

EXPECTATION OF DESIGN INDUSTRY TOWARDS DESIGNERS'  
COMPETENCIES IN MALAYSIA

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## **DEDICATION**

This thesis is dedicated to my family members and friends especially my mother and father who have helped me, encouraged me, and supported me financially as well as mentally throughout the whole journey.

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## **ABSTRACT**

This thesis examines the industry's expectations on the competencies of an industrial designer in the design industry in Malaysia. The research aims to understand the need of the industry and to serve as a reference for academicians in constructing the curricula for Industrial Design education. According to the literature, competencies of a designer can be categorised into three categories, namely design related knowledge, hard skills, and soft skills. These items were then coded accordingly and used as a guide in constructing the questionnaire. In the selection of samples, a total of 117 companies that recruiting designers were selected from job posting platforms as well as companies that were awarded Good Design Award by Malaysia Design Council. The questionnaire was sent to the Human Resource Department and Design Department through email. Additional copies were also distributed during design exhibitions. In the questionnaire, companies were asked to select critical competencies considered when hiring new designers. As this study is limited to Malaysian companies that hire designers, a total of 32 valid responses were collected in the end. The results indicated that knowledge on design is indeed important as a designer. However, only knowing all the tools and methods for design without actual execution is considered inadequate from the perspective of the industry. Another skill that is considered crucial for a designer is the capability in coming out with original ideas; however, the finding indicates that business mindset, which is an attribute of creating innovative design is not a necessary skill. Last but not least, having the ability to produce informative sketches showing the details on the functions and how to assemble a product is considered more important by the industry than just a pretty and impressive sketch. In sum, the findings highlighted the critical skills of industry needs, and the skills should be emphasised in the current industrial design curriculum.

## ABSTRAK

Tesis ini menyelidik kehendak industri reka bentuk terhadap kompetensi seorang pereka bentuk industri di Malaysia. Penyelidikan ini bertujuan untuk memahami keperluan industri terhadap pereka bentuk industri dan untuk dijadikan sebagai rujukan oleh ahli akademik dalam membina kurikulum pendidikan reka bentuk industri. Menurut literatur, kompetensi seorang pereka boleh dibahagikan kepada tiga kategori, iaitu pengetahuan berkaitan dengan reka bentuk, kemahiran keras dan kemahiran insaniah. Item-item ini kemudian dikodkan dan dijadikan sebagai panduan dalam membina soal selidik. Sebanyak 117 syarikat telah dipilih daripada platform pencarian pekerjaan dan juga syarikat yang dianugerahkan ‘*Good Design Award*’ yang diiktiraf oleh Majlis Reka Bentuk Malaysia. Borang soal selidik telah dihantar ke Jabatan Sumber Manusia dan Jabatan Reka Bentuk melalui e-mel. Borang soal selidik tambahan telah diedarkan semasa pameran reka bentuk. Dalam borang soal selidik, syarikat diminta untuk memilih kemahiran kritikal yang dipertimbangkan ketika merekrut pereka baru. Oleh kerana kajian ini hanya terhad kepada syarikat Malaysia yang merekrut pereka, sebanyak 32 maklum balas yang sah telah dikumpulkan. Hasil kajian menunjukkan bahawa pengetahuan berkaitan reka bentuk adalah amat penting bagi seorang pereka bentuk. Walau bagaimanapun, pereka yang hanya mengetahui semua alat dan kaedah reka bentuk tanpa pelaksanaan yang sebenarnya dianggap tidak mencukupi daripada perspektif industri. Kemahiran lain yang dianggap penting bagi seorang pereka adalah kemampuan untuk menghasilkan idea yang asli; namun begitu, hasil kajian menunjukkan bahawa pemikiran perniagaan, iaitu salah satu atribut untuk mencipta reka bentuk yang inovatif bukan kemahiran yang amat diperlukan. Akhirnya, mempunyai kemampuan untuk menghasilkan lakaran yang bermaklumat dalam menunjukkan perincian mengenai fungsi dan cara menyusun produk dianggap lebih penting oleh industri daripada lakaran yang cantik dan mengagumkan. Sebagai kesimpulan, hasil kajian telah mengetengahkan kemahiran kritikal dari keperluan industri dan kemahiran tersebut harus dititikberatkan dalam kurikulum reka bentuk industri semasa.

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## **LIST OF ABBREVIATIONS**

NPD	-	New Product Development
OBM	-	Original Brand Manufacturing
ODM	-	Original Design Manufacturing
OEM	-	Original Equipment Manufacturing
UIUX	-	User interface and user experience

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background Study

Graduate employability has become a critical global issue, especially in this competitive world (Erni Tanius et.al, 2018; Ministry of Education, 2015). There are plenty of discourses claiming that the root cause of this issue is due to graduates these days are not qualified for the job (Carol Stewart, 2018; N. Seetha, 2018; Erni Tanius et.al, 2018; Hart Research Associates, 2015; Ministry of Education Malaysia, 2015; National Association of Colleges and Employers, 2015; St. Louis Community College & Workforce Solutions Group, 2013; New Straits Times, 2019). The arguments on what is lacking on the graduates is circulating around two opposing poles which is the lack of soft skills and conversely the lack of hard skills. Literature indicated that employers are expecting graduates to acquire soft skills that are easily transferable from classroom to the workplace (Deepa & Seth, 2013) such as problem-solving skill, communication skill, teamwork, leadership and others. (Zaliza Hanapi, Mohd Safarin Nordin, 2013). The graduates today are found to be lacking with these soft skills (Erni Tanius, 2018; Carol Stewart et al, 2016; N. Seetha, 2014; St. Louis Community College & Workforce Solutions Group, 2013). According to Deloitte Millennial Survey (2018), soft skills are believed to be the key to secure the job, as the needs of the market are constantly evolving together with the development and trends of the world. According to New Strait Time (2019), low proficiency in the English language and lack of soft skills including creativity, communication and critical thinking are among the reasons fresh graduates are not ready to enter the workforce. On the other hand, there are also voices saying that graduates are lacking the technical and practical hard skills needed for their own discipline (Malaysia Education blueprint 2015-2025 (2015). Graduates are said to be more theoretical-oriented and lacking in the actual application or execution of what they have learnt from higher education.

Malaysia design industry is still in an infancy stage, especially industrial design. The definition of design industry is unclear in Malaysia context. The closest definition available regarding design industry in Malaysia is defined by DIKN, which has been classified under creative industry with a sub-category of creative multimedia industry (MPKK, 2009). This however shown that there is the lack of clarification where industrial design lies. As industrial design is defined as designing products for mass-production, it can be said that most of the graduates are probably pursuing their career in manufacturing sectors. Based on the findings by Marzuki.I (1999), there are 49% of the graduates pursue their career in manufacturing industry which includes consumer durable products, transportation, furniture, and plastic products. The statistics also shown that another 18% of the graduates involved in other disciplines such as graphic design, interior design, industrial design as consultants. Whereas 33% was involved working in government agency, higher learning institution, art teacher and research institution. However, these findings might not be valid for the industrial design today. The latest data on which industry that hire industrial design graduates are yet to be explored.

However, Ratnasingam.J (2018), claimed that most of the furniture designers were graduated from industrial design programmes. This has resulted in a skill mismatch said Ratnasingam. Designers are said to be lacking in experiences, skills and knowledge in the development of design (Osman, N.S. et.al, 2018). Design education is described to be focusing on theoretical than hands-on vocational operation level skillset which do not necessarily fulfil the needs of the furniture design industry. (Ratnasingam.J, 2018). On the other hand, researcher, Dr.Benny Lim (2015) stated otherwise, where designers nowadays were mostly produced by design education which is mostly hard skill-oriented especially industrial designers. This resulted on the designers today often failed to react to the needs of the society and discover new trends and possibilities of the market.

According to a discussion on the state of design in Malaysia (wREGA, 2012), the design industry is in the infant stage where designers are still designing for the client and not the user or customers. This statement showed that user centred principles almost do not exist in the entire design process. There are also critics saying that the

business and corporations still view design as an afterthought (wREGA, 2012). The discussion also suggested the need for a new breed of designers with the caliber to lead in the business and technology world.

The arguments on what is lacking on the design graduates is circulating around two opposing poles which is the soft skills and in converse the hard skills. The possible reasons to the different demand on competencies from industrial designers might be the different types of industry sectors that they are working for.

With regards to the issues raised by both the design education and design industry, it is questionable what are the skills that designers need to acquire to get employed in different design industries. As design education is meant to produce graduates that can fulfil the industry needs, the current needs of the industry must be first identify first to tailor the syllabus accordingly.

## **1.2 Problem Statement**

The consumer market today is continuously evolving with the new trends and challenges. Unlike in the past, where design in said to be mostly focusing on physical appearance of the product, the new challenges have pushes design to a whole new level with challenges which is more complex and abstract. With the shift of design, several literatures claimed that there is a new demand for the new type off designers who are competent in solving the new design challenges. However, many design education remain more or less the same as Bauhaus School of Design which mostly focus only on design-related knowledge and skillsets. According to literature, Malaysia Design Education is no exception. The literature described that Malaysia Design Education especially Industrial Design Programmes are skill-oriented where students often failed to react to the needs of the society and discover new trends and possibilities for the market. There are various voices also point out that there is a skill mismatch between design industry needs and graduates' capability. This has become one of the main deterrents to the development of innovating new products, especially in Malaysia



furniture design industry. The reason being is that most of the designers in Malaysia furniture design industry are graduated from general industrial design programmes. Graduates from industrial design programmes were often lacking in experience, skills and knowledge in the development of design. Literature also claimed that the shortage of qualified designers as one of the challenges faced by furniture manufacturer in moving forward to Original Design Manufacturer (ODM) category. As education is to produce graduates with the quality that fulfil the industry needs, the types of competencies that is needed to be included in the syllabus is extremely critical. This research aims to investigate the types of competencies Malaysia Design Industry expect from the designers. Literature review will be used to collect secondary data in supporting the findings as well as a survey to identify the types of competencies needed by the design industry which most likely to hire industrial designers.

### **1.3 Research Aim**

The aim of this research is to examine the expectation of the industrial design-related industry in Malaysia towards designers' competencies.

### **1.4 Research Objectives**

- RO1 To identify the expected competencies of designers in industrial design-related industry.
- RO2 To examine the expected competencies of Malaysia industrial design-related industry towards designers.
- RO3 To propose a set of competencies guidelines for Malaysia industrial design curriculum.

## **1.5 Research Questions**

RQ1 What are the expected competencies of designers in industrial design-related industry?

RQ2 How are the expectations different from each design industry?

RQ3 What is the possible intervention for industrial design curriculum in Malaysia?

## **1.6 Scope of Study**

This research is focusing mainly on the companies that hired/ plan to hire designers in West Malaysia.

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## APPENDIX A – Questionnaire

### DESIGN INDUSTRY EXPECTATION SURVEY

The purpose of this survey is to identify the design industry's expectation towards hiring designers. The data provided and the identity of the respondent will be kept confidential. For your information, this survey contain 4 sections and it will take less than 10 minutes of your time. Note that there is no right, or wrong answer and all responses are based on personal experiences and opinions.

#### SECTION 1: DEMOGRAPHIC SECTION

Name: \_\_\_\_\_

Gender: \_\_\_\_\_

Age:

- 18-24
- 25-34
- 35-44
- 45-54
- Above 55

Race:

- Malay
- Chinese
- Indian
- Others

Company Name: \_\_\_\_\_

Company Location: \_\_\_\_\_

Business Type:

- Original Equipment Manufacturing (OEM)
- Original Design Manufacturing (ODM)
- Original Brand Manufacturing (OBM)

Industry Sector:

- Consumer product (Accessories, appliances, home decor, tiles, sports equipment, toys, playground etc.)
- Advertising (Printing, 3D packaging design, graphic design, web design, rebranding etc.)
- IT, Software & Entertainment (Game, software, interactive, animation etc.)
- Exhibit (Events and booth design, environmental signage etc.)
- Furniture, lightings and interior design
- Healthcare or Medical
- Industrial (Manufacturing, construction equipment or tools)
- Education
- Automotive
- Industrial Design Services and consultation
- Other: \_\_\_\_\_

Work Position: \_\_\_\_\_

Working Experience (Current company in years / months) : \_\_\_\_\_

## SECTION 2: COMPANY DESIGN SERVICES

Does your company provide design services (2D/ 3D/ Consultation)

Yes

No

Does your company has own designer?

Yes

No

Does your company plan to hire in-house designer in future?

Yes

No

## SECTION 3: RECRUITMENT OF IN-HOUSE DESIGNER

Who are involved in the screening and recruiting of designer?

*(You may choose more than one answer)*

Human Resource

Head of Design Department

Manager

Senior Designer

Other: \_\_\_\_\_

How do you recruit designers?

*(You may choose more than one answer)*

Job Search Agent

Newspaper

Social Media

Company Webpage

People (Introduce)

Career Fair

Other: \_\_\_\_\_



What are included in the process of recruitment?

*(You may choose more than one answer)*

- Qualification Check
- Portfolio and Resume Check
- Interview
- Personality Test
- Skill Test
- Talent Show
- Others: \_\_\_\_\_

Name the department in your company that hired designer:

*(You may choose more than one answer)*

- Sales and Marketing
- Research and Development
- Design and Build
- Production and Manufacturing
- Others: \_\_\_\_\_

If you were to hire a designer for your company's design task, what types of designer will you choose to hire?

- Graphic Designer
- Interior Designer
- Multimedia Designer
- Industrial or Product Designer
- Architecture Designer
- Landscape Designer
- Fashion Designer
- Interactive Designer, User Interface and Experience Designer
- Animation or Digital Artist
- Crafts Artist
- Service and Strategy Designer
- Other: \_\_\_\_\_

#### **SECTION 4: IN-HOUSE DESIGNER: EXPECTED COMPETENCIES**

If you were to hire new designers for your company, what are the requirements you would consider before hiring? Below are the general background, skill and knowledge of a designer. Please check all that apply to your company (you may answer based on any types of designer, but preferably industrial or product designer.)

##### **GENERAL BACKGROUND**

Educational Background:

- Art
- Science (Technology and Engineering)
- No exact preferences

Education Level:

- SPM
- Diploma
- Bachelor's degree
- Master's degree
- Doctoral Degree
- No exact preferences

Working Experience:

- Below 1 year
- 1-3 years
- 3-8 years
- 8 years and above
- No exact preferences

University:

- Local
- International
- No exact preferences

Languages:

- Malay
- English
- Mandarin
- Tamil
- Other: \_\_\_\_\_

Awards:

- Academic
- Competition
- Not important

Gender:

- Male
- Female
- No exact preferences

## **SKILLS AND KNOWLEDGE**

### KNOWLEDGE

*(You may choose more than one answer)*

- Understand the process, principles, techniques, and tools for design.
- Understand the theory & techniques to compose, produce & perform work of music, dance, visual arts, drama & sculpture.
- Understand the materials, methods and tools involved in building, construction, and manufacturing.
- Acquire basic concept and function on computer and electronics (circuit boards, processors, chips, electronic equipment as well as computer hardware and software).
- Understand basic principle on marketing and entrepreneurship (marketing strategy, business plan, etc.).
- Principles & methods for describing the features of nature (environment, plant, animal & human life).
- Understand the concept of engineering, science, and technology in design.

Understand standard design practice in human factors and safety in design.

Other:

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### Hard Skills

*(You may choose more than one answer)*

Able to perform beautiful sketches in pencils, water colours, rendering markers etc.

Design and propose new original ideas.

Perform ideas with sketches effectively (detail, instructions, specifications about how device/parts work, fabricate etc.

Perform 2D graphic design using computer graphical software.

Use 3D modelling software to perform realistic computer rendering, engineering drawing.

Handle /operate tools and machine.

Writing computer programs application, etc.

Construct conceptual model, mockups, prototypes.

Able to perform marketing survey, trend analysis and marketing strategy.

Able to select suitable material, manufacturing process for production (consider costing, durability, etc).

Able to apply ergonomics into design.

Deal with form & functions based on product semantics.

Other: \_\_\_\_\_

### Soft Skills

*(You may choose more than one answer)*

Express ideas clearly, effectively, and confidently in spoken and written communication.

Listen actively and give feedback.

Negotiate and reach agreement.

Communicate with interactants from different culture.

Handle work schedule effectively.

Face pressure generated by work and surroundings.

- Build good relationships, interact and work effectively with others to achieve the same objective.
- Lead a project.
- Understand and take roles of both the team leader and team member.
- Contribute on planning and streamlining of group outcomes.
- Able to understand the user and client needs or feelings.
- Look for and manage relevant information from different sources.
- Make decisions based on evidence.
- Identify business opportunities, analyse the needs & product requirements to create a design.
- Always be curious and thirst for knowledge.
- Accept new ideas and have capability for autonomous learning.
- Look for ideas and find alternative solutions.
- Know and respect the attitudes, behaviors and beliefs of others.
- Able to mentally construct, shape and understand information and externally communicate it.
- Belief on own experiences, abilities and skills.
- Able to pursue relevant and reliable knowledge to do judgement.
- Passionate and enthusiastic on work.
- Positive thinking.
- Others: \_\_\_\_\_

## **SECTION 5: TRAINING AND DEVELOPMENT PROGRAMS**

Does your company provide training and development programs for designers?

- Yes
- No

What types of training and development programs do your company provide?

- Orientation Training
- Technical Skills Development Training
- Soft Skills Development Training
- Product and Services Training
- Mandatory Training

Further Education Programs

Other: \_\_\_\_\_

#### OUTSOURCE DESIGNER

Name the company(s) or platform(s) you outsource for designers:

*(Skip if your company does not outsource designer)*

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#### END OF SURVEY

Thank you for your time. For more information please contact 019-8839464 or  
ahapril428@gmail.com (Ho Ying Ying).

## APPENDICES B – Industrial Design Ability Index (Yan, L.L et. al., 2016)

**Table 2.** 13 categories and 43 indicators of ID abilities.

	Categories	Index	
1.	Graphical ability	1-1	Able to perform 2D graphic design
		1-2	Able to sketch
		1-3	Able to perform computer rendering
		1-4	Able to use computer graphical software
2.	Modeling ability	2-1	Able to construct conceptual model
3.	Art appreciation	3-1	Understand the usage of color, shape, and texture in industrial design
		3-2	Understand product semantics
		3-3	Familiar with design history and contemporary design issues
4.	Engineering and manufacturing	3-4	Understand the influence of culture in design
		4-1	Have good understanding of mechanical and molding concept
		4-2	Able to create and read engineering drawing
5.	Personality trait	4-3	Familiar with manufacturing process and materials
		5-1	Acute insight
		5-2	Communication skills
6.	Design trend	5-3	Team work
		5-4	Independent operational ability
		5-5	Self-disciplined
		5-6	Time management skills
		5-7	Endurance and perseverance
		5-8	Professional ethics and literacy
		6-1	Keep current with design trend and technology innovation
		6-2	Aware of fashion and design trend
7.	Product planning	6-3	Able to gather useful design ideas
		6-4	Keep current with international design trend
		6-5	Able to read design-related articles written/printed in different languages
		7-1	Able to perform marketing and planning tasks
		7-2	Able to conduct systematic and logical thinking
8.	Packaging	7-3	Able to draft proposal with graphic integration
		7-4	Able to perform marketing survey
		7-5	Able to perform marketing strategy
		7-6	Able to perform trend analysis
		8-1	Able to perform product packaging design
9.	Eco-awareness	8-2	Able to commercialize new product
		8-3	Able to perform exhibition design
10.	Law and regulation	9-1	Knowledgeable of the concept of Green Design
11.	Technology	10-1	Knowledgeable design patent laws
		10-2	Knowledgeable of product design safety specification
12.	Human factors	11-1	Proficient in computer-aided design
		11-2	Proficient in 3C products and mechanism design
		12-1	Knowledgeable of human-machine interface design
13.	Innovative	12-2	Knowledgeable of standard design practice in human factors
		12-3	Knowledgeable of ergonomics design
		13-1	Creative thinking and planning

2D: two-dimensional; 3C: computer, communication, and consumer electronics.

## APPENDICES C – Most important skills across all design occupations (UK Design Council, 2018)

**Table 5: 13 skills that differentiate design**

Skill	O*NET 'domain'	Importance premium	O*NET definition
Design	Knowledge	40%	Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
Operations analysis	Skills	23%	Analysing needs and product requirements to create a design.
Programming	Skills	22%	Writing computer programs for various purposes.
Drafting, laying out and specifying technical devices, parts and equipment	Work Activities	20%	Providing documentation, detailed instructions, drawings, or specifications to tell others about how devices, parts, equipment, or structures are to be fabricated, constructed, assembled, modified, maintained, or used.
Engineering and technology	Knowledge	18%	Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures and equipment to the design and production of various goods and services.
Fine arts	Knowledge	15%	Knowledge of the theory and techniques required to compose, produce and perform works of music, dance, visual arts, drama and sculpture.
Technology design	Skills	10%	Generating or adapting equipment and technology to serve user needs
Building and construction	Knowledge	9%	Knowledge of materials, methods and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
Computers and electronics	Knowledge	5%	Knowledge of circuit boards, processors, chips, electronic equipment and computer hardware and software, including applications and programming.
Geography	Knowledge	4%	Knowledge of principles and methods for describing the features of land, sea and air masses, including their physical characteristics, locations, interrelationships and distribution of plant, animal and human life.
Visualisation	Abilities	3%	The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
Thinking creatively	Work Activities	2%	Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.
Interacting with computers	Work Activities	1%	Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.

Source: Ortus Economic Research analysis of the O\*NET database



## LIST OF PUBLICATIONS

### Journal Articles

Ying, H. Y., & Othman, A. M. A. (2020). Expected Competencies of Companies towards Designers in Malaysia. *International Journal of Business and Technology Management*, 2(1), 54-65.

### Conference proceedings

Ying, H. Y., & Othman, A. M. A. (2019). Expected Competencies of Companies towards Designers in Malaysia. *In 2019 Kuala Lumpur International Multidisciplinary Academic Conference, 23 November, 2019.*