

UNIVERSITI PUTRA MALAYSIA

INFUSING ECONOMIC CHARACTERISTICS INTO JEWELLERY DESIGN PROCESS

HEMA ZULAIKA BINTI HASHIM

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By

HEMA ZULAIKA BINTI HASHIM

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

July 2019

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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Chairman: Professor Hj. Khairul Aidil Azlin bin Abd Rahman, PhDFaculty: Design and Architecture

Design is the ultimate creativity differentiator for a designer in producing much sought after jewellery creations in a highly competitive market. To achieve this, a designer should have a firm grasp concerning needs, science, technical knowledge, creativity, time frame and costing. With full understanding of the factors mentioned, the question hence emphasizes on if the design observes to the economics of production which in return provides added value to the customer. Therefore, a rigorous design process in an evolving economic consideration is crucial because a design process of an adornment should adhere to the acquiring capability of consumers' reality. This study is aimed at developing a design process framework for jewellery designers as a guide to satisfying consumers' needs. Focusing on jewellery design, the key objective of this research is classified under three domains; to identify the characteristics of jewellery products in relation to design and economics components, to formulate a design and economic framework model which act as functional guidelines for jewellery design industry and to integrate business thinking into jewellery design process. Designers are paving ways to deliver good designs which translates into tangible economic value to each customer. So, seen as a creative research, this study's outcome from the framework developed are subjective and conceptual where mixed methods of qualitative and quantitative analysis are applied. This study was initiated with interviewed designers and jewellers and distributed the questionnaires to 120 respondents in view of practical outcome through the development of a DIAMOND matrix for Designomics framework based on the notion of design and economics integration in jewellery design. To realize the measurement of data in this research, the SPSS Software was used to measure Principle Component Analysis, descriptive analysis and hierarchical cluster analysis. The findings exhibited four main characters at the core of Designomics framework: Humanistic Value. Sentimentality. Economic Sustainability and Satisfaction Tolerance. The dissertation concludes with a discussion on the significance of jewellery designs with economic view that should influence Malaysia's jewellery industry.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PENYEPADUAN KAREKTERISTIK EKONOMIK DALAM PROSES REKA BENTUK BARANG KEMAS

Oleh

HEMA ZULAIKA BINTI HASHIM

Julai 2019

Pengerusi : Prof. Hj. Khairul Aidil Azlin bin Abd Rahman, PhD Fakulti : Rekabentuk dan Senibina

Reka bentuk adalah perbezaan kreativiti yang muktamad di dalam penghasilan barangan kemas secara kompetitif di pasaran. Untuk mencapai matlamat ini, seorang pereka harus mempunyai pemahaman yang tepat mengenai keperluan, sains, pengetahuan teknikal, kreativiti, jangka masa dan kos. Dengan pemahaman jitu tentang faktor-faktor yang disebutkan, maka persoalan yang perlu diberi penekanan adalah kepada reka bentuk yang mematuhi ekonomi pengeluaran yang memberikan nilai tambah kepada pelanggan. Oleh itu, proses dan perkembangan reka bentuk yang berdaya saing di dalam ekonomi adalah penting kerana proses reka bentuk barang kemas harus mematuhi keupayaan untuk merealisasikan kehendak pengguna. Kajian ini bertujuan untuk membangunkan rangka kerja proses reka bentuk sebagai panduan kepada pereka barang kemas untuk memenuhi keperluan pengguna. Fokus utama di dalam rekaan barang kemas; objektif penyelidikan ini diklasifikasikan di bawah tiga bahagian; untuk mengenalpasti ciri-ciri produk barang kemas yang mempunyai kaitan dalam komponen reka bentuk dan ekonomi, untuk merumuskan model rangka kerja reka bentuk dan ekonomi sebagai garis panduan dalam industri barang kemas, dan integrasi corak pemikiran ekonomik dalam proses rekabentuk barang kemas. Para pereka perlu berusaha untuk menghasilkan reka bentuk yang baik untuk diterjemahkan kepada nilai ekonomi yang ketara kepada setiap pelanggan. Oleh itu, dilihat sebagai penyelidikan kreatif, hasil kajian dari rangka kerja yang dibangunkan adalah subjektif dan konseptual di mana kaedah campuran analisis kualitatif dan kuantitatif telah digunakan. Kajian ini menjalankan temubual bersama pereka dan tukang barang kemas serta mengedarkan borang kaji selidik kepada 120 responden yang terlibat untuk membangunkan matriks DIAMOND bagi rangka kerja Designomics berdasarkan rekaan dan integrasi ekonomi. Untuk merealisasikan pengukuran data dalam kajian ini, perisian SPSS digunakan untuk mengukur analisa prinsip komponen, statistik deskripsi dan analisa hierarki cluster. Penemuan ini telah mengenalpasti empat ciri utama dalam teras rangka Designomics iaitu Nilai Kemanusiaan, Sentimentaliti, Kemampanan Ekonomi dan Toleransi



Kepuasan. Disertasi ini diakhiri dengan perbincangan mengenai kepentingan reka bentuk barang kemas yang menjurus kepada pandangan ekonomi untuk mempengaruhi industri barang kemas di Malaysia.



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This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Hj. Khairul Aidil Azlin bin Abd Rahman, PhD

Professor Faculty of Design and Architecture Universiti Putra Malaysia (Chairman)

Hassan bin Alli, PhD

Senior Lecturer Faculty of Design and Architecture Universiti Putra Malaysia (Member)

Raja Ahmad Azmeer bin Raja Ahmad Affendi, PhD

Associate Professor Faculty of Design and Architecture Universiti Putra Malaysia (Member)

> **ROBIAH BINTI YUNUS, PhD** Professor and Dean School of Graduate Studies Universiti Putra Malaysia

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Signature	
Name of Chairman	
of Supervisory	Drofossor
of Supervisory	
Committee:	Dr. Hj. Khairul Aidil Azlin bin Abd Rahman
Signature:	and a state of the
Name of Member	
of Supervisory	
Committee:	Dr. Hassan bin Alli
Signature:	
Name of Member	
of Supervisory	Associate Professor
Committee:	Dr. Raja Ahmad Azmeer bin Raja Ahmad Affendi

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LIST OF ABBREVIATIONS

CEO	Chief Executive Officer
CIBJO	The World Jewellery Confederation
DIGMA	Design Industry Group of Massachusetts
ETF	Exchange-Traded Fund
FGAJM	Federation of Goldsmiths and Jewellers Associations of Malaysia
GBIT	Gold Bullion Investment Trust
IID	Innovation and Invention of Design
IK	Infinity Knot
KJ-Method	Kawakita Jiro Method
LBMA	London Bullion Market Association
MIJF	Malaysia International Jewellery Festival
MITI	Ministry of International Trade and Industry
NPD	New Product Development
PCA	Principal Component Analysis
PGA	The Penang Goldsmith Association
SME	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
US	United States
WGC	World Gold Council

CHAPTER 1

INTRODUCTION

1.1 Introduction

The chapter introduces several exposures on knowledge in the jewellery design development process. Information obtained via interviews with selected jewellers attempt to identify the process and style creation in this particular segment. The research background establishes the significance of the research, aim, objectives, issues and scope of the research. Finally, the thesis structure is summarized.

1.2 Research Background

Jewellery designers have relied heavily on their imagination and experience to design unique and quality pieces that contribute significantly to the success of the company. According to Hurff (2015), the designer, understanding and perception of the product with the application of technical communication is part of the design process. The technical communication is an essential factor for the interpretation on nature of design for a successful business implementation. As a result, the design nominates as a vital part of the product development process. In addition, in the jewellery field, the process of design is pivotal as the technical communication acts as an interface where a customer communicates their desire and for the designer to fulfil the product expectation which offers value in the consumer's perspective. With a clear understanding of the customer's preference, a designer with firm economic thought and design process knowledge should possess the ability, attitude and aptitude to adhere the designing structure expectations.

Dennis (2016), states psychology of humans is imperfect, and these imperfections could impact economic decisions. Besides that, Mallard (2015), revealed that the indecisive ability of humans in decision making is classified as "bounded rationality". The "bounded rationality" is a term used to acknowledge the indecisive decision-making capability in humans. With deep understanding and appropriate application of the statements cited, a designer and jeweller are able to influence a customer's decision making for a successful business environment. The design is an essential tool for companies to create added value for profitability in the current business environment (De Chernatony et al., 2011), and an essential helps customer, who focus on meaningful consumption to identify with certain social status (Elliott et al., 2011).

Nowadays, there proves to be inadequacy on documentation pertaining to the standard process development design. Existing design process models focus on multi-disciplinary industry product design, and there is no specific for jewellery designing. Improvement is made in the case of a designer lacks emphasis on

economic consideration, which affects the flow of design process on finalising a definitive price quotation of the final product (Fadhil, 2017). In any price quotation stage, the term economy used refers to the economic disclosure of what to produce, how to produce and for whom to produce. According to CEO of Fa'iq Jewels, Mr. Fazal (2017), the jewellery designing process determines the success in design management. It is critical to acknowledge and address important exceptions to explore economics benefits at the sketching stage because this failure will lead to the jewellery designer being unable to successfully fulfil customers' needs in terms of the economics emphasis on design process. Economics is the factor to be recognised in production, distribution and consumption of good and services.

Hence, study is valuable to determine the design and economic impact on the reliability of the jewellery design process. In actual practice, resources literally mean duration, knowledge, equipment or tools and manpower. There is a space for designers to learn from the economist in creating better product. As such, economics help illustrates how the designer interacts with the design process to realize their diverse goals according to the customers' needs and want and even limited resources.

1.3 Research Problem

This study seeks to understand design process in jewellery. However, since design process is a contributor to economic understanding, it is not possible to look at design process in isolation from economic view. Rather design process needs to be understood within the context of economic value overall to reveal its importance relative to other elements.

A global perspective from the research scenario on the jewellery design sector, indicated by Gaetano (2007) and Heskett (2009), due to the lack of connection between designer intuition and customers expression of desires in the design process, humans will not be able to shape their environment to satisfy their needs in order to provide a satisfactory and meaningful living condition. Gaetano added that specifically for jewellery, a consumer when making a purchase should not be indifferent to the value and contribution that the item has for other people. Current study on the Malaysian context of jewellery design sector is missing on a holistic point of view which should focus on economic value and business strategy. Therefore, this study lacks design concepts that include economic exposure to jewellery design processes:

a) Lack of economic perspective in jewellery design.

From the perspective of the jeweller, a recent research by Hashim (2015) revealed that the design domain of the products lacks economic perspective. The jewellery design process shows there no economic contribution to the design. Designers will therefore be unable to integrate their designs into business thinking. The rationale behind this empirical study is to establish a clear context for quality design with other sensory aspects of value and commercialization.

b) Insufficient of economic design recognition.

Heskett (2008), points out that the economics discipline does not recognize design. Design discipline is perceived as non-affective in communicating the economic role, although it is a professional activity carried out within the business context. Heskett highlights design as a thought process as the basis for Simon's professional activities and explains why design is rarely considered in economic theory. He stated that the economy works on three levels: the individual, the market and the whole economy. The center of interest in traditional economics, not individuals or companies. This highlighted two important design considerations; the development of how and how goods and services are used for the marketplace.

c) Inadequate awareness of economic value add.

De Mozota (2006) in her article for the Design Management Review mentioned that the lack of awareness can result in lack of recognition and support from a company's management. The lack of the said awareness relates to the business inefficiency of growth and profitability. In short, all the factors will result in the jeweller's incompetence to fulfil customer's needs. Initially, Sarmah (2017), mentioned that the dynamics business environment demands 'value' to be co-created with larger group of stakeholders and especially with customers as partners for development and growth. She added, engaging in value creation with customers by largely seeking customer involvement in designing features of products and services that foster customer action and impart a sense of pride and confidence in them.

By conducting this study, it is possible to identify the relevant factors for jewellery design process concentrated on consumer-based and explicitly addressed economics perspectives within design and how it was mainly pursued as a design activity.

1.4 Research Questions

The research questions for this study are answered by the following questions:

- 1) RQ1: What are the characteristics of jewellery products in relation to design and economics components?
- 2) RQ2: How jewellery design characteristics and economics consideration are formulated as functional guidelines for the jewellery industry?
- 3) RQ3: How to integrate business thinking into jewellery design process?

1.5 Aim and Objectives of the Study

The study was aimed at gathering adequate economic consideration in the design development of jewellery product. This affects what to produce, how to produce, and who to produce. With a broader understanding of the theory, this study addresses the economic contribution that designers, jewellers or business managers and manufacturers make to these three goals:

- 1) To identify the characteristics of jewellery products in relation to design and economics components.
- 2) To formulate a design and economic consideration as functional guidelines for the jewellery design industry.
- 3) To integrate business thinking into jewellery design process.

1.6 Scope of the Study

The research explores both the perspectives of the professional designer and the industry of jeweller, manufacturer and supplier. The study explores the designer work and decision-making made during the product development stage. This study specifically investigates successful design characteristics, which provides a clear understanding of economic consideration in the early conceptual stage of jewellery design process. This understanding shall lead to the designer or manufacturer and consumer involvement in the product development process; particularly in the enhancement, marketability and value of jewellery product.

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The research is conducted to increase the effectiveness of independent jewellers or entrepreneurs in Malaysia. Therefore, an in-depth study of jewellery characteristics development is conducted. The information gained is used to develop a new approach attempt to facilitate the jewellery designers to develop new products that satisfy user preferences. This is achieved by incorporating the characteristics of a profitable product in order to increase the business success rate. The study provides an analysis of jewellery that can lead to a unique idea focusing on expressive jewellery sets and the significance of existing design. The achievement of the design process attributed to the idea and philosophy was the result of valuable experience. A designer must be customer center and guarantee the highest quality in products and designs. Jewellery is a fine art, a human venture considered feasible by real design standards. These factors make designs highly fashionable, contemporary and efficient (Carol & Jocelyn,2014).

The study will identify consumers' preferences for a particular jewellery design and demand that seemed to have evolved. With its extensive exposure to many other aspects of requirements, the perception and importance of development changes in the design process. The importance of jewellery designs for the current market will also be affected.

1.7 Significance of the Study

This research is an important step in determining whether younger designers know the basis of their design work process. In the creation of sophisticated modern design, traditional values should not be neglected. The designer's knowledge and awareness are significant for the new proposed methodology to be fully appreciated for the incorporation of culture in their designs. Designomics understanding can be adapted to contemporary design where the hybrid of old and new breed of jewellery paves way to create evergreen concepts towards rational purchases.

This research will be beneficial for academicians, designers, jewellers, researchers and those involved in the field, productions and marketing of gold and silver craft, jewellery and other related disciplines. In the meantime, this research will also be beneficial to governmental sector in dignifying Malaysian expertise particularly in the jewellery industry. It will indirectly introduce DESIGNOMICS jewellery approach both locally and abroad.

1.8 Structure of Thesis

There are six chapters in total and each chapter is associated with each stage of the research progress.

Chapter 1: Introduction – The chapter provides an overview of the research background, research objectives, study scope and thesis structure.

Chapter 2: Literature Review – This chapter presents a review of important research issues. It provides an overview of designing development and economic consideration view in design process through references to international studies and deeply focus on Malaysian context. The emerging economics values to give insight

about what these economic really are and why designer need to gain knowledge on that matters.

Chapter 3: Research Methods – This chapter describes the methods undertaken in this research. The research plan, data collection process, source of data and method of data analysis are explained. It presents the conceptual framework integral to the foundation of this study. A new strategy is being proposed at the end of this chapter.

Chapter 4: **Analysis and Findings**– This chapter presents the analysis and findings of the success of jewellery design through the Designomics Framework. The validation involves product users and detailed technical specification of the product design.

Chapter 5: Discussion – This chapter reports on the factors that influence the development of the characteristics of a jewellery design process. Based on this conclusion, a new extended framework for the Designomics conceptual approach are proposed.

Chapter 6: Conclusion – This final section is a summary of findings from various data sources. This chapter also describes the limitations and novelty and practical implications of the study for further research.

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BIODATA OF STUDENT

Hema Zulaika Hashim is a senior lecturer of Faculty of Art and Design, Universiti Teknologi MARA (UiTM), Shah Alam, specializing in metalsmithing and jewellery design, since 2006 till present. Her educational background, Hema is a graduate of the UiTM in Bachelor of Arts and Design in Fine Metal (hons) 2001, and has continued Masters in Design Technology (2005), prior to moving strictly into jewellery design as her profession. In 2019, she obtained her Doctor of Philosophy in Integrated Design (by research) specialisation in Jewellery and Metalsmithing (Design and Product Development), Faculty of Design and Architecture, Universiti Putra Malaysia (UPM). Through her teaching, Hema works to create a lasting sense of curiosity in her students, encouraging them to trust their instincts while also challenging their assumptions through observation, exploration and form-making. Before joining UiTM, she was a jewellery designer, where for about three years worked with a range of clients, from different backgrounds.

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