

Investigating the Advantages and Disadvantages of Taiwan's Cultural Creative Design Education From Department Evaluation Data

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With Taipei being nominated for the World Design Capital 2016, an event that emphasizes "design thinking," issues, such as identifying Taiwan's design education development trends and crucial factors influencing Taiwan's design industry development must be addressed for Taiwan's future design education. This study conducted a pilot study to investigate design department objectives, analyzed designer abilities required by businesses, and referred to the design department evaluations. The results showed that for cultural creative design departments, issues that required most improvements were: (1) Related departments should encourage students to actively participate in off-campus competitions to enhance the students' execution, implementation, problem-solving, and communication abilities; and (2) The departments established industry-academia cooperation and provided various opportunities, but insufficient options were provided for teachers and students to participate in various types of internship. Because Taipei is to face the challenge of the World Design Capital 2016, reviewing and improving design education become essential and emergent. The results of this study can serve as a reference for relevant school departments to develop education strategiesrelated to cultural creative design in Taiwan.

Keywords: design education, cultural creative design, evaluation, higher education

Introduction

Taiwan's higher design education originated in 1964, the year when the Ming Chi Institute of Technology (current Ming Chi University of Technology) introduced the industrial design program. A period of five decades has passed since 1964, during which "design" has shown a clear intangible influence on Taiwan's economic development as well as various sectors, such as national competitiveness and people's livelihood. A review of Taiwan's design education in practice shows significant developments. In fact, Ph.D. programs in

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design were further added in 2000 (Lin & Lin, 2013).

Under this premise, this study investigated the current situation and problems concerning the development of higher design education in Taiwan by analyzing the evaluation contents produced by various schools. The development of cultural creative design education was further explored by examining the educational objectives of design departments, designer abilities required by businesses, and evaluation analyses. The analysis results are shown below.

Target Abilities Set By Design Department and Abilities That Business Expected From Industrial Designers

According to data compiled by the Statistics Department of Taiwan's Ministry of Education, the number of graduates from design-related departments in Taiwan amounts to more than 5,000 students per year. Similarly, students studying in undergraduate design-related courses, such as cultural creative design, product design, and interior design increased from over 30,000 during the 2007-2008 academic year to more than 40,000 during the 2010-2011 academic year, showing an increase of 40%. The number and quality of students graduating from such design departments have a direct effect on whether the personnel requirements of related industries can be satisfied as well as Taiwan's overall national competitiveness.

Previous design education mainly focused on practical training. The demands of related industries for designers were also relatively simple. However, as the overall environment evolved, the requirements diversified. Norman (2010) proposed different views pertaining to future design education. For designers, they must not only possess the necessary professional skills, but also deal with work-related issues, such as company organizational structure, social issues, interpersonal relationships, and service and design experiences. Following the government's policies to promote the cultural and creative industry, colleges and universities established related departments. However, whether the knowledge and skills taught in schools are able to meet current or future industry needs is an issue worthy of investigation. Therefore, we conducted a pilot study to investigate schools' objectives for founding cultural and creative design-related departments to assess students' acquisition of skills from higher education. The analysis results are shown below.

Analysis of the Objectives for Founding Design-Related Departments

Currently, design-related departments in Taiwan total more than 200. Competition between design schools remains fierce and schools are engaging in specialization and differentiation-related efforts to distinguish themselves from competition. Thus, an analysis of the objectives set by the departments as well as their unique characteristics will provide insight into the current trends in the abilities of designers under the new cultural and creative environment. For the first stage of the analysis, this study used a sample of 28 creative design-related departments. Such departments' names were divided into seven orientations or types: cultural vocation development, cultural and creative industry, cultural and creative industries management, cultural creativity and design, digital media design, creative design, and others.

By combining the educational objectives of the 28 departments, we obtained a total of 49 ability items. Next, we separated these ability items into different groups and found that the abilities could be roughly divided into seven categories, which were "comprehensive abilities," "theory-based abilities," "digital technology-related abilities," "practical abilities," "property rights knowledge," "interior design abilities," and "marketing and management abilities." The top three most frequently mentioned abilities were "practical

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abilities," "marketing-based planning and management abilities," and "creative thinking abilities and cultural literacy." The analysis also showed that the focus of education differed between the seven department types, which are listed as follows: cultural vocation development departments focused on cultural literacy; cultural and creative industry departments emphasized on operational management; cultural and creative industry management departments paid attention to marketing-based planning and operational management; cultural creativity and design departments stressed the importance of theories, cultural literacy, and art literacy; digital media design departments focused on interdisciplinary integration abilities, digital technology-related abilities, and marketing-based planning; and creative design and lifestyle departments emphasized "creative thinking abilities," "product development," and "exhibition activity-based designs" (see Figure 1).



Figure 1. Abilities to be learned as a percentage of all the abilities.

The 49 abilities were also divided into seven categories, of which comprehensive ability-related learning accounted for the highest percentage (i.e., 24.24%), followed by theoretical foundation ability-related learning (i.e., 22.44%), and digital technology ability-related learning (i.e., 16.32%). The results showed that these three abilities were the key abilities to be developed (see Table 1) (Lin, Lin, & Lin, 2013).

Table 1

Key Abilities to Be Learned According to Each Respective Department

Department types	Focus of education		
Cultural vocation development	Cultural literacy		
Cultural and creative industry	Operational management		
Cultural and creative industry management	Marketing-based planning and operational management		
Cultural creativity and design	Theories, cultural literacy, and art literacy		
Creative and digital media design			
Creative design	Insufficient data for analysis due to low number of departments		
Others			

An analysis of the educational objectives shows that cultural and creative design-related departments focused on practical abilities, marketing-based planning abilities, management abilities, creative thinking abilities, and cultural literacy as the key abilities to be developed. Concerning other departments, indicators for abilities to be developed also differed. Such ability indicators signified future abilities of the students. Therefore, whether these abilities meet the needs of employers is a topic worthy of further investigation.

Designer Abilities Required by Businesses

In 2015, *30* (a magazine published by Commonwealth Publishing Group) released a special issue entitled the "Top 100 Design Schools," featuring the results of the first-ever large-scale survey of designer talents most wanted by businesses. The essential abilities/qualities of designers in the future were analyzed from the corporate employment market perspective. To determine "designer talents most wanted by businesses," *30* worked jointly with the Global Views Survey Research Center to survey companies with 10 or more employees. The companies were from four major industries: (a) the information and communication industry; (b) the manufacturing industry; (c) the professional, scientific, and technical service industry; and (d) the arts and entertainment and recreational service industry. The survey results are as follows (Wang, 2015):



Figure 2. Criteria considered by businesses when hiring new designers (Source: Wang, 2015).

The top three criteria considered by businesses when hiring new designers are shown in Figure 2. The top three criteria, listed in descending order, were "ability to execute and carry out tasks," "ability to use design tools or software," and "problem-solving skills." Businesses believed that the abilities that current design industry personnel required the most improvement, listed by order of priority, were "ability to execute and carry out tasks," "problem-solving skills," and "communication skills" (see Figure 3). Concerning interdisciplinary knowledge most preferred by businesses, they were "business management and marketing,"

"media communication," and "user experience-related research" (see Figure 4). Regarding elements in the current curriculum of design schools that businesses felt must be improved included "internship opportunities," "fundamental skills," and "creating opportunities for conducting special projects" (see Figure 5).



Figure 3. Abilities that businesses believed fresh designer department graduates required the most improvement (Source: Wang, 2015).



Figure 4. Interdisciplinary abilities most preferred by businesses (Source: Wang, 2015).



Figure 5. Elements in the current design school curriculum that businesses felt must be improved (Source: Wang, 2015).

Current Gap Between Cultural and Creative Design Education Provided by Schools and Abilities of Fresh Designer Graduates Required by Businesses

In this section, we analyzed the abilities listed in the educational objectives of cultural and creative design departments and compiled designer-related data obtained by 30 from its business surveys (see Table 4). Analyses on the target abilities of design education and business surveys showed that that despite practical abilities being listed as part of the objectives of Taiwan's cultural and creative design education, such abilities did not include the "ability to execute and carry out tasks," an ability that businesses expected students to possess. In digital technology-related abilities, businesses expressed the need for the students to enhance their knowledge on media communication, design tools and software, as well as improvements in fundamental skills. Regarding comprehensive abilities, businesses expected students to improve communication and problem-solving skills. With respect to marketing and management abilities, businesses suggested schools to instruct business management and marketing courses. Comparisons revealed that the advantage of higher design education was in theory-based courses, whereas the disadvantages of such education was the lack of internship opportunities, opportunities for conducting special projects, and knowledge about user experience-related research, which businesses expected students to have. Of the three disadvantages, user experience-related research was not even covered in higher design education. Therefore, we recommend it be incorporated into curriculum planning in the future. Regarding internship opportunities, they were considered more crucial and compulsory by technical and vocational universities than by general universities. However, because of the current lack of business internship opportunities, all related units must work together to enhance internship-related planning. Special projects are assignments that students from design-related department must complete to earn credits to graduate. Businesses also expected schools to increase the opportunities for students to take on project planning-type special projects. By undertaking such projects, students would be able to improve their problem-solving skills, communication skills, teamwork abilities, and ability to execute tasks.

Examining the Problems of the Current Era via Higher Education Evaluation

Taiwan's higher education evaluation has changed over time. Related evaluation systems have evolved from general school evaluation to professional education evaluation (Wu, 2010). Most department evaluations in the second-stage further emphasized assessing students' learning results (Chin & Chen, 2012).

The Taiwan Ministry of Education has set clear targets for the two stages of higher education evaluation, in which the goals for the first-stage and second-stage department evaluations were to "ensure that students are provided a high-quality learning environment" and "promote and implement mechanisms ensuring favorable student learning results," respectively. The two-stage evaluation targets show how expectations and values of education have changed over time. In addition to the problem of sub-replacement fertility, imbalanced education quality, poor resource allocation, and globalization of education markets, challenges related to talent issues in the market has resulted in higher education resources becoming overly dispersed, defeating the intentions of the government when it rapidly increased the number of universities. The oversupply of education has led to incessant higher education crises and related problems, such as low college and university competitiveness, low student enrollment rates, and poor student qualities (Hsieh, 2006).

Mechanisms to ensure the learning results of students were introduced to guide the abilities of students, emphasizing what they had learned and were capable of doing. The rapid increase in the number of universities resulted in poor student quality and the gap between students trained by schools and professional personnel required by businesses. Such an issue is a clear social problem and one that potentially jeopardizes national competitiveness.

Current Situation of Design Education Following Department Evaluations

This study first explored current situations and problems of higher industrial design education. Next, the advantages and disadvantages of Taiwan's current cultural creative design education were analyzed using evaluation content obtained by the Higher Education Evaluation & Accreditation Council of Taiwan and the Taiwan Assessment and Evaluation Association.

Sample Used for Cultural Creative Design Evaluation and Analyses

This study selected design departments named related "cultural" and "creative" as the study sample and used department evaluation reports issued by evaluation centers on their websites as the basis of analyses. By searching through the online database of the evaluation centers, we obtained the evaluation data of six general university cultural creative design departments and four technical and vocational university cultural creative design departments. The evaluation and analysis sample thus comprised 10 university cultural creative design departments (see Table 2).

Evaluation of the Advantages and Disadvantages of General University Cultural Creative Design Departments

Analysing the evaluation content of the general university cultural creative design departments revealed a total of 25 advantages and 45 disadvantages. Particularly, the advantages of the general universities are described as follows: The department curricula and education provided students with clear career prospects; teachers and students clearly understood the department education goals and goals for developing target core

abilities. The disadvantages are listed as follows: (1) The departments did not cultivate design industry personnel on the basis of the specialisations of their faculty members and did not enhance making connections with the industry; (2) Curricula and faculty specialisation lacked practical experiences and were not link with the industry; and (3) The comprehensiveness and rationality of curricular planning and faculty recruitment were undesirable. Moreover, additional competent teachers should be appointed according to the development of each department. Conducting a cross analysis on the advantages and disadvantages (see Table 3) showed that: (1) The objectives for developing unique departmental characteristics formulated by the cultural creative design departments were advantageous; and (2) The aspects of education and research should be improved the most.

Evaluation of the Advantages and Disadvantages of Technical and Vocational University Cultural **Creative Design Departments**

Analysing the evaluation content of the technical and vocational university cultural creative design departments revealed a total of 73 advantages and 89 disadvantages. The main advantages are described as follows: establishing comprehensive learning portfolios for students; caring about students' development and career prospects; able to formulate achievement and development strategies for students; and establishing industry-academia cooperation to improve education and connect with practice. The disadvantages are described as follows: insufficient collection of professional books for satisfying research needs and inadequate professional classroom space and equipment; hence, these shortcomings should be further improved.

Conducting a cross analysis on the advantages and disadvantages (see Table 4) showed that four items (shown in bold) simultaneously exhibited advantages and disadvantages: (1) Specifically, in addition to providing comprehensive learning portfolios for students, the departments should also clarify the emphases and orientations of curriculum development to provide students with clear curriculum maps; (2) The faculty structure was comprehensive, but the teacher-student ratio was imbalanced; hence, additional teachers should be appointed to reduce the load on existent faculty; (3) The education space is diverse and coordinated with related curricula, but the professional classroom space and equipment were insufficient and must be further improved; and (4) The department provided many opportunities for industry-academia cooperation to provide teachers and students with practical experiences, but such opportunities for industry-academia cooperation or diverse internship should be further increased.

Table 2

Sample of Cultural Creative	e Design Departments Select	ted for Evaluation and Ana	lysis		
General universities		Technical and vocational universities			
School	Department School		Department		
		National Chin-Yi University	Department of Cultural and		
Asia University	Department of Creative	of Technology	Creative Industries		
	Product Design	National Yunlin University of	Department of Creative Design		
		Science and Technology			
	Department of Cultural and Creative Industries	For Fost University	Department of Creative Product		
National Pingtung University		rai East Oniversity	Design and Management		
		Chia Nan University of	Department of Cultural		
		Pharmacy and Science	Activities Development		
Fo Guang University	Department of Cultural Assets and Reinvention	Nan Kai University of	Department of Cultural		
		Technology	Creativity and Design		
		Maiba University	Department of Culture and		
		Mento Oniversity	Creativity		

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Table 3

8	5 0	
	Evaluation content of general university	Evaluation content of general university
	cultural creative design departments	cultural creative design departments
	(advantages)	(disadvantages)
Objectives	Objectives accord with the National	
Objectives	Development Plan.	
	Curricula and education provide students with	
	clear career prospects.	
Characteristics	Teachers and students understand the education	
	and core ability goals.	
		Should enhance the number of faculty
		publications.
		Should encourage teachers and students to
Research		apply for projects grants from the Ministry of
		Science and Technology every year.
		Should improve industry-academia cooperation
		and exhibitions.
Evaluation		
Activities	Favourable performance in related academic activities.	
		Did not cultivate talented design industrial
		personnel or connect with the industry on the
		basis of the faculty areas of specialisation.
		Curricula and faculty specialisation lack
Education		practical experiences and industrial links.
		Curricula planning and faculty recruitment
		should be comprehensive and rational.
		Should appoint additional competent teachers
		according to the department development needs.
Self-		~ · · ·
improvement	Robust self-evaluation mechanism.	
Internship		
system		
Situation after		
graduation		
Alumni clubs		
	Objectives Characteristics Research Evaluation Activities Education Self- improvement Internship system Situation after graduation Alumni clubs	Evaluation content of general university cultural creative design departments (advantages) Objectives Objectives Objectives accord with the National Development Plan. Characteristics Characteristics Curricula and education provide students with clear career prospects. Teachers and students understand the education and core ability goals. Research Evaluation Activities Favourable performance in related academic activities. Education Self- improvement Internship system Situation after graduation Alumni clubs

Evaluation of the Advantages and Disadvantages of General University Cultural Creative Design Departments

Table 4

Evaluation of the Advantages and Disadvantages of Technical and Vocational University Cultural Creative Design Departments

Item		Evaluation of technical and vocational	Evaluation of technical and vocational		
		(advantages)	(disadvantages)		
		(auvaillages)	(uisauvaitages)		
Departments	Objectives	Objectives accord with the future development			
		of domestic industries.			
	Characteristics	Comprehensive learning portfolios for	Key points and curricula orientations should		
		students.	be clarified to ensure clear curriculum maps.		
		Care about students' development and career			
		prospects by formulating achievement and			
		development strategies for them.			
		Establish industry-academia cooperation to			
		improve education and connect with practice.			

	Research	Actively involved in industry-academia cooperation and academic research.	
	Activities		Should encourage students to participate in off-campus competitions.
		Comprehensive curriculum guidelines and digital teaching content.	
	Courses	Diverse curricula for satisfying students' needs.	
Education		Curricula and teaching have been recognised by students.	
	Education		Imbalanced teacher-student ratio; hence,
		Complete faculty structure	additional teachers should be appointed to
			reduce the load on existent faculty.
	Facilities		Insufficient professional classroom space and
		Diverse teaching space coordinated with	equipment.
		related curricula.	Professional classrooms and equipment
			should be improved.
			Insufficient collections of professional books
			for satisfying academic research needs.
Development of abilities	Self- improvement	Robust committee operations.	
		Numerous opportunities of	Should increase opportunities for teachers
		industry-academia cooperation for providing	and students to participate in
Students	Internship	teachers and students with practical	industry-academia cooperation or diverse
Students	system	experiences.	internships.
		Comprehensive teaching and internship	
		facilities.	

(Table 4 to be continued)

Cross Analysis of the Advantages and Disadvantages Listed in the Cultural Creative Design Department Evaluation Results of Both General Universities and Technical and Vocational Universities

The aforementioned cross analyses on the advantages and disadvantages of the general universities and technical and vocational universities revealed that the advantages of cultural creative design departments in Taiwan are: (a) Department objectives that accord with the Taiwan National Development Plan; and (b) The provision of comprehensive learning portfolios to students by the departments. The two types of universities did not exhibit similar disadvantages. Particularly, the general universities have weaknesses in their teaching and research, whereas the equipment of technical and vocational universities should be further improved.

Cross Analysis of the Objectives of Higher Education, Business Surveys, and Evaluation Results

Through conducting a cross analysis on higher education objectives, business survey, and evaluation results, this study compiled the following advantages and disadvantages of the cultural creative design departments (see Table 5): (1) Regarding execution ability, digital technology, and comprehensive ability, the departments were actively involved in industry-academia cooperation and academic research to incorporate related projects and research into teaching, but they should also encourage students to actively participate in off-campus competitions to improve the students' execution, implementation, problem-solving, and communication abilities; and (2) Concerning items associated with internship opportunities, the departments established numerous opportunities for industry-academia cooperation, but opportunities for teachers and students to apply for project grants from the Ministry of Science and Technology each year. This enables them to publish their research and demonstrate their works. Accordingly, faculty specialisations can be increased to enhance the connection with the industry.

Table 5

Analysis of higher education objectives	Business survey			Evaluation results			
Educational objectives (i.e., targeted abilities) of cultural and creative industries departments	Skills valued by businesses	Abilities that businesses believe fresh graduates from design departments required the most improvement	Interdisciplinary abilities most preferred by businesses	Elements in the current design school curriculum that businesses felt must be improved	Advantages of cultural creative design departments	Disadvantages of design departmer	cultural creative
Practical abilities	Ability to execute and carry out tasks	Ability to execute and carry out tasks		Improve fundamental	Actively involved in industry–academia cooperation and	Should encourage students to participate in off-campus competitions	(a) Should encourage teachers and students to apply for project grants from the Ministry of Science and Technology
Digital technology-related abilities	Ability to use design tools or software		Media communication	skills			
	Problem-solving skills	Problem-solving skills			academic research		
Comprehensive abilities	Communication skills	Communication skills			-		
Marketing and management abilities			Business management and marketing				
Theory-based abilities							every year; (b)
			User experience-relate d research				Industry-academi a cooperation
				Internship opportunities	 (a) Establish industry-academia cooperation to improve teaching and connect with practice; (b) The number opportunities of industry-academia cooperation for providing teachers and students with practical experiences. 	Increase opportunities for teacher and students to participate in industry-academi a cooperation or diverse learning	and exhibition should be improved; (c) Did not cultivate industry personnel according to teacher specialisation or improve connection with the industry.
				Increase opportunities for conducting special projects			

Objectives of Higher Education, Business Survey, and Evaluation Results

Conclusions

The government of Taiwan has continually promoted the cultural creative industry; hence, the development of higher education has also been affected. School departments related to cultural creation and designs are relatively new to the higher design education and are still growing. Because most departments in Taiwan have been established for a short period, data regarding the evaluation of these departments are few. Although this study only targeted the evaluation data of nine general and technical/vocational universities, the results of this study revealed that both types of universities formulated objectives that accord with the National Development Plan. In addition, the results are consistent with the expected outcomes.

The aforementioned analyses on the cultural creative design departments of higher design education in Taiwan and cross comparison of the evaluation items of the general universities with those of the technical and vocational universities revealed that the general universities mostly focused on defining department objectives and characteristics, whereas the development of the technical and vocational universities were more even across the various items. Taipei was successfully nominated for the World Design Capital 2016 and has seta theme spirit, "Adaptive City—Design in Motion" to emphasise that the city has continually improved, and that enhancing and researching related design education is an essential task of the city. Therefore, the contributions

of this study are significant and meaningful to the current society, and we hope that the results of this study can serve as references and suggestions for relevant departments to plan and develop education related to cultural creative design in Taiwan.

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