



**UNIVERSITI PUTRA MALAYSIA**

***VALUE OF CHILDREN'S LUGGAGE USING KANSEI ENGINEERING  
METHODOLOGY***

**WANG MINGRUN**

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METHODOLOGY**

By

**WANG MINGRUN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra  
Malaysia, in Fulfilment of the Requirements for the Degree of Master of  
Science**

**December 2020**

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in  
fulfilment of the requirement for the degree of Master of Science

## **VALUE OF CHILDREN'S LUGGAGE USING KANSEI ENGINEERING METHODOLOGY**

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**December 2020**

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In the past ten years, due to the increase in the frequency of children's long-distance travel, children's luggage companies have begun to design luggage especially for children. Nowadays, many Chinese children have to travel every year. In addition to facilitating children to handle their own belongings and develop their independent skills, having children's luggage can also reduce the burden on parents. However, the probability of children owning their luggage is still low until now. The lack of right value determination of children's luggage has led to parents' low desire to purchase children's luggage. Consumers develop criteria for preference judgement due to their specific values. Consumer experience is considered an important source of competitive advantage, it affects consumer's purchase intention and satisfaction. Thus, it is important to understand the consumer experiences of children's luggage to determine the value of children's luggage. Therefore, to support the sales of children's luggage and enhance the development of children's luggage industry, this study targets to determine the value of children's luggage by using Kansei Engineering methodology based on consumer experience. By evaluating the existing items, the new features of children's luggage were established. The important consumer experiences of children's luggage were identified through using Experience Map. The value of children's luggage was determined through using Kansei Engineering methodology. The findings will help product designers to design a children's luggage with more strategic advantages to support children's luggage sales and improve luggage industry.

**Keywords:** Children's Luggage, Kansei Engineering Methodology, Product Value, Consumer Experience.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia  
sebagai memenuhi keperluan untuk ijazah Sarjana Sains

**NILAI PRODUK TERHADAP BAGASI KANAK- KANAK DENGAN  
MENGUNAKAN 'METODOLOGI KEJURUTERAAN KANSEI'**

Oleh

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Sejak sepuluh tahun kebelakangan ini, peningkatan frekuensi perjalanan jarak jauh di kalangan kanak-kanak menyebabkan banyak syarikat pengeluar barangan telah mula merancang bagasi khusus untuk kanak-kanak. Pada masa kini, ramai kanak-kanak terutama dari negara China banyak melakukan perjalanan setiap tahun. Kanak-kanak yang membawa barangan sendiri bukan sahaja dapat menguruskan keperluan dengan lebih baik dan mengembangkan kemampuan sikap berdikari di kalangan mereka, tetapi juga dapat mengurangkan beban ibu bapa. Walau bagaimanapun, kini, di dapati kebarangkalian kanak-kanak yang membawa barangan bawaan mereka sendiri adalah sangat rendah. Kurangnya penentuan nilai yang betul dari bagasi kanak-kanak menyebabkan keinginan membeli produk tersebut di kalangan ibu bapa adalah rendah. Pengguna mengembangkan kriteria untuk penilaian pilihan kerana nilai spesifik mereka. Pengalaman pengguna di anggap sebagai sumber kelebihan daya saing yang penting, ia mempengaruhi niat dan kepuasan pembelian pengguna. Oleh itu, penting untuk memahami pengalaman pengguna bagasi kanak-kanak untuk menentukan nilai bagasi kanak-kanak. Oleh yang demikian, untuk meningkatkan kelebihan daya saing terhadap pengeluaran, kajian ini telah dibentuk bagi tujuan menentukan nilai produk terhadap bagasi kanak-kanak melalui metodologi Kejuruteraan Kansei. Ciri-ciri semasa bagasi kanak-kanak telah dikenal pasti dengan menganalisa produk yang terdapat di pasaran semasa. Kepentingan pengalaman pengguna terhadap produk bagasi kanak-kanak telah dikenal pasti dengan menggunakan instrumen 'Pemetaan Pengalaman'. Dengan penggunaan instrumen ini, nilai produk bagasi kanak-kanak ini juga telah dapat ditentukan melalui Metodologi Kejuruteraan Kansei. Hasil penemuan kajian ini sudah pasti dapat membantu para pereka bagi mencipta dan mereka bentuk bagasi kanak-kanak dengan memberikan kelebihan yang lebih strategik untuk meningkatkan penjualan produk berkenaan di samping mempergiatkan pengeluaran industri bagasi.

Kata kunci: Bagasi Kanak-kanak, Metodologi Kejuruteraan Kansei, Nilai Produk, Pengalaman Pengguna.



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## LIST OF ABBREVIATIONS

B2C	Business-to-consumer
FA	Factor Analysis
KE	Kansei Engineering
PCA	Principal Component Analysis
PLS	Partial Least Square Analysis
QFD	Quality Function Deployment
UX	User Experience
VoC	Voice of Customer



# CHAPTER 1

## INTRODUCTION

This chapter begins by introducing the research background and identifying the research problem based on the literature review. Next, it establishes the research questions and objectives. It also explains in detail the significance, scope, limitation, and summary of the study. The structure of this study is introduced in the last section.

### 1.1 Research Background

Nowadays, many Chinese children from first-tier cities in China often have to travel every year. According to the Child Passenger Flight Report conducted by Ctrip, which is an online ticketing service company, nearly 70% of Chinese children travelled more than two times in 2018 (Wang, 2019). Taking children out is not easy. In order to ensure the safety, comfort, and pleasure of children's travel, parents need to prepare a lot of things for their children, such as clothes, daily necessities, snacks, study supplies, favourite toys, medicines, and other personal items considered essential for the travel. At the same time, parents also have their own belongings to carry when travelling. In this case, having children's luggage not only facilitates children to manage their own belongings and cultivates their independent abilities, but also reduces the burden on parents (Yue, 2012). As such, it is better for parents to buy children's luggage for their kids.

Chinese parents are willing to invest in growth and education for their children (Hannum & Park, 2012; Wan & Toppinen, 2016; Wang, Shaari & He, 2020). Especially when travelling, parents are more willing to spend money on their children. In 2018, Tuniu Corporation, which is a professional online ticketing company, made an analysis on online parent-child travel consumption and found that the consumption of parent-child travel could be as high as seven thousand five hundred yuan per person (Tuniu Corporation: online parent-child travel consumption, 2018). In this case, as an important product for travelling with kids, parents should be willing to buy children's luggage. However, based on the observations from this study, until now, the proportion of children owning children's luggage is still low.

This study observed 50 families at the airport and 50 families at the train station in Guangzhou, which is a first-tier city in China, from 19th January until 20th January 2019. The observation time was before the Spring Festival, which is the peak period for Chinese parents to travel with their children. Even though

observations were done in such place and time, only nine children had children's luggage at the airport and eight children had children's luggage at the train station. The proportion of children owning children's luggage was less than 20%. In other words, the purchase rate of children's luggage in China is low. This low purchase rate will hinder the development of the children's luggage industry.

## 1.2 Research Problem

The value of a product reflects the consumers' desire to retain or obtain a product (Neap & Celik, 1999). The low purchase rate of children's luggage means that the value of children's luggage cannot stimulate consumers' desire. Yue (2012) indicated that although there are many styles of children's luggage on the market, most of them are not specially designed for children. Actually, children's luggage are small-sized adults' luggage. Owing to the fast development of information and manufacturing technologies, products need to become more and more information-dense (i.e. smart) and personalised (i.e. low-volume/high-variety) to meet user's individual requirements (Zheng et al., 2017). The individual requirements of children are not the same as those of adults and small-sized adults' luggage do not meet the individual requirements of children. Furthermore, consumers have vast choices of product and are becoming more and more sophisticated because the evolutions in product design have caused many equally good quality products to flood the market (Lokman, 2010). Moreover, Chinese parents, which are the consumers of children's products, are increasingly concerned about the quality of children's products as their living standards improve (Wan, Toppinen, & Chen, 2014). Unprofessional children's luggage cannot meet parents' high quality expectations. Therefore, the lack of correct value determination of children's luggage leads to consumers not having the desire to buy the product. This will cause children's luggage to lose their competitive advantages in the children's consumer market.

Randmaa, Howard, and Otto (2012) indicated that it is not tangible goods that the consumers want, what consumers value is what effect these products have on them. Consumers develop the criteria for preference judgement due to their specific values (Hilletoft, Ericsson, & Lumsden, 2010; Randmaa, Howard, & Otto, 2012; Potra et al., 2018). Furthermore, consumer experience is considered an important source of competitive advantage, and once it promotes emotional responses from consumers, it will affect marketing variables, such as purchase intention and satisfaction (Obrist, Roto, & Vaananen-Vainio-Mattila, 2009; Scussel, 2019). It is important to provide a good experience because it affects consumer satisfaction (Liljander & Strandvik, 1997; Scussel, 2019). Therefore, understanding consumer experience is the key for determining the product value. However, based on the summary of this study, previous researchers did not analyse the consumer experience of children's luggage. In total, this study was able to find only five articles relating to children's luggage from the China National Knowledge Infrastructure, which is a key national research and information publishing institution in China. The objective of all of these previous studies on the development of children's luggage was either to beautify the

appearance or develop a function of the luggage. Therefore, due to the lack of understanding of consumer experience of children's luggage, the value of the luggage cannot be correctly determined.

Overall, to support the sales of children's luggage and enhance the development of the children's luggage industry, there is a need to determine the value of children's luggage from the perspective of consumer experience.

Theoretically, Kansei Engineering Type I targets to improve the well-being of humans by exploring the physiological and psychological aspects that contribute to satisfaction (Lokman, 2010). Consumer experience is related to consumer psychology (Desmet, Overbeeke, & Tax, 2001). Kansei Engineering Type I can analyse the influential consumer experience of children's luggage, thereby determining the value of children's luggage from the perspective of consumer experience. Furthermore, the Japanese Ministry of Economy, Trade and Industry (METI) has declared the Kansei value as the fourth value axis for the Japanese industry to 'enhance people's lifestyles and invigorate the economy' (Levy, 2013). Therefore, this study applied the Kansei Engineering methodology to determine the value of children's luggage.

### **1.3 Research Questions**

In order to support the sales of children's luggage and enhance the development of the children's luggage industry, the value of children's luggage needs to be determined correctly. Understanding consumer experience is the key for determining the product value. Kansei Engineering Type I is an appropriate method to determine the value of children's luggage by analysing the consumer experience of the luggage. In order to determine the value of children's luggage, there are three research questions that need to be answered:

- (a) What are the current features for children's luggage?
- (b) What are the important consumer experiences of children's luggage?
- (c) How to determine the value of children's luggage using Kansei Engineering methodology?

### **1.4 Research Objectives**

To respond the research questions, there are three research objectives of this study:



- (a) To identify the current features for children's luggage.
- (b) To analyse the important consumer experiences of children's luggage.
- (c) To determine the value of children's luggage using Kansei Engineering methodology.

### **1.5 Significance of Study**

The purpose of this study is to determine the value of children's luggage to support the sales of children's luggage and enhance the development of the children's luggage industry. The findings will help product designers to design children's luggage that can harmonise with consumer values, thereby improving the competitive advantages of children's luggage in the children's consumer market.

### **1.6 Scope of Study**

The current features of children's luggage were identified by analysing the existing products. The important consumer experiences of children's luggage were analysed using an Experience Map. The value of children's luggage was determined using Kansei Engineering methodology. An Experience Map was created to assist Kansei Engineering methodology in collecting the consumer experiences (i.e. Kansei words) of children's luggage. A research framework for determining the value of children's luggage using Kansei Engineering Type I was formulated.

### **1.7 Limitation of Study**

For children's products, both parents and children are the beneficiaries of the products. Even though parents know their children well, they cannot fully represent the views of their children. It is better to consider the opinions of parents and children when conducting a survey. However, in this study, no children participated in the survey because it was conducted through the Internet and it was not convenient for the children to participate. In addition, children between the ages of 6 to 12 cannot understand the survey questions, hence, cannot answer the questions correctly. The inability of children to participate in the survey is the limitation of this study.

## 1.8 Summary

The study is composed of five chapters and each chapter deals with different aspects of determining the value of children's luggage.

Chapter 1 describes the current issue of children's luggage, research problem, research questions, research objectives, and also significance, scope, limitation, and summary of the study.

Chapter 2 investigates the current statuses of children's luggage. It addresses the research objective of identifying the current features of children's luggage. Next, it introduces the design methods used to determine the value of children's luggage. The information on this chapter will help to formulate the research framework and research design.

Chapter 3 explains the research framework. It can help to understand the design methods used in this study. It also illustrates the research design. The research design covers the research objectives: (a) illustrating the method of identifying the current features for children's luggage, (b) illustrating the method of analysing the important consumer experiences of children's luggage, and (c) illustrating the method of determining the value of children's luggage using Kansei Engineering methodology.

Chapter 4 interprets the results of the current features, important consumer experience, value, and good design elements of children's luggage. It also interprets the result of children's luggage value determination.

Chapter 5 summarises the important results, contribution of knowledge, and recommendations for future research.

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