

# Strategies for Design Management Education in Taiwan

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## Abstract

The vast majority of influential and renowned design management (DM) academic programs are found in North America and Europe, but rarely in Asia. Taiwan, the country of focus in this study, lacks educational programs that can support and transform the essence of design management. In recent years, however, the Taiwanese government has begun directing more funding and effort into cultivating cultural-creative industries, with the hope of applying and delivering DM in several domains successfully. Nonetheless, the gap between a theoretical understanding of DM and practical implementation of it remains clear, with the end result that, today, DM in Taiwan still faces many difficulties and obstacles which prevent the essence of DM being successfully accepted or applied at a national scale. The purpose of this paper is to propose a suitable strategy for promoting and improving DM as an academic field in Taiwan's higher educational system. Primary qualitative research methods such as Delphi interviews and case studies were conducted to collect material that is current and relevant to Taiwan. The findings discuss obstacles that DM faces in academia and the industry, as well as the link between industry and academia, and finally, a strategy to develop and improve design management courses. Overall, it is argued that the future of DM is in the hands of design students, who possess the ability to bring about a meaningful and realistic integration of design thinking and business value that remains both practical and true to the essence of DM. Ideally, the stagnant situation in the Taiwanese design industry can be improved and reformed by those designers in the future as well as by raising awareness of DM in Taiwan.

**Keywords:** Design Management, Design Education, Taiwan higher education

## 1. Introduction

Developing culturally-creative industries to advance national competitiveness is a modern trend that is developing all around the world. The Taiwanese government has been actively promoting it for many years, putting efforts into creating environments that help industries boost their production value (Council of Cultural Affairs, 2010). With this in place, young artists, designers, and creative workers have been expected to bring about better outcomes, higher values, and a brighter future. However, the government's policies have generally provided more strategies for existing industries, with a lesser focus on cultivating talent from younger generations, something that is essential for laying the foundational element of cultural appreciation (Ling & Chiou, 2005). Identification and cultivation of talent are important components of a cultural development strategy, and the spill-over effects of these on the economy over the long-run promises to be substantial. Therefore, the overarching goal of nurturing cultural creativity to establish sustainable and profitable industries cannot be the drafting of short-term plans, but the establishment of a long-term strategy and the adoption of a carefully thought-out vision. And while the number of Taiwanese universities has been rapidly increasing over the past twenty years leading to a 95.4% enrolment rate (National Development Council, 2016), it can be argued that similar progress in teaching quality and student learning outcome has not been made, and therefore that the needs of Taiwanese society have not been adequately met. More specifically, creative talents are being brought up with a relatively-traditional creative, art, and design education, whose main approach and focus is preparing students for industry-specific demands and expectations. All in all, despite systematic government efforts, the gap between an education focused on current industry needs and one that aims to nurture cultural-creativity has remained hard to bridge.

In line with this, there has been strong focus and interest in academia on the challenge of developing a strategy for helping culturally-creative industries improve their economic contribution and performance, driven by either government policy or by advancing the industry as a whole. A great deal of literature and academic publications has been devoted to the assessment of the value and importance of DM, and its implications for different academic fields, the industry, and the nation as a whole (Best, 2010; Bruce & Bessant, 2002; Cooper & Press, 1995; Cox & Dayan, 2005; Gruber, De Leon, George, & Thompson, 2015; Robert Jerrard, 2007; R. Jerrard, 2013; Johansson & Persson, 2007). Consequently, there are increasing numbers of design departments that have set up design management courses with the goal of enriching designers' abilities to work in the rapidly-changing global market. Design management as a curriculum provides wider views than those of a purely business aspect. Opinions and debates have been polarizing on this topic due to its sometimes dramatically opposing outcomes within local, regional, and national development. The value and advantage of design management as a concept has not been realized or understood fully by Taiwanese designers in higher education. There are various courses relating to cultural creativity, but there is only one graduate school in Taiwan that

offers a full design management curriculum.

Instead of analysing Taiwanese policies for culturally-creative industries, the possibility of design management education and its application in industries to bridge the gap between industry and academia is the focus of this paper. The intention of this qualitative study is to raise awareness of the value of design management in Taiwan, and its importance in higher education.

## 2. Literature

### 2.1 *Cultural and Creative Industry in Taiwan*

The culturally-creative industries (Council of Cultural Affairs, 2010) in Taiwan comprise 15 industries which are mainly regulated by the Ministry of Economic Affairs and the Council for Cultural Affairs. These industries originate from creativity or accumulation of culture, which through the formation and application of intellectual properties, possess a myriad of potential. Creating wealth and job opportunities, enhancing people's capacity for arts, and elevating their living standards are some of the goals these fields are expected to help achieve. According to Taiwan's cultural and creative industries Annual Report (Ministry of Culture, 2017), the 2015 total operating revenue of the cultural and creative industries was over 833 million, this accounts for 5% of GDP in 2015. The CAGR (compound annual growth rate) in 5 years (2010-2014) was only 0.98%, while the UK with 8.91% in CAGR and 6.67% in Korean. The expectation and the attention to cultural and creative industries that governments have been putting is obvious, but the resources sunk into these areas are a far shot from their outcomes. With criticisms from multiple aspects, an examination and implementation was also proposed. The development policy contained a response strategy that saw weak performance in the business field, and that focused primarily on promoting mature industries. It can be seen clearly that the main focus was on fostering industries, and that cultivating talents was heavily under-estimated. Can those graduates still have an advantage in the fast-changing competitive world? The industries showed their dissatisfaction with graduating students with low wages; further, the abilities, skills, and knowledge of this new breed of graduates was often questioned. Designers specifically have not yet had the strength to persuade Taiwanese industries that a higher business value can be achieved.

### 2.2 *Design Management and the theoretical context of responding to competitive reality*

Design has been understood, presented, and interoperated in contrastive directions. Still, the design thinking and design management here in this context is not limited to design in the traditional sense (fashion, visual, interior, architecture, or industrial). Rather, it is referring to the much wider view of design as an essential business tool and way of thinking. It is more literally the fusion of design and management. The combination of creativity and managerial knowledge is the trend, and traditional design characteristics are no longer suitable for modern society. The design process is a complicated and implicit one (Robert Jerrard & Hand, 2013), as it needs more attention to manage and gain a deeper understanding of. These undefined intrinsic qualities bring out both positive betterment and negative debates, as some consider design management an undeveloped and under-researched discipline which lacks its own independent body of knowledge (Langrish, 1992). The holistic thinking and extensive operation is the main characteristic of the integration of design and management. And while the particular characteristics of design management cannot be strictly defined, still the concept and spirit show its powerful and distinguishing features which are increasingly needed in the marketplace, and which make it a viable business strategy all on its own. Design and management has different inputs, dissimilar processes, and distinct purposes. However, rapidly emerging economies are one of the catalysers that can push firmly to apply this integration trend. After more than four decades of multifaceted influence, design management nowadays is a remarkably holistic thinking approach and a powerful strategy for many businesses. It is not just a comprehensive interface of two aspects in the enterprise but also a new platform for communicating different service behaviour patterns.

Design management as a subject has been taught in classrooms for more than 25 years. Whether it began its life in business schools in the early stages or more commonly in design universities as found nowadays, it is clear that its pedagogy is becoming extensive. Specialists (Cox & Dayan, 2005) state that creativity is the key issue for the nation's economic success, and creativity and design concepts have a compelling impact on management and business. This new holistic thinking approach is formed and delivered through design management pedagogy, so the implications of emphasizing the importance and necessity of such integration has a long-term value of being able to advance competitiveness. Management needs creativity for differentiation and innovation, and design needs management to sharpen its efficiency and quality. The quality of design management education in the UK for example places in the forefront, both in quality and quantity. Several design management programs in the UK responded to a national design policy that also proved that co-operation with other forces was of equal importance for academia. The design management theoretical context of responding to competitive reality in education was also evaluated and verified in the US (Design Council, 2006),

Europe (Design Council, 2007) and Asia (Design Council, 2010). The reason for pointing out these important blueprints of design management pedagogy is to conclude the fundamental structure and the content. Absorbing and modifying from successful experiences is necessary for building up new strategies, which fit the Taiwanese context to promote it more efficiently.

- There was a noticeable need for “multidisciplinary” education in the results of these two reports. Enterprises were increasingly using multi-disciplinary teams to innovate. They have developed new structures to support cross-disciplinary teaching and learning as well as new and innovative models of integrating research and practical work, which were sophisticated structures for managing the engagement with industry needed for further development.
- Universities in both regions developed postgraduate programs that encouraged creativity, technology, society, and business to respond to the needs and changes of industry. Industry professionals have increasingly been involved in academic projects, and have given more opportunities for students to work in practical environments within cross-disciplinary teams. The already-strong link between industry and academia was further strengthened.
- Designers and managers were long ago suggested to improve in their respective field while increasing reciprocal sensitivity and appreciation of each other’s roles (Topalian, 1980). Because of the demand for a profound knowledge background on creation or business, the wider consensus of such education should be established at the Master’s level rather than entirely restructuring existing programs or supplemental short courses.
- The next creative generation is expected to have certain competencies, such as good verbal and communication, teamwork, problem solving, and creativity skills, as well as the awareness of other disciplines. The “Hybrid Managers” can integrate creative and business specialists, and practical multi-disciplinarily has created the need. Creative professionals such as specialist designers, design managers, and cultural creative workers who can cooperate with other specialists like engineers, marketers, social scientists, and management consultancies.

Education provides an essential understanding for any professions, and quite often the theoretical development helps in creating a fresh market orientation and drives it into new realms of possibilities and innovation. In the same sense, industry offers a realistic environment in which the theoretical and practical meet in reality to meet market demands. This cooperative relationship is a bilateral one. Still, the irresistible coordinate has obvious challenges that demand enormous effort to make right. Because of such difficulty, the final outcome and profit are more remarkable to benefit the society.

### *2.3 Design management education in Taiwan and the industry*

Some enterprises in Taiwan have noticed the capacity of design in benefitting businesses, and the recognition has been growing slowly. Still, there is a lack of awareness of the importance of DM in Taiwan’s industry and academic fields. Design management is moving forward, but it still struggles with finding its suitable position and role in the present market. Breaking traditional thinking away from the fixed operational culture around the enterprise seems difficult, as it requires huge innovation and investment to bring design management concepts and practices into Taiwan. Conservatives are anxious about the innovation paths which design management curriculums have risen out of and fallen back into for years. Design management academic literature seems to be more about engineering, computing and NPD areas in the technological field, and less focused on researching its connection with wider design aspect like visual design, design strategy, integration branding and creative thinking, and the current progress in practice. There are about over 120 design courses running presently in Taiwanese higher education, as well as many selective courses provided in different design-related departments and business schools. However, there is only one graduate school, Ming Chuan University, focused on design management as a profession and as a full curriculum. Very few attempts for statements in Taiwan have been well recognized and implemented. The lack of independent study and fundamental knowledge could affect backing up the claim of design management’s capacity to enhance teaching and learning quality and outcome. The proofs of success might not yet have persuaded Taiwanese industry to trust it fully, and one of the issues is possibly the cultural barrier both in industry and academia. The traditional business aspect and the manufacturing-oriented thought process are firmly entrenched and difficult to shake up in a short time in Taiwan. From OEM to ODM to OBM, the old manufacturing design process and model has dominated business thought for the whole time. And so the complex nature of design management and its strategies cannot be accepted easily, especially since such innovative design methods are hard to put into practice perfectly with substantial initial effort and upfront investment. The fear of failure, lack of resources for change, lack of success stories, could all be the causes behind the failure of design management entering the business mainstream in Taiwan. If the reasons of causing the dilemma of implementing Taiwanese design management curriculum can be identified clearly, better direction can be pointed out for future efforts.

### 3. Objective and Research Question

This research paper aims to gain a deeper understanding of design management pedagogy and its effective promotion in Taiwan as part of a long-term strategy. The purpose of this study is: 1. To determine the benefits to culturally-creative industries in Taiwan that design management pedagogy can provide. 2. To verify the main obstacles facing design management pedagogy in Taiwanese higher education. 3. Propose a structure for culturally-creative curriculums in higher education to promote design management in a concrete and methodical approach, as well as advising industries to establish mature and nurturing environments for design management concepts to grow widely and be able applicable in the long term. Cultural specificity can be a disadvantage as well as a big benefit. Learning from those successful examples while considering the design environment and background of Taiwan can lead to the integration of a practical solution that enhances further research and raises awareness of the importance of DM curriculum. Creative students with design skills and those who have management backgrounds will understand ethical and design management concepts to advance their competitiveness. Their creativity or design abilities can be given voice and recognized and respected in the international job market. Academic lecturers in universities with industry links are likely to develop a more valuable design management experience of a broader breadth and depth. Such knowledge can be acquired in academic environments to back up the need of design management perfection in industry. The educational institutions where design management skills can be taught and developed, are universities instead of general public learning organizations. In recent complex economic situations, the importance of universities was shown and assessed (Smith, 2008); universities and research institutes should create and transfer knowledge into the public forming a steady supply of a knowledge economy. With the importance of this research area being noticed and widely studied, better achievement can be reached in the near future. These suggestions can be useful for those of interest in the Taiwanese educational field of design and design management.

### 4. Methodology

Case study in academia: Analysis of 5 design management curriculums around the world. Based on THE 2015-2016 Times Higher Education World University Rankings' Arts and Humanities table (THE, 2016), the selection in this study focuses on BA, MA and MBA degrees, which help further discussions on analogous circumstances in the Taiwanese higher education. The 6 chosen institutions offer design management curriculums available in the UK, Canada, Spain, the USA, and Taiwan, with the purpose of analysing cultural differences, the context and performance of each course, as well as other possible elements affecting overall course performance.

- Min Chuan University -- Master's Program in Product Design (Taiwan): The only fully graduated design management course in Taiwan's higher education.
- Istituto Europeo di Design in Barcelona -- Master of Strategic Design Labs (Spain): A study of an international design training network which has had a long operational experience in design and art education, IDE, can see how a design management curriculum be generalized in Spain.
- Ontario University -- Strategic Foresight and Innovation MDES (Canada): It contributes significantly in design education and research.
- Brunel University -- MA Design & Branding Strategy (UK): It is well recognized as a leading international program.
- Parsons School of Design -- Strategic Design and Management (US): More than a century it has cultivated spectacularly talented leaders. In the US, this 4-year BA curriculum is one of the most highly developed.
- The University for the Creative Arts (UK) -- MA Design, Brand & Marketing: The integration of design, branding, and marketing is taught in this 3-year BA full-time degree. Several elements were verified to evaluate the context and performance of six courses.

Case studies in the industry: Six design management case-studies in the UK were specifically considered (Hands, Ingram, & Jerrard, 2005), from architecture, consumer products, textiles clothing, to service industries. By analysing the issues that businesses engage with in design management, such examples can demonstrate how design management is operated in different fields, and the implications of its theories in real-life. We can also look at the opportunities and lessons that were learned to develop a new strategy for Taiwanese education to promote design management.

- Electrolux, as a large global organization, is the world's most successful producer of kitchen, cleaning, and outdoor appliances. The company has a complex design management system which emphasizes 'thoughtful design innovation' based on extensive consumer experience research to meet the market need. As a large manufacturer, the management process and company policies such as Integrated Product Development Process (IPDP) are integral parts of the company's operations.
- Associated Architects provide feasibility studies, project management, landscape design, and architectural services. One-off solutions is the unique element in this creative service, the 'cannot be tried and tested' factor pushes customer to make design purchasing decision before the end product or

result is completed. So, the implementation of a marketing plan systematically with creativity in design consultancy and architecture is tailored to the specific culture and sector needs.

- British Telecom, the UK's largest telecommunications company. The Corporate Design Unit (CDU), under a design management team, plays the main role of guiding all BT managers on design concerns. They develop and manage all design matters that reflect BT's brand equity, such as product and corporate identity, management processes, and the visual identity of the company. The efficiency of design management in a corporate environment often depends on the relationship and communication strategies between both internal departments and external partners.
- The David Clarke Associates firm is famous for PR, creative services, and social media in the British service industry. The company helps organizations communicate with their business partners and target consumers, adopting a customer-obsessed service in which all stakeholders are required to participate in every stage of the design process. Their outstanding ability to understand and satisfy customer needs are the proof of design management potential to enhance service quality.
- Charlie Allen Menswear has over two decades' experience in the fashion industry and are famous for bespoke tailoring and high-quality classic products. The brand identity has been successfully introduced and maintained through the integration of its clear design process of collection, visual identity, design policy, auditing of design, and customer service. With all these elements of design management, the company's value as well as the effective communication between customers and the brand is greatly enhanced.
- Skopos Design Ltd. is a leading provider of printed furnishing fabrics, interior accessories, and furniture. They also demonstrate the urgency and necessity of managing design in the public relations (PR) sector. The design process and project management in Skopos was studied and examined, and the importance of publications and graphic design in delivering PR service were also mentioned in the paper. Although communication problems between departments in Skopos were found and noticed generally, the overall appraisal of DM strategies was found to be highly advantageous and desirable.

Delphi Interview (semi-structured) were used to investigate the academic needs for design management pedagogy, to understand the conflict in the context of Taiwan. The backgrounds of the five interviewees determined the quality of responses received with industry reputations, design education practices, and management perspectives. These semi-structured interviews provide quantitative information regarding existing problems in Taiwanese industries and academic fields. There were 5 to 10 open-ended questions delivered through either email or in face-to-face interaction. All questions were drawn from previous research and were carefully chosen for each interviewee depending on their profession and interest in responding. This follows up the research objectives, as clarifying the needs of academia and industry in Taiwan can place design management and its pedagogy in a better position to benefit Taiwanese culture and creative industries in a longer term.

## 5. Findings

Interview responses were analysed in a structured way. The obstacles and barriers to DM education in academia, as well as various criticisms of DM education are found to be truly valuable assets for improvement.

- The three main frustrations the Taiwanese design field is facing. The wider and deeper design management knowledge hasn't become well-known in academia. It is still vague and lacking in details and specifics, so it's hard to develop particular theories and suitable curriculums for design management under these circumstances. Design management concepts and practice are not mutually-integrated well enough yet to be taught in the academic field. Secondly, the quality of teaching sources and the quantity of publications is of concern. Less-qualified lecturers have less practical experience in the industry, and many of them teach by translating books into Chinese, a process in which the true essence of design management is lost. The lack of related regional publications about both the theory and practice of DM is another complication. The third is that the academics field have not yet faced their own problems, not least of which are internal power struggles between personal benefit and group interests. The short vision of the beneficiaries and their inclination towards power gain are also an important concern for Taiwanese design education.
- Three complications within the creative industries domain were observed. First, the majority of Taiwanese creative businesses aren't ready for the true design management. The old manufacturing thinking might well be slowly drifting away, but there is still rampant confusion and misunderstanding about the position of design management both internally in the company and externally for the consumer market. Moreover, design and design management are held in low esteem in the Taiwanese traditional manufacturing thinking. The old operational approach treats design as merely a tool, not a holistic operational strategy to drive corporate vision. They do not value or trust creative ideas and endeavours put forward by students or creators, let alone be ready to invest in academic research.

Designers simply do not have the power to bring DM into the company; their role is merely to complete the tasks assigned to them under the guidelines of client demands. The last obstruction is the organizational structure. Few people are able to handle large, complex projects in small-scope businesses in Taiwan. It is difficult to divide professional and exquisite work, as design management require cooperation with expertise and is hard to implement efficiently.

- The link between industry and academia is weak. The common relationship between designers and the consignors is an employee-to-employer relationship; misunderstandings and miscommunication often exist in terms of the opinions on the design process. Some companies see cooperation with academia as a way to reduce labour costs. However, there is neither communicational interaction nor any long-term planning. There are only few cases proving that universities prepare students well for joining industry. One is Ontario University, whose multi-disciplinary team works on many of their projects and allows students to benefit from the diverse disciplinary backgrounds of their faculty. Because of its part-time schedule and some flexibility in course scheduling, it is able to accommodate the needs of working professionals. To be sure, the enterprises that are involved in these courses offer many work opportunities for students. Still, the small number of companies cannot really create an effective business trend. There were many activities and sound plans for cooperating with the industry; however, there was no firm structure or concrete patterns on which to formulate and establish this link between industry and academia.

### *5.1 The needs of Taiwanese design management education stockholders*

- The academic domain here include lecturers and students who are in design, art, or related creative fields, for example researchers and decision-makers in higher education within this field.
  - 1) Broadening the scope of design education: Any attempt and experimental innovation is positive, as it stimulates debate and creates more opportunities by probing into design in different directions to find its more diversified forms. Academia can research and discuss constantly, but the practical context is still needed in order to establish the link with industry.
  - 2) Reforming the traditional creativity-related curriculum with long-term prospects: Current design programs are not necessarily suitable for Taiwan's circumstance at the present.
  - 3) Nurturing the upcoming creative generation: Growing design talents and strengthening their business, marketing, and management skills with equal emphasis as that given to design expertise is crucial.
  - 4) A stronger link with other parties: Understanding and cooperation is what the academic field needs to make the connection firmer and stronger.
- The industry contains general business, culture and creative industries, associations with design departments and staff.
  - 1) Profit can be gained in various ways, such as logistic, packaging, sale volume, adherence to the operation schedule of the design process, communicating with clients and customers. To quickly increase profit in a short period of time might sometime make products and services 'not alive' with no good concept or long-term value.
  - 2) Keeping competitiveness to survive: The industry still remains anxious with lot of pressure. For example, reducing costs by outsourcing to independent design departments, shortening and controlling delivery times by owning the supply chain. Besides making profit, industries are looking for any chance to remain in the market, including focusing on short-term gain.
  - 3) The design field and its functions keep expanding as businesses attempt to innovate, establish brands and images, as well as market competitiveness in order to differentiate products services and add more value.
  - 4) The industry needs creative talents with design techniques or skills as well as strategies and managerial abilities. For the design industry, they can acquire new talent before the production sectors enter into the early pre-market system by similar training and management mechanisms. They need for design-relevant manpower and people who have the skill and understanding of logical management principles.

### *5.2 The benefit of design management curriculums*

- The pedagogy provides for design higher education  
The contexts of those design management courses in tertiary level places high emphasis on the integration of multiple disciplines, combining design, social sciences, technology, and business. Studying systems theory and analysing its relevant underpinnings, such as ecological, social, economic, and political organizations is essential for specialist projects. The combination of curriculum with other practical courses was found to be highly successful. The Parsons School of

Design Fashion, as an example, tasks students with completing modules in both the Strategic Design as well as the Management & Marketing department. These courses are essentially practical rather than theoretical, and generally include marketing, design strategy and theory, branding strategy and design futures, design evaluation, analysis and synthesis, creativity and innovation, creative management, and strategic creativity. The courses were for beginning students from either the business sector or professional creators. Those programs provide training of high-level skills and design thinking, such as the ability to communicate precise strategies for successful brand building, futures forecasting, and exposure to research and innovation methodologies. The international perspective of this learning environment combines students' experiences, as well as academic and industry experience in order to highlight the differences and similarities. Project-driven learning is compulsory and carried out under faculty supervision, where wide-ranging research develop personal vision and encourage an attitude of professional dedication. Theoretical knowledge was more generally taught before a practical project. However, the reverse can also be successful as it more quickly captures student interest. Personal abilities and skills related to design management profession, such as problem solving, effective communication, innovation, planning and marketing, design aesthetics and humanities, are of top importance, and they demonstrate the potential value of design and branding. Graduates can identify critical issues, frame problems and potential benefits, develop innovative solutions, implements plans, as well as explore and verify new methods and strategies of organization, creation and production.

- The pedagogy provides for industries

The excellent network of industrial/professional experts can provide substantial value to academia. Top industry practitioners as guest lecturers, as well as critiques from professional strategists and foresight experts were quite usual in MA degrees. Collaboration can happen through a diverse network of executives, activists, academics, artists, designers, and scientists, and also through internships at creative organizations in international cities. Using class workshops and collaborative work to nurture wider design understanding and professional vision can bring forth independent exploration and stimulation. The obvious outcome of those programs is that graduates for the most part can take on key positions in prestigious organizations or in leading design consultancies and educational institutes. Whether in the design field or for other roles in the emergent creative economy, they are capable of succeeding in a range of capacities and roles, such as brand and design managers, marketers, consultants, project managers, creative directors, managing creative people and projects, marketing new products and services, assuming leadership positions, and devising design-driven business strategies. Their valuable practical experiences, which address real-world design and other challenges in the industry are tangible and important for social improvement. They know how to use their personal creativity and problem solving skills and acquire sufficient contextual knowledge to develop intelligent, innovative, visionary, and future-enhancing solutions in their culminating projects, as well as making meaningful social change. Using such conceptual and technical skills to develop innovative ideas, advance strategies, anticipatory solutions, and implementation plans for design, business, or policy innovation.

## 6. Discussion

### 6.1 *Design academic attitude: consider precision*

The design academic field should face its internal issues first. The role of influence over the next generation of designers as well as its relationships to other areas of studies and other fields of industry should be deeply questioned and resolved. It should note its role in transferring knowledge, in concept innovation, and in the integration of reality and theory. It should realise that character is having equal right and responsibility to cooperatively lead and continue moving forward. Reality and practicality must be embraced in education. Students need to be encouraged to be ambitious but with a broad perspective; to be careful but firm decision-makers; to be thoughtful but not afraid of change and innovation. The internal defects of the design academic field, such as the conflict between the authoritarian and individual benefit internally, should also be confronted and exposed in order to speed up the process of fixing and reforming and move on the more important tasks of innovation and promotion. Second, to set an achievable and clear long-term goal that is realistic about self-strengths and weaknesses. It should be expected that support and acceptance from others will not come until personal initiative is taken first. Considering precision is only the starting point; harnessing a proper attitude will make progress far more efficient and pleasant. Work for value, not for money. Students also need to internalize such thinking; hard-work, practice, ambition, passion, and patience should be realised DM knowledge providers and receivers.

### *6.2 Design academic sources: demand both quality and quantity*

For DM education, software is more important than hardware. DM-related lectures should fully concentrate on a deeper and wider comprehension of DM in universities. The mastery and gain from engaging in this intense subject does not come effortlessly. The number of DM educators can be risen to a certain level in order to widely spread the fundamental theory into a broader audience. Educators will be better off having strong practical experiences augmented with a sound theoretical study, the combination of which is what is needed in order to elevate teaching quality, a quality that nonetheless needs to be monitored and revisited constantly. Time, ideas, energy, and preparation are all vital; comprehending the whole of DM needs both sound knowledge and extensive professional experience. As such, DM educators need to pay much more effort and time on both teaching and study. This self-development, demanding as it may be, must not be overlooked. Anyone can earn a rudimentary understanding of design management, but the proper talents who will exert powerful influence and affect the integration of practice and theory will need true mastery of DM. Self-development is crucial for design lecturers to stay current and in-tune with real-world design management trends. Therefore, these lecturers are advised to have practical experiences before taking on teaching roles in academia. The connections with other parties and fields is what knowledge sources will be built from. Academics will need to become innovators, not followers; and industry should be the testbed of new ideas and methodology instead of a restrictive ideology. Academics should respond and learn from one another's work through high quality conferences both domestically and abroad that move the field forward instead of sinking energy into more ineffective internal arguments. Inspire and listen to each other's problems instead of performing as cheap labourers and power-hungry leaders.

### *6.3 Design academic action: compulsory, comprehensive and sturdy*

First, the curriculum of design management is proposed to consist of compulsory courses in the bachelor level of design-specific departments which gradually introduce DM principles while building up general managerial thinking together. Such a strategy should be able to methodically assess the quality of implementation by faculty on the one hand, and monitor student progress and response on the other. In addition, raising the number of fully-integrated design management programs at the master's level should be done as soon as possible. By doing this, an immediate link with real-world practice and the industry can be established, while further research progress at the doctoral level can ensue when students are equipped with a sound foundational knowledge of DM theory. Furthermore, success of such a curriculum need not be only measured in relation to industry performance. Integration and learning outcome should instead be measured based upon each individual aspect and study motivation.

Second, design courses should encompass a wider and more comprehensive set of skills, such as language ability and global viewpoint, in addition to training in core design and creative thinking skills. Staying up-to-date on international trends and observing from many different perspectives both require strong language abilities with a solid foundation, therefore students should be required to develop effective communication strategies and master whatever language is most relevant for their area of interest, which need not necessarily be English. In addition, the rapidly-changing market, both locally and internationally, demand that students develop a global awareness. A global perspective is essential for design management, and again, cross-country, cross-discipline, and cross-culture should be one of the main drivers for such courses in Taiwan. Formulating special projects with international students and different fields talents in unfamiliar surroundings and dissimilar implementation methods can help push students to adapt to a global perspective, analysing and dealing with difficult problems and exploring their creative vision. Exchange student programs is another way to prepare student for the global market and help them realise where they stand in the competitive global market. Such training is not about learning all the subjects and amassing knowledge, it is about comprehending the abilities of cooperation and the flexibility of solving problems when employing different views and methodologies.

Third, care must be taken to not overwhelm or misguide students in their DM journey. For design students, the learning space should approached be systematic, and should consist of aesthetic, material, structural, and marketing components. Making use of existing courses and training for creativity and practical design skills cannot be neglected, but neither should be the broader theoretical DM foundations, even at the bachelor's level. Instruction and study in class is no longer enough for postgraduate students to think proactively, analyse any problem quickly or formulate solutions or strategies. Interaction and exchange with different disciplines and cultures should be approached with a variety of techniques, such as seminars, modulated visiting, workshops...etc.

Without selecting or limiting their qualifications or abilities, design students are suggested to accept and partake in special subjects and courses for a certain portion of their design management study. Designers should consider their attitude much more deeply, as that can be more essential than design skills themselves. In terms of learning design, students are better of first learning how to manage themselves; be patient, passionate, active, and to focus on strengthening their abilities to face issues, solve problems, and take part in teamwork; building



up management concepts, listening, watching, learning, and thinking with more consideration of as many different directions as possible. The educational board is suggested to build a DM foundation of industrial upgrading through completed design management pedagogy, arranging it as a compulsory subject is highly recommended. Placing more effort on indicating design capacity, as well as winning the industry's trust in order to build up stronger connections. Furthermore, teaching and studying in class is no longer enough. They should have more effective seminars, moderate visitations, and teaching demonstrations. On the theoretical side, more sources should be directed towards encouraging related research, publication, doctoral theses, which can be done by exchange and interaction.

The language used to teach and the students and prepare them for recruitment has a highly-intangible influence. International language skills are needed to level the playing field, especially for creative needs and culturally diversified programs like design management. National policies often look towards industry directions, economic shifts, and government support when being considered. Those cannot be the only measure of importance, as they can hinder the advancement of DM education if strictly adhered to.

#### *6.4 The Industry should believe positively and engage proactively*

Having confidence in this innovation can bring more value in the long-term and establish a cycle of positivity on the whole. Recognizing and accepting the possibility of failure should not be ignored, as excellence is often reached through the road of failed experiences that are learned from. Working with open minds, getting in touch with the international DM tide, sharing personal experiences and market predicament, believing that design talents have the ability to morph itself in specialized forms for Taiwanese culture and context, thinking optimistically and appreciating the combination of design thinking and management strategy, these are all things that academics and creative people have to work hard to achieve in order to verify the value of DM for businesses and gain their trust.

When those beliefs are strongly held, more active reaction will ensue. More job opportunities and placements will be offered without undervaluing DM or eroding or diluting its essence. Although the personnel cost issue is quite sensitive economically, the benefit is that the quality of employers who have an understanding and appreciation of DM will have a better platform and environment upon which to bring the talent and creative vision of their employees into fruition. Designers should be engaged throughout the whole development process, from beginning to end. As such, effective development in the Taiwanese design industry will rely on people to build the system, not the system itself. Furthermore, entering into vicious circles of argumentation and power-struggle should be avoided at all cost, as the aim is to move away from the mechanical production and old factory-driven thinking, seeking the value behind products that is not monetary.

Frequent interaction and exchange is the basis of formulating a stronger connection, and a lasting and healthy relationship in the corporation is in reality based on trustful respect and proper communication. The last thing the industry should expect is whole-hearted subsidy from the government and other authorities. For sure, the national design educational authority have the influence to drive and direct the development of creative industries. However, the tendency of only depending on official support as opposed to self-reliance, resiliency, and independence from external pressures should be the first passage of action. Many things can be done even in the face of financial difficulty, such as holding relevant DM workshops, seminars, and other low-cost but high-value activities. The complexity of DM demands that it cannot be driven forward by only one of few fields; it demands cohesive and cooperative work from many intersecting and non-intersecting design areas and disciplines.

The findings, discussion, and case evaluations all agree that academia itself should be the first line of action to deal with the design management pedagogy in Taiwan. The recommendation is proposed in light of the Taiwanese design management curriculum representatives. A suitable approach was suggested: consider precision; believe positively, and work proactively. The methods of implementation for the three main parties were clearly described: demand both quality and quantity; implement compulsory but comprehensive curriculums; work proactively and respond precisely. Design students are facing constant change both locally and globally, so seeking to answer and solve the general problems of global DM instead of the local one is what design education should aim to achieve. With this strategy, related organizations will have a clearer awareness of design management education and a stronger willingness to partake in the collective effort of moving DM forward into the future. Future research can focus on distinguishing design talents and capacity from practical design experience at the collegiate, university, and post-graduate levels, using qualitative research methods such as phenomenography, in order to better understand and classify the didactic elements which inspire a design management outlook and ethic in students. Moreover, case studies can also be conducted to investigate successful Taiwanese businesses that make heavy use of DM concepts in their business model, especially those in cultural-creative industries, with a focus on progress and experience as opposed to mere bottom-line outcomes.

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