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# THE DIVERSE AND INTEGRATIVE NATURE OF PRODUCT DESIGN CURRICULUM (II)

An Example based on a Comparative Study on Sample Universities in Asia and Europe

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**Abstract:** The current study aimed to clarify the fundamental similarities and differences in diverse and integrative learning of professional education at undergraduate level between Japanese and overseas universities. A comparative study was done through a collection of the product design curriculums from 25 sample universities in Japan, Korea, China, Italy, Germany and the Netherlands. From the study, university and industry in Japan appeared to adopt different roles in the education of undergraduates as compared to the overseas samples. Secondly, the Japanese and Korean samples seemed to favor a more diverse and flexible study of professional education. While the European and Chinese samples seemed to favor a more rigid curriculum structure. Thirdly, two general frameworks for integrative learning of professional education content seemed to be adopted among the sample universities.

**Keywords:** *Product Design Curriculum, Curriculum Development & Design, Curriculum Structure, Diverse Curriculum, Integrative Learning*

## 1. Introduction

The early days of Japanese design education was very much influenced by the European design education, especially the Bauhaus design education. This influence was strengthened by returning of overseas scholars who had been trained in Europe. After the Second World War, it was said to be the infant years of product design education in Japan. In the 1960s and 1970s, an increase in the number of Japanese universities offering product design related programmes had occurred [1]. While in Asia, it was in the 1980s when the developments of product design education had progressed in Asian countries, example in Korea and China.

The developments in the economy, politics and culture attributed by globalization meant that university education no longer just affected by local developments but also by global changes and standards. The growth of international co-operation such as student exchange, staff exchange and co-operative research etc. had seen trends on the

convergence of institutional patterns and educational curriculums among higher education at international level [2][3].

The first part of the investigation focused on the product design curriculums in Japanese national and public sample universities. It presented the composition of professional education content and highlighted the different approaches and mindsets between the art oriented faculties and the design and engineering oriented faculties in emphasis for integrative subjects and the compulsory and elective study of professional education subjects.

As a second part to the investigation, the purpose of this study aimed to clarify the characteristics product design curriculum that contributes to the diverse and integrative learning of professional education content between Japanese and overseas universities.

## 2. Target Scope of Study

The study mainly focused on the professional education in product design curriculum at undergraduate level. The

study took into considerations that among the Japanese universities that offered product design related programmes in the early 2000s, approximately 21% were national universities, 15% were public universities and 64% were private universities [4]. It should be mentioned that this study is not intended to provide an exhaustive survey of product design education curriculums in universities in Japan. But rather based on a selection of established product design programmes, with substantial historical background and a sizeable student intake, which may provide a good coverage and representation of the general population of design departments across the Japanese universities.

Refer to Table 1, a total of 16 Japanese universities (5 government, 4 public universities and 7 private universities) were used as a basis for comparative study. In order to provide an understanding on the characteristics of Japanese product design curriculum with respect to overseas universities, an addition of product design programmes in 6 Asian universities from Korea and an emerging economy, China, were included to provide an overview of Japanese product design curriculums in Asia. Besides, 3 European universities from economically advanced countries outside

Asia (1 Italian, 1 German and 1 Dutch) provided the comparative inputs for an overview for trends in different regions. Through this study, it is also hoped to contribute to the existing understanding of the product design education in the East and West.

### 3. Research Methods

This study will be based on a qualitative research approach where literature review of any relevant and available documents and publications is supplemented by hearing surveys during field visits whenever possible. The literature review targeted *student handbooks, School, Faculty and Department magazines/brochures, study guides, course syllabuses* published after year 2000 and any historical documents that provided useful information for generating analytical data.

The professional education is implemented through the compulsory and elective study of professional education content. In the professional education content, professional education subjects in different fields of specialization formed the main bulk of content in professional education. Thus, from the documents and publications, the study will first established an understanding on the content of the professional education by identifying the proportion of

**Table 1. Samples of Product Design Curriculums from Universities and Departments In Asia and Europe**

Sample Universities and Departments used for this Study	
Sample No.	Japan
1	<b>Tokyo University of the Arts (TUA):</b> Faculty of Fine Arts, Department of Design
2	<b>University of Tsukuba (UT):</b> School of Art and Design, Design Major
3	<b>Chiba University (CU):</b> Faculty of Engineering, Department of Design
4	<b>Kyoto Institute of Technology (KIT):</b> School of Science and Technology, Department of Architecture and Design
5	<b>Kyushu University (KU):</b> School of Design, Department of Industrial Design
6	<b>Aichi Prefectural University of Fine Arts and Music (Aichi.FAM):</b> Faculty of Arts, Department of Craft and Design
7	<b>Nagoya City University (NCU):</b> School of Design and Architecture, Department of Design and Information Technology
8	<b>Okayama Prefectural University (OPU):</b> Faculty of Design, Department of Design for Technology
9	<b>Hiroshima City University (HCU):</b> Faculty of Art, Department of Design and Industrial Art
10	<b>Tama Art University (TAM):</b> Faculty of Art and Design, Department of Product and Textile Design
11	<b>Tokyo Zokei University (TZU):</b> Faculty of Zokei, Department of Design
12	<b>Kobe Design University (KDU):</b> School of Design, Department of Product Design
13	<b>Osaka University of Arts (OUA):</b> Design Department
14	<b>Kyushu Sangyo University (KSU):</b> Faculty of Fine Arts, Department of Design
15	<b>Tohoku University of Art and Design (TUAD):</b> School of Design, Department of Product Design
16	<b>Nagaoka Institute of Design (NID):</b> Faculty of Design, Department of Product Design
Sample No.	Korea
17	<b>Seoul National University (SNU):</b> College of Fine Arts, Department of Craft and Design (Industrial Design Major)
18	<b>HongIk University (HongIk):</b> College of Fine Arts, School of Design (Industrial Design Major)
19	<b>Korea Advanced Institute Science and Technology (KAIST):</b> College of Information Science and Technology, Department of Industrial Design
Sample No.	China
20	<b>Tsinghua University (TU):</b> Academy of Arts and Design, Department of Industrial Design
21	<b>Zhejiang University (ZJU):</b> Faculty of Information Technology, College of Computer Science and Technology, Industrial Design
22	<b>Donghua University (DHU):</b> School of Mechanical Engineering, Department of Industrial Design
Sample No.	Europe
23	<b>Italy: Politecnico di Milano (Polimi):</b> School of Design, Industrial Design, Arts, Communication and Fashion (INDACO)
24	<b>Germany: Darmstadt University of Applied Sciences (h_da):</b> Faculty of Design, Industrial Design
25	<b>The Netherlands: Delft University of Technology (TU Delft):</b> School of Industrial Design Engineering, Industrial Design Engineering

subjects offered within the different fields of specialization. Secondly, the content of specific professional education subjects is clarified through the syllabuses and supplemented by hearing surveys. Thirdly, based on the graduation requirements, the proportion for compulsory and elective professional education subjects is identified. Lastly, from study guides and course curriculums, the emphasis for lecture, practical and seminar based subjects are clarified.

#### 4. Research Findings

Based on the information collected, the findings will be presented as followed.

##### 4.1 The Proportion of Fields of Specialization offered in Professional Education

In this study, the professional education subjects were categorized into *Fine Arts, Culture and Design History* related, *Plastic Arts and Presentation* related, *Design* related, *Visual Communication* related, *Kansei* related, *Ergonomics and Design Psychology* related, *Enterprise and Design Management* related, *Commercial* related, *Materials and Engineering* related, *Environment* related, *Information and Technology* related, *Integrative Subjects* related and *Internship*.

In Figure 1, the proportion (in percentage) of each field of specialization offered, based on the sum of the credits allocated to the subjects in each category, in the professional education of the 16 sample Japanese universities is presented. In Figure 2 to 4, the proportion of each field of specialization offered in the sample Korean, Chinese and European universities are presented respectively.

In the sample Japanese universities, see Figure 1, *Plastic Arts and Presentation* related (between 9% and 23% in 13 samples) and *Design* related (between 10% and 28% in 12 samples) subjects generally occupied a higher proportion over other fields of specialization. The proportion for *Fine Arts, Culture and Design History* related subjects varied among the samples (between 12% and 48% in 6 samples; between 4% and 8% in 5 samples; between 1% and 3% in 4 samples).

In general, the following fields of specialization occupied a lower proportion:

- *Information and Technology* related subjects: between 3% and 12% in 12 samples
- *Materials and Engineering* and *Environmental* related subjects: between 2% and 7% in 14 samples
- *Enterprise and Design Management* related subjects: between 1% and 7% in 11 samples
- *Visual Communication* and *Ergonomics*: between 1% and 4% in 14 samples

For *Kansei* and *Commercial* related subjects, they are offered in only in some samples Japanese universities.

Lastly, the proportion for *Integrative Subjects* varied amount the sample Japanese universities. 6 samples offered between 33% and 39%, 8 samples offered between 10% to 19% and 2 samples offered between 2% and 3% of the professional education content.

In the sample Korean universities, as shown in Figure 2, *Visual Communication* related, *Enterprise and Design Management* related and *Materials and Engineering* related subjects are generally not more than 3% of the professional

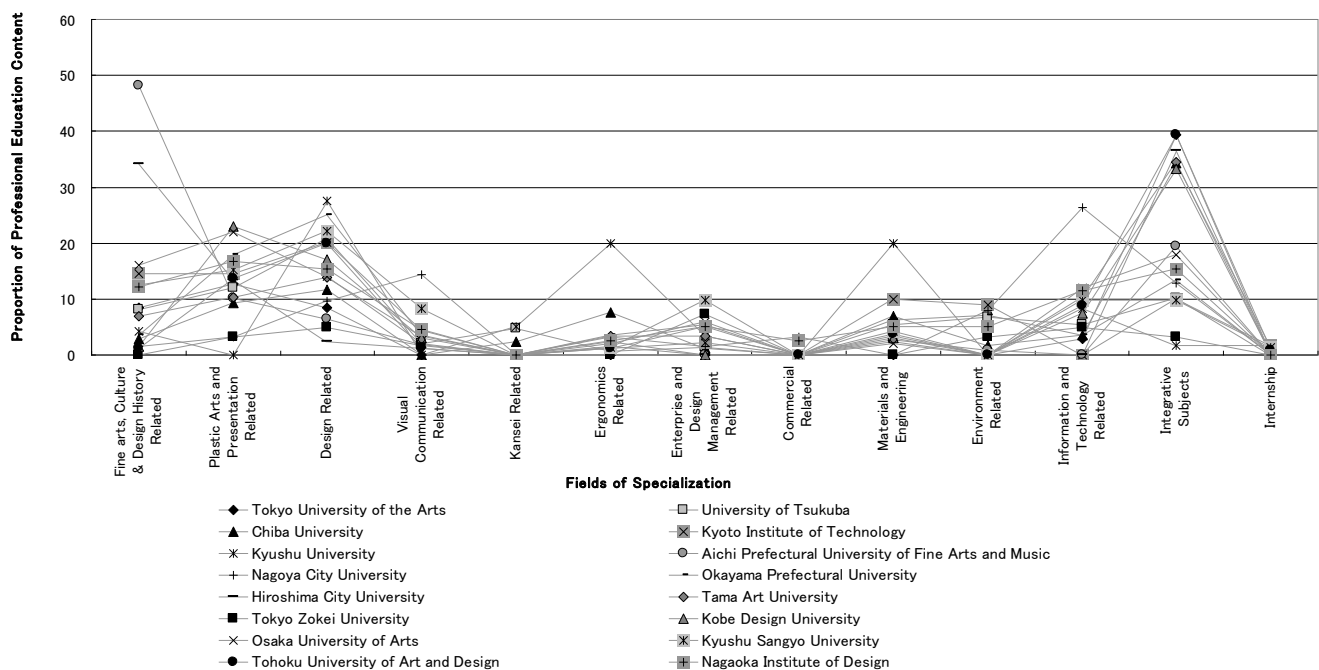


Fig. 1. Proportion of the Fields of Specialization offered in across the Japanese Sample Universities

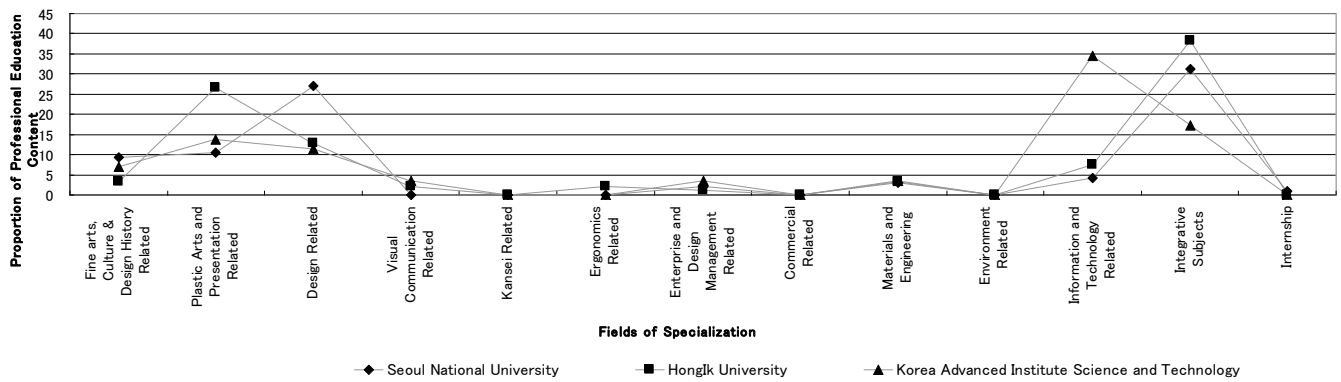


Fig. 2. Proportion of the Fields of Specialization offered in across the Korean Sample Universities

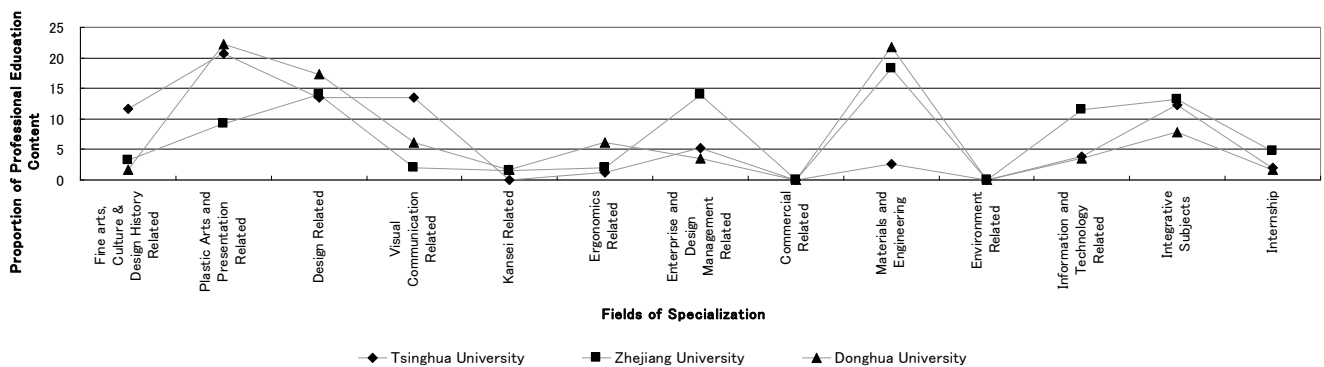


Fig. 3. Proportion of the Fields of Specialization offered in Chinese Sample Universities

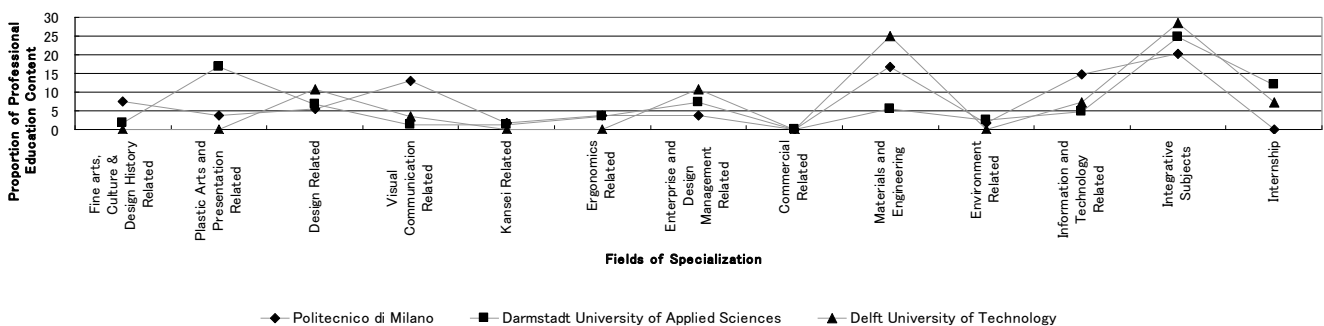


Fig. 4. Proportion of the Fields of Specialization offered in European Sample Universities

education content among all 3 Korean samples. While *Fine Arts, Culture and Design History* related and *Information & Technology* related subjects are offered between 3% and 7% in 2 out of 3 samples. *Kansei* related, *Ergonomics* related, *Environment* related and *Commercial* related subjects are seldom offered in the professional education. *Integrative Subjects* are allocated with a comparatively higher proportion, between 17% and 38% of the professional education content. This is followed by *Plastic Arts and Presentation* related (between 10% and 27%) and *Design* related (between 11% and 27%) subjects in all 3 samples.

Based on Figure 3, in the Chinese sample universities, *Plastic Arts and Presentation* related (between 21% and 22% in 2 out of 3 samples), *Materials and Engineering* related (between 18% and 22% in 2 out of 3 samples),

*Design* related (between 14% and 17% among the 3 samples) and *Integrative Subjects* (between 8% and 13% among the 3 samples) generally occupy a higher proportion in the curriculums. While *Fine Arts, Culture and Design History* related, *Visual Communication* related, *Kansei* related, *Enterprise and Design Management* related and *Information and Technology* related subjects are generally between 2% and 5% in 2 out of 3 samples. Lastly, *Ergonomics* related subjects are between 1% and 6% among the 3 samples.

In the European sample universities, as shown in Figure 4, *Integrative Subjects* occupied between 20% and 29% in the professional education content among all European samples. *Materials and Engineering* related subjects occupied between 17% and 25% in 2 out of 3

samples.

The other fields of specialization occupied a relative lower proportion as can be observed as below:

- *Fine Arts, Culture and Design History* related, *Design* related, *Enterprise and Design Management* related and *Information and Technology* related subjects: between 2% and 7% in 2 out of 3 samples.
- *Plastic Arts and Presentation* related, *Visual Communication* related and *Ergonomics* related subjects: not more than 4% in 2 out of 3 samples
- *Kansei* related and *Environment* related subjects: between 1% and 2% in 2 out of 3 samples

#### 4.2 Integrative Subjects

From Section 4.1, based on Figure 1, integrative subjects occupied not more than a fifth of the professional education content in majority of the sample Japanese universities (between 3% and 19% in 10 out of 16 samples). Referring to Figure 2 to 4, the emphasis on integrative subjects among the sample overseas universities differed. As compared to majority of the Japanese universities, the Korean (between 31% and 38% in 2 out of 3 samples) and European (between 20% and 29% in all samples) samples appeared to allocate a higher proportion of professional education content for integrative subjects. While all the Chinese samples displayed similar allocation for integrative subjects as the Japanese samples (between 8% and 13%).

From on the syllabuses, it appeared that integrative subjects in majority of the Japanese samples generally aimed to develop abilities and techniques like integrative design analysis, planning, presentation and model making etc. at fundamental level through design projects within the integrative subjects

In the Asian universities, besides developing the basic design abilities and techniques, professional work related and business related strategies like market research, trends planning, analysis of development of market, writing strategies and plans seemed to also be included as part of the training in integrative subjects. As design is considered as a national key discipline in China, state funded projects are commonly incorporated in the design projects among the sample Chinese universities.

In the European universities, as part of the education philosophy, the learning of design is widely considered as an integrative system. This probably explained the generally high allocation of credits for the study of integrative subjects in the product design curriculums. Besides, as compared to the Japanese samples, it can be observed in Section 4.1 that the proportion of study for majority of

fields of specialization is generally lower. Except for the study for *Materials and Engineering* related subjects, the study for other fields of specialization are generally not more than 7% of the professional education content.

As such, integrative subjects are often seen as a platform for learning new theoretical knowledge. The syllabuses collected suggested that besides using integrative subjects as platforms for synthesizing existing knowledge, integrative subjects also served as platforms to enable new knowledge to be learned and synthesized so as to enable students to see the connections between different fields of specialization. In addition, integrative subjects also provided opportunities for students to be trained in practical professional education knowledge and skills that may be required for work as a design professional.

#### 4.3 Internship as Part of Professional Education

From Figure 1 to 4, it could also be observed that internship is structured as part of professional education content among the sample Japanese and overseas sample universities.

Among the sample Japanese universities, internships were offered in Chiba University, Kyoto Institute of Technology, Kyushu University, Kyushu Sangyo University and Tohoku University of Art and Design. Internship seemed to be introduced after 2000 and generally offered as an elective that occupied between 1% and 2% of the professional education content (refer to Figure 1). Based on the syllabuses, internship usually last between one or two weeks and the main objectives appeared to focus on relating learning in school to actual working environment, motivating learning, clarifying future career choices and stimulating vocational awareness etc.

In Europe, internship is seen as the opportunity to apply what is learnt in school into actual working environment, a bridge between theory and practice, a form of vocational training through actual design projects and promoting the transfer of graduates to employees etc.

In Darmstadt University of Applied Sciences and Delft University of Technology, internship is mandatory and occupied about 12% and 7% of the professional education content respectively (refer to Figure 2). In Politecnico di Milano, internship is optional at undergraduate level but it is a mandatory during the 2-year Master programme.

It appeared that internships were not common in the sample Korean universities. Internship seemed to be linked to a permanent work employment, thus it may not be common for companies to offer openings for internship programmes during undergraduate education. Only Seoul

National University offered internship as an elective (about 1% of professional education content).

In the Chinese universities, internship is mandatory and it seemed to be offered in the curriculums since the 1990s. In general, internship aimed to provide students with work experience and vocational training in local firms although the duration may differ among universities.

#### 4.4 Compulsory and Elective Study of Professional Education Subjects

Professional education subjects can be offered as

compulsory, compulsory electives and electives. In this study, compulsory elective subjects are considered as elective study. The percentages of credits allocated for the compulsory and elective study of professional education subjects with respect to graduation requirements are consolidated. Figure 5 and 6 present the transitions of the percentage of credits for compulsory and elective study between 2000 and 2008 in the sample Japanese universities respectively. To provide comparative inputs between the

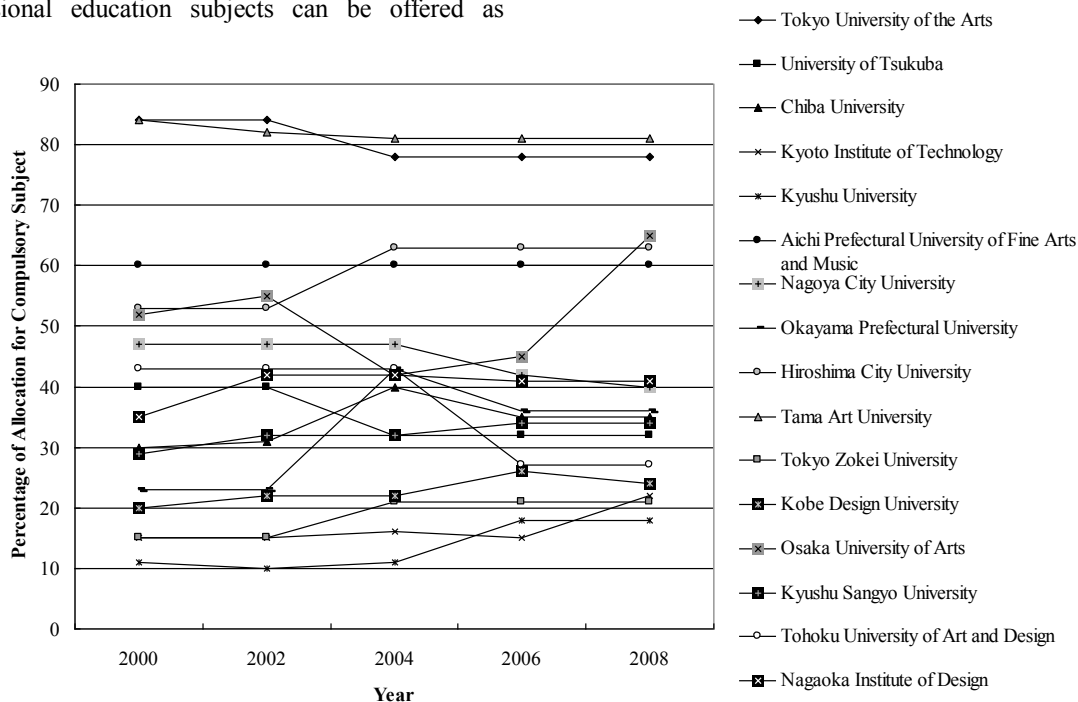


Fig. 5. Percentage of Credits for Compulsory Subjects in Sample Japanese Universities

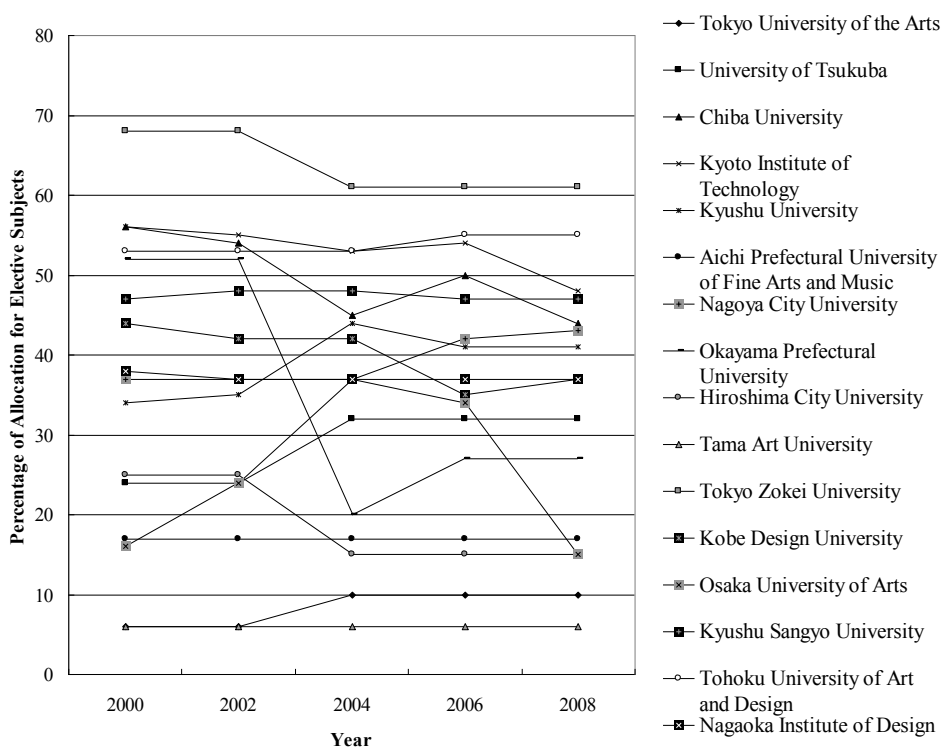
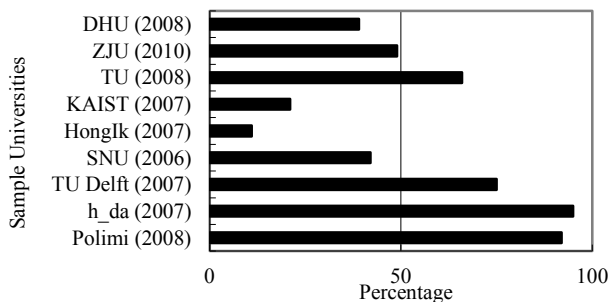
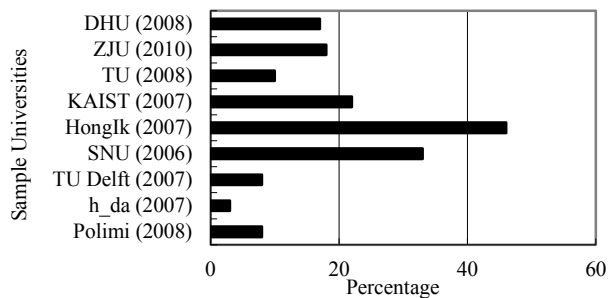


Fig. 6. Percentage of Credits for Elective Subjects in Sample Japanese Universities



**Fig. 7. Percentage of Credits for Compulsory Subjects in Sample Overseas Universities**



**Fig. 8. Percentage of Credits for Elective Subjects in Sample Overseas Universities**

sample Japanese universities and the overseas universities, the emphasis on the graduation requirements for compulsory and elective study in the overseas universities is presented in Figure 7 and 8. The data is based on the graduation requirements extracted for the academic year indicated in the brackets.

From Figure 5, it appeared that the art oriented faculties tend to allocate more than 50% of the graduation requirement for the compulsory study of professional education subjects. But in general, between 18% and 41% can be observed in 10 out of 16 Japanese universities. From Figure 7, all 3 European samples allocated between 75% and 95% of graduation requirements for compulsory subjects. The Korean universities allocated between 11% and 21% in 2 out of 3 samples. The Chinese universities allocated between 49% and 66% in 2 out of 3 samples.

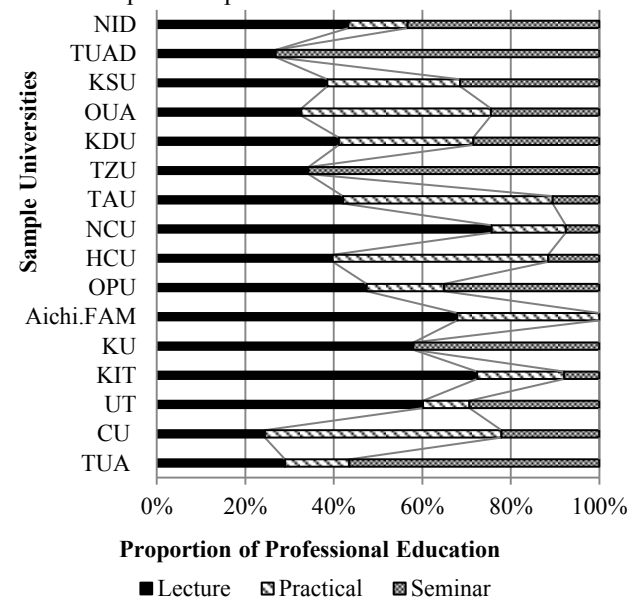
In Figure 6, the art oriented faculties in the sample Japanese universities appeared more likely to allocate a lower percentage range between 6% and 17% for elective subjects. In general, 11 out of 16 of the sample Japanese universities allocated between 27% and 61% of the credits for elective study in the graduation requirements. From Figure 8, the sample Korean universities seemed to have similar emphasis for elective study as the majority of Japanese samples at between 22% and 46%. All 3 sample European universities generally allocated between 3% and 8%. While all 3 sample Chinese universities allocated between 10% and 18% for elective study.

#### 4.5 Proportion of Lecture, Practical and Seminar

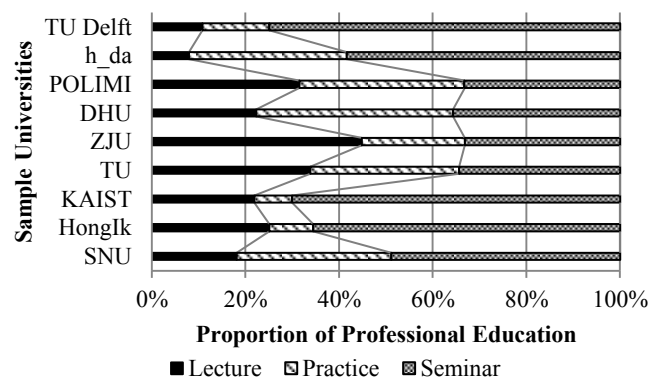
Based on the number of credits allocated to the subjects in the professional education content, the proportion of lecture, practical and seminar subjects offered in the product design curriculums in the sample Japanese and overseas universities are presented in Figure 9 and 10.

From Figure 9, it can be observed that majority, 10 out of 16 sample Japanese universities offered between 40% and 76% of subjects in the form of lectures. Practical based subjects are between 11% and 32% in 9 out of 16 Japanese samples. While seminar based subjects are between 8% and 35% in 10 out of 16 Japanese samples.

As compared to the Japanese samples, lecture based subjects appeared to occupy a lower proportion in the professional education content (between 11% and 31%) in the sample European universities, see Figure 10. Practical (34% to 35% in 2 out of 3) and seminar (between 33% and 75% in all 3) based subjects are generally higher proportion in the European samples.



**Fig. 9. Proportion of Lecture, Practical and Seminar in Sample Japanese Universities**



**Fig. 10. Proportion of Lecture, Practical and Seminar in Sample Overseas Universities**



In the sample Asian universities, lecture based subjects occupied between 18% and 25% in all the Korean samples and between 22% and 34% in 2 out of 3 Chinese samples. Practical based subjects are about 8% to 9% in 2 out of 3 Korean samples and between 32% and 42% in 2 out of 3 Chinese samples. Lastly, Seminar based subjects occupied between 49% and 70% in all Korean samples and between 33% and 36% in all Chinese sample.

## 5. Discussions

### 5.1 Integrative Learning Frameworks

In this study, it seemed that the product design curriculums in majority of the sample Japanese universities tend to offer a slightly higher proportion of professional education contents for studying subjects in the various fields of specialization as compared to the European and Korean samples. The Chinese samples seemed to display similar characteristic as the Japanese samples. As compared to the overseas samples, the sample Japanese universities also tend to favor more lecture based subjects in the curriculum which further provided indications that students tend to learn professional knowledge and skills for a specific field of specialization through specific subjects under that field. *Integrative subjects* serve as an avenue for the synthesis of different professional knowledge and skills.

In the European and Korean samples, the proportion for the study of subjects in various fields of specialization seemed to be lower as compared to the Japanese samples. Besides, the European and Korean samples also tend to offer more practical and seminar based subjects which provided indications that the product design curriculums tend to favor the learning of professional knowledge and skills from different fields of specialization through design projects in practical and seminar oriented approach such as *Integrative Subjects*.

This study suggests two different types of frameworks for integrative study between the Japanese (and Chinese) and European/Korean samples. Firstly, it may be suggested that the sample Japanese and Chinese universities generally favor the learning of professional education by compartmenting into the different fields of specialization and offering integrative subjects as platforms for knowledge and skill synthesis. Refer to Figure 12. In this approach, the curriculums emphasize the learning of professional education knowledge and skills based on compartmentalization of different fields of specialization. Assessments for the level of professional education knowledge and skills learned may be based on the standards in the specific specializations through examination, projects,

presentations and reports etc. *Integrative subjects* are used to offer connections between the different fields of specialization through design projects.

On the other hand, the European and Korean samples seemed to favor the learning of professional education knowledge by incorporating the study of different fields of specialization into *Integrative Subjects* rather than study as individual subjects specific to the fields of specialization. In this approach, shown in Figure 13, integrative subjects served as the main learning platforms that emphasize learning as a collective system. The learning of professional education knowledge and skills are organized around common learning across different fields of specialization through common themes in projects. New knowledge and skills peculiar to the projects are learned and then refined through the doing process. This approach emphasizes the inter-relationships between the different fields of specialization.

In the second approach, the current assessment method as describe in the syllabuses for *Integrative Subjects* is generally based on final product, portfolios and reports etc. As the learning of knowledge and skills in the different fields of specialization are lumped together while engaging the design projects, how would the current assessment methods be able to ensure that students are able to reach the required standards of the specific fields of specialization? It is proposed that further researches may be required to understand assessment methods in integrative subjects so as to ensure that students may achieve the basic standards required for the specific fields of specialization.

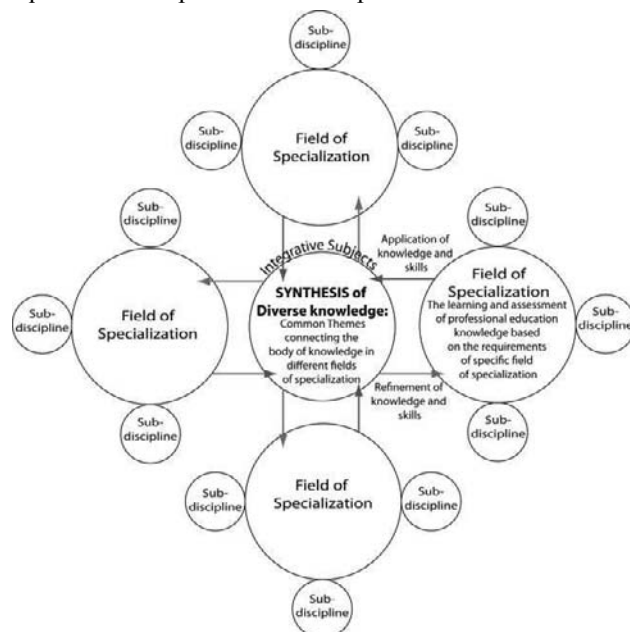
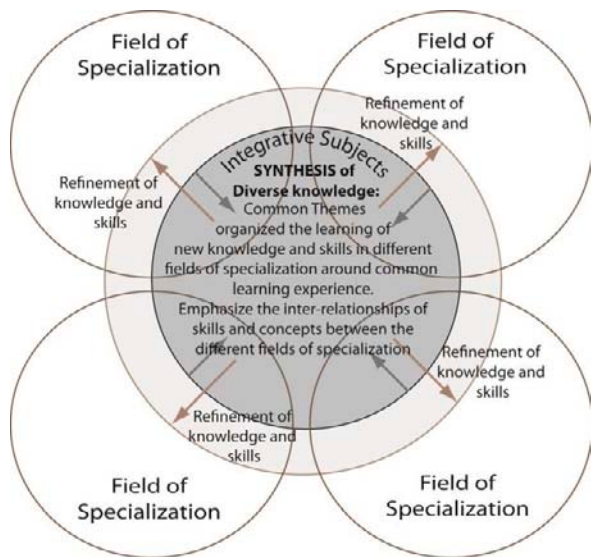


Fig.12. Framework for Integrative Learning that Emphasize on Learning in Individual Fields



**Fig. 13. Framework for Integrative Learning that Emphasize on Common Learning across Fields**

## 5.2 Product Design Curriculum in a Globalized Society

This study provided indications that the mindset on the emphasis of compulsory and elective studies of the product design curriculum differed among the sample Japanese and overseas universities. As compared to the sample European and Chinese universities, majority of the Japanese samples offered a comparatively lower emphasis on compulsory study of professional education subjects. With a higher emphasis on compulsory study, the European and Chinese universities seemed to favor a more rigid curriculum where students would go through a more uniform combination of professional education subjects as compared to the Japanese universities. Compared to the European and Chinese universities, majority of the sample Japanese universities tend to favor a higher percentage of credits for elective study. It appeared that the majority of the Korean samples displayed similar preference as the Japanese samples. With a higher emphasis for elective study, the curriculums offer more flexibility for students to construct their own professional education knowledge based on interest. Perhaps, through this approach, the learning for students is also diverse where the subject combinations will slightly differ among students.

Another common characteristic among majority of the Japanese universities is that lecture based professional education subjects are comparatively more than practical and seminar based subjects. This may suggest a more theoretical approach in Japanese universities as compared to the overseas universities, where lecture based subjects is comparatively lesser. The combination of practical and seminar based subjects are comparatively higher in proportion in majority of the overseas universities.

In addition, it also seemed that integrative subjects in the Japanese samples commonly focus on developing and mastering basic design process and skills. Whereas in the overseas universities, besides mastering basic design skills, the training for practical professional education knowledge and skills that may be required for work is commonly incorporated into integrative subjects.

Perhaps, the characteristics mentioned so far in the sample Japanese universities can be explained by the university-industry relationship attributed by the 'Japanese model' of employment and training where permanent employment and loyalty to the company is a common characteristic in Japanese employment practice [5]. Often, this characteristic can even be connected to the cultural tradition derived from Confucian Ideology [6]. As such, the Japanese industry usually concern more on the trainability, soft skills like personal values, motives and attitude of the students [7]. In addition, in-firm training is commonly provided by the industry, example in in-house design departments etc., to train its own staff with professional specialized knowledge. Thus, undergraduate level in university generally focuses on providing basic knowledge and is less likely to be concerned on training the practical and pragmatic professional knowledge and skills that are required for work.

Though investing efficiently in the in-firm training, as a whole, the Japanese industry had recently faced challenges due to the rapid IT revolution and globalization where the industrial structures are facing changes where some firms were adopting a more flexible staff structure [8]. In order to maintain efficiency, firms are also seeking external outsourcing and some firms struggled to maintain the cost of in-firm training [9]. In coping with the changes brought by globalization and unemployment, internship was promoted by the Japanese Government [10]. Internship is generally introduced in the Japanese universities in 2000s.

In Europe, it appeared that higher education used to be generally characterized by the theoretical approach and the traditional orientation towards personal development of student rather than pragmatic oriented [11]. With the concerns for graduate unemployment in the 1970s and the changing labour market for graduates, universities were increasing effort to increase the occupational relevance in higher education [12]. Thus, work experience was integrated into the higher education institutions more often than in the past [13].

Internship, which is commonly associated with the pragmatic approach towards learning and application,

seemed to be often characterized by the American higher education practice. But In the 1970s and 1980s, the integration of work experience as part of degree requirements, such as internship, was getting popular in Europe [14]. Set against this background, it can be understandable why internship is a key component in the product design curriculums of the European samples. Internships are also commonly associated to possible employment in the firm in Europe. Similar trends can be observed in the Chinese samples.

In regions outside Japan, especially in Europe, in order to keep occupational relevance, universities need to consistently review their courses to keep it up-to-date in respond to the industry. Thus, this provides a glimpse towards the understanding on the practical and pragmatic approach towards product design learning in the oversea universities as mentioned in this study.

Lastly, this study may also have provided a glimpse of how the relationship between the university and industry in Japan have rendered an unique condition for Japanese universities to focus on developing the quality of students based on student interest and the fundamentals of professional education at undergraduate level without overly concerned by the fluctuations of the industry. This approach may in turn offer a form of quality assurance where the fundamentals, character and values of students are rooted before entering the industry.

## Conclusions

From the study, as compared to the oversea universities, the product design curriculums in Japanese universities may be characterized by the following points.

Firstly, the curriculums tend to be more theoretical in nature and they emphasized more on developing the fundamentals in professional education rather than the practical and pragmatic approach that focuses on professional knowledge and skills required for work.

Secondly, the curriculums in the Japanese universities seemed to favor a diverse and flexible structure of learning in the broad-based professional education content.

Thirdly, as compared to the European and Korean samples, the Japanese universities tend to favor the learning of professional education content by compartmenting into different fields of specialization while still offering integrative subjects for integrative learning.

Amid globalization, the Japanese universities still preserve certain characteristics in the product design curriculum that is relevant to the local context which is very

much related to the university–industry relationship. As a final note, this study had employed European samples with considerations that European design education had a huge influence in Japan before the Second World War. As a follow up for further study, the American pragmatic approach towards higher education and its influence to design education in the global context provides motivation for future research themes.

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