Since the first round survey consisted of open-ended questions, essay-type answers of participants were collected. There was also not a definite form of answers for the first

round; responses differed in both form and content. See the Appendix F for detail.

Respondent A from the United States mentioned space planning, a project that meets ADA Codes, line quality and line weight variation, accurate keys, accurate dimension lines that are correctly placed and add up correctly, accurate scale, properly drawn title block with necessary information, placement of the electrical outlets and switches, social/psych considerations for comfort of users, and overall quality of the print. If the responses from respondent A are subdivided into three sections of design solution, craftsmanship, and presentation, this person tends to put more emphasis on grade craftsmanship section than on design solution or presentation.

The second respondent, B, from the United States looks for the following categories when evaluating interior design projects: appropriate use of architectural symbols, quality of drafting, appropriate line weights, composition of drawings on the sheet, accuracy, wall thickness, door sizes, dimension numbers matching actual measurements, architectural lettering quality, and appropriate cross referencing, cover sheet, title blocks, sheet layout, partition plan, finish plan, finish schedule, interior elevations, sections, details, furnishings plan, and furnishings schedule. Respondent B seems to value all three sections, design solution, craftsmanship, and presentation, equally. Respondent B also stated the largest the number of categories among all respondents.

Respondent C, from Korea, mentioned accuracy, correct information, completeness of drawings, reference symbols, line quality, lettering, sheet layout, craftsmanship, overall presentation of work, concept, floor plan, sample selection, rendering techniques, and board layout. Like respondent A from the United States, respondent C referred more to categories in craftsmanship than the other two sections. In addition, this person tended to value the presentation of projects higher than the other participants since respondent C wrote about the presentation part in more detail.

Unlike respondent C, respondent D from Korea did not focus on the presentation of work at all. Instead, this person seems to consider the design solution to be more important than craftsmanship. These are what respondent D listed: accuracy (drafting details), accurate scale and dimension lines, correct information, concept, design development, design solution follows customer's requirement, space planning, consider surrounding environment, circulation flow, furnishing plan, general level of creativity/uniqueness, and appropriate finish selection. In addition, respondent D mentioned the largest number of categories in design solution among all respondents.

If we look into the overall patterns of responses, 11 categories out of 19 were mentioned among participants in the United States, while 10 categories were mentioned among participants in Korea in the design solution section. For the craftsmanship, 13

categories out of 16 were mentioned among participants in the United States. Unlike the Americans, Koreans referred 8 categories for the craftsmanship. For the presentation section, 3 categories out of 4 were mentioned by participants in both countries.

Nevertheless, we could find out significantly different patterns of evaluation in each country. While Koreans tend to evaluate the projects as a whole, Americans pay attention to more specific parts. This phenomenon is especially noticeable in the craftsmanship area. Korean professors seemed to look at the project more generally while American professors classified more specific lists in craftsmanship. The interesting point to note is that Korean respondents had a tendency of evaluating projects with more emphasis on concepts and ideas than the American respondents. For instance, Koreans stated concept, design development, creativity, and uniqueness of projects, which Americans did not mention. Instead, American respondents emphasize design details such as interior elevations and sections. Surprisingly, these results are opposite to the claims I found from literature, which are that American programs are more conceptual and theoretical than Korean programs. At this point, however, we cannot strongly claim that the observed tendency really exists between Korean and American respondents in contrary to the findings of the previous literature because it is not absolutely clear that this tendency come from cultural or national difference rather than individual differences due to the relatively small sample size.

5.3.3 Round 2

Step 1: Preparation of the second round questionnaire

The responses to the open-ended questions in the first round were analyzed qualitatively and categorized (grouped) by similarity. The rubric consists of three sections; design solution, craftsmanship, and presentation. Under each section there are 39 evaluation categories. To investigate the importance of the various categories, each was followed by a Likert Scale of 1 to 5 and N/A. A "1" indicates "least important" and "5" is "most important." If participants cannot rate the specific category or if they believe that the category is irrelevant for the evaluation of design projects, they are asked to check "N/A". See the Table G-1 at the Appendix G for detail. After completing the rubric form, participants were asked to return it to me as an email attachment.

Step 2: Analysis of the second round responses

All responses were collected from professors in the two countries and were analyzed for total points, means, medians, and standard deviations of each category (see the Table H-1 at the Appendix H for detail). Categories with standard deviation under 0.50 were used for the final rubric representing a consensus of panels due to the small size of the sample group.

5.3.3 Conclusion

Since one of the objectives of using the Delphi method is to achieve reasonable consensus from participants on the expert panel (Cuhls, The Delphi method), the final result, (i.e., the rubric), for this thesis was built through the completion of Rounds 1 and 2. The strengths of the Delphi method for building consensus from the many different opinions were especially noticeable during this research because the participants could express their opinions in the second round. This phenomenon was found by comparing the responses from the first and the second rounds. Even though some respondents did not mention certain categories from the first round, they gave higher ratings in that category in the second round than did people who mentioned the category in the first round. This indicates that some participants forgot to mention some categories in the first round even though they believed the categories were important, and then subsequently noticed those categories in the second round evaluation sheet. In addition, respondents' opinions are unknowingly influenced and affected by the opinions of others. For example, neither American participant mentioned "concept" in the first round, but they rated the concept category highly, five out of five, in the second round. This phenomenon was found in 15 out of the 39 categories which received higher or equal rating from the respondents who did not initially mention it. See the Table 5-1 for detail. In those 15 categories, the ratings from respondents who did not mention it

initially were found to be higher in seven categories, and equal in eight categories.

	Category	Number of Respondents from First Round		Importance Rating from Second Round	
		Americans	Koreans	Americans	Koreans
A. Design Solution	*Concept*		2	5	5
	Design Solution Follows Customer's Requirement		1	4.5	4.5
	Design Development		1	4.5	4.5
	Construction Documents	1		4	2.5
	Social/Psych Consideration for Comfort of Users	1		5	4
	**Consider Surrounding Environment*		1	4	3
	Space Planning (Partition Plan)	2	2	5	4
	**Circulation Flow*		1	5	4.5
	Interior Elevations	1		3.5	3.5
	Sections	1		3.5	3
	Finish Plan	1		4	3.5
	Finish Schedule	1		3.5	3
	**Appropriate Finish Selection*		1	5	3.5
	Furnishings Plan (Furniture Layout)	1	1	4.5	3.5
	Furnishings Schedule	1		3.5	3
	Electrical Plan	1		3.5	3
	**Appropriate Materials*		1	5	3.5
	Code Issue (Staircase, Fire Exit, ADA)	1		5	4
	General Level of Creativity/ Uniqueness		1	4.5	4.5
B. Craftsmanship	Accuracy (Drafting Details)	1	1	5	4.5
	Correct Information	1	1	5	5
	Completeness of Drawings		1	3.5	4.5
	Wall Thickness	1		3.5	3.5
	**Door Sizes*	1		3.5	4
	Dimension Numbers Match Actual Measurements	2		4.5	4.5
	Accurate Keys	1		5	3.5
	Accurate Dimension Line	1		5	3.5
	**Accurate Scale*	1		4.5	5
	Appropriate Cross Referencing	1		4.5	3.5
	Appropriate Line Weights Variation (Line Quality)	2	1	4	4
	**Appropriate Use of Architectural Symbols*	1		4	4.5
	Appropriate Label		1	3.5	4
	Lettering	1	1	3.5	3
	Rendering Techniques		1	3.5	3.5
	Overall Quality of Drafting (Craftsmanship)	1	1	4	4.5

	Category	Number of Respondents from First Round		Importance Rating from Second Round	
		Americans	Koreans	Americans	Koreans
C. Presentation	Overall Quality of the Print	1		4	2.5
	Composition of Drawings on the Sheet (Board Layout)	1	1	4	4
	Overall Presentation of Work		1	4.5	5

[Table 5-1] Responses Among Professors in Korea & the US

(*Italic* indicates higher or equal rating, and * indicates higher rating)

By representing the criteria of defining consensus, the final rubric consists of 20 categories out of 39. See the Table 5-2 for the detail. According to the rubric, professors in both South Korea and the United States believe that design solution is the most important of the three sections. Craftsmanship is the next most important aspect for evaluating the design project. We can also see that concept of the design and correct information for the project are also highly valued.

Rubric in the Different Institutes - Evaluation Standards			
Category		Mean	STD
A. Design Solution (63%)	Concept	5	0
	Circulation Flow	4.75	0.43
	Design Solution Follows Customer's Requirement	4.5	0.5
	Design Development	4.5	0.5
	Social/Psych Consideration for Comfort of Users	4.5	0.5
	Space Planning (Partition Plan)	4.5	0.5
	General Level of Creativity/ Uniqueness	4.5	0.5
	Consider Surrounding Environment	3.5	0.5
	Interior Elevations	3.5	0.5
	Electrical Plan	3.25	0.43
	Finish Schedule	2.5	0.48
	Furnishings Schedule	2.5	0.48
1B. Craftsmanship (44%)	Correct Information	5	0
	Accuracy (Drafting Details)	4.75	0.43
	Accurate Scale	4.75	0.43
	Dimension Numbers Match Actual Measurements	4.5	0.5
	Appropriate Label	3.75	0.43
	Wall Thickness	3.5	0.5
	Rendering Technique	3.5	0.5
C. Presentation (25%)	Overall Presentation of Work	4.75	0.43

[Table 5-2] Final Rubric Among Professors in Korea & the US
(STD= Standard Deviation)

5.4 Limitations

Chester G. Jones addresses the limitation of the Delphi method in his article "The Delphi Method" (1975). Traditionally, Delphi results come from opinions of a small number of experts in any given area. Therefore, the credibility of the Delphi method has been questioned due to possible bias of panels' responses. In other words, experts are asked to evaluate areas to which they belong, so personal interests may affect the results.

Even though we can build up a rubric and make a comparison of the evaluation standards of interior design projects among panels in Korea and America, the Delphi method for this thesis had several limitations. The most significant limitation was time. It was time-consuming for panels to participate, especially in the second round. Commonly, it takes more time in the first round than the second round due to the open-ended questions. However, it took over a month to get all completed responses returned in the second round. This is notable since the first round actually took only two weeks. It may be because of misunderstanding of panelists about the Delphi method. They might have thought their obligation of response was finished with the first round. It also may be because of the busy schedules of the panelists.

The second limitation of this study was the small number of participants for conducting a rubric worldwide. The original plan was to have four professors from each country, but we were only able to secure two respondents from each country. From that limited number of experts, it is very difficult to design a rubric and discuss differences of programs in each country due to its lack of credibility and validity. According to Delbecq, ten to fifteen participants from a homogenous group of people is an optimal number, but in practice, the size of the panel is variable (1975).

The third limitation was determining the best way in which to present the projects for

evaluation. The projects were posted online, but there was no technical method designed to accurately test the website. Therefore, some participants discovered difficulties in evaluating the projects on the website. Participants said some images were very hard to read, and some images would be better to read as Auto CAD files rather than jpg. They also mentioned that it was difficult to evaluate the presentation without direct inspection of the actual board layout and materials.

5.5 Testing of Delphi Method Among Professors at Washington State University

We also tested the Delphi method among the interior design faculty at Washington State University. The original purpose of testing the Delphi among Washington State University faculty was to investigate the differences of the rubric between participants from the same institution versus those of the different institutions. However, the first purpose was too complicated to analyze, we therefore decided to use collected data from Washington State University faculty to test the limitations of the Delphi found in the previous data, and determine whether or not these same limitations exist among professors from the same institution. The formats of each step were the same. All participants have had several years experience teaching sophomore or junior studio. Since all participants were chosen

from one institute, they are considered to communicate with each other often about the programs, curriculum, and evaluating student's projects. According to these criteria, five respondents at WSU were formally invited to participate. Three of the invited professors completed the first round, but only two of the three completed the required second round. From the first round, the evaluation standards were established, and the rubric was established from the second round. Even though the second panels of experts personally know me and are in the same institution, the response rate was lower and feedback time took longer than expected.

To keep the balance with the rubric among participants from the different institutions, the rubric for this procedure also consisted of three sections: design solution, craftsmanship, and presentation. However, the categories were different than the rubric from the first procedure. Under each section, the total numbers of evaluation categories are 44. Each category was also followed by numbers for rating the importance of categories. See the Table G-2 at the appendix G for detail.

The final rubric from professors at Washington State University consisted of 34 categories out of 44 (see Table 5-3 for details). According to the percentages of the agreement of each section, presentation gets the most agreement and design solution and craftsmanship get similar agreement. In general, the agreement rate was 77%. However,

the same limitations of the Delphi method found in the first group of participants were also found in the second group.

Rubric in WSU - Evaluation Standards			
Category		Mean	STD
A. Design Solution (73% of agreement)	Adherence to Guidelines Given	3.50	0.50
	Adequate Background Research	4.00	0.00
	Design Solution Follows Customer's Requirement	4.50	0.50
	Student's Ability to Communicate Verbal to Visual	4.50	0.50
	Use 2 and 3 Dimensional Drawings and Models	4.50	0.50
	Completed Construction Documents (Format)	3.50	0.50
	Consider Physical Environment	4.50	0.50
	Space Planning (Accoutrements)	4.50	0.50
	Circulation Flow	4.50	0.50
	Schedules	3.00	0.00
	Appropriate Finish/Materials Selection	3.50	0.50
	Furnishings Plan (Furniture Layout)	4.50	0.50
	Electrical Plan	2.50	0.50
	Appropriate Lighting Design	3.00	0.00
	Appropriate Color Scheme	3.50	0.50
	Code Issue (Staircase, Fire Exit, ADA)	4.50	0.50
	Appropriate Use of Decorative Elements	2.50	0.50
	General Level of Creativity/ Uniqueness	3.50	0.50
	Follow FIDER Standards	3.00	0.00
B. Craftsmanship (70% of agreement)	Completeness of Drawings	4.50	0.50
	Accuracy (Drafting Details)	4.50	0.50
	Accurate Symbols	3.50	0.50
	Dimension Numbers Match Actual Measurements	3.50	0.50
	Technical Accuracy	4.50	0.50
	Lettering	3.00	0.00
	Overall Quality of Drafting (Craftsmanship)	4.50	0.50
C. Presentation (100% of agreement)	Adequate Information	4.00	0.00
	Perspective Success	3.50	0.50
	Success of Presentation Layout Technique	4.50	0.50
	Visual Communication with Design Issue	4.50	0.50
	Verbal Communication with Design Issue	4.50	0.50
	Overall Graphic Layout	4.00	0.00
	Overall Quality of the Print (Drawings)	3.50	0.50
	Overall Presentation of Work	5.00	0.00

[Table 5-3] Final Rubric Among Professors at WSU

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SUMMARY

This study started from the hypothesis that there are differences between interior design programs in South Korea and the United States. A comparative study of interior design programs to identify the differences constitutes the first framework of this thesis. The first task was to find a tested method from the literature and apply it to this thesis. After researching the existing literature, three different appropriate methods were identified and applied. See Table 6-1 for details.

Method	Purpose	Task	Limitations
Method 1: Qualitative Study	To compare academic curricula and credit hours	• Formulate data collection • Gather data	• Institutions are different • Housed in different units • Years of study in the major are different • Accreditation mechanisms are different
Method 2: Survey Instrument	To analyze people's perception	• Design own survey questionnaire	• Complexity • Biases of participants • Appropriate sample power • Length of time
Method 3: Delphi Method	To make a rubric for ID project evaluation	• Round 1 • Round 2 • Construct rubric	• Time frame • Degree of commitment • Difficulty of presenting projects • Size of panels

[Table 6-1] Three Attempted Methods

The first attempted method was the qualitative comparison, so we decided to compare the academic curricula and credit hours of each country. After then formulating our data collection criteria, we proceeded to gather the necessary data. This method, however, was rejected because institutions are different, housed in different units, years of study in the major are different, and the accreditations mechanisms are different.

Then, we moved to the next method which is survey. Traditionally, a number of articles and studies used survey tools to collect the opinions of people. In this case, we wanted to analyze people's perception of strengths and weaknesses of recent graduates in interior design field in each country. Since we were not able to use the Foundation for Interior Design Education Research (FIDER) survey form, we had to design our own instrument. To do this, Dillman's method, Bloom's taxonomy, and other existing survey questionnaires were used as guidelines. However, the resulting survey questionnaire was also rejected by committee members due to its complexity, biases of participants, appropriate sample power, and length of time involved in this type of research.

Since the original question was too big for testing in a short period of time, committee members suggested that we make a rubric that represents the opinions of professors in each country. The last attempted method for this thesis was the Delphi method. The Delphi method was determined to be a good implementation to construct a consensus

from experts and making the rubric. Even though the participants did not meet in one place, their opinions of evaluation standards for interior design projects were collected fairly due to the benefits of the Delphi technique. The first data were collected from the open-ended questions, and then the responses were analyzed for the second round questions. The evaluation standard from the first round was sent to the participants from the first round, and they were asked to rate each category in evaluation standard by using the Likert Scale 0-5, and N/A. The numbers that the panels marked were analyzed to produce mean, median, and standard deviations in the whole group and each country using Microsoft Excel program. Then, we picked categories with the standard deviations of less than or equal to 0.5 as consensus of agreements. Nevertheless, limitations of the method were found here too, including the time frame, degree of commitment, difficulty of presenting projects, and size of panels. Therefore, we tested the Delphi method one more time on the faculty of interior design at Washington State University with the same conditions as the first participants group. Nevertheless, limitations similar to those encountered with the first participant group appeared.

By testing three different types of methods throughout this study, the Delphi method emerged as having the highest potential among the three. For future studies using the Delphi method to make comparisons between programs or countries, I offer several suggestions.

The first suggestion is to plan carefully before running the method. Give enough time for participants to answer; anticipate that receiving responses will take twice as long as expected. Give enough information about the mechanism of the Delphi for participants to understand that they will need to complete two surveys: one open ended, the other based on a Likert scales. Even though the method has spread out rapidly among researchers and is increasing in popularity, there are many who still do not know the method well. If there are visual images or projects and questions for testing and answering, check the materials carefully before sending those to panels. Sample size is also important even though the method is dependent upon experts, especially the large scope of research. My last recommendation is to have sufficient interactions with participants so they can obtain more information about the study and easily clarify any questions they may have.

There have been many studies about comparative subjects in interior design fields, but much is needed to be done—especially with methods. In most cases, comparative studies in the interior design field were accomplished by analyzing data. The data were collected directly from institutions or through survey instruments. Nevertheless, it is impossible to compare various subjects with using those methods because interior design is a practice-based discipline. To overcome this limitation, researchers need to find more ways to develop comparative studies in interior design. This is why this study is valuable. To

the best of my knowledge, there is no study done using the Delphi method in the interior design field. By testing three methods in this thesis, the Delphi method became valued as a method with high potential that can be easily adapted to interior design. Unlike other theoretical disciplines, the main purpose of interior design produces interior spaces and decorations for living space. The final results may be valued differently by each viewer. Thus, from various subjective opinions to make a standard of "building consensus" in interior design, the Delphi is appropriate because of its anonymity, iteration, controlled feedback, and statistical aggregation of group response (Kerr, 2001). Especially, the Delphi is a stronger tool than survey instruments or quantitative analysis for making comparison between countries because it could overcome statistical errors such as differences of sample power. It seems that the Delphi method could be used to design and develop rubrics, curriculum, and programs. Based on the research described in this thesis, I firmly believe that, if the Delphi method is conducted over sufficient time and with a large size of participants from programs of each country, the study could go further to build a significant comparison between programs in Korea and the United States.

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APPENDIX

A. Approval of Human Subject Protocol

WASHINGTON STATE UNIVERSITY
Office of Grant and Research Developn

MEMORANDUM

TO: Soeun Lee
Interior Design, WSU Spokane

FROM: Malathi Jandhyala (for) Cindy Corbett, Chair, WSU Institutional Review Board (3140)

DATE: 4 April 2005

SUBJECT: Approved Human Subjects Protocol - New Protocol

Your Human Subjects Review Summary Form and additional information provided for the proposal titled *"Designing the Rubric for ID Project Using Modified Delphi Method,"* IRB File Number **8488**-a was reviewed for the protection of the subjects participating in the study. Based on the information received from you, the WSU-IRB **approved** your human subjects protocol on **4 April 2005**.

IRB approval indicates that the study protocol as presented in the Human Subjects Form by the investigator, is designed to adequately protect the subjects participating in the study. This approval does not relieve the investigator from the responsibility of providing continuing attention to ethical considerations involved in the utilization of human subjects participating in the study.

This approval expires on 3 April 2006. If any significant changes are made to the study protocol you must notify the IRB before implementation. Request for modification forms are available online at http://www.ogrd.wsu.edu/Forms.asp.

In accordance with federal regulations, this approval letter and a copy of the approved protocol must be kept with any copies of signed consent forms by the principal investigator for THREE years after completion of the project.

This institution has a Human Subjects Assurance Number FWA00002946 which is on file with the Office for Human Research Protections. WSU's Assurance of Compliance with the Department of Health and Human Services Regulations Regarding the Use of Human Subjects can by reviewed on OGRD's homepage (http://www.ogrd.wsu.edu/) under "Electronic Forms," OGRD Memorandum #6.

If you have questions, please contact the Institutional Review Board at OGRD (509) 335-9661. Any revised materials can be mailed to OGRD (Campus Zip 3140), faxed to (509) 335-1676, or in some cases by electronic mail, to *ogrd@mail.wsu.edu*.

Review Type: NEW
Review Category: XMT
Date Received: 30 March 2005

OGRD No.: NF
Agency: NA

PO Box 643140, Pullman, WA 99164-3140
509-335-9661 • Fax: 509-335-1676 • www.ogrd.wsu.edu

APPENDIX

B. Bloom’s Taxonomy

Competence	Skills Demonstrated
Knowledge	• observation and recall of information • knowledge of dates, events, places • knowledge of major ideas • mastery of subject matter *Question Cues:* list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.
Comprehension	• understanding information • grasp meaning • translate knowledge into new context • interpret facts, compare, contrast • order, group, infer causes • predict consequences *Question Cues:* summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend
Application	• use information • use methods, concepts, theories in new situations • solve problems using required skills or knowledge *Questions Cues:* apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover
Analysis	• seeing patterns • organization of parts • recognition of hidden meanings • identification of components *Question Cues:* analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer
Synthesis	• use old ideas to create new ones • generalize from given facts • relate knowledge from several areas • predict, draw conclusions *Question Cues:* combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if, compose, formulate, prepare, generalize, rewrite
Evaluation	• compare and discriminate between ideas • assess value of theories, presentations • make choices based on reasoned argument • verify value of evidence • recognize subjectivity *Question Cues*: assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize

[Table B-1] Bloom's Taxonomy (Bloom, 1956)

APPENDIX

C. Survey Instrument

Application:

1. Please evaluate competency of graduates with bachelor's degrees from your institution in doing following tasks?

	Very much	Quite a bit	Some	Very little	None
a. Students can apply the conceptual knowledge when they complete a project	4	3	2	1	0
b. Students can use proper knowledge to complete a project	4	3	2	1	0
c. You can find the design theories from the students works without any students' explanation	4	3	2	1	0
d. Students are good at using computer based software	4	3	2	1	0
e. Students can use CAD program to complete a project	4	3	2	1	0
f. Students can use graphic software such as Photoshop to complete a project	4	3	2	1	0
g. Students can use 3-D generation program such as 3-D Max to complete a project	4	3	2	1	0
h. Undergraduates can make electronic version of portfolio of their works that can be easily presented over the internet	4	3	2	1	0

Analysis:

2. Please evaluate competency of graduates with bachelor's degrees from your institution in doing following tasks?

	Very much	Quite a bit	Some	Very little	None
a. Students can explain their works related to the design principles and theory	4	3	2	1	0
b. Students know their strengths and emphasize those on their works	4	3	2	1	0
c. When students get a project, they know each step of design process systematically	4	3	2	1	0

Synthesis:

3. Please evaluate competency of graduates with bachelor's degrees from your institution in doing following tasks?

	Very much	Quite a bit	Some	Very little	None
a. Students can combine the existing ideas to create new ones	4	3	2	1	0
b. Students can invent their own design	4	3	2	1	0

Evaluation:

4. Please evaluate competency of graduates with bachelor's degrees from your institution in doing following tasks?

	Very much	Quite a bit	Some	Very little	None
a. Students' design process and verbal presentation valued higher than visual presentation	4	3	2	1	0

5. How important is it to you that graduates from your institution does the following?

	Very important	Important	Somewhat important	Not important
a. Students' adaptability with design theory and principles to their works	4	3	2	1
b. Students' understanding about design theory and principles	4	3	2	1
c. Students' knowledge about design history	4	3	2	1
d. Students' visual presentation	4	3	2	1
e. Students' visual communication with their works	4	3	2	1
f. Students' verbal communication on presentation	4	3	2	1
g. Students' technical skills for designing manually such as drawings using prefer color palates	4	3	2	1
h. Students' technical skills by using computer	4	3	2	1
i. Students' creativity	4	3	2	1
j. Students' internship, field experience	4	3	2	1

6. About how many credits does your institution have each of the following?

	0	1-5	6-10	11-20	21-30	More than 30
a. History of ID, Art, Architecture	o	o	o	o	o	o
b. Design theory and principle excluding studio	o	o	o	o	o	o
c. CAD	o	o	o	o	o	o
d. Photoshop	o	o	o	o	o	o
e. Other computer generate	o	o	o	o	o	o

7. How many students are enrolled in your institution?

	0	1-10	11-20	21-30	31-40	More than 40
a. 1st year students	o	o	o	o	o	o
b. Sophomores	o	o	o	o	o	o
c. Juniors	o	o	o	o	o	o
d. Seniors	o	o	o	o	o	o

8. How many faculty members does your program has?

	0	1	2	3	4	5	6	7	8	9	10	More than 11
a. Lecturers	o	o	o	o	o	o	o	o	o	o	o	o
b. Assistance Professors	o	o	o	o	o	o	o	o	o	o	o	o
c. Associate Professors	o	o	o	o	o	o	o	o	o	o	o	o
d. Full professors	o	o	o	o	o	o	o	o	o	o	o	o

9. Select the box that represents the emphasizing value in teaching 1st year students.

Conceptual Course — Technical Course

1 2 3 4 5 6 7

10. Select the box that represents the emphasizing value in teaching sophomores.

Conceptual Course						Technical Course
1	2	3	4	5	6	7

11. Select the box that represents the emphasizing value in teaching juniors.

Conceptual Course						Technical Course
1	2	3	4	5	6	7

12. Select the box that represents the emphasizing value in teaching seniors.

Conceptual Course						Technical Course
1	2	3	4	5	6	7

13. Select the box that represents the emphasizing value in teaching students overall.

Conceptual Course						Technical Course
1	2	3	4	5	6	7

14. In your institution, how much emphasis do you place on engaging students in each of these cognitive activities?

	Very much	Quite a bit	Some	Very little	None
a. Knowledge: observation and recall of information	4	3	2	1	0
b. Comprehension: understanding information	4	3	2	1	0
c. Application: use information	4	3	2	1	0

d. Analysis: seeing patterns	4	3	2	1	0
e. Synthesis: use old ideas to create new ones	4	3	2	1	0
f. Evaluation: compare and discriminated between ideas	4	3	2	1	0

15. Please evaluate graduates' competency from your institution in doing following tasks?

	Very much	Quite a bit	Some	Very little	None
a. Writing clearly and effectively	4	3	2	1	0
b. Speaking clearly and effectively	4	3	2	1	0
c. Thinking critically and analytically	4	3	2	1	0
d. Analyzing quantitative problems	4	3	2	1	0
e. Using computing and information technology	4	3	2	1	0
f. Solving complex real-world problems	4	3	2	1	0
g. Acquiring job or work-related knowledge and skills	4	3	2	1	0

16. What are strengths and weaknesses of your program (curriculum)?

17. If your institution has any plan to offer more courses in the near future to develop your program, what are those courses?

18. In your opinion, what are graduates' relative strengths from your institution (related to the needs of current interior design field)?

19. In your opinion, what are graduates' weaknesses from your institution (related to the needs of current interior design field)?

[Table C-1] Survey Questionnaire

APPENDIX

D. Letters to Participants for Delphi Method

Letters for the First Round (English)

Dear Professors,

I am very glad to hear that you could take a time to participate in my research.

There are two projects for you to evaluate;

1) The first one is a residential project presented in construction documents.

2) The second one is a commercial project ("hotelling" office) presented in a collage of design drawings, materials, etc.

Please, evaluate each project by answering the following five questions.

[Step]

- You need to go to the web site where I posted my projects.

- The first project was done in junior studio 1, and the project was done by hand drawing.
- The second project was done in junior studio 2, and the project was done mostly using AutoCAD.

- As a professor of Interior Design, please evaluate the projects like you do to your students' projects.
- Once you finish your evaluation, please send the results (evaluation of the projects) to me.
- In an e-mail document please write the number of each question and corresponding answer.
- Please return these comments to me by Feb 12th.
- Your narratives will be analyzed (per Delphi method) to develop a rubric for grading these projects.
- The rubric will be returned to you for a second evaluation.

Your response will be the most important part of my thesis.
Thank you for your time and consideration.
It is only with the generous help of people like you that my research can be successful.

Best regards,
Soeun Lee

Web site address is: http://myhome.naver.com/jytwsu

Letters for the First Round (Korean)

교수님,

우선 제 리서치에 응해 주셔서 감사하단 인사를 먼저 드립니다.
교수님의 의견은 제 연구의 가장 중요한 부분이 될 것입니다.

교수님께서는 두개의 프로젝트를 평가해 주세요.

1) 첫번째 프로젝트는 주거환경 프로젝트로 construction documents 형식으로 구성되어 있습니다. (3학년 1학기때 제작)
2) 두번째 프로젝트는 오피스 디자인 프로젝트(hotelling office)로 프리젠테이션 보드와 투시도, 그리고 CAD로 만들어진 평면도로 구성되어 있습니다. (3학년 2학기때 제작)

[Step]

1) 제가 만들어 놓은 웹사이트로 가서 두 프로젝트를 봐 주세요.
2) 교수님께서 평상시 학생들 프로젝트를 평가하듯이 제가 질문한 5문항을 답해 주세요.
3) 각각 질문 평가 결과를 보내 주실때 각각의 질문번호를 먼저 써 주시고 그 밑에 각각의 답변을 달아서 이메일이나 워드파일로 만들어서 제 이메일로 보내 주세요.
4) 교수님의 평가 결과를 **2월 12일** 까지 제게 보내주세요.
5) 교수님께서 해 주신 평가는 Delphi Method를 이용하여 분석한후 학생들 프로젝트 평가 기준표을 만드는데 사용됩니다.
6) 실내 디자인 학생들 프로젝트에 관한 평가 기준표가 완성되면 교수님께 그 결과를 보내 드리겠습니다.
7) 제가 만든 결과표(한국 교수님 4분, 미국 교수님 4분의 평가)를 보시고 커멘트를 다시 제게 보내 주세요.

다시한번 교수님의 귀한 시간과 제 리서치 참여에 깊은 감사들 드립니다.
새해 복 많이 받으시고요, 원하는 모든일들이 이루어 지시길 바랍니다.
건강하세요.

이소은 올림.
제 웹사이트 주소: http://myhome.naver.com/jytwsu

Letters for the Second Round (English)

Dear Professors,

Thank you for your previous communication. It helped development of my research greatly.
This is the second round for developing the rubrics by using Delphi Method.
Responses to the open-ended question in the first round were analyzed qualitatively and categorized (grouped) by similarity.
This was then drafted for circulation to all participants in a second questionnaire.

In this second round, I am asking to you to do:

Please, rank each category using attached rubric form.
You may mark the score directly on the rubric file and return it to me as an email attachment.
If you cannot rank the specific part or if you believe that category is irrelevant for evaluation design project, please check the N/A.

You can use my project as a reference. Please, go to my web-site.
This time, I updated the more information about the project on the web-pages for your easy understanding. Also, I enlarged the image sizes.

I would greatly appreciate if you return your evaluation by **March 15th (Next Tuesday)**.

Thank you again for your time and consideration.
It is only with the generous help of people like you that my research can be successful.

Best regards,
Soeun Lee

Web site address is:
http://myhome.naver.com/jytwsu

Letters for the Second Round (Korean)

교수님

그간 안녕하신지오?
한국은 새 학기가 시작해서 바쁘시죠?
게다가 제 논문까지 협조해 주셔서 송구스럽습니다.
저번에 보내주신 응답은 감사히 잘 받아 보았습니다.
덕분에 제가 평가 기준표를 작성하는데 도움이 많이 되엇습니다.

이번 Second Round에서는 저번에 교수님들(한국+미국)께서 응답하신 내용을 각각의 Category별로 정리하여 만든 3학년 디자인 프로젝트 평가 기준표를 교수님께서 다시한번 평가를 해 주시는 겁니다.
각각의 Category가 있지만 각 분야별 중요도는 다르리라 생각됩니다.
교수님께서 생각하시는 각각 Category의 중요도를 1-5까지의 스케일을 이용하여 체크하여 주세요.

한글 파일로 평가 기준표를 첨부시켜 보냈드렸으니 한글파일 상태로 체크(밑줄)하여주세요.
그리고 다시 한글파일 상태로 제게 메일을 보내 주십시오.

교수님께서 3월 15일(화요일)까지 제가 평가표를 보내주신다면 더할수 없이 고맙겠습니다..

다시한번 교수님의 참여에 깊은 감사 드리옵고,
몸 건강하세요.

3월 9일
이소은 올림.

P.S. 혹시나 하여 제 홈페이지 주소를 다시 보내드립니다. 참고 하셔도 괜찮습니다. (http://myhome.naver.com/jytwsu)

APPENDIX

E. Projects and Questions for Evaluation

PROJECT 1 (English & Korean)

This project is a residential project presented in construction documents.

This project had done in junior studio 1, and the project was done by hand drawing.

이 프로젝트는 주거설계 프로젝트로 construction documents 형식으로 구성되어 있습니다.

이 프로젝트는 3 학년 1 학기중에 만든것으로 컴퓨터의 사용 없이 모든것을 손으로 직접 제작하였습니다.

[Project Information]

a. Goals

1. This house should be contemporary aesthetics to represent client's modern life style.
2. The home should be easily expandable and changeable according to diverse needs in the future.
3. The home should provide an efficient home-office environment because the home owner works at home.
4. The house design should be integrated well with the surrounding neighborhoods to blend seamlessly in.
5. The sustainable cost of the house should be low because the family does not want to pay too much money for the maintenance.

b. Concepts

1. To design a contemporary home with a soft, clean and dramatic style, unique forms with simple and precise lines will be combined. Different floor levels evoke a

freedom and variety. Highly lifted ceilings in several places enhance the sense of space and drama. Materials are simple but never to be boring. Fabric wall panel provides warm environment in this spacious house. In contrast, the steel and glass in someplace could represent their modern life style. The color scheme for this house is very neutral, so that could express the lines, shapes and materials of the house itself.

2. Most places in this house designed in large scale, it is very flexible to expand and change in the future.
3. Centrally located living room serves dual purposes for the efficient use of space. The living room, which originally belongs to the residential area, works as supplementary meeting area or conference room for the home office. It also works as a transitional space between the home office and the residence. It provides the office with an appropriate level of independence without being completely isolated from the family or residence area.
4. While the house design is quite unique and far from conventional designs normally found in the neighborhood, the exterior materials and color scheme will be well integrated with the neighborhood.
5. By using durable materials, client should reduce the maintenance and lifecycle cost. Large opening on the South and just a few opening on the north side should help to reduce energy cost.

[Questions]

1. What do you look for when you grade a project like this?
2. What is the standard?

3. How do you assess?

4. What are the strengths you identity in this project?

5. What are the weaknesses you identify in this project?

1. 이런 프로젝트를 보셨을대 교수님께서는 어떤 것을 평가하십니까?

2. 평가 기준은 어떻게 됩니까?

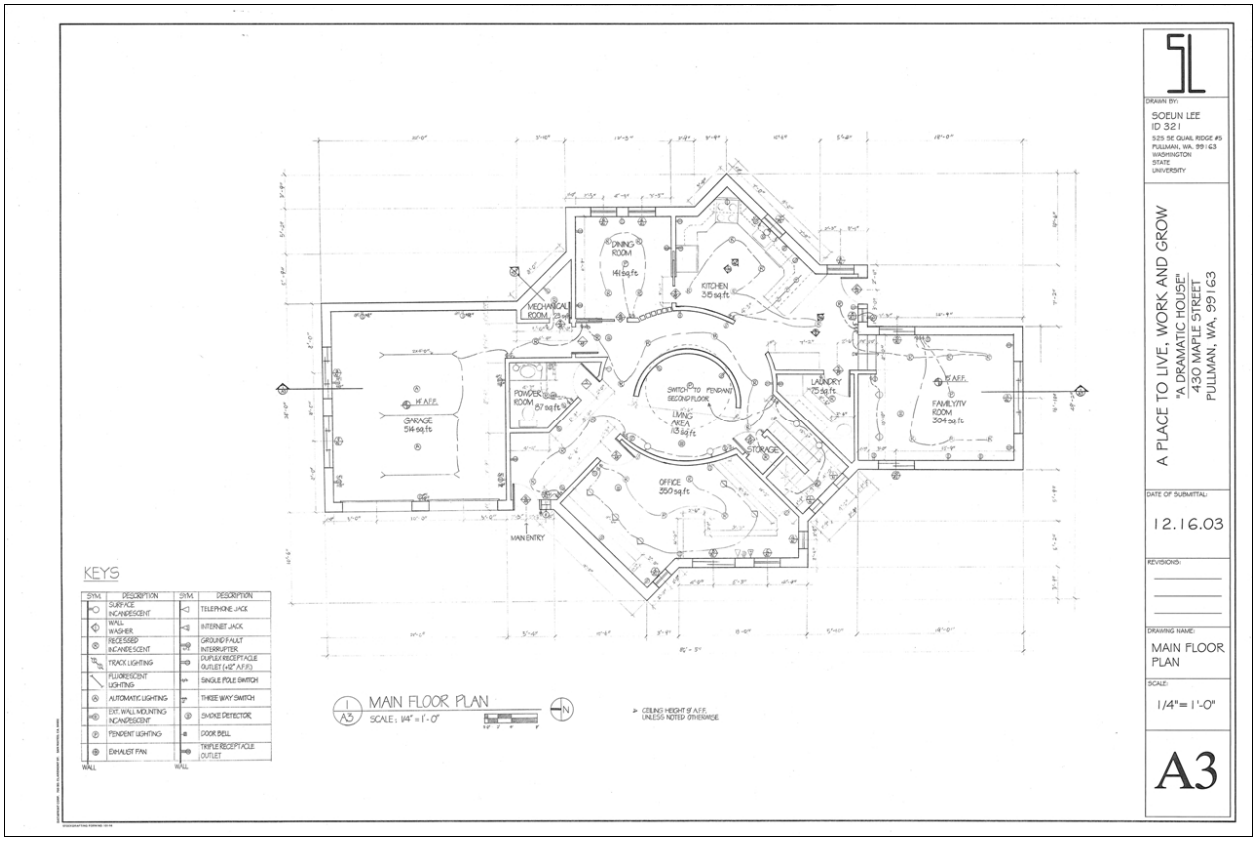
3. 교수님의 평가기준에 따라 이 프로젝트를 평가해 주십시오.

4. 이프로젝트에서 보이는 장점들에 관해 논해 주십시오.

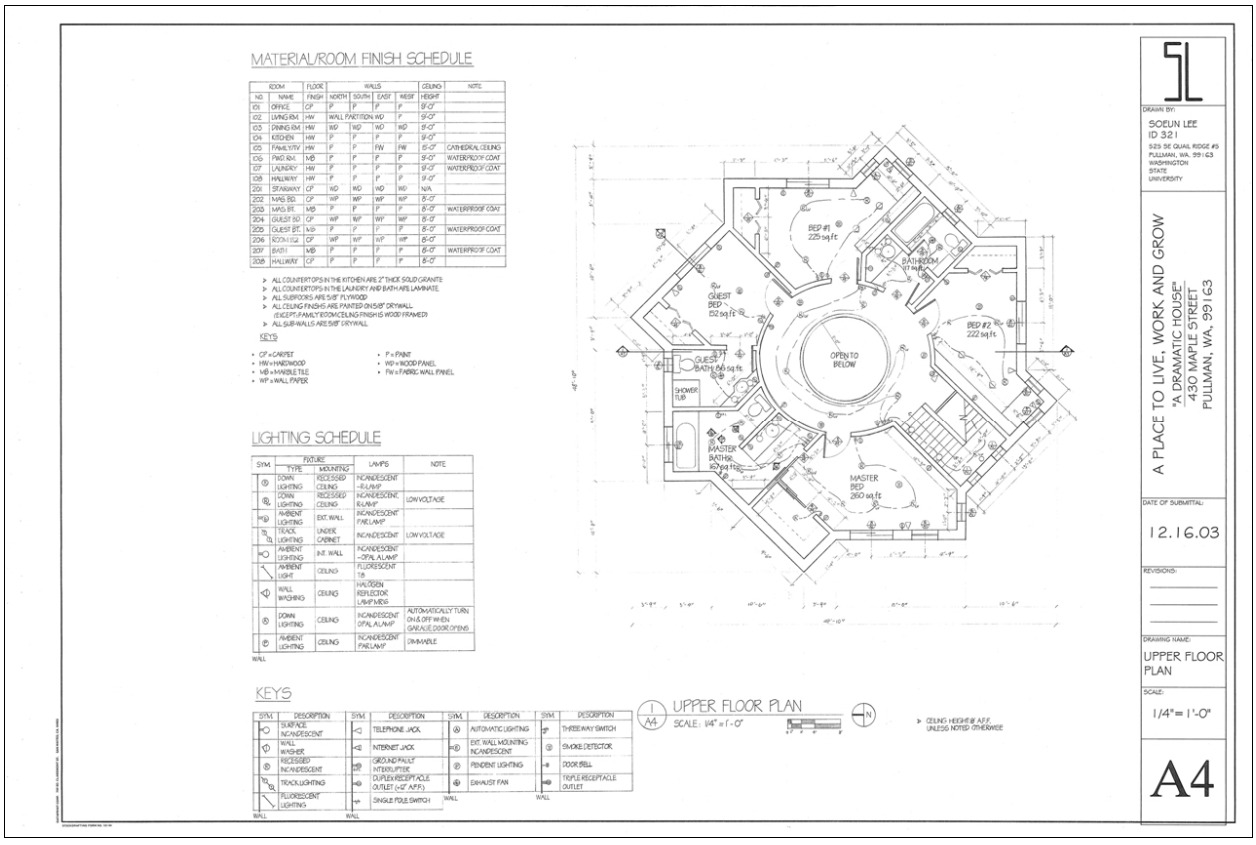
5. 이프로젝트에서 보이는 단점들에 관해 논해 주십시오.

[Drawings]

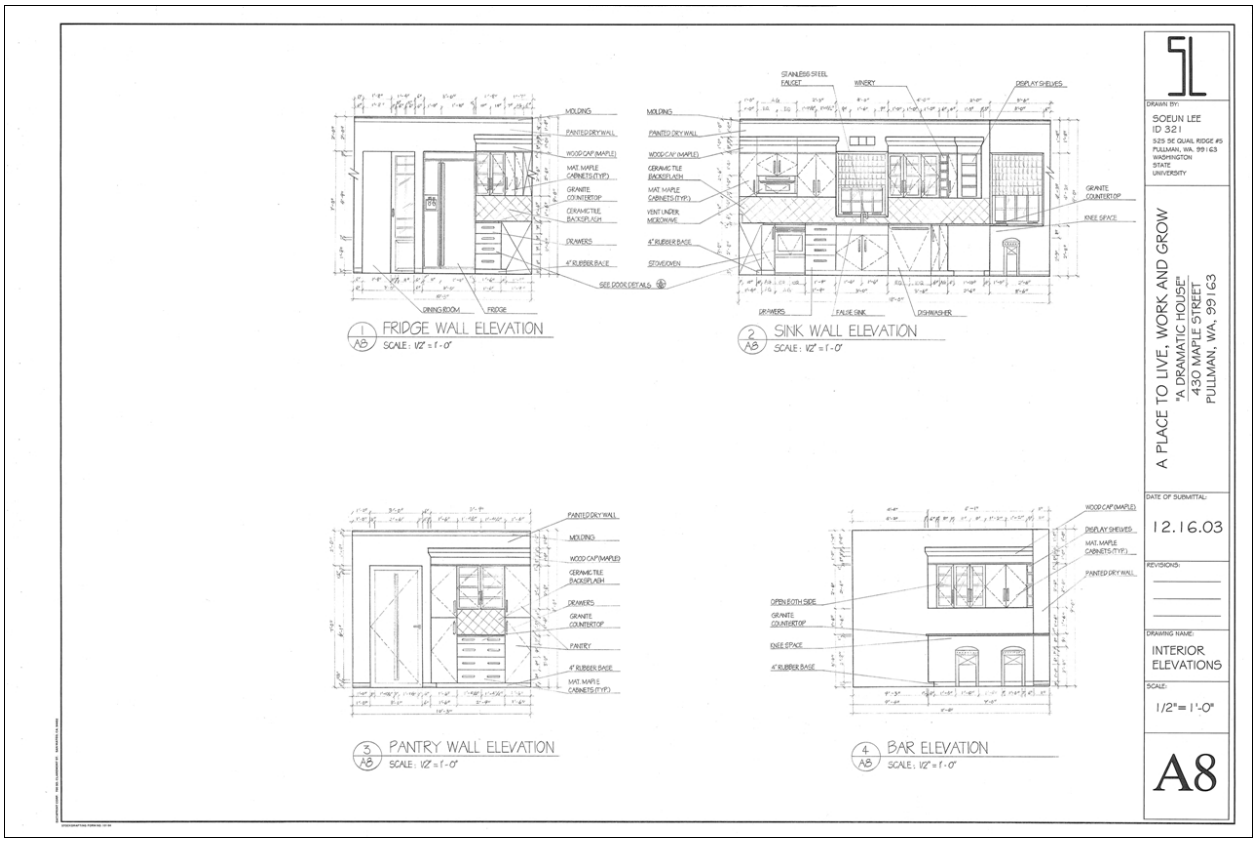
[Drawing 1- First Floor Plan]



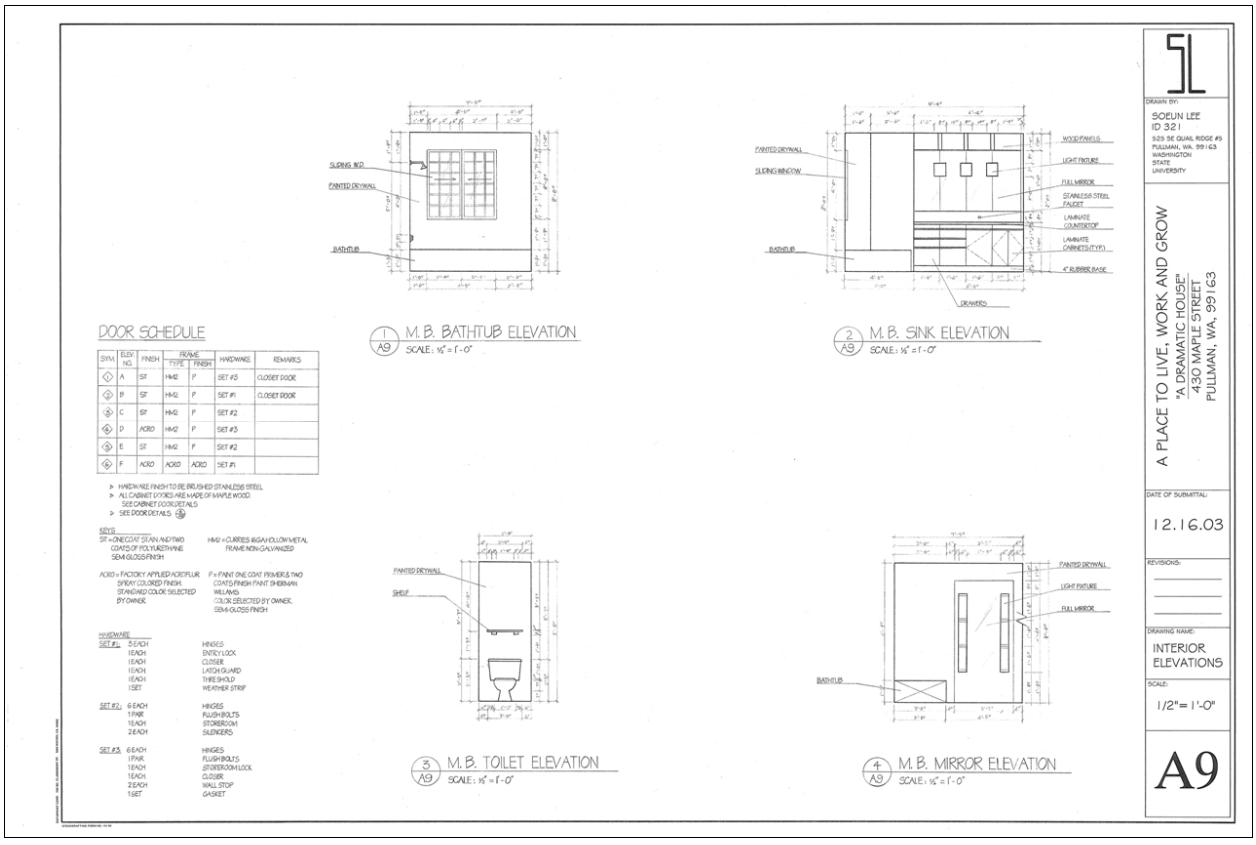
[Drawing 2- Second Floor Plan]



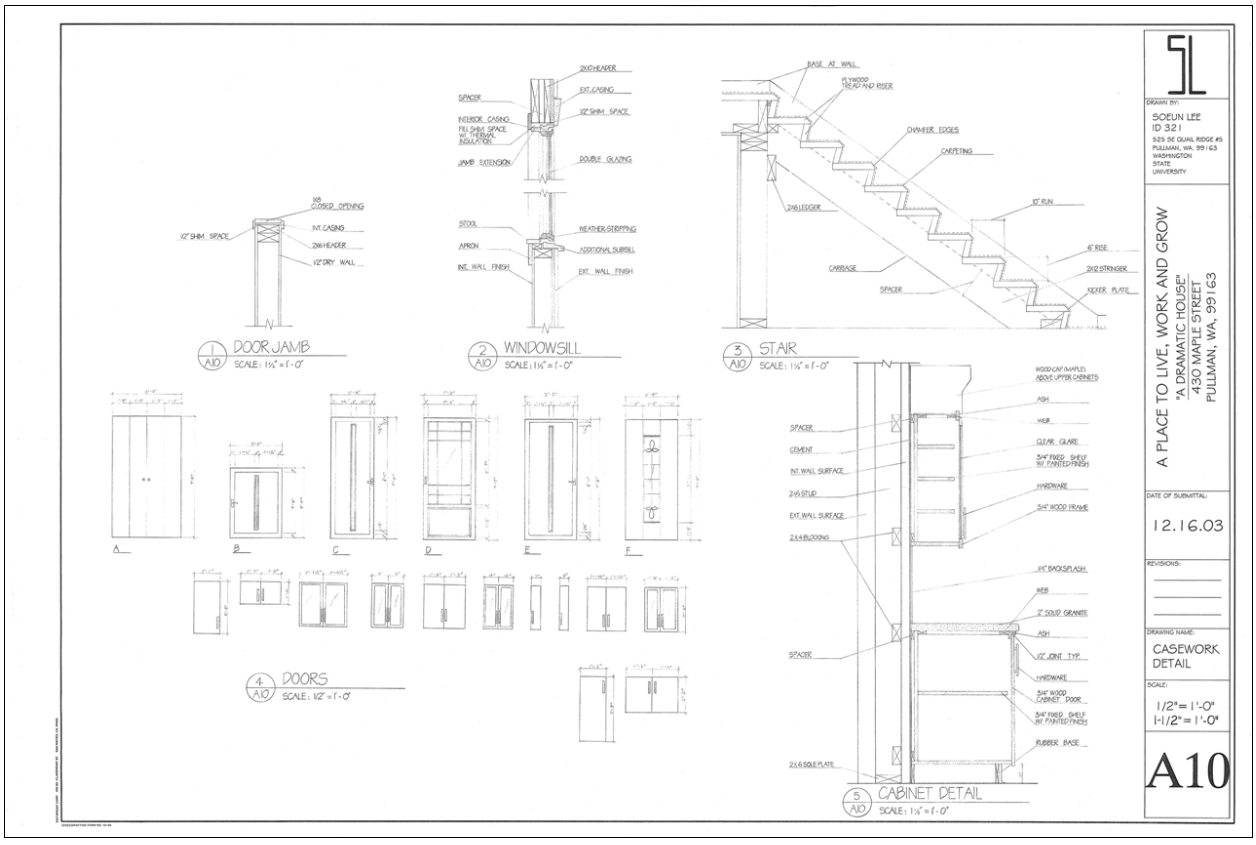
[Drawing 3- Kitchen Elevations]



[Drawing 4- Bathroom Elevations]



[Drawing 5- Details]



PROJECT 2 (English & Korean)

This project is a commercial project ("hotelling" office) presented in a collage of design drawings, materials, etc.

This project had done in junior studio 2, and the project was done mostly using AutoCAD.

이 프로젝트는 상업공간설계 (호텔링 오피스 디자인) 프로젝트로 평면도와 투시도, 그리고 보드 레이아웃과 건축 재료등이 제공됩니다.

이 프로젝트는 3 학년 2 학기중에 만든것으로 투시도를 제외한 거의 모든것이 AutoCAD 를 이용하여 제작되었습니다.

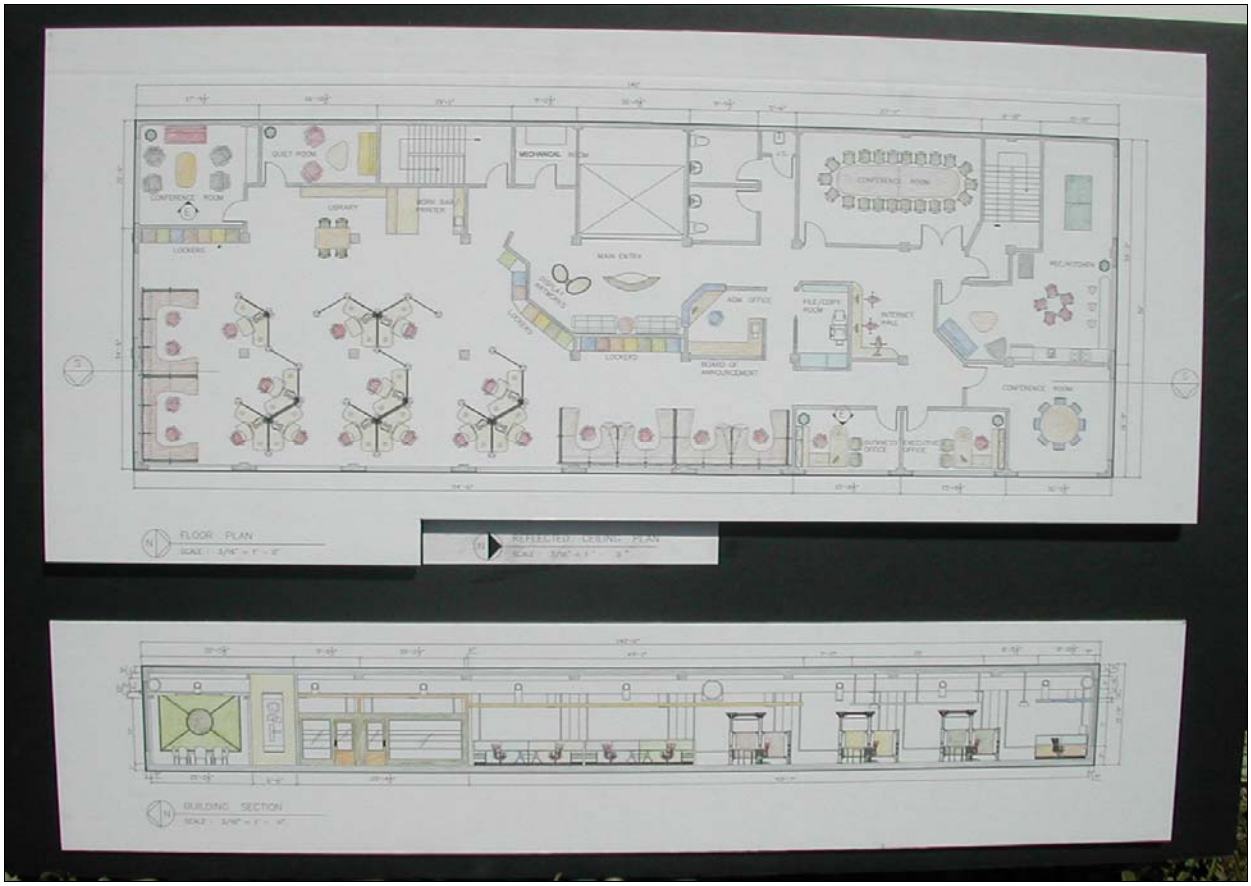
[Questions]

1. What do you look for when you grade a project like this?
2. What is the standard?
3. How do you assess?
4. What are the strengths you identity in this project?
5. What are the weaknesses you identify in this project?

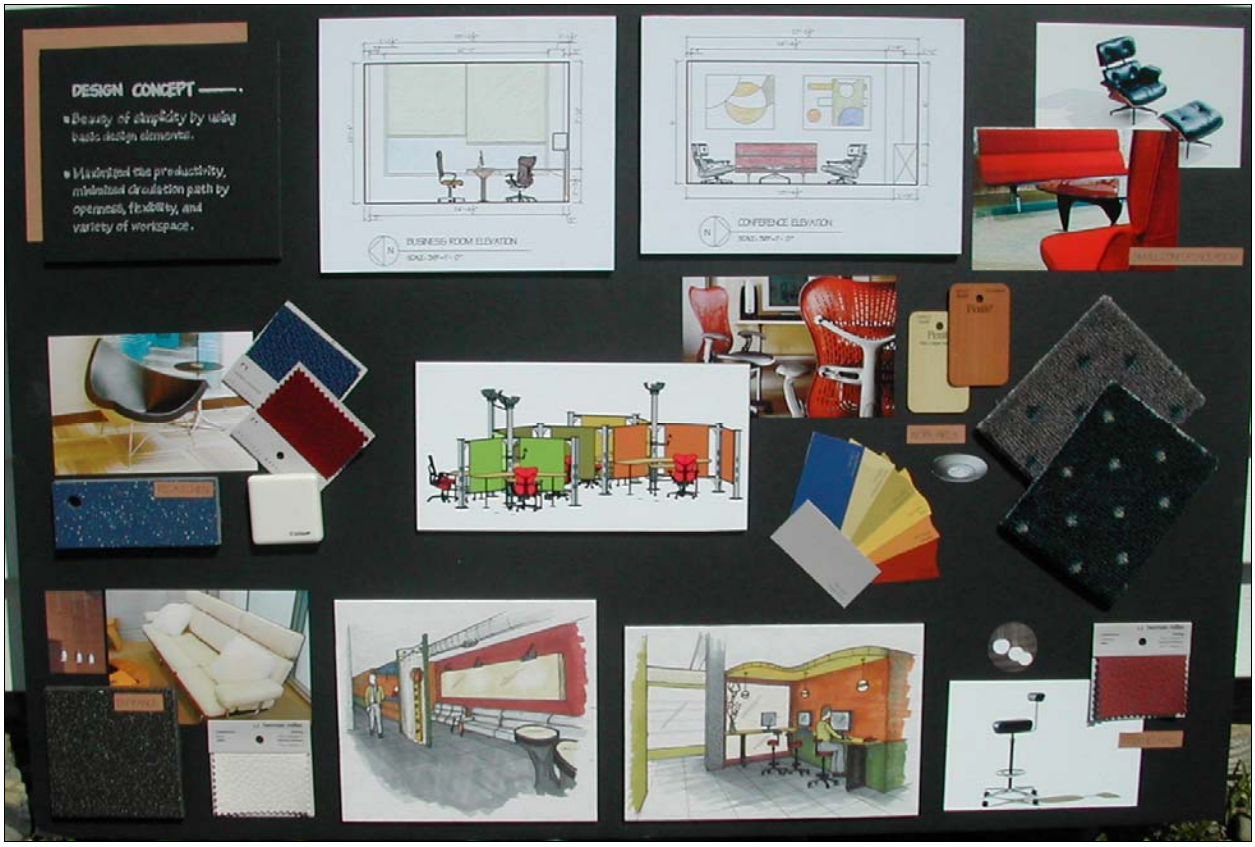
1. 이런 프로젝트를 보셨을대 교수님께서는 어떤 것을 평가하십니까?
2. 평가 기준은 어떻게 됩니까?
3. 교수님의 평가기준에 따라 이 프로젝트를 평가해 주십시오.
4. 이프로젝트에서 보이는 장점들에 관해 논해 주십시오.
5. 이프로젝트에서 보이는 단점들에 관해 논해 주십시오.

[Drawings]

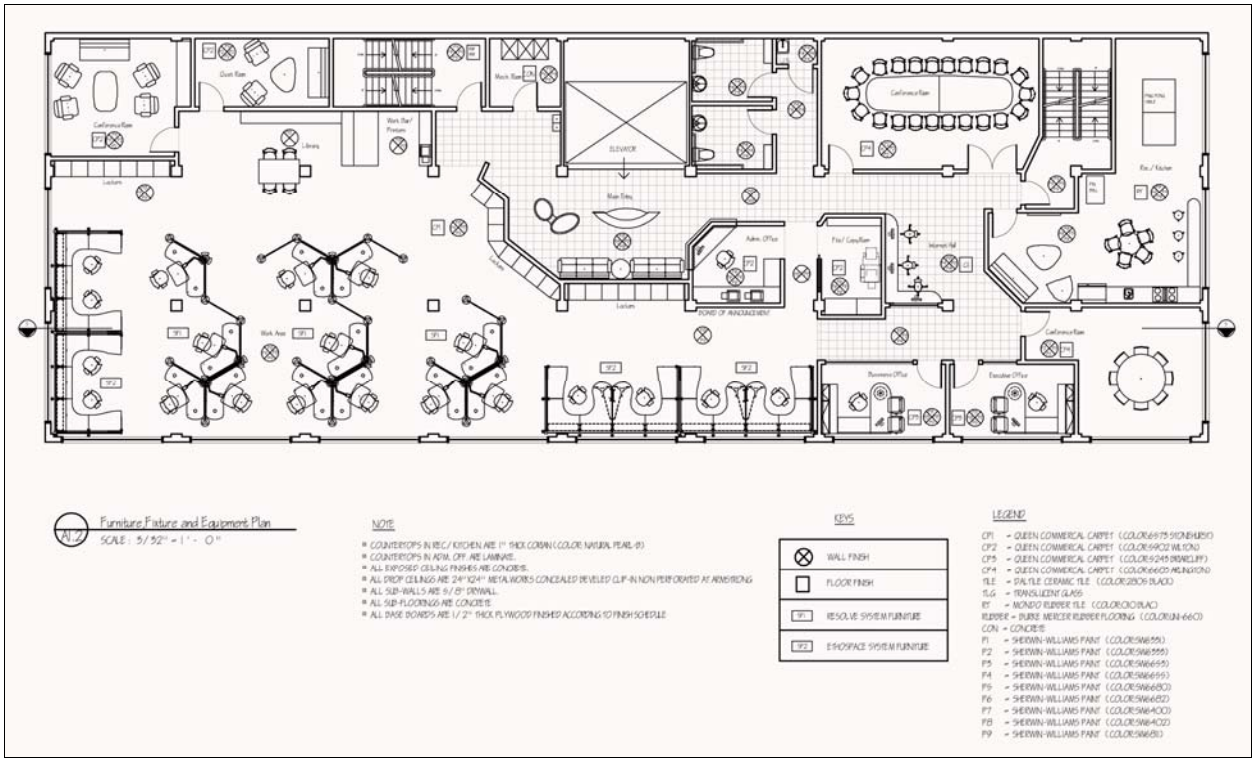
[Drawing 1- Board Layout A]



[Drawing 2- Board Layout B]

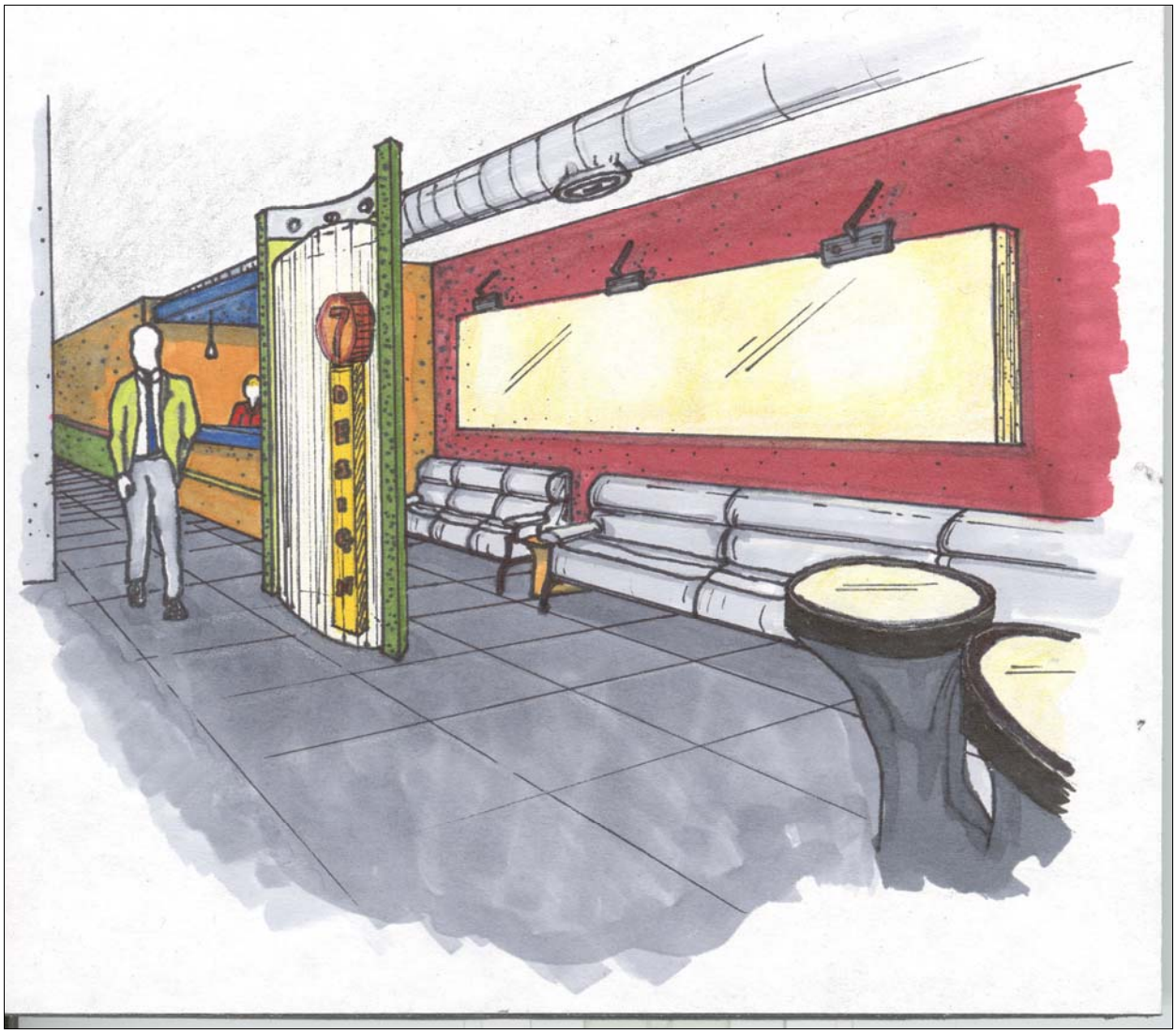


[Drawing 3- Floor Plan]



[Drawing 4- Perspective A]

[Drawing 5- Perspective B]



APPENDIX

F. Comments from Participants from the First Round

Participant A

Project One

Question 1) What do you look for when you grade a project like this?
I would look for good space planning, a project that meets ADA Codes, line quality and line weight variation, accurate keys, accurate dimension lines that are correctly placed and add up correctly, accurate scale, properly drawn title block with necessary information, placement of the electrical outlets and switches, social\psych considerations for comfort of users, and overall quality of the print.

Question 2) What is the standard?
I expect all of the above-mentioned items to be of high quality. I would compare to students from previous semesters as well as the best students in the current semester.

Question 3) How do you assess?
I look through all of the items above to be sure they are complete and well done. Then I assess each area as either excellent, good, average, fair, or poor. If I feel additional comments are necessary, I record them under the appropriate section.

Question 4) What are the strengths you identify in this project?
It is extremely difficult to see this project on my computer. I would say it seems to be a detailed project that has a good bit of detail. It seems to be a complete set of construction drawings. However, I am unable to read it well enough to point out specific strengths.

Question 5) What are the weaknesses you identify in this project?
It is extremely difficult to see this project on my computer. If I had to evaluate it under these circumstances, I would say it has poor line quality, the dimensions are not legible. I can't see what is on the key to know if that is done properly

Project Two

Question 1) What do you look for when you grade a project like this?

I would look for good space planning, a project that meets ADA Codes, line quality and line weight variation, accurate keys, accurate dimension lines that are correctly placed and add up correctly, accurate scale, properly drawn title block with necessary information, placement of the electrical outlets and switches, social\psych considerations for comfort of users, properly labeled sections, etc., appropriate material and finish selection, and overall quality of the print.

Question 2) What is the standard?

I expect all of the above-mentioned items to be of high quality. I would compare to students from previous semesters as well as the best students in the current semester.

Question 3) How do you assess?

I look through all of the items above to be sure they are complete and well done. Then I assess each area as either excellent, good, average, fair, or poor. If I feel additional comments are necessary, I record them under the appropriate section.

Question 4) What are the strengths you identify in this project?

This drawing is much easier to read on my computer, so that alone is greatly influencing my evaluation of the two projects. This one is neat, crisp, with nice colorful renderings, so I am much more intrigued looking at this project over the last one. Perspectives are colorful and help explain the project well.

Question 5) What are the weaknesses you identify in this project?

First board is fuzzy and hard to read. Sample boards are colorful, although at my university we discourage the placement of samples at an angle as they draw too much attention. I would say they are trying to seat too many people around the conference table too. The access to the stairs on the right seems like it could be more direct.

Participant B

Project One

Question 1) What do you look for when you grade a project like this?

This project would be created in a course entitled “Interior Construction Documents”, taken by students the first semester of their 3rd year. The actual design is not graded, and will not be addressed here. I look for appropriate use of architectural symbols, quality of drafting, appropriate line weights, composition of drawings on the sheet, accuracy (wall thickness, door sizes, dimension numbers match actual measurements, etc.), architectural lettering quality, and appropriate cross referencing.

Question 2) What is the standard?

I’m not sure what you mean by this. There are a range of qualities as well as appropriateness depending upon the category. I suppose I look at them from with a ‘professional’ eye, as if they were being produced from an office.

Question 3) How do you assess?

I use a sheet similar to the example attached. Students are given this grade sheet as the assignment is given. I go through each of the categories (the example I attached is a commercial project created on auto cad) and give points as well as making general comments on the grade sheet. Specific comments or corrections are indicated on the prints of drawings turned in by students.

Question 4) What are the strengths you identify in this project?

Question 5) What are the weaknesses you identify in this project?

These are the general sorts of notes I would include on the grade sheet. Then, the drawings themselves would be marked up.

Remember that a set of drawings opens from the right, for this reason, the key would be better placed to the right side of the sheet rather than on the left.

When depicting windows in plan, remember that the building is ‘cut-through’ at 4’. The window sill should be shown with lighter line weights, so that the window reads appropriately. (I would use different language with my students, that we typically use in class.)

Nice lettering style, but use guidelines for improved consistency.
Arrange notes on elevation drawings so that leader lines do not intersect.
Large lettering (as that used for titles) should have a bolder line weight (thickness).
Elevation line weights need to be refined.
Consider a small key plan on the elevation sheet for easy reference.

Overall, pay more attention to efficient arrangement of drawings on the sheets.
(relationship of white space to drawing)
Details need more comprehensive knowledge shown with the notes.

The scale of doors shown is inconsistent. These drawings would be more appropriate on the same sheet as the door schedule.

Example of Evaluation Standards from Participant B

Construction Documents
Total points possible: 200 points

Cover Sheet, Title Blocks, Sheet Layout
Cover sheet includes project title, address, designer name and contact information, table of contents, abbreviations used. Title blocks on sheets filled in with project title, sheet number, date, designer's name. Sheet layout and numbering is logical and orderly.

Partition Plan
Existing elements are shown, existing elements to be removed are shown and noted; and proposed walls and other architectural elements are clearly shown and adequately dimensioned. Rooms are labeled and numbered. Details, sections, and elevations are cross-referenced. Notes are appropriately worded and well placed on the drawing.

Reflected Ceiling Plan
Existing ceiling elements are shown, ceiling material and any special ceiling treatment is shown and noted, dimensioned as necessary. Lighting fixtures are shown and referenced to the lighting schedule. Lighting fixtures not included in a grid are adequately dimensioned. Room names and numbers are shown. Walls, doors, windows shown as appropriate to the

condition (if they extend to the ceiling level).

Lighting Schedule

Referenced to the 1/8" Reflected Ceiling Plan. Shows general description, manufacturer, fixture, finish, lamp style, size, and remarks.

Finish Plan

All finishes within the space are indicated on the plan and referenced to the finish schedule. Room names and numbers are shown. Where needed, dimensions are included. Notes are used to clarify and/or reinforce graphic information.

Finish Schedule

Referenced to the 1/8" Finish Plan. Finishes for ceilings, floors, bases, and walls of the spaces, ceiling heights and any special remarks are included.

Interior Elevations

All interior elevations shown of department office **plus** one additional space of your choice. Finishes to be called out by referencing to the Finish Schedule. Sections and details are referenced. Finishes are called out for ceiling, floor, base, walls, and any trims. The finishes are keyed to the finish schedule. Dimensions adequately locate ceiling heights, new trim locations, and any built-in furniture in addition to any elements not adequately shown on floor plan.

Sections

Section through corridors and conference room.
Section through custom reception desk.
Section through custom mailboxes.

Reception Desk and Mailbox

Enlarged Plan and elevations show the reception desk and the mailbox. Sections and details are referenced as necessary. Notes and dimensions describe the size and finishes present.

Details

Details are fully developed, indicating finishes and construction. Dimensions adequately describe the detail. Notes are used to describe components and finishes.

1 section detail of ceiling element

1 detail of ceiling/wall intersection

3 details of custom-designed reception desk and/or custom mailboxes.

Furnishings Plan

Furnishings and fixtures are shown for the spaces (Department Office, New Office, Conference Room, Two new Seminar Rooms) and keyed to the furnishings schedule. Rooms are labeled and numbered.

Furnishings Schedule

Referenced to the 1/8" Furnishings Plan. At a minimum, general description, manufacturer, item number, finish information, fabric information, remarks and number of pieces are included.

Participant C

Project One

Question 1) What do you look for when you grade a project like this?
Accuracy (correct information, completeness of drawings, reference symbols etc), line quality, lettering, sheet layout, craftsmanship, overall presentation of work.

Question 2) What is the standard?
질문 1과 동일

Question 3) How do you assess?

		Excellent	Good	Fair	Poor	Very poor
1.	Accuracy	_____∨				
2.	Line quality	_____ ∨				
3	lettering	_____∨				
4.	Sheet layout			_____∨		
5.	Craftsmanship			_____∨		
6.	Overall presentation of work			_____∨		

Question 4) What are the strengths you identify in this project?

- 도면그리기의 기초 지식 및 기술의 인지
- line quality 와 lettering

Question 5) What are the weaknesses you identify in this project?
- sheet layout의 산만함.

Project Two

Question 1) What do you look for when you grade a project like this?

Design concept, accuracy, rendering techniques, board layout, craftsmanship, overall presentation of work

Question 2) What is the standard?

질문 1 과 동일

Question 3) How do you assess?

		Excellent	Good	Fair	Poor	Very poor
1.	Design concept		∨			
2.	Accuracy			∨		
3	rendering techniques				∨	
4.	Board layout				∨	
5.	Craftsmanship				∨	
6.	Overall presentation of work				∨	

Question 4) What are the strengths you identify in this project?

- office 디자인에 필요한 기초적 디자인 요구사항의 인지 및 적용 능력

- 기능에 적합한 sample selection

Question 5) What are the weaknesses you identify in this project?

- board layout 의 산만함

- rendering technique의 숙련도 미흡 (floor plan, perspective drawing)

Participant D

Project One

프로젝트 1의 경우는 글씨가 흐려서 평가할 수가 없어요.
다만 도면이 디테일적이고 실무적이어서 신뢰성이 보이네요. 어쩌면 구조 도면으로서는 당연하겠지만요.
목적에 맞는 공간이 되기 위해 기능적이며 사용자의 스케일에 맞는 가?
문제점은 무엇이고 새로운 해결책은 무엇인가?
색채 및 마감재, 조명에 대한 형태가 표와 함께 사진으로 나타나면 더 좋겠네요.

Project Two

Question 1) What do you look for when you grade a project like this?
Question 2) What is the standard?
사용자들의 목적 또는 요구에 맞는 공간인가?
디자인 개념은 무엇이며 이를 잘 적용시켰는 가?
공간의 레이아웃이 잘 되어있으며 흥미있는 공간구성인 가?
대지와 주변 환경을 고려했는 가?
평면도에서 동선과 공간의 크기가 적합한 가?
불필요한 공간은 없는 가?
스케일은 맞으며, 정확한 제도를 하였는 가?
가구계획은 ?
마감재(색채 및 재료)의 선별이 잘 이루어졌는 가?
계단을 잘 계획하였는 가?
이 프로젝트가 다른 프로젝트와 독특한 차이가 나는 점은 무엇인가?
기본적인 구조는 적합한 가?
(저 같은 경우에 개념을 더 중시하고 구조 부분은 기본정도만 고려합니다.)

Question 3) How do you assess?
사용자들의 목적 또는 요구, 디자인 개념을 알지 못해 평가하기가 어렵습니다.

Question 4) What are the strengths you identify in this project?

디자인 개념이나 이를 위한 새로운 디자인 방안과 관련된 3 차원적 드로잉이 부족하다.
사용자들의 목적이나 요구 또는 디자인 개념에 대한 설명이 있어야 할 것 같다.
구체적인 투시도를 통해 디자인적 제안이 시각적으로 나타나야 한다.
즉 투시도가 더 구체적으로 표현되면 좋겠어요. 또한 더 많은 공간에 대한 디자인을 해야 할 것 같고 마감재 및 가구가 표현되어야 할 것 같다.

Question 5) What are the weaknesses you identify in this project?

가구 및 마감재 보드를 이용한 실내분위기 설명을 잘 하였습니다.

Participant E

Project One

Question 1) What do you look for when you grade a project like this?
Fulfillment of the assignment's requirements.
Graphic clarity of the drawings and ideas, accuracy of drawings.
Ability of rooms to meet their functional needs for circulation and accoutrements.
Completeness of the documents in meeting the requirements of the assignment.

Question 2) What is the standard?
The expectations that the instructor expressed either orally when assigning the project or as written in the assignment.
The quality of work expected based on what has been accomplished by previous classes at the same level of development given this or similar assignments.
The quality of work produced by the current class.

Question 3) How do you assess?
Compare the best or strongest work produced in the class with the weakest work and average work.
Compare with the expectations that the instructor expressed either orally when assigning the project or as written in the assignment.

Question 4) What are the strengths you identify in this project?
The clarity of the drawings.
Good line weights, accurate layout, completeness of working drawing elements.

Question 5) What are the weaknesses you identify in this project?
The ability of some of the rooms to meet intended functions, such as the living room. It seems like the room will be crowded once a minimum of furniture is put into the room. The laundry room is awkward. The master bedroom and other bedrooms are of a shape that may not allow for good circulation once a bed is put into the space.

Project Two

Question 1) What do you look for when you grade a project like this?

Fulfillment of the assignment's requirements.

Graphic clarity of the drawings and ideas, accuracy of drawings.

Ability of rooms to meet their functional needs for circulation and accoutrements.

Completeness of the documents in meeting the requirements of the assignment.

Question 2) What is the standard?

The expectations that the instructor expressed either orally when assigning the project or as written in the assignment.

The quality of work expected based on what has been accomplished by previous classes at the same level of development given this or similar assignments.

The quality of work produced by the current class.

Question 3) How do you assess?

Compare the best or strongest work produced in the class with the weakest work and average work.

Compare with the expectations that the instructor expressed either orally when assigning the project or as written in the assignment.

Question 4) What are the strengths you identify in this project?

Open and functional layout of plan.

Ceiling treatment that supports the plan and accommodates building systems.

Good material and furniture selection.

Good renderings that convey the feeling and intentions of the spaces.

Question 5) What are the weaknesses you identify in this project?

You never gave the objectives of the design the way you stated them for the residential project.

Large conference room is a little crowded.

Elevator lobby may be a little cramped at times due to location of furniture outside of elevator doors.

File copy room may be a little small for the amount of files a firm of this size may need secured. Library area lacks definition/separation from the adjacent functions.

Participant F

Project One

Question 1) What do you look for when you grade a project like this?

When I evaluate a project like this it is important to know what phase of the project I am evaluating and what the objectives of the project were. This project is presented in the format of construction documents however the goals and concepts are largely visual concepts that can not be understood from the information presented. For example, "Different floor levels evoke a freedom and variety. Highly lifted ceilings in several places enhance the sense of space and drama. Materials are simple but never to be boring. Fabric wall panel provides warm environment in this spacious house," This information is more design focused and should be considered spatially; I would expect to see an interior perspective. This is not an evaluation however because I do not know the objectives of the project.

Question 2) What is the standard?

To what degree is the student meeting the stated objectives of the design problem.

Question 3) How do you assess?

I would assess this based on the objectives of the project and course and the students ability to communicate these verbal and visual strategies as evidenced through drawings and verbal presentations (and day to day interaction).students goals and concepts and their relationship to physical evidence of these goals and concepts that are discussed. If I did have enough info to evaluate, I would evaluate based on the following categories. (all of which have equal weight) This is an excerpt from my syllabus.

Concept Development

Is there a clear and appropriate direction for the project?

Is there a strong design concept?

Were the theoretical issues surrounding the project developed?

Was adequate background research of the project typology competed?

Design Process

Is there a record of the design process?

Was the design concept thoroughly explored?
Was there exploration of the project in 2 and 3 dimensional drawings and models?
Were multiple options for the solution explored?
Was adequate material prepared for daily desk critiques?

Interior Design Skills

Is adequate daylighting and/or electric lighting visible in the solution?
Are the colors used appropriate to the solution and the users of the space?
Are the code requirements met?
Are the needs of the users integrated effectively into the solution?
Is the furnishings layout and selections appropriate?
Application and use of materials is well-documented?
Decorative elements are used to enhance surroundings?

Technical Skills

Is there an obvious appreciation of craft in the work?
Use of line weights is correct?
Use of color to communicate design intentions?
Was the model a useful tool for articulating the concept?

Presentation

How was the graphic communication of design issues?
How was the verbal communication of design issues?
Adequate information presented to support concept?
Quality of the drawings presented?
Layout of the presentation is clear and legible?
Concept for the project is clearly presented?

Question 4) What are the strengths you identify in this project?

I cannot identify strengths and weaknesses because I don't have the objectives for the project nor do I feel the concepts and goals presented are relevant the documentation that I am presented with (CD's). As you can see I have a cross section of attributes I look for so I need a rather complete cross section of the work to evaluate. Based on my assessment standards I can not just evaluate product.

Question 5) What are the weaknesses you identify in this project?

I have the same problem with the 2nd project and I don't even have the students goals and concepts by which I could at least compare physical evidence with the students statements.

Participant G

Project One

Question 1) What do you look for when you grade a project like this?

When I grade a first semester junior level project I assess how the student is doing in the following categories for the construction document portion of the project:

- Adherence to Guidelines given / Overall graphic layout:
- Level of completeness (all drawings included, drawings tie together, notes, etc):
- Craftsmanship (line-weights, lettering, cleanliness, technical accuracy, etc):
- Lighting and electrical plans (design & correctness):
- **Schedules are easy to read, level of completeness, accuracy & appropriately referenced:**
- Details (appropriate selection, level of completeness, appropriately referenced):

Question 2) What is the standard?

I am not 100% sure what you mean by "What is the standard?" Thus, I am going to answer this question by telling you which level of competency that I expect the students to perform at by the end of their first junior semester using the following scale: Fully competent, competent, gaining competency and entry level, with fully competent being the highest level of student understanding.

- Adherence to Guidelines given — Fully competent
- Overall graphic layout — Competent
- Level of completeness — Competent
- Craftsmanship — Fully competent at hand generation
- Lighting and electrical plans — Entry level / Gaining competency
- Schedules — Fully competent
- Details — Gaining competency

Question 3) How do you assess?

The assessment of the students' achievements is done based on a series of items that include, but not limited to the following

- A grading criteria set forth at the beginning of the design process

- My personal experience as a teacher knowing what previous students at this level has achieved
- FIDER standards that we are to adhere to
- The overall class achievements that indicates how well I explained the various subjects
- My subjective opinions about what constitutes a successful solution. These opinions being based upon my experience as a teacher.

Question 4) What are the strengths you identify in this project?

Below are some strengths I can identify from the images on the web page. However, please feel free to look through your old grade sheet from me and add to this list if you wish.

- Very thorough design solution with great attention to detail
- Unique space planning aesthetically
- Well organized
- Clean and neat presentation

Question 5) What are the weaknesses you identify in this project?

Below are some weaknesses I can identify from the images on the web page. However, please feel free to look through your old grade sheet from me and add to this list if you wish.

- Color scheme
- Due to the aesthetic of the design functionally the plan shows areas of waisted space with low functionality
- Note placement on sheets makes them harder to find and read that if they were placed toward the right edge of the sheets, away from the binding
- Details could be developed further, still unresolved areas

Project Two

Question 1) What do you look for when you grade a project like this?

When I grade a second semester junior level project I assess how the student is doing in the following categories for the design development portion of the project:

Process and Craftsmanship (19%):

- Concept statement (Content, legibility, placement, font size)
- Materials and furnishings (Complete selection present, labeled)
- CAD drafting skills as related to dimensioning, symbols, notes, etc
- Drawings show the design through an adequate level of details

Presentation Layout (19%)

- Perspective success (View selected, construction success, accuracy, contain people for scale, appropriateness of rendering)
- Success of presentation layout techniques chosen

Design Solution **(62%)**

- Level of design development from Schematics stage
- Design solution follows concepts outlined (hotelling concept, traffic flow, daylight, volume)
- Appropriateness of material and furniture selection
- General level of creativity / uniqueness
- Lighting design (functional issues, creative use of ceiling plane, HVAC, legend, ceiling heights, notes)

Question 2) What is the standard?

I am not 100% sure what you mean by "What is the standard?" Thus, I am going to answer this question by telling you which level of competency that I expect the students to perform at by the end of their first junior semester using the following scale: Fully competent, competent, gaining competency and entry level, with fully competent being the highest level of student understanding.

- Concept statement — Competent
- Materials and furnishings — Competent
- CAD drafting skills — Gaining competency
- Level of completeness — Fully competent

- Overall graphic layout — Competent
- Perspectives — Competent
- DD from Schematics — Competent
- Design solution — Competent
- Level of creativity — Competent
- Lighting and electrical plans — Gaining competency / Competent

Question 3) How do you assess?

The assessment of the students' achievements is done based on a series of items that include, but not limited to the following

- A grading criteria set forth at the beginning of the design process
- My personal experience as a teacher knowing what previous students at this level has achieved
- FIDER standards that we are to adhere to
- The overall class achievements that indicates how well I explained the various subjects
- My subjective opinions about what constitutes a successful solution. These opinions being based upon my experience as a teacher.

Question 4) What are the strengths you identify in this project?

Below are some strengths I can identify from the images on the web page. However, please feel free to look through your old grade sheet from me and add to this list if you wish.

- Very thorough design solution with great attention to detail and all planes
- Very functional layout of space, especially for open office area
- Well organized
- Perspectives are nicely constructed

Question 5) What are the weaknesses you identify in this project?

Below are some weaknesses I can identify from the images on the web page. However, please feel free to look through your old grade sheet from me and add to this list if you wish.

- Space design is suggesting to permanently divide area into many small rooms rather than propose a more open flexible solution indicated as a need by the client
- Color scheme
- Perspective renderings could give client a better depth understanding if a greater use of values, shade & shadow patterns was employed.

APPENDIX

G. Evaluation Standard

(Rubric for the Second Round)

A. Design Solution

	Most Important				Least Important	
▫ Concept	5	4	3	2	1	n/a
▫ Design Solution Follows Customer's Requirement	5	4	3	2	1	n/a
▫ Design Development	5	4	3	2	1	n/a
▫ Construction Documents	5	4	3	2	1	n/a
▫ Social/Psych Consideration for Comfort of Users	5	4	3	2	1	n/a
▫ Consider Surrounding Environment	5	4	3	2	1	n/a
▫ Space Planning (Partition Plan)	5	4	3	2	1	n/a
▫ Circulation Flow	5	4	3	2	1	n/a
▫ Interior Elevations	5	4	3	2	1	n/a
▫ Sections	5	4	3	2	1	n/a
▫ Finish Plan	5	4	3	2	1	n/a
▫ Finish Schedule	5	4	3	2	1	n/a
▫ Appropriate Finish Selection	5	4	3	2	1	n/a
▫ Furnishings Plan (Furniture Layout)	5	4	3	2	1	n/a
▫ Furnishings Schedule	5	4	3	2	1	n/a
▫ Electrical Plan	5	4	3	2	1	n/a
▫ Appropriate Materials	5	4	3	2	1	n/a
▫ Code Issue (Staircase, Fire Exit, ADA)	5	4	3	2	1	n/a
▫ General Level of Creativity/ Uniqueness	5	4	3	2	1	n/a

B. Craftsmanship

	Most Important				Least Important	
▫ Accuracy (Drafting Details)	5	4	3	2	1	n/a

▫	Correct Information	5	4	3	2	1	n/a
▫	Completeness of Drawings	5	4	3	2	1	n/a
▫	Wall Thickness	5	4	3	2	1	n/a
▫	Door Sizes	5	4	3	2	1	n/a
▫	Dimension Numbers Match Actual Measurements	5	4	3	2	1	n/a
▫	Accurate Keys	5	4	3	2	1	n/a
▫	Accurate Dimension Line	5	4	3	2	1	n/a
▫	Accurate Scale	5	4	3	2	1	n/a
▫	Appropriate Cross Referencing	5	4	3	2	1	n/a
▫	Appropriate Line Weights Variation (Line Quality)	5	4	3	2	1	n/a
▫	Appropriate Use of Architectural Symbols	5	4	3	2	1	n/a
▫	Appropriate Label	5	4	3	2	1	n/a
▫	Lettering	5	4	3	2	1	n/a
▫	Rendering Techniques	5	4	3	2	1	n/a
▫	Overall Quality of Drafting (Craftsmanship)	5	4	3	2	1	n/a
C. Presentation		**Most Important**				**Least Important**	
▫	Appropriate Cover Sheet, Title Blocks, Sheet Layout	5	4	3	2	1	n/a
▫	Overall Quality of the Print	5	4	3	2	1	n/a
▫	Composition of Drawings on the Sheet (Board Layout)	5	4	3	2	1	n/a
▫	Overall Presentation of Work	5	4	3	2	1	n/a

[Table G-1] Evaluation Standard among Professors in Korea and the US

A. Design Solution & Process

	Most Important				Least Important	
▫ Concept (Contents, legibility, placement, font size)	5	4	3	2	1	n/a
▫ Adherence to Guidelines Given	5	4	3	2	1	n/a
▫ Adequate Background Research	5	4	3	2	1	n/a
▫ Design Solution Follows Customer's Requirement	5	4	3	2	1	n/a
▫ Multiple Options for Solutions	5	4	3	2	1	n/a
▫ Student's Ability to Communicate Verbal to Visual	5	4	3	2	1	n/a
▫ Design Development (Process)	5	4	3	2	1	n/a
▫ Use 2 and 3 Dimensional Drawings and Models	5	4	3	2	1	n/a
▫ Graphic Clarity of Drawings and Ideas	5	4	3	2	1	n/a
▫ Completed Construction Documents (Format)	5	4	3	2	1	n/a
▫ Social/Psych Consideration for Comfort of Users	5	4	3	2	1	n/a
▫ Consider Physical Environment	5	4	3	2	1	n/a
▫ Space Planning (Accoutrements)	5	4	3	2	1	n/a
▫ Circulation Flow	5	4	3	2	1	n/a
▫ Schedules	5	4	3	2	1	n/a
▫ Appropriate Finish/Materials Selection	5	4	3	2	1	n/a
▫ Furnishings Plan (Furniture Layout)	5	4	3	2	1	n/a
▫ Electrical Plan	5	4	3	2	1	n/a
▫ Appropriate Lighting Design	5	4	3	2	1	n/a
▫ Appropriate Color Scheme	5	4	3	2	1	n/a
▫ Code Issue (Staircase, Fire Exit, ADA)	5	4	3	2	1	n/a
▫ Appropriate Use of Decorative Elements	5	4	3	2	1	n/a

▫ General Level of Creativity/ Uniqueness	5	4	3	2	1	n/a
▫ Level of Class Achievement	5	4	3	2	1	n/a
▫ Follow FIDER Standards	5	4	3	2	1	n/a
▫ Overall Interior Design Skills	5	4	3	2	1	n/a

B. Craftsmanship

	Most Important				Least Important	
▫ Completeness of Drawings	5	4	3	2	1	n/a
▫ Accuracy (Drafting Details)	5	4	3	2	1	n/a
▫ Appropriately Referenced Information	5	4	3	2	1	n/a
▫ Accurate Symbols	5	4	3	2	1	n/a
▫ Dimension Numbers Match Actual Measurements	5	4	3	2	1	n/a
▫ Appropriate Line Weights Variation (Line Quality)	5	4	3	2	1	n/a
▫ Technical Accuracy	5	4	3	2	1	n/a
▫ Lettering	5	4	3	2	1	n/a
▫ CAD Skills	5	4	3	2	1	n/a
▫ Overall Quality of Drafting (Craftsmanship)	5	4	3	2	1	n/a

C. Presentation

	Most Important				Least Important	
▫ Adequate Information	5	4	3	2	1	n/a
▫ Perspective Success	5	4	3	2	1	n/a

▫ Success of Presentation Layout Technique	5	4	3	2	1	n/a
▫ Visual Communication with Design Issue	5	4	3	2	1	n/a
▫ Verbal Communication with Design Issue	5	4	3	2	1	n/a
▫ Overall Graphic Layout	5	4	3	2	1	n/a
▫ Overall Quality of the Print (Drawings)	5	4	3	2	1	n/a
▫ Overall Presentation of Work	5	4	3	2	1	n/a

[Table G-2] Evaluation Standard among Professors at WSU

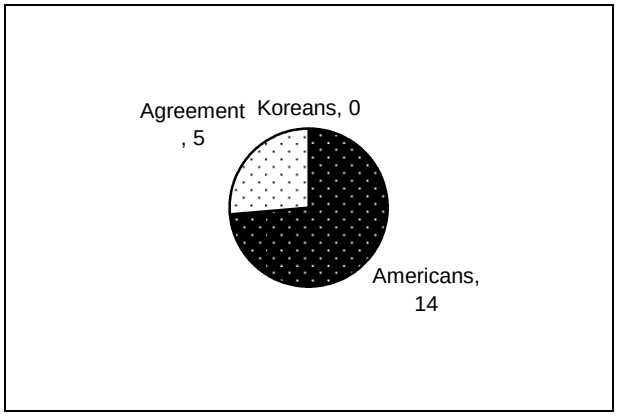
APPENDIX

H. Responses from the Second Round

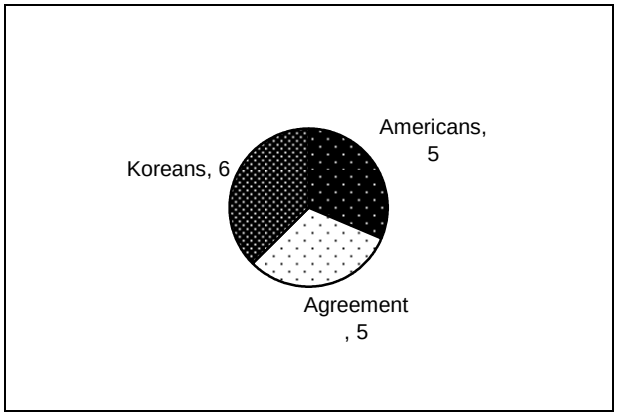
		A	B	C	D	Avg.	STD
A. Design Solution	Concept	5.00	5.00	5.00	5.00	5.00	0.00
	Design Solution Follows Customer's Requirement	5.00	4.00	4.00	5.00	4.50	0.50
	Design Development	4.00	5.00	5.00	4.00	4.50	0.50
	Construction Documents	3.00	3.00	5.00	2.00	3.25	1.09
	Social/Psych Consideration for Comfort of Users	5.00	4.00	5.00	4.00	4.50	0.50
	Consider Surrounding Environment	4.00	3.00	4.00	3.00	3.50	0.50
	Space Planning (Partition Plan)	5.00	4.00	5.00	4.00	4.50	0.50
	Circulation Flow	5.00	5.00	5.00	4.00	4.75	0.43
	Interior Elevations	3.00	4.00	4.00	3.00	3.50	0.50
	Sections	2.00	4.00	5.00	2.00	3.25	1.30
	Finish Plan	3.00	4.00	5.00	3.00	3.75	0.83
	Finish Schedule	3.00	0.00	4.00	3.00	3.33	0.47
	Appropriate Finish Selection	5.00	4.00	5.00	3.00	4.25	0.83
	Furnishings Plan (Furniture Layout)	4.00	4.00	5.00	3.00	4.00	0.71
	Furnishings Schedule	3.00	0.00	4.00	3.00	3.33	0.47
	Electrical Plan	4.00	3.00	3.00	3.00	3.25	0.43
	Appropriate Materials	5.00	4.00	5.00	3.00	4.25	0.83
	Code Issue (Staircase, Fire Exit, ADA)	5.00	3.00	5.00	5.00	4.50	0.87
	General Level of Creativity/ Uniqueness	4.00	5.00	5.00	4.00	4.50	0.50
B. Craftsmanship	Accuracy (Drafting Details)	5.00	4.00	5.00	5.00	4.75	0.43
	Correct Information	5.00	5.00	5.00	5.00	5.00	0.00
	Completeness of Drawings	3.00	4.00	4.00	5.00	4.00	0.71
	Wall Thickness	3.00	3.00	4.00	4.00	3.50	0.50
	Door Sizes	3.00	3.00	4.00	5.00	3.75	0.83
	Dimension Numbers Match Actual Measurements	5.00	4.00	4.00	5.00	4.50	0.50
	Accurate Keys	5.00	3.00	5.00	4.00	4.25	0.83
	Accurate Dimension Line	5.00	3.00	5.00	4.00	4.25	0.83
	Accurate Scale	4.00	5.00	5.00	5.00	4.75	0.43
	Appropriate Cross Referencing	4.00	4.00	5.00	3.00	4.00	0.71
	Appropriate Line Weights Variation (Line Quality)	3.00	5.00	5.00	3.00	4.00	1.00
	Appropriate Use of Architectural Symbols	3.00	4.00	5.00	5.00	4.25	0.83
	Appropriate Label	3.00	4.00	4.00	4.00	3.75	0.43
	Lettering	2.00	3.00	5.00	3.00	3.25	1.09

	Rendering Techniques	3.00	4.00	4.00	3.00	3.50	0.50
	Overall Quality of Drafting (Craftsmanship)	3.00	4.00	5.00	5.00	4.25	0.83
C. Presentation	Appropriate Cover Sheet, Title Blocks, Sheet Layout	3.00	4.00	5.00	3.00	3.75	0.83
	Overall Quality of the Print	4.00	4.00	4.00	1.00	3.25	1.30
	Composition of Drawings on the Sheet (Board Layout)	3.00	5.00	5.00	3.00	4.00	1.00
	Overall Presentation of Work	4.00	5.00	5.00	5.00	4.75	0.43

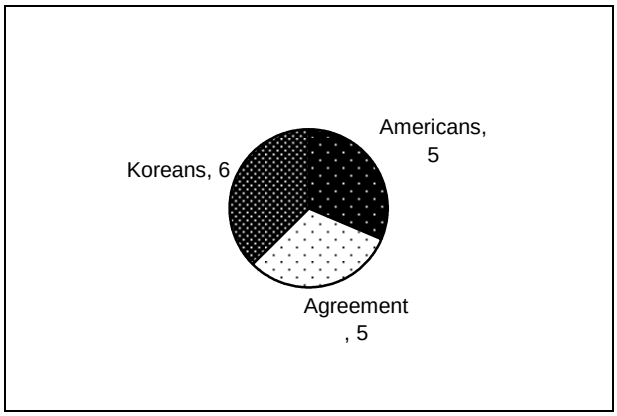
[Table H-1] Responses from the Second Round among Participants in Korea and the US (Avg=Average, STD=Standard Deviation)



[Figure H-1] Number of agreements for design solution section among professors in South Korea and the U.S.



[Figure H-2] Number of agreements for craftsmanship section among professors in South Korea and the U.S.



[Figure H-3] Number of agreements for presentation section among professors in South Korea and the U.S.

		A	B	Avg	STD
A. Design Solution	Concept (Contents, legibility, placement, font size)	4.00	2.00	3.00	1.00
	Adherence to Guidelines Given	3.00	4.00	3.50	0.50
	Adequate Background Research	4.00	4.00	4.00	0.00
	Design Solution Follows Customer's Requirement	4.00	5.00	4.50	0.50
	Multiple Options for Solutions	5.00	2.00	3.50	1.50
	Student's Ability to Communicate Verbal to Visual	5.00	4.00	4.50	0.50
	Design Development (Process)	5.00	3.00	4.00	1.00
	Use 2 and 3 Dimensional Drawings and Models	5.00	4.00	4.50	0.50
	Graphic Clarity of Drawings and Ideas	3.00	5.00	4.00	1.00
	Completed Construction Documents (Format)	3.00	4.00	3.50	0.50
	Social/Psych Consideration for Comfort of Users	3.00	5.00	4.00	1.00
	Consider Physical Environment	4.00	5.00	4.50	0.50
	Space Planning (Accoutrements)	4.00	5.00	4.50	0.50
	Circulation Flow	4.00	5.00	4.50	0.50
	Schedules	3.00	3.00	3.00	0.00
	Appropriate Finish/Materials Selection	3.00	4.00	3.50	0.50
	Furnishings Plan (Furniture Layout)	4.00	5.00	4.50	0.50
	Electrical Plan	3.00	2.00	2.50	0.50
	Appropriate Lighting Design	3.00	3.00	3.00	0.00
	Appropriate Color Scheme	3.00	4.00	3.50	0.50
	Code Issue (Staircase, Fire Exit, ADA)	4.00	5.00	4.50	0.50
	Appropriate Use of Decorative Elements	3.00	2.00	2.50	0.50

	General Level of Creativity/ Uniqueness	4.00	3.00	3.50	0.50
	Level of Class Achievement	5.00	1.00	3.00	2.00
	Follow FIDER Standards	3.00	3.00	3.00	0.00
	Overall Interior Design Skills	5.00	0.00	2.50	2.50
B. Craftsmanship	Completeness of Drawings	4.00	5.00	4.50	0.50
	Accuracy (Drafting Details)	4.00	5.00	4.50	0.50
	Appropriately Referenced Information	3.00	5.00	4.00	1.00
	Accurate Symbols	3.00	4.00	3.50	0.50
	Dimension Numbers Match Actual Measurements	3.00	4.00	3.50	0.50
	Appropriate Line Weights Variation (Line Quality)	3.00	5.00	4.00	1.00
	Technical Accuracy	4.00	5.00	4.50	0.50
	Lettering	3.00	3.00	3.00	0.00
	CAD Skills	0.00	2.00	1.00	1.00
	Overall Quality of Drafting (Craftsmanship)	4.00	5.00	4.50	0.50
C. Presentation	Adequate Information	4.00	4.00	4.00	0.00
	Perspective Success	3.00	4.00	3.50	0.50
	Success of Presentation Layout Technique	4.00	5.00	4.50	0.50
	Visual Communication with Design Issue	4.00	5.00	4.50	0.50
	Verbal Communication with Design Issue	4.00	5.00	4.50	0.50
	Overall Graphic Layout	4.00	4.00	4.00	0.00
	Overall Quality of the Print (Drawings)	4.00	3.00	3.50	0.50
	Overall Presentation of Work	5.00	5.00	5.00	0.00

[Table H-2] Responses from the Second Round among Participants at WSU (Avg=Average, STD=Standard Deviation)