The Impact of Design for consumers in the Food and Beverage Industry: Design Value and Measurement

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The candidate confirms that the work submitted is his own, except where work which has formed part of jointly-authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others. Further details of the jointly-authored publications and the contributions of the candidate and the other authors to the work is as described below.

Chapters 2-8 will include work which have been published as a joint publication. The details of the publications are:

Nam, K. W., & Carnie, B. W. (2014), Design effectiveness: Building customer satisfaction and loyalty through design, Proceedings of DRS 2014: Design's Big Debates, 1707-1732.

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My contributions on the publications included conducting literature review, modelling, survey and data analyse. I also discussed the results and produced the manuscripts.

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Abstract

How can one justify the investment in design? By considering the relatively frequent modifications of design aspects in the service industry, the significance of justifying design investment should be addressed. In order to be a successful service business, it is critical to manage the design resources and report the outcome appropriately. Given that the main contribution of design can be the role of adding value, this study attempted to interpret the impact of design through the concept of value. Among various value theories, this study determined to utilise Holbrook's typology of consumer value for embedding design perspectives. Holbrook's value typology is an emotional-based holistic understanding of value which can apprehend the root causes of the preference from the customer perspective. In this context, the application of Holbrook's value typology can contribute to the in-depth understanding of design and be extended to the other stakeholders within a business in order to understand a service business holistically for the future study.

However, the greater value for a consumer is arguably not sufficient to argue the importance of design for a business. If design contributes to the greater value, value created by design activities should lead to the greater outcomes of key business phases (such as greater customer satisfaction and loyalty). This study employed statistical approaches to confirm the positive impacts of design upon key business phases quantitatively.

As a result, the key findings and contributions of this study are: (1) proposing **Design Value Typology** which enables a better understanding of design value from customers' emotional causes, and (2) confirming the positive influence of design to the key business phases (in other words, the investigation about a company's efforts for improving design elements and principles can enhance the performance of the company).

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List of Abbreviations

1. General abbreviations

Chapter 2.

GVA	Gross Value Added
NPD	New Product Development
PERVAL scale	Perceived Value scale (Sweeney and Soutar, 2001)
ROI	Return on Investment
S-D logic	Service – Dominant Logic
SERV-PERVAL scale	Service Perceived Value scale (Petrick, 2000)
SMEs	Small and Medium Enterprises
SNS	Social Network Service
WOM	Word of Mouth

Chapter 3.

CATWOE analysis	Customers, Actors, Transformation process, Weltanschauung (worldview), Owners, Environmental constraints
QUAL	Qualitative
QUAN	Quantitative
SERVQUAL measurement	Service-Quality measurement (Zeithaml et al., 1990)
UX designer	User experience designer

Chapter 4.

O-E dimension	Other-oriented – Extrinsic value dimension
O-I dimension	Other-oriented – Intrinsic value dimension
S-E dimension	Self-oriented – Extrinsic value dimension
S-I dimension	Self-oriented – Intrinsic value dimension

AGFI	Adjusted GFI
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
EFA	Exploratory Factor Analysis
GFI	Goodness-of-fit index
NFI	Normed Fit Index
NNFI (also known as TLI)	Non-Normed Fit Index
RMSEA	Root mean square error of approximation
SEM	Structural Equation Modelling

2. Statistical abbreviations and definitions

Adjusted R-squared	The adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance. The adjusted R-squared can be negative, but it's usually not. It is always lower than the R-squared. (source: http://blog.minitab.com/blog/adventures-in-statistics/multiple-regession-analysis-use-adjusted-r-squared-and-predicted-r-squared-to-include-the-correct-number-of-variables, accessed by 05/12/15)
Bootstrapping (statistics)	In statistics, bootstrapping can refer to any test or metric that relies on random sampling with replacement. Bootstrapping allows assigning measures of accuracy (defined in terms of bias, variance, confidence intervals, prediction error or some other such measure) to sample estimates. This technique allows estimation of the sampling distribution of almost any statistic using random sampling methods. Generally, it falls in the broader class of resampling methods.

	(source: https://en.wikipedia.org/wiki/Bootstrapping_(statistics), accessed by 05/12/15)
Chi-square	Applied to a test for, or statistic of, comparison between observed and theoretical values. (source: Oxford English Dictionary online - http://0-www.oed.com.wam.leeds.ac.uk/, accessed by 05/12/15)
Coefficients (Beta, *B*)	Numbers which can be utilised to generate equation. The higher coefficient means that the related variable (X_n) could have greater impact on the result of input Y. For example, in the multiple regression, it is assumed that the equation is as shown below. (where b_0 is y intercept) $Y = b_0 + b_1X_1 + b_2X_2$ Assume that coefficients are as shown below, Intercept = 1 Coefficient b1 = 2 Coefficient b2 = 3 The equation for generating Y is, $Y = 1 + 2X_1 + 3X_2$
Collinearity (of data)	It means that the variance of an independent variables explain in the dependent variable are overlapping with each other and , thus, not each explaining unique variance in the dependent variable. The way to check this is to calculate a Variable Inflation Factor (VIF) for each independent variable after running a multivariate regression (Gaskin, 2012b).
df (Degrees of freedom)	In statistics, the number of degrees of freedom is the number of values in the final calculation of a statistic that are free to vary. The number of independent ways by which a dynamic system can move, without violating any constraint imposed on it, is called number of degrees of freedom. (source: https://en.wikipedia.org/wiki/Degrees_of_freedom_(statistics), accessed by 05/12/15)
F	F-test statistic = Explained variance / Unexplained variance

	Higher number means more accurate explanation of the result. It needs to be greater than 1.0 in order to predict accurately by using followed equation with correlation coefficients
Goodness of fit	The goodness of fit of a statistical model describes how well it fits a set of observations. Measures of goodness of fit typically summarize the discrepancy between observed values and the values expected under the model in question. (source: https://en.wikipedia.org/wiki/Goodness_of_fit, accessed by 08/12/15)
Linearity (of data)	Linearity refers to the consistent slope of change that represents the relationship between an independent variable and a dependent variable. If the relationship between the independent variable and the dependent variable is radically inconsistent, then it will prevent the good result of SEM analyses (Gaskin, 2012b).
p-value (significance)	The p-value is defined as the probability of obtaining a result equal to or "more extreme" than what was actually observed. (source: https://en.wikipedia.org/wiki/P-value, accessed by 04/12/15)
R-squared (R^2)	R-squared is a statistical measure of how close the data are to the fitted regression line. It is also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression. (source: http://blog.minitab.com/blog/adventures-in-statistics/regression-analysis-how-do-i-interpret-r-squared-and-assess-the-goodness-of-fit, accessed by 04/12/15)
T (t-statistic)	The t-statistic is a ratio of the departure of an estimated parameter from its notional value and its standard error. (source: https://en.wikipedia.org/wiki/T-statistic, accessed by 05/12/15)

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Chapter 1

Introduction

1.1 Background of the Study

In the contemporary market, quality is no longer the key differentiator for a brand. Among the marketing activities available, design is arguably acknowledged as the most distinctive method for achieving long-term brand recognition. In addition, unlike technology, design interacts emotionally with people, and it is not easy to emulate a compelling design identity that has been effectively established. Appropriately managed design is acknowledged as the key competence of a business (Holland and Lam, 2014). Design and other business management skills are all in the 'same boat'. Poorly managed design and design activities can be rooted from poor business management skills and vice versa. Thus, the collaboration of various activities and design is the key to sustain a business. Given that management and design are reciprocally related, successful management of a business pertains superior design practices (Holland and Lam, 2014).

Despite its well-recognised impact, it is still difficult to unveil the contribution of design for the success of a project in a distinctive manner. Especially for a small and medium enterprise or a company which has not established a profound organisational culture and brand awareness for design, the appropriate allocation of their limited resources to design is crucial to their success. Without profound but clear and concise business information about their investment in design, a company may have difficulties to put appropriate resources into design activities. The main source of the difficulty may be rooted in the ambiguity of measuring and visualising design contributions.

The main reason for preventing the acknowledgement of design as a key business influencer is arguably the lack of practical research which view design from different perspectives (Yee and Bremner, 2011). In other words, the holistic approaches for understanding the contribution of design can be important for design to be perceived as a key factor of a business. In this context, this research employs the value concept from a business perspective and a mixed methodology (qualitative and quantitative approaches) for understanding design in the service industry. Yee and Bremner (2011) argue

that the bricolage approach (mixed methodology) to the design problems can resolve the stagnant development of design research.

In addition, in order to solve the ambiguity of design in a business, it is arguably critical to address how design affects stakeholders in numbers. In other words, the relationship between customer perception and its consequences (such as satisfaction and loyalty) is worth investigating in a numerical manner. By doing so, value and impacts of design can be acknowledged throughout the organisation. Numerically described results from the quantitative approach is relevant to investigate outcome-based (in this research, customer value for design activities of a service company) evaluation (Teddlie and Tashakkori, 2009).

The goal of this thesis is to answer, "*What design factors* influence the preference of customers for a restaurant (or café)?" by utilising numeric figures for each behavioural step. Therefore, the aim of this research can be summarised as below.

*To develop a visualised method for **evaluating design resources** in order to confirm the impacts of design from customer emotional perspectives.*

By considering this aim, objectives of this study will be addressed in the next section.

1.2. Objectives of the Study

In order to achieve the aim of this research expressed above, the objectives of this study can be determined as follows:

1. To better understand design in the contemporary business situation.
    i. To determine stakeholders who can affect the perception of customers in a business.
    ii. To define the elements and principles of the design agenda.
2. To understand the procedure of confirming the design impact to a business.
    i. To understand and define the impacts of design for consumers
    ii. To understand how consumers perceive the impacts of design
    iii. To determine the best industry sector for testing the proposed models and framework
3. To investigate visualisation methods for evaluating design resources.
    i. To identify gaps by investigating existing research streams
    ii. To review the evaluating tools for design
    iii. To implement design perspectives into the evaluation tool
4. To perform quantitative data analysis in order to confirm the contribution of design
    i. To identify characteristics of data and perform analyses
    ii. To identify improvements within the proposed method for future studies

1.3. Overview of the research method

Figure 1-1 describes the overview of the research method by chronological order with different data analysis methods. As shown in figure 1-1, the backbone of this research is *Soft Systems Methodology*, which allows researchers to compare the results continuously through the progress of the study. This study also employs the mixed methods approach in order to examine the ongoing framework with process-based (qualitative) and

outcome-based (quantitative) perceptions (Teddlie and Tashakkori, 2009). The mixed methods approach also enables the achievement of a profound understanding of design issues (qualitative approach) with the statistical confirmations (quantitative analysis). The detail discussion of the methodologies is presented in Chapter 3 – Research methodology.
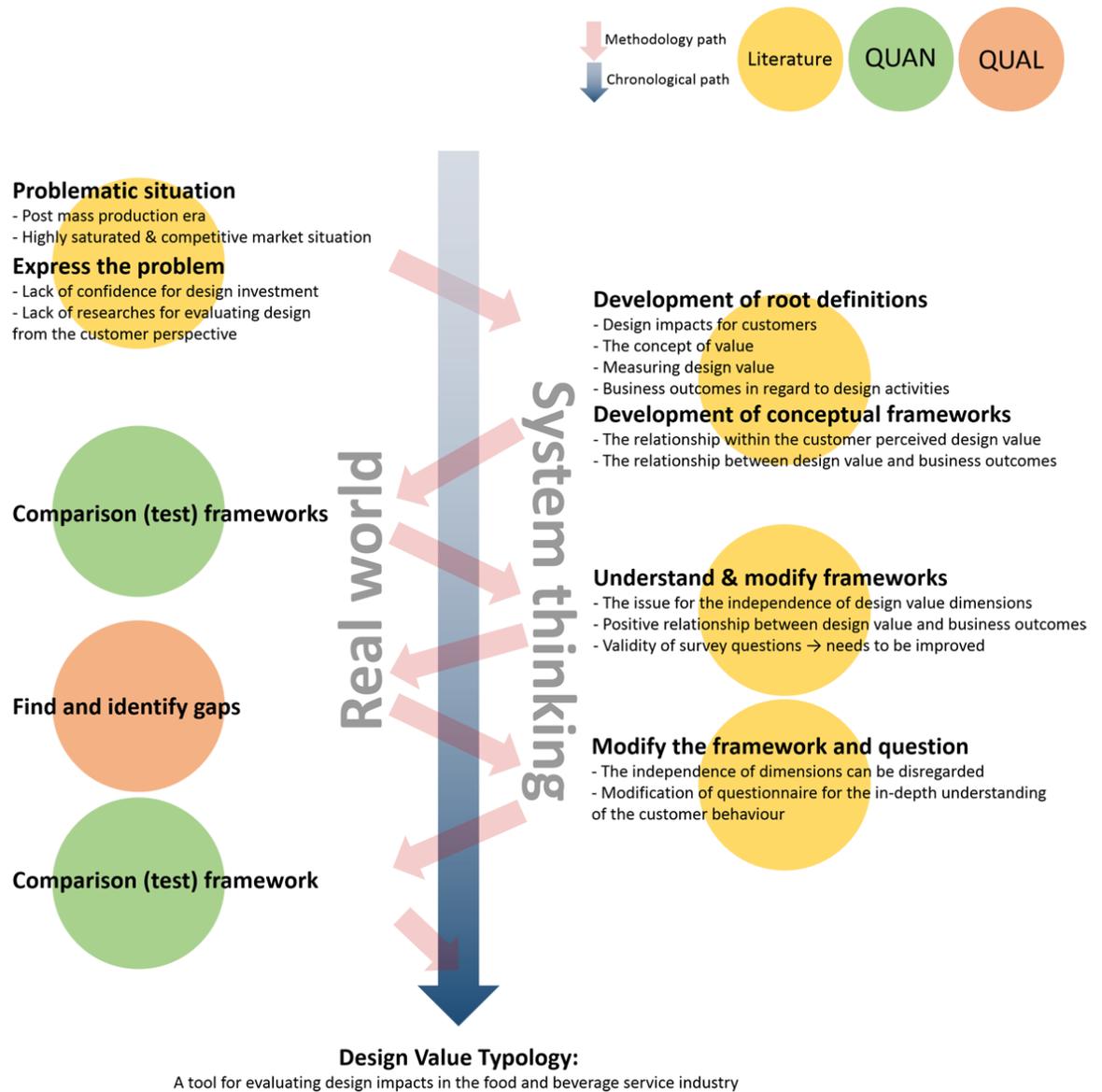
Figure 1-1. The overview of the research methodology

Chapter 2

Literature review

2.1. Introduction

In chapter 2, key concepts and definitions will be discussed. At first, it will be important to deal with the question of why design is so significant in contemporary business. In addition, this introductory section will make a connection between contemporary business and value concepts and how design impacts upon value systems [section 2.1]. Following on from this, the research field of this study, the food and beverage service industry, can be legitimized in terms of service design; the field for study [section 2.2]. The later part of this chapter will be used to undertake in-depth discussions of value and how it can be measured. Particular attention will be placed on the relationship between value and design. Definitions of value and why value needs to be focused from design perspectives are discussed [section 2.3]. The importance of other stakeholders for creating customer value [section 2.4] and the core value concept of this research, the typology of consumer value [section 2.5] are scrutinized. After determining the concept of value, it is necessary to understand key perception phases of customers in order to link the concept of value to business outcomes [section 2.6]. Finally, the literature review for measuring value and design value in both organisational and customer perspectives is undertaken as this is central to the originality of this study [section 2.7].

2.1.1. Design as the key strategy for business

What is design?

This frequently asked question is not unreasonable whenever design research is performed. It may be the reason that design remains a term that has many meanings and applications. Due to its complexity and difficulty for determining design in a single term (Moultrie and Livesey, 2014), it is worth investigating roles and definitions of design in this stage. Definitions of design are summarised and shown in table 2-1.

Table 2-1. *Definitions of Design*

Author(s)	Contents
Kotler and Rath, 1984, p. 17	Design is the ***process of seeking*** to optimize consumer satisfaction and company profitability through the creative use of major design elements (performance, quality, durability, appearance, and cost) in connection with products, environments, information, and corporate identities.
Gorb and Dumas, 1987, p. 151	***A course of action for the development*** of an artefact or a system of artefact; including the series of organisational activities required to achieve that development
Krippendorff, 1989, p. 9	The etymology of design goes back ... means making something, distinguishing it by a sign, giving it significance, designating its relation to other things, owners, users, or gods. … ***design is making sense (of things)***. … design is a ***sense creating activity*** … the product of design are to be ***understandable or meaningful to someone*** … design is concerned with the ***subjective meanings*** of 'objectively existing' objects …
Borja de Mozota, 2003, p. 2-5	***Design = Intention + Drawing*** … Design is a problem-solving activity, a creative activity, a systemic activity, and a coordinating activity.
Black, 2011, p. 65	Design is ***an attitude of mind*** and the ***capacity*** for tactile and visual discernment
Hands, 2011, p. 366	Design is both an ***integral and intrinsic*** part of a variety of business cultures that provides a fertile ***seedbed for strategic growth and sustainable development***

According to the definitions above, certain aspects of design (such as the process characteristic, stimulating senses, deliberate actions, business essentials) can be revealed. In summary, design, considering the scope of this research, can be defined as:

Design is the various activities in a business which deliberately stimulate senses of targeted stakeholders

In relation to this more holistic definition, how can design in this sense be managed to achieve goals? Design and management in a business are often regarded as sharing common characteristics (Borja de Mozota, 2003). However, by considering the definition of design above which aggregates various attributes, design management arguably contains aesthetic aspects of managing appropriate resources.

From the organisational viewpoint, appropriately managed design from the start of a projects is critical. Thus, design cannot be ignored by the management team in the current business situation (Farr, 2013). In other words, the cognition, acknowledgement and execution of design should permeate every level of the organisational activity in order to achieve better utilisation of limited resources (Holland and Lam, 2014). Livesey and Moultrie (2009) classified the investment to design in a firm into two categories: technical design (technical/engineering aspects) and non-technical design (user experience, promotion/branding, and corporate identity). Regardless of difficulties for determining a clear boarder between design activities and other activities within a business (Livesey and Moultrie, 2009), there are efforts of an organisation for classifying design investment. It arguably means that design thinking is being considered throughout the organisation. In addition, by bridging rational and intuitive individuals and departments, design plays the catalyst role for collaborative activities within a company (Holland and Lam, 2014).

Given that design has become to have broader roles in a business, Cooper and Press (1995, p. 46) summarised these broadened roles and meanings of design into six discrete categories: (1) design as *art*, (2) design as *problem solving*, (3) design as *creativity*, (4) design as *a family of professions*, (5) design as *an industry*, and (6) design as *a planning process*. By considering that the focus of this research is to delve into roles of design in contemporary business situations, these categories are relevant to define design for tackling

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current issues. Given the classification determined by Cooper and Press (1995), these can be further discussed by aligning them to the theme of this research study.

First of all, there is little debate that design contains aesthetic characteristics. However, the aesthetic meanings of products and services in the contemporary market situation are not simply derived from the beauty of offerings, but mostly from the role of offerings as a reflection of character for an individual or cultural group. In other words, the contemporary role of design from an artistic point of view includes creating a culture that is acceptable to which it belongs. Secondly, design helps to solve various problems in a business through encouraging the creativity of constituencies. In order to solve various problems in a business, design also permeates through the organisation's process, thus, its contribution can be acknowledged from the planning stage (Moultrie et al., 2006b). Lastly, design encompasses both art and science origin of business activities. In the mass-production era, art-based (industrial) design and engineering design often confront arguments. However, the collaborated skills of these two domains become essential for contemporary business issues. As a result, the field of design is acknowledged in a broad view and the collaboration of different specialists is critical to solve current complex business problems.

The development of technology enables the flexibility of manufacturing and the reduction of operating cost. Customers are now free from the tacit agreement of indistinctive design with lower prices (Addis and Holbrook, 2001). The indistinguishable quality of products and services in the contemporary market also triggers the customers' desire of uniqueness for their consumption. Design, thus, has also broadened its roles and meanings from the customer perspective. From the visual element which can be observed simply at the point of a purchase, design of offerings provides the attached feelings of ownership to the consumption behaviour (Bruce, 2011). These various emotions associated with purchase and ownership are arguably related to customers' perception and future behaviour toward the brand.

By understanding design as the key contributor of a business in a broadened viewpoint, the contribution of design is arguably not restricted to tangibles. Holistically perceived benefits are derived from both tangible and intangible offerings (Holbrook, 1999). In order to utilise design as the competitive advantage, companies employ the concept of design management. The key definitions of design management are outlined below in table 2-2.

Table 2-2. *Definitions of Design Management*

Author(s)	Contents
Blaich and Blaich, 1993, p. 13	Design management is the implementation of design as a formal program of activity within a corporation by communicating the relevance of design to long-term corporate goals and ***coordinating design resources*** at all levels of corporate activity to achieve the objectives of the corporation.
Cooper and Press, 1995, p. 3	Design management is the ***application of the process of management*** to the processes of innovation and design.
Press and Cooper, 2003, p. 204	The implementation of design as a formal activity with an organisation, with a clearly defined relationship to corporate goals, and explicit systems of management, monitoring and resource allocation.
Farr, 2011, p. 48	Design management is the ***function of defining a design problem***, finding the most suitable designer, and making it possible for him to solve it on time within a budget.

The key point of these definitions is the combination of design and management skills. Given that design and management require different practical skills, how to blend the variety of skills is the key to perform design management strategies effectively. The outcomes of the blending can be the structure of the organisation, the methods of evaluating the performance within a company, or eventually products and services for customers. In addition, the scope of these organisation efforts are not necessarily restricted

to the company and its customers. Local communities can also benefit from appropriately designed and managed restaurants. Suppliers of restaurants can also take advantage of the company's effective system (such as improving ordering system in order to minimise confusion and reduce delivering cost). Therefore, the definition of design management can be defined like below:

The manipulation of the system and the brand's offerings in order to maximise the aesthetic value for stakeholders in a business.

2.1.2. The Impacts of Design

In order to be acknowledged as the management essential, preparing and performing the evaluation of design activities are important (Cooper and Press, 1995). However, due to its ambiguous nature (Cooper and Press, 1995), design cannot easily disclose its validity for investment. In order to justify the investment and encourage the management team to put appropriate resources into design activities, it is critical to comprehend and demonstrate the value of outcomes from design activities.

How can design have impacts upon the business performance? How can one justify the allocated resources in design activities? Design can arguably have impacts in two ways: internally (employee and organisational perspectives, e.g. increased work efficiency by improved tools, machines or layout, or improving organisational structure for smoother communication) and externally (customer perspective, e.g. attractive product design, appropriately considered store layout). In both cases, design contributes to encourage stakeholders (employees and customers) working and consuming within the given network. In other words, by adding and creating greater *value* to stakeholders, design helps invigorate a business.

Following on from this, which areas of business can design make a valued contribution? Holland and Lam (2014) identified three main advantages of strategic design: reducing manufacturing cost, providing the uniqueness to products and services, and enhancing choices of a business by creative

design thinking. Given that the perceived value is the key for strategic management (Sánchez-Fernández and Iniesta-Bonillo, 2007), understanding how design impacts upon the perceived value is critical for the strategic management of design. In order to elicit key design elements within the research field, the explicit boundaries of design should be addressed prior to the execution of this research. Thus, the identification of design's key contribution – Product, Environment, Information and Corporate Identity (Gorb in Cooper and Press, 1995) was utilised for building the initial framework of Gorb's questionnaire. This identification facilitates a clearer understanding of a business' design activities from non-professional viewpoints. By contemplating design activities in these four categories, the contributions of design can be clarified from vagueness. These four contribution categories will be utilised for guiding interviewees to respond to design perspectives.

2.2. Service Industry

2.2.1. Service Industry as a Main Actor

Appropriately managed product and service delivery system and its maintenance to achieve positive customer experiences are the key to success in the contemporary market situation (Stickdorn and Schneider, 2011). Given that the contemporary manufacturing techniques enable most companies to produce highly sophisticated products, it is very difficult to anticipate good business results even in a manufacturing company with its appealing products only. More product-oriented companies are looking for opportunities of increasing profit through enhancing and creating service aspects of their offerings (Kotler, 2000). In addition, the border between marketing goods and services has become ambiguous (Pine and Gilmore,1999) and traditional goods becomes "service-fied" (Grönroos, 2000, p.14). The random manner of human interactions in a service provision makes it problematic to manage services in many companies (Meroni and Sangiorgi, 2011). Thus, it is arguably important to manage service aspects of a business in order to deliver greater value to all stakeholders. Definitions and contemporary viewpoints of service

in both service and manufacturing businesses are necessary to be addressed at this point.

Service and manufacturing businesses have discrete origins in the sense that producing and delivering are inseparable (service businesses) or separated (manufacturing businesses) (Brax, 2005). However, despite the separation for producing and delivering, manufacturing businesses also have service characteristics in some respects. Kolter (2000) identified the *service mix* scale depending upon the degree of a company's goods or service dependent as presented below.

*1. **Pure tangible good**: The offering is a tangible good such as soap; no services accompany the product*

*2. **Tangible good with accompanying services**: The offering consists of a tangible good accompanied by one or more services*

*3. **Hybrid**: The offering consists of equal parts of goods and services.*

*4. **Major service with accompanying minor goods and services**: The offering consists of a major service along with additional services or supporting goods*

*5. **Pure service**: The offering consists primarily of a service*
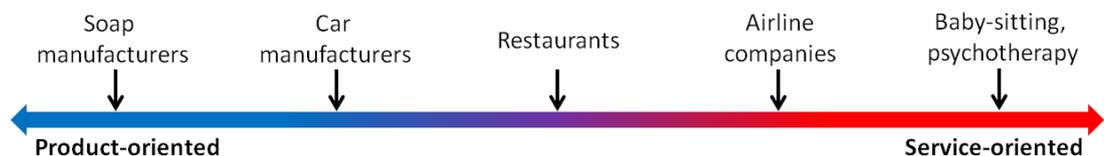
Figure 2-1. **Categories of the service mix and examples (Kotler, 2000, p. 200)**

As Brax (2005) pointed out, companies within the scale shifted their position by considering contemporary market trends. For example, the well-known consumer goods manufacturer, General Electric broadened the company's portfolio to capital services (GE capital, such as credit card and car leasing services) in order to boost their profits (Kotler, 2000). Furthermore, given that service is defined as delivering a company's offering for the use-context offerings from the customer perspective, Gronroos (2011) argued that all firms

are service businesses. As a result, the influence of service for manufacturing businesses is variable, however, the service strategies are essential to almost every manufacturing business in the contemporary market (Brax, 2005; Gronroos 2011; Vargo and Lusch, 2004).

On the other hand, services in the service industry are performed in a physical or visible space where communications and interactions of stakeholders occur (Bitner et al., 2008; Meroni and Sangiorgi, 2011). The distinction between goods and services marketing in the service industry is even more challenging (Vargo and Lusch, 2004). What marketing researchers and practitioners need to avoid in this complex situation is the traditional concept of goods-based exchanges. The service-based exchange should be emphasised and the goods from the service industry became the subsidiaries in the marketing of services (Vargo and Lusch, 2004). Thus, in the event of a service provision, the influence of physical goods is minimised and what remains within a customer's mind is the experience of consuming offerings. The movement of seeking value from the customer perspective transformed from the transactional intent (which focuses monetary and non-monetary value of goods' exchange) to the relational intent (which emphasises holistic experiences of offerings) (Gronroos, 1997). These contemporary roles of service converge on the relational concept of marketing management (Grönroos, 1997, 2011; Vargo and Akaka, 2009; Vargo and Lusch, 2004, 2008).

The relationship within the event of a service provision manoeuvres the satisfaction of customer experiences. These aggregated experiences of customers toward a brand or a company cannot be easily replicable by other competitors (Berry et al., 2002). Berry et al. (2002) argued that the first step for investigating whether the service is being appropriately managed is to identify the clues of a customer's journey. The customer journey process consists of these clues, which is defined as *Service encounters*. The definitions of the *Service encounter* are outlines below:

"The Service encounters are the dyadic interaction between a service provider and a customer." – Solomon et al., (1985, p.100)

*"a period of time during which a customer directly interacts with a service." –
Shostack in Bitner et al., (1990, p.72)*

*"the service encounter represents an important antecedent of the customer
experience the service provider creates." – Gounaris and Boukis, (2013,
p.323)*

In addition, the management technique which delineates the customer
experience process as the stages which can be divided by the 'line of visibility'
is called the *Service blueprint* (Shostack, 1984, 1987; Fließ and
Kleinaltenkamp, 2004; Bitner et al., 2008). The Service blueprinting is an
important technique to understand the whole process of a service delivery and
its components (service encounters), thus, the customer experience can be
appropriately managed in order to increase value of the service provision.

As mentioned above, what is crucial to customers in a service provision is how
the *process* of service deliveries are established, therefore, customers can
perceive the experience holistically through tangible and intangible offerings.
The *process* is the key to be acknowledged as the specific type of a service
brand or store to a predetermined customer. However, the process of
delivering goods by utilising various services also plays pivotal roles in a
manufacturing business. By defining *servitization* as the organisational
innovation for enhancing reciprocal value among stakeholders by focusing
sales of the experiences, manufacturing businesses are shifting from the
traditional goods-focused to the use-of-goods marketing (Baines et al., 2009).
Given that the attached services can also generate revenue for a firm
(Gebauer and Fleisch, 2005), products are sold in a bundled set with services
(Vandermerwe and Rada, 1989; Pine and Gilmore, 1999). As bundled with
services, products can be also delivered more effectively. In doing so,
manufacturing businesses can enhance the company's innovation through
services (Gebauer et al., 2011).

In summary, the role of service as the essential part for a business is
acknowledged by almost every industry. In the contemporary market situation,
it is difficult to survive with the extreme marketing strategy in one end of the

Kotler's service mix (refer to figure 2-1). Both poles need to compromise certain aspects from the other side, depending upon the characteristics of the industry. Products wrapped with services or services with tangible goods can created compelling customer experiences through its processes (Press and Cooper, 2003). Therefore, understanding and executing design researches within the field of the service industry is critical for both academic and practical level.

2.2.2. Rationale for selecting the Food and Beverage Sector in the Service Industry

The leverage of design in the service industry is becoming significant due to the ubiquity of service provided. Cooper and Press (1995) instantiated the importance of design in service industry by providing an example within the financial industry. The selection of this example for their study was due to the often undistinguishable services between companies within this sector from a customer viewpoint. Studies by Best (2006) illustrate the ongoing difficulties that customers can have when distinguishing design impact in a variety of service sectors.

Why is the service industry suitable for investigating consumer behaviour? There are noteworthy features in the service industry. First of all, due to the fact that service pertains to every industry (Daniels, 2012), researching service elements in each industry is valuable. Secondly, despite its importance, the service industry is still struggling with the lack of theoretical and practical research. Beyers (2012) urged that the need of service industry research increases both at the macro and micro level, emphasising the critical role of service industry for employment. By comparing other industry sectors, the service industry is recognised as a continuously growing sector. However, Daniels (2012) insists that the growth of the service industry is now vulnerable. It is also argued that sustainable growth of the service industry is now critically dependent upon efficient management and system (Daniels, 2012). Lastly, the flexibility of the service industry is construed as an essential. Due to the demand fluctuation and the application of new service in order to keep up with

contemporary trends (Sheu et al., 2003), service companies are forced to adopt new practical and theoretical methods. Therefore, the need for a practical method based on sound theoretical background in the service industry is emerging.

The food and beverage service sector presents noticeable characteristics. In providing meal experiences, the role of contemporary food service industry is not limited to the offer of food (Johns and Pine, 2002; Edwards, 2011). While ready-meals can be purchased in a supermarket mostly for the food itself, the service provided with the meal in a restaurant is equally important (Edwards, 2011). In other words, food service industry can represent considerable part of postmodern consumer's experience of service industries and reflects postmodern consumer's behaviour (Johns and Pine, 2002). Therefore, investigating food service industry can arguably be a trigger point that can be expanded out to the broader field of the service industry. Furthermore, although the food and beverage service sector is regarded as a mature market, recent trend studies (Spicer, 2012a; Spicer, 2012b) indicate that there is more room to grow by encouraging the re-visit of customers. In order to evaluate a company's service excellence for attracting customer continuously, Dickson et al. (2006) argued there are three main factors to consider (Strategic, Staffing, and System). Their study also specifies that design alignment of the company's policy and procedure between internal (company) and external (customer) should be addressed.

In the food and beverage service sector, Baker et al. (1994) proposes that the physical attractiveness of a store is usually established by brand loyalty prior to consumer's consideration of its quality or price level. Smith and Colgate (2007) also mentioned that symbolic or expressive value, which is related to a brand's physical meaning to a product, is difficult to develop, but helps a brand to maintain its competitive advantage. Among the design strategies, environmental design is particularly relevant to the service industry; considering environments as a consuming physical place for customer (Cooper and Press, 1995). Unlike other businesses in the service sector (such as banking or insurance services), the physical environment in which a service

provider and consumers can interact is particularly important for food and beverage service businesses.

In addition, especially in service industries, design of environments including architecture, interior, and landscaping have become significant factors to their success (Olson et al. 1998) due to the fact that consumers utilise perceived visual cues to select a product or a store they visit. The customers' dependence of visual cues from store environments is more significant than other insufficiently perceived information (Baker et al., 1994).

Oldenburg in Waxman (2006) proposed that there is a strong need for a third place where people enhance their life outside of their homes and offices. The dining experience at a restaurant or coffee shop could fulfil the need of people for socialising. In order to maintain higher quality outcomes in the long-term, companies need to implement balanced efforts between design and process management activities (Ahire and Dreyfus, 2000). However, despite its spotlight, Secomandi and Snelders (2011) argued that the object and evaluation of service design still remains ambiguous. Therefore, the design effectiveness of the food and beverage service industry remains in need of further investigation in order to build robust theoretical backgrounds considering the operating environmental factors where design might be perceived differently by each stakeholder.

2.3. Value of Design

Value and design are considerably ambiguous concepts. This study focuses on the value adding or creating roles of design in the service industry. Given that the service provisions entail interactions and relationships between providers and customers, delivering superior value to customers through the relationship is critical (Ravald and Grönroos, 1996). In order to investigate the added / created value through design, it is necessary to determine how value is perceived. In this section (2.3), it will be discussed how value can be defined within the scope of this research (section 2.3.1), relevant value theories

(section 2.3.2), and how the role of design was evolved to create meaningful contributions for a business (section 2.3.3).

2.3.1. Definition of Value

Value contains both transactional meaning (e.g. the monetary transaction of a cup of coffee by spending £2 or the emotional reward of visiting a memorable restaurant by driving two hours) and non-transactional meaning (e.g. meanings of museums in Amsterdam for those who love paintings of Rembrandt or Van Gogh or the archaeological meanings of Stonehenge). In other words, transactional meanings of value focuses fiscal and emotional rewards over opportunity costs, while non-transactional meanings of value is considered as a holistic concepts from multiple components. The list of definitions for value is as shown in table 2-3.

Table 2-3. *Definitions of Value*

Author(s)	Contents
Zeithaml, 1988, p.14	Value is the consumer's ***overall assessment*** of the utility of a product based on perceptions of what is received and what is given.
Monroe, 1990, p.46	Buyers' perceptions of value represent a ***trade-off*** between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price.
Woodruff, 1997, p.142	Customer value is a customer's ***perceived preference*** for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes ***in use situation***.
Wagner, 1999b, p.70	Value is the pleasure derived from ***perceiving***, ***evaluating***, and ***judging*** a product or some facet of a product.

Holbrook, 1999, p.5	Consumer value is an interactive relativistic preference *experience*.
Grönroos, 2008, p.303	Value for customers means that after they have been assisted by a self-service process … or a full-service process … , they are or *feel better* off than before.
Kotler et al., 2012, p.15	The buyer chooses … to deliver the most value, the *sum of* the tangible and intangible *benefits and costs* to them.

These definitions and perceptions of value encompass both single-dimensional (where value is the result of subtracting perceived benefits from sacrifices) and multi-dimensional (where value is perceived holistically through the provided set of experience) viewpoints. The key factors of value from these definitions are: value is the conceptualised assessment of individuals (whether it is single or multiple dimensional) and value can be perceived through any type of experience of stakeholders. Therefore, the definition of value within the scope of this research is set out as follows:

Value is the **conceptualised preference** *towards offerings of individuals through their direct and/or indirect* **experiences**.

2.3.2. Value Theories

A brand's value represents more than its positive financial return. From a marketing point of view, it can be a commitment to offer superior value to customers (Bruce, 2011). Pursuing and providing higher customer value in a consumer context is a key marketing activity (Holbrook, 1999). Value is an intangible element which stems from consumers' preferences about tangible aspects and pervades the overall procedure of purchasing (Wagner, 1999a).

Sánchez-Fernández and Iniesta-Bonillo (2007) classified two types of consumer value research: uni-dimensional and multi-dimensional. They argue that the former relies on customers' rational consumption behaviours and considers costs and benefits; the latter facilitates a broader and holistic

analysis of value. The summary of two perceptions is as shown in table 2-4. These dimensions can have various origins for evaluating value, thus, it is worth investigating these dimensions to understand their relationship.

Table 2-4. *Comparing Approaches to the Nature of perceived Value*
(Sánchez-Fernández and Iniesta-Bonillo, 2007, p. 442)

Uni-dimensional nature	Multi-dimensional nature
Roots in economic theory and cognitive psychology	Roots in consumer-behaviour psychology
Utilitarian and economic conception	Behavioural conception
Cognitive approach	Cognitive-affective approach
Simplicity	Richness and complexity
Knowledge of how value is evaluated	Specific direction on how to improve value
Lack of agreement regarding the antecedents of value	Lack of agreement regarding the components of value
Confusion about the relationship among antecedents	Confusion about the relationship among components
Direct observation of value	Observation of value through its components
Widely embraced in the literature	Hardly embraced in the literature

2.3.3.1. Uni-dimensional Value Theories

One of the pioneering pieces of research on the topic of value was based on the uni-dimensional approach (price-quality based) which was introduced by Monroe and Chapman (1987). They argue that perceived value can be

aggregated with the acquisition value (maximum acceptable price minus actual price) and transaction value (reference price minus actual price). This view (Monroe, 1973; Dodds and Monroe, 1985) is restricted to the price-quality view; it raises questions about the role of price in quality perception and other influencing factors relevant to the multi-dimensional approach.

Zeithaml (1988) adopts Dodds and Monroe's model and modifies it to explain different levels of attributes. Given that customer perceived value consists of benefits (salient intrinsic attributes, extrinsic attributes, perceived quality and other relevant high level abstractions) and sacrifices (monetary and non-monetary prices), the customer perceived value can be defined as "a customer's overall assessment of the utility of a product" (Zeithaml, 1988, p.14) based on the customer's perceived trade-offs. The hierarchy of elements determines whether offerings fulfil customers' utilitarian product-based goals and was proposed by Zeithaml's (1988). The key contribution of Zeithaml's research (the mean-end theories) is the concept of differentiating value and quality by putting value as the higher concept derived from multiple cues including perceived quality (Sánchez-Fernández and Iniesta-Bonillo, 2007).

Later, the empirical study of Dodds et al. (1991) demonstrated the relationship between three major antecedents (brand name, store name and objective price) and other phases within the conceptual framework suggested by Zeithaml (1988). Although findings support the previously proposed framework, there are concerns of including different purchase frequency items (low frequency item such as high-end products in the same category) within the same framework (Dodds et al., 1991).

By considering another view of antecedents (country of origin, brand name, store name and price) of perceived quality and perceived sacrifice, Teas and Agarwal (2000) explained the perceived value as the compared result of perceived quality and sacrifice. Teas and Agarwal went on to investigate the mediating role of the perceived quality and sacrifice. However, a strong direct relationship between antecedents and the perceived value was also found. This can be interpreted that value is not perceived by pros and cons of the offerings. In other words, understanding how customers perceive value should

be based on rational and irrational responses from what is provided. The perceived quality and sacrifice are parts of the responses, not all of which compose the perceived value. Thus, it is necessary to understand the customer perceived value by considering how they react. The multi-dimensional approach of value in the next section became noteworthy.

2.3.3.2. Multi-dimensional Value Theories

The uni-dimensional approach is often criticised due to difficultly encompassing contemporary consumer behaviour when using complex relationships (Yi and Gong, 2013) and its narrowed scope of product-only attributes (Sánchez-Fernández and Iniesta-Bonillo, 2007). In addition, understanding hierarchy and dimensions of value is crucial for encompassing variables in a model of business relationships (Ulaga and Eggert, 2005). Thus, the multi-dimensional approach is noteworthy for identification of contemporary consumer behaviour and the research stream of value. The multi-dimensional approach perceives value from various viewpoints and especially considers responses of customers (such as emotional reactions). The classification of the research stream for value can be presented as shown in figure 2-2.
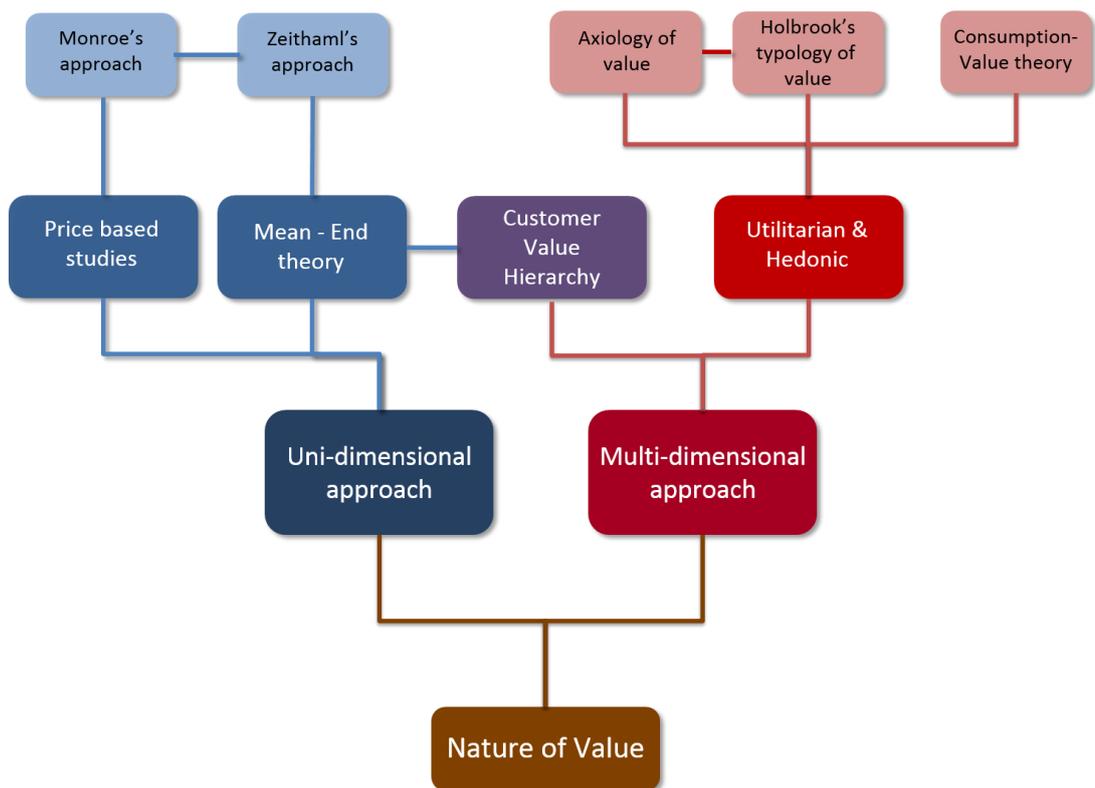
Figure 2-2. Nature of value tree (modified from the Research streams of perceived value, Sánchez-Fernández and Iniesta-Bonillo, 2007, p.430)

The original horizontal chart from Sánchez-Fernández and Iniesta-Bonillo (2007, p. 430) was modified in order to demonstrate the root (nature of value) and branches (research streams). According to their research, the research stream is mainly divided into the uni-dimensional (one-dimensional) approaches and the multi-dimensional approaches. Uni-dimensional approaches consider the perceived value as "a single overall concept that can be measured by a self-reported item (or set of items) that evaluates the consumer's perception of value" (Sánchez-Fernández and Iniesta-Bonillo, 2007, p.430). On the other hands, multi-dimensional approaches discern the perceived value as the aggregated concept which "consists of several interrelated attributes or dimensions that form a holistic representation of a complex phenomenon" (Sánchez-Fernández and Iniesta-Bonillo, 2007, p.431).

Woodruff and Gardial (1996) modified the mean-end models in order to develop the *Customer value hierarchy*. This model contains more complex interaction and the three levels of hierarchy are classified based upon the roles of value in each level. The definition of value from Woodruff in previous table 2-3 (p. 21) is inferred from what Woodruff proposed in the customer value hierarchy model in figure 2-3. Given that this model is dynamic and embraces different levels of customer value, it explains value well and will contribute to future studies (Parasuraman, 1997). In addition, due to its broader concept and the explanation of the complexity of value, the Customer value hierarchy contains characteristics of multi-dimensional approach (Sánchez-Fernández and Iniesta-Bonillo, 2007).
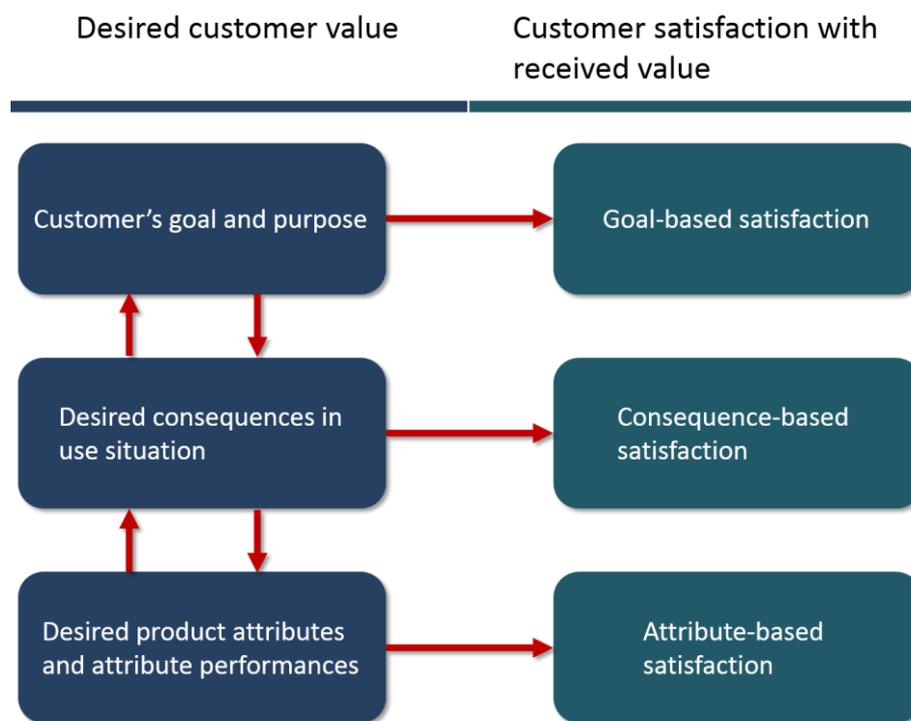
Figure 2-3. **Customer value hierarchy model (Woodruff, 1997, p.142)**

Utilitarian and hedonic approaches of value emerged due to the awareness for emotional and irrational aspects of consumption. According to uni-dimensional approaches, consumers are rational in terms of evaluating benefits and sacrifices for their choices. However, Hirschman and Holbrook (1982) argue that the customers' rational aspects of consumption is the only

partial aspects of their perception. Thus, it is necessary to address some limitations of uni-dimensional approaches in the contemporary marketing.

First, those approaches of value (uni-dimensional approaches) did not consider the consumption of art and music related offerings (such as musicals, concerts, paintings, music albums), which make up a considerable amount of the contemporary consumer market. Second, the emotional attachment to a product or service should be considered (e.g. the emotional interest occurred by frequently exposed advertisement). Third, it also needs to be considered that there are some aspects of consumption which remind customers of a relatively painful experience (e.g. the remembering museum of African slavery history or Holocaust). From the uni-dimensional viewpoint which focuses on maximising benefits of consumption, this type of consumption cannot be explained. In addition, the contribution of utilitarian hedonic approaches of value is to establish fundamentals for the multi-dimensional approaches (Sánchez-Fernández and Iniesta-Bonillo, 2007). Thus, the irrational aspects of consumption needs to be investigated.

Axiology of value theory introduced three dimensions (emotional, practical and logical) of value and their relationships (Sánchez-Fernández and Iniesta-Bonillo, 2007). By putting three dimensions into the hierarchic order (emotional value as the highest and logical value as the lowest), the evaluated result through three dimensions can be the predictor of the overall satisfaction of customers (Danaher and Mattsson, 1994). This research stream arguably enables the notion of discrete dimensions of value and the meaning of value as the antecedent of customers' overall satisfaction.

Consumption-value theory extends the dimension of value to five discrete categories: functional, social, emotional, epistemic and conditional. Consumption-value theories explain that those categorise are the key decision-making component for choosing one specific product or service over the other one. Theories within this category enable the approach of value from the customer's psychological causes which will affect to the satisfaction as the discrete concept. By doing so, the contribution of Consumption-value approaches is arguably the in-depth consideration for the independence of

value dimensions (Sánchez-Fernández and Iniesta-Bonillo, 2007). Table 2-5 below presents a summary of the contributions of multi-dimensional value theories.

Table 2-5. *Contributions of the Multi-dimensional Approaches*

Upper category	Lower category	Researcher(s)	Contents (Contributions)
The Customer value hierarchy	n/a	Woodruff and Gardial, 1996; Woodruff, 1997	- The broader concept of value with hierarchy - Foundation of multiple scale value concept - Explain interactions between different levels of value
Utilitarian and hedonic value	Axiology of value theory	Mattsson, 1992; Danaher and Mattsson, 1994; Danaher and Mattsson, 1998	- Three levels of value hierarchy (extrinsic, intrinsic and systemic value) - Expand the concept of value to the service industry - Explain interactions between different levels of value
	Consumption-values theory	Sweeney et al., 1996; Williams and Soutar, 2000; Sweeney and Soutar, 2001; Wang et al., 2004;	- Specify and selectively utilise the category of value (functional, social, emotional, epistemic and conditional value) - The in-depth argument for the independence of value dimensions

This research employs *Holbrook's typology of consumer value* as the core concept of developing the design integrated framework for value. Due to its

significance for this research, Holbrook's typology of consumer value will be discussed separately in the section 2.5.

2.3.3.3. Rationale for approaching a design study from the multi-dimensional value theories

To underpin the utilisation of multi-dimensional approaches for a design study, it is worth investigating applicable characteristics of the multi-dimensional approaches. First of all, the holistic concept of multi-dimensional approaches. Given that design and design activities cannot be determined as simple or a single term (Moultrie and Livesey, 2014), there are many different interpretations and roles of design in a business (Cooper and Press, 1995). Thus, it is difficult to encompass various outcomes of design activities by utilising single and linear concepts. Although the simple identification of benefits to a customer can be possible, it is arguably problematic for determining and predicting the customer's future behaviour (such as overall satisfaction, a customer's attachment to the product/service, willingness to buy, re-patronising the shop).

Secondly, value dimensions of multi-dimensional approaches include emotional factors of customers. Unlike uni-dimensional approaches which focus on price and quality, multi-dimensional approaches encompass dimensions such as hedonic value (Babin et al., 1994; Babin and Attaway, 2000; Childers et al., 2002; Arnold and Reynolds, 2003), emotional value (Danaher and Mattsson, 1994; Sweeney and Soutar, 2001; Wang et al., 2004), and Holbrook's typology of consumer value with its play, aesthetic, status, esteem, ethics, and spirituality value (Holbrook, 1999). By putting these dimensions into key factors for constellating customer value, the root causes of consuming specific products and services can be unveiled. Therefore, the customer's emotional reaction to the offerings is the key to understand the formation of customer value.

Lastly, by considering the main area of this research as design management, the managerial implication of any suggested framework or model within this

research is important. In order to be practical (e.g. suggesting design improvement by considering the strategic focus of the business), the multi-dimensional approaches are more relevant to the proposing of improvements for a business (Sánchez-Fernández and Iniesta-Bonillo, 2007)

Therefore, if value is created and perceived holistically as the multi-dimensional approaches explain, what are the roles of design for the creation of value? In the next section, it will be discussed what the roles of design in contemporary business contexts are.

2.3.3. Roles of Design for Creating Value

In the contemporary market, the sophisticated and abundant design of offerings urges a business to develop strategic ways of delivering its offerings. Good design is not enough for the market (Holm, 2011). In addition, as discussed previously (section 2.1.1), the boundary of design in the contemporary business is not limited only to aesthetic meanings of offerings, but also extended to ponder the most effective way to deliver offerings. Therefore, the role of design arguably has become complex, but essential to a successful business.

It is acknowledged that the role of design is the provider of the uniqueness of products and services, thus, creating value to customers. The value-adding role of design enhances the competitive advantages of a business (Borja de Mozota, 2006). Among the basic types of the competitive advantage; lower cost and differentiation, Porter (1990) argues that the competitive advantage derived from the differentiation that provides greater value to customers. Thus, it can be argued that design increases the perceived value of customers (Hands, 2009).

In addition, design can enable the differentiated provision of products and services (Borja de Mozota, 2011; Kotler et al., 2012). Given that the differentiated provision is derived from aiming to generate greater value to its stakeholders, appropriate design elements converge to the role of adding value (Bruce et al., 1999; Borja de Mozota, 2011). From the organisational

perspective, Borja de Mozota and Kim (2009) summarised the history of design management by considering the perceptions and roles of design in a business (refer to table 2-6). According to Borja de Mozota and Kim, design in a business became the concept which deals with more complex and strategic activities in the business. Borja de Mozota (2011) classifies and prioritises 21 variables of design management in SMEs (Small and Medium Enterprises) as shown in table 2-7. The list implies the perceived roles of design within an organisation (Borja de Mozota, 2011).

Table 2-6. *Historical Development of Design Management* **(Borja de Mozota and Kim, 2009, p. 68)**

Period	Main Perspective	Design Role	Design management focus	Cases
1940s to 1950s	Design as function	Product quality	None	AEG, Olivetti
1960s to 1970s	Design as style	Quality communication	Project management	Alessi, Braun
1980s to 1990s	Design as process	Innovation	NPD innovation management	Philips, Sony
1990s to 2000s	Design as leadership	Creative strategy	Brand	Apple
2000s to now	Design thinking	New business model	Creative organisation	IDEO

Table 2-7. *Classification of the twenty-one variables of design management* (Borja de Mozota, 2011, p. 283)

Design Value Variables and Rankings*	Mean	Dispersion
1. Design creates a competitive advantage	**5.39**	**0.55**
2. Design is a core competency	5.12	1.04
3. Design contributes significantly to benefits perceived by consumers	5.00	0.97
4. Design changes the spirit of the firm that becomes more innovative	4.94	0.86
5. Design develops exports	4.88	1.15
6. Design increases market share	4.75	0.94
7. Design allows the company to sell at a higher price	4.69	1.16
8. Design improves co-ordination between marketing and R&D functions	4.68	1.07
9. Design is a know-how that transforms the activity processes	4.64	1.12
10. Design develops customer care in the innovation policy	4.60	1.25
11. Design generates technology transfers	4.22	1.47
12. Design gives access to a wide variety of markets	4.19	1.55
13. Design accelerates the launch of new products	4.07	1.28
14. Design improves co-ordination between production and marketing	4.00	1.16
15. Design develops project management of innovation	3.93	1.20
16. Design creates a new market	3.90	1.72
17. Design improves the circulation of information in innovation	3.80	1.31
18. Design means higher margins or cost reduction	3.80	1.31
19. Design is difficult to imitate by competitors	3.76	1.43
20. Design changes relationship with suppliers	3.70	1.23
21. Design improves co-operation between agents	3.64	1.18

In this context, it can be acknowledged that design is a key part of the strategic management process as discussed in section 2.1.1. On the other hand, the shifted roles of design for customers are derived mainly from the abundant market situation as discussed previously. As a result, a company should meet various and complex customer needs in order to survive in the market. In contrast to customers in the mass production era who would buy products and services if they exist, it is arguably more difficult to satisfy the contemporary customer needs, but satisfying customers is more critical to organisational success. There is no doubt that the most important stakeholder for a business

is customer. However, there is an emerging view of customers in contemporary business; that is the view of customers as the co-creator for value in a business. From this viewpoint, a customer can trigger another customer's consumption. In other words, design of offerings for existing customers also needs to consider potential customers. This concept of co-creating value will be discussed in the next section.

2.4. Co-creation of Value

Within the stream of researching value creation, there are two main streams of the research; *stakeholder theory* and *value maximisation*. In order to be a successful business, the former argues that considering multiple (or maximum) stakeholders in a business is necessary, and the latter insists that focusing on a key stakeholder could maximise the profit of the business. In order to explain co-creation of value, it is worth reviewing the concept of stakeholder theory by comparing value maximisation. It will be also discussed how the concept of co-creating value affects (and can be modified within the scope of this research) to the service industry.

2.4.1. Stakeholder Theory

Stakeholder theory was introduced by Freeman (1984) and is the key for understanding co-creation of value. By emphasising the importance of multiple stakeholders in a business, not the single most important stakeholder (e.g. customer), Freeman (1984) argues that a business can be successful in the long-term if they do not lose any of stakeholders significantly. In other words, creating competitive value for one stakeholder (e.g. customer) needs to consider value of other stakeholders (e.g. employees, local communities, suppliers) in the contemporary market situation. Therefore, it is worth investigating why multiple stakeholders should be considered in the service industry.

Value is created by its network (value chain) through appropriately managed experiences by stakeholders. However, unless the main agents (stakeholders) are clearly defined and categorised, it might be difficult to address relationships and their effectiveness. Freeman (1984) introduces the original groups of stakeholder theory; shareowners, employees, customers, suppliers, lenders and society, with the definition of stakeholder as groups of economic units who critically support an organisation's survival. Freeman also expounds the notion of stakeholder as "any group or individual who can affect or is affected by the achievement of firm's objective" (Freeman, 1984, p.25). Classifying primary stakeholder groups; shareholders and investors, employees, customers, suppliers, and public groups, Clarkson (1995, p.106) defines stakeholders as "persons or groups that have, or claim, ownership, rights, or interests in a corporation and its activities, past, present, or future". Regardless of the debated issue of including employees as stakeholders, Matten and Crane (2005) cite Freeman's view (1984) and agree with classifying stakeholders into consumers, suppliers, shareholders, and employees. In summary, a stakeholder group can be divided into four categories; customers, employees, investors, and other stakeholders. Customer and employee groups are explicitly involved in a value chain in terms of delivering and consuming created values from the network. Investors may include shareholders for listed larger firms or owners and small investors for unlisted small firms. Suppliers and local communities who might take advantages of the value chain or influence operation of a value chain could comprise other stakeholder groups.

Similarly, Freeman (2010) proposes the stakeholder view of a firm, demonstrating a firm's interaction with ten different groups. However, it has been debated among theorists who consider Freeman's stakeholder approach as a method of analysing and understanding a business. Sternberg (1996) argues that stakeholder theory is irrelevant to explain a business model for several reasons. First, if it is seriously taken, the number of stakeholders is considered as infinite, which means it will be unlikely to be able to consider all constituencies in a business. Second, the definition of stakeholders' benefits and how it can be measured is uncertain. Third, it sometimes rebuffs

the owners' rights to manage their property, weakening the interest of key stakeholders. Gioia, Marcoux and Sternberg in Phillips et al. (2003) understand that stakeholder theory focuses equal distribution of power in a value chain so that it lessens shareholders' benefits. Furthermore, Jensen in Phillips et al. (2003, p.485) argues, "Stakeholder theory cannot provide a sufficiently specific objective function for the corporation". In addition, when defining a company's objective as "maximising current total firm market value", Jensen (2001, p.12) argues that all stakeholders might be considered as the key influences in business. However, Jensen emphasises that missing one of the key stakeholder's benefits by unfair distribution of benefits could lead to an unsuccessful business in the long term. Furthermore, sustainable profitability and survival of a company can be realised only if distributed profit and value satisfy primary stakeholders (Clarkson, 1995). In short, while it seems likely that stakeholder theory provides a broader view of managing a business, if its surroundings are considered, its substantive application could be inappropriate.

However, Phillips et al. (2003) develops arguments by proposing that the application of stakeholder theory can be flexible, considering the characteristics of industries, and this is based on capitalism and meritocracy, thus, the distribution of profit could be controlled. While, they accept the abstract feature of stakeholder theory so that though it might be difficult to clearly define and apply a company's objective, by reviewing previous results, it can be used and applied to guide future activities. Moreover, if stakeholder theory is adopted as a method of analysing profit-aimed firms, it concurs with value maximisation theory through organisations' general decision making process among stakeholders.

Even though there are arguments about the theory, definitions of stakeholders and the notion of the relationship between stakeholders could be adopted well to the framework introduced later in this research for the following reasons. First, it shows all stakeholders related to activities in a value chain, thus, it is possible to minimise flaws in the framework by encompassing relevant groups' profits. Second, understanding the procedural relationship between

stakeholders could support a sustainable business model, although the theory rules out long term shareholders' value maximisation. Third, the concept of value and its analysis process are pertinent to explain the conceptual framework. Finally, by allowing flexibility in stakeholder groups, it can encompass relevant stakeholders' values, considering the character of each industry. For example, if it is assumed that a back-light panel for LCD TVs had limited sources of suppliers, including the suppliers in other stakeholders group is significant. Therefore, the suppliers of back-light panel should be one of the key stakeholders for the business. However, developing the business own technologies to produce the panel and shifting customer trend to LED TVs could possibly weaken the importance of suppliers within the value chain. In summary, the agile management for balancing the leverage of stakeholders is key to survive in the contemporary market.

Among the stakeholders mentioned above, it is obvious that employees are the significant stakeholder for creating and delivering value to customers. However, within the concept of co-creating value, the role of customers for creating value of a brand is also regarded as critical, particularly in the service industry (Brax, 2005). How can customers contribute to creating value for a brand which they are consuming? In the next section, it will be addressed how value is co-created with other stakeholders including customers in the service industry.

2.4.2. Co-creating Value in the Service Industry

The core of service-dominant logic (S-D logic) which utilises the concept of service for delivering a company's offerings is based upon the fact that customers co-create value of the service provision (Payne et al., 2008). The appropriate service provision is perceived as a holistic set of offerings (Wagner, 1999b). From the customers to customers perspective, the unavoidable event of consuming the service provision is to observe other customers within the set of service provision. The presence of other customers as one of the key environmental element is often underestimated (Aubert-Gamet and Cova, 1999). Customer can affect the other customers'

perception by providing important cues of perceiving the overall atmosphere. For example, how other customers dress can intimate culturally acceptable ranges of dresses to a customer and how others interact with employees can contribute to the cognition of a store as a friendly or elegant place. The tacit agreement among customers such as how they are suggested to dress or how they interact with service staff determines the mood of the restaurant. The mood that arises from tangible and intangible design cues in the food and beverage service industry is arguably one of the most significant factor for attracting customers.

From the customers of a service provider perspective, the key contribution of customers is the dialogue which occurs during the service provision process (Ballantyne, 2004). With various interactions (such as online reservation system, the face to face interaction for ordering foods, and completing customer satisfaction survey through online), the aim of dialogue is to obtain deeper and richer information for both customers and companies (Ballantyne, 2004). By doing so, both stakeholders learn and benefit from the business in which they are involved (Payne et al., 2008). Their conceptual framework for value co-creation is described as expressed in the following diagram.
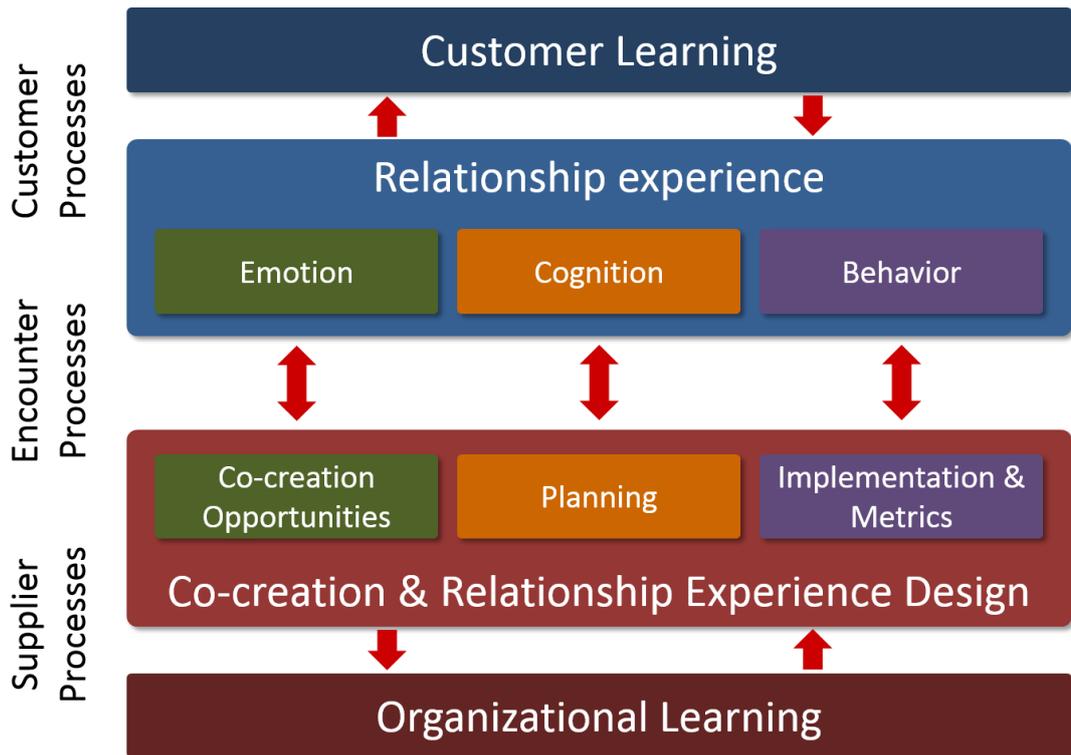
Figure 2-4. A conceptual framework for value co-creation (Payne et al., 2008, p.86)

Given that figure 2-4 is the process-oriented relationship which aims to explore repeated purchases by customers, the framework can be utilised for analysing the root causes of a purchase beyond the event of consuming products and services (Payne et al., 2008). This mutual relationship between stakeholders is employed in building the conceptual framework of this research in chapter 4.

2.5. The Typology of Consumer Value

Holbrook (1999) introduced the *typology of consumer value* by defining consumer value as interactive, relativistic, preferential, and experience based knowledge. In this section, Holbrook's typology of consumer value will be discussed in-depth with its suitability to be included in the scope of this research. In addition, the preliminary concept of *Design Value Typology* (Nam

and Carnie, 2014a; 2014b) which adopts Holbrook's concept for determining design value of customers will be also addressed.

2.5.1. Dimensions of Consumer Value

Contemporary consumer behaviour changed after the era of 'Fordism'. In the contemporary consumption of products and services, lower levels of needs in Maslow's hierarchy are already fulfilled in most situations. This situation makes consumers perceive the value of an offering in different ways than outlined by Maslow's hierarchy of needs. In other words, what customers need is determined by various circumstances that relate to the abundance of goods and is not concerned with fulfilling basic hierarchical needs. Therefore, understanding how customers value offerings in a non-hierarchic relationship can also explain contemporary consumer behaviour.

Holbrook argues that the typology of consumer value should utilise a holistic and non-hierarchic viewpoint (Holbrook, 1999). Holbrook's typology of consumer value is regarded as a sophisticated typology which explicates modern consumer behaviour (Addis and Holbrook, 2001; Sánchez-Fernández and Iniesta-Bonillo, 2007). Holbrook describes the nature of consumer value (interactive, relativistic, preferential, and experiential; Holbrook, 1999, p.5) and the types of consumer value (extrinsic or intrinsic, self-oriented or other-oriented, and active or reactive; Holbrook, 1999, p.9). In Holbrook's detailed explanation, extrinsic and intrinsic dimensions determine whether consumption is the ultimate goal of the customer. Self- and other-oriented values are classified based on whether consumption is for the consumer or purchased with consideration of others' benefits or reactions in mind. If customers manipulate products or services either physically or mentally (e.g. driving a rented car is physical and solving puzzles is mental), value is situated in the active dimension. On the other hand, if customers are being manipulated by the product or services (e.g. feeling sentimental while watching a movie), value belongs to the reactive dimension. These dimensions are described below in table 2-8.

Table 2-8. *A Typology of Consumer Value (Holbrook, 1999, p.12)*

		Extrinsic	Intrinsic
Self-Oriented	Active	Efficiency (Output/Input, Convenience)	Play (Fun)
	Reactive	Excellence (Quality)	Aesthetics (Beauty)
Other-Oriented	Active	Status (Success, Impression Management)	Ethics (Justice, Virtue, Morality)
	Reactive	Esteem (Reputation, Materialism, Possessions)	Spirituality (Faith, Ecstasy, Sacredness, Magic)

Further investigation to determine the dimensions in the typology of consumers value will follow in the next section of the thesis.

2.5.1.1. Intrinsic Value and Extrinsic Value

Zimmerman (2001, p. 199) distinguished intrinsic and extrinsic value into "taking pleasure in something for its own sake" and "taking pleasure in something for the sake of something else". O'Neill (1992) defined "Intrinsic value is a synonym for non-instrumental value. An object has instrumental value insofar as it is a means to some other end".

"Intrinsic value occurs when some consumption experience is appreciated as an end in itself, while extrinsic value pertains to a mean-end relationship wherein consumption is prized for its functional, utilitarian, or banausic instrumentality in serving as a means to accomplishing some further purpose, aim, goal, or objective" (Holbrook, 1999, p.10). In other words, customers appreciate extrinsic value of offerings due to their functionality and support to achieve further purposes. On the other hand, the customers' acknowledgement of intrinsic value is due to the fact that the consumption of offerings is their ultimate goal.

Following on from the identification of these two discrete dimensions it becomes necessary to investigate the emotional reactions of customers' in order to categorise the two dimensions in more detail. Zimmerman (2001) utilised pleasure for describing emotional reactions when a person is intrinsically or extrinsically fulfilled with something. Wagner (1999a) classified emotional reactions from intrinsic value as fun, feeling ethical and rejoicing, while those from extrinsic value are convenience, appreciating higher quality and revealing their identity in public. Therefore, design activities can be divided into two groups (intrinsic and extrinsic) depending upon the types of customers' emotional responses.

2.5.1.2. Self-oriented Value and Other-oriented Value

When the consumption is for "my own sake" and "how I react to it", value from this consuming behaviour is self-oriented (Holbrook, 1999, p.10). If it is for "their sake" and "how they react to it", on the other hand, value is other-oriented (Holbrook, 1999, p.10). For example, purchasing antique paintings of one's taste or listening the music at a concert hall where a favourite conductor is performing is to amuse oneself, therefore, self-oriented. However, if a customer prefers to consume groceries with Fairtrade® logos, the consumption behaviour of the person is other-oriented.

Design activities that remind a customer of businesses' corporate social responsibility (other-oriented value) need to permeate through the overall perception of the retail space. Given that self-oriented value and other-oriented value are not conflict judgement, increasing one of these categories does not necessarily mean decreasing the other. The harmony of other-oriented design with the overall design is particularly important. Therefore, two key conditions are necessary to be confirmed for investigating other-oriented value in this study's context: the existence of other-oriented considerations and their compatibility with overall design.

However, customers perceive value through not only ethics and moral related considerations, but also the desire to be respected and acknowledged. Given that the environment of consumption in the service industry has become a

social part of the personal construct (Aubert-Gament and Cova, 1999), the role of environment for the consumer as one way of expressing their personalities becomes significant. The emotional arousal caused by the self-expressing desire can contribute self-oriented value to customers. This emotion which bonds a place with an individual was defined as *place attachment* (Scannell and Gifford, 2010). Scannell and Gifford (2010) proposed the PPP (Person – Place – Process) framework to explain the place attachment. Although Scannell and Gifford mostly discussed in a macro scale place attachment (e.g. home town or country), physical settings of micro scale places (e.g. café or restaurant) can be investigated within the scope of the PPP framework in terms of the representativeness of physical settings as something which can reflect characteristics of customers (Scannell and Gifford, 2010). Given that three elements of the place attachment are the key to constitute a person's place attachment and the place attachment is the source of preference for consuming products and services, factors which compose three elements (person, place and process) need to be addressed when dimensions of design value are formed.

2.5.1.3. Active Value and Reactive Value

Active value occurs when a person can manipulate tangible or intangible offerings which can be characterised as physical or emotional, while reactive value arises when the person is manipulated by offerings in both ways (Holbrook, 1999). Active value and reactive value can be characterised as "activity and passivity", "control and dependence", "dominating and being dominated", or "moving and being moved by" (Holbrook, 1999, p.12). However, in various contexts (such as time, status and esteem), the distinction between these two dimensions is very difficult to determine and situation-dependent (Leclerc and Schmitt, 1999; Richins, 1999; Sánchez-Fernández and Iniesta-Bonillo, 2007; Solomon, 1999; Nam and Carnie, 2014a; 2014b). Thus, in this present study, the distinction between active and reactive value dimensions will not be considered.

2.5.2. Rationale for approaching Design Value from the Holbrook's Value Perspectives

This study employs Holbrook's typology of consumer value as the key background value theory for reasons stated below.

First, Holbrook's typology of value includes a holistic view of how value is perceived from offerings presented to us. In order to deliver products and services effectively, a service firm needs to understand how the design of objective properties are perceived and create value for customers (Wagner, 1999b). Stakeholders within the value-creating network are comprised of groups of individuals who determine the value of offerings based upon their experiences within the network. It is crucial to consider the origin of perceptions through emotionally classified typologies. For example, Aspara and Tikkanen (2008, 2011) argue that positive personal association is significant for determining stock purchases—even in a highly financial-oriented relationship. In addition, as this research previously defined design as *the various activities in a business which deliberately stimulate senses of targeted stakeholders* (refer to p. 9), understanding emotional reactions of customers through deliberately stimulated cues is critical to conceptualise the design value of customers. Given that the service encounters entails emotional reactions among employees and customers, Ashforth and Humphrey (1993) argue that researching emotional factors of customers is particularly essential to the service industry.

Second, the key outcome from this section is to propose a tool that can explain how the value of design can be measured and visualised. In order to achieve this, previously classified value dimensions are modified to include design in all its manifestations. By utilising Holbrook's typology of consumer value, the value of design can be classified in each of Holbrook's dimensions.

Third, given that the awareness of social responsibility has increased since the era of mass production (i.e. Fordism), it is necessary to investigate the factors that determine human perceptions. In addition, solutions for socially responsible projects may be proposed through design (Cooper and Press, 1995). Thus, it may be critical to investigate how people think and the origin

of their perceptions. Given that Holbrook's typology classifies psychological factors for the decision-making process of consumers, the result of assessing value through Holbrook's typology can present individual and collectively perceived value.

2.5.3. Design Value Typology (preliminary research of this study)

By adopting the Holbrook's typology of consumer value, Nam and Carnie (2014a, 2014b) proposed combining the dimensions and named these as shown below in figure 2-5.

Figure 2-5. **Grouped Holbrook's typology of consumer value (clustered by four dimensions) for the design value dimensions**

Although Holbrook's typology of customer value includes various aspects of value, some researchers argue that ambiguity exists between active and reactive values in Holbrook's typology (Leclerc and Schmitt, 1999; Solomon, 1999; and Richins, 1999). To dispel the ambiguity between active and reactive value concepts, this study combined the active and reactive dimensions in order to propose four value dimensions. By doing so, Nam and Carnie (2014a) proposed four discrete design value dimensions by considering the roles of design as *Tool*, *Goal*, *Rank*, and *Help*. Further explanation of each dimension is presented below.

Design as Tool: customer value derived from the design cues of offerings by considering *quality, functionality,* and *perceived benefits* over perceived sacrifices

Design as Goal: customer value derived from *the customers' pleasure* from the design cues with *no other reasons.*

Design as Rank: customer value derived from facilitating the *self-expression* of a customer through design cues.

Design as Help: customer value derived from design cues which customers acknowledge *ethical / moral aspects of design considerations* and its visualisation.

These dimensions can be quantified and visualised as shown in figure 2-6. The dimensions measurement can be calculated by determining the area of the blue, red and green diamonds on the figure below using the design value equation (see figure 2-7). The diamond area can be used to investigate phases within the service-profit chain. If the diamond area can represent the co-created design value of customers, then the relationship between the diamond area and the next phase (in this research, satisfaction of the customer) can be examined by a single regression analysis. In doing so, one can investigate whether the co-created design value positively influences design satisfaction for a customer.

	Shop A	Shop B	Shop C
Tool	6.5	5	5
Rank	5	4	3
Goal	4	6	4
Help	3	6	5
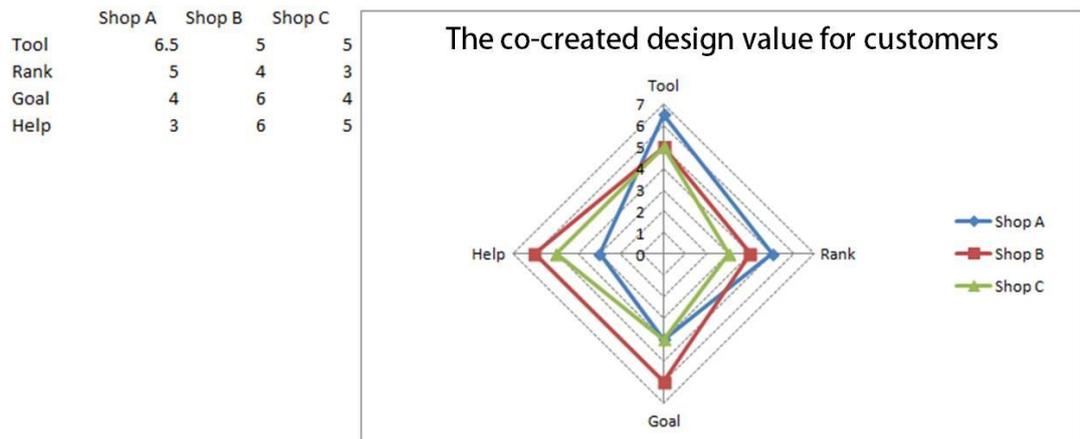
Figure 2-6. **Example of measured co-created design value for customers**

$$\text{Sum of total customer design value} = \frac{(\text{Tool}+\text{Goal}) \times (\text{Rank}+\text{Help})}{2}$$

Figure 2-7. **The equation for design value**

However, there are a few challenges when determining the *Design Value Typology* with the suggestion above. Major concerns are the ambiguity (definitions) of names of the dimensions and the relationship between dimensions described in Nam and Carnie (2014a, 2014b). These limitations and the improvement of this framework will be addressed in chapter 6.

2.6. Value to Successful Business

If value of design can be perceived as discussed in section 2.5.3, the next questions might be, *how does design contribute to a business?, does greater design value actually lead to greater success for the business?*, or *how can phases of a business be measured and appropriately addressed in order to investigate its relationships with value created by design.* In order to explore

descendants of customer's perceived design value, later phases of successful business should be determined and measured relevantly. However, inapt measurements of business figures related to its performance often confine a business into the *satisfaction trap* – defecting customers who have a good result in customer surveys when measuring the actual customer's value are misaligned (Reichheld, 1996). Thus, in this section, key business phases after design value of a business is perceived will be addressed. The literature for defining key phases (section 2.6.1) by reviewing the service-profit chain (Heskett et al., 1994) and their relationship (section 2.6.3) will be discussed below.

2.6.1. Key phases to a Successful Business

Due to changes of the leverage among economic figures, traditional measuring figures and methods can be invalid for understanding contemporary business situations (Reichheld, 1996) (e.g. ignoring or having difficulties to measure human capital in the balance sheet, especially in the service industry). There are many studies which explain the phases and their impacts to a business. In order to determine and categorise the relevant phases for design value, it is necessary to review how previous studies define the intermediary phases with their mediating role in a business.

2.6.1.1. The service-profit chain

From a long-term perspective, stakeholders should continuously be involved in activities that create value. By considering the long-term perspective of value creation, Heskett et al. (1994) introduced the service-profit chain which includes; *created value*, *satisfaction*, *loyalty*, and *profit and growth*. Given that quality of market share derived from greater customer loyalty is more important to the profitability of a business (Heskett et al., 1994), they argued that customer loyalty directly impacts upon profitability. In addition, in order to be profitable and sustainably growing, maintaining current customers for the business is significant. The loyalty of customers is essential for encouraging

their retention. Customer loyalty is derived from customer satisfaction. Customer satisfaction is triggered by satisfied employees' service as shown in figure 2-8.
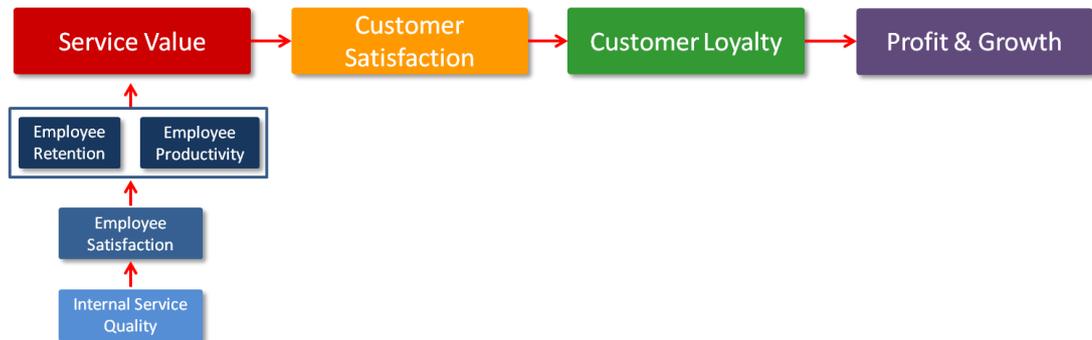
Figure 2-8. **The service-profit chain (Heskett et al., 1994, p. 166)**

Customer satisfaction is one of the most significant indicators of customers' return business (Dube et al., 1994). Spiteri and Dion (2004) identified two types of satisfaction: transactional and overall satisfaction. To assess the long-term relationship, they proposed measuring the overall satisfaction derived from total experience because it is more relevant. In addition, Kumar et al. (2011) insist that operation performance as perceived by customers need to be construed as a whole system approach, not as individual elements. Thus, customer satisfaction is defined as an overall assessment of future behavioural intentions; it considers what customers receive based on what a company provides (McDougall and Levesque, 2000).

As shown in the service-profit chain, many researchers also argue that loyalty is derived from satisfaction. It has been empirically proven that end-user loyalty, which could lead to customer repurchases, is more significantly derived from overall satisfaction than customer value (Spiteri and Dion, 2004). Although Spiteri and Dion's practical research area is limited to the pharmaceutical industry in business-to-business situations, the results clearly indicate that overall satisfaction drives customer loyalty and overall satisfaction is driven by customer value created by the company. This result underpins the idea that co-created value does *not* directly affect stakeholders' loyalty. Instead, it is necessary to have a mediating phase for the design

satisfaction of stakeholders. Likewise, other phases can be adapted to design perspectives, such as design loyalty and co-created design value. Therefore, the main business phases within the scope of this research are; *service value*, *customer satisfaction*, and *customer loyalty*.

In this study, the profit and growth of a business will be excluded for two reasons. First, given that customer loyalty impacts critically upon a business' long-term profitability (Reichheld and Sasser, 1990; Heskett et al., 1994), the profit of a business can be inferred by understanding customer loyalty. Secondly, defining profit and growth driven by design is very challenging. It is not only difficult to approach the individual firms' confidential finance data, but also questionable to determine that the obtained data represents the contributions of design.

Customer loyalty needs to be contemplated in-depth for reducing gaps between frameworks / models discussed in this research and the real world situation. Hallowell (1996) classified two types of customer loyalty; attitude and behavioural loyalty. Although the behavioural loyalty is more significantly related to the performance of a business (Hallowell, 1996), the attitude loyalty is arguably the prerequisite for stronger levels of loyalty. In other words, determining different levels of loyalty can encompass the holistic view of customer loyalty. By doing so, it can be possible to have non-biased and practical approaches to design value and its consequences. By considering the definition and levels of customer loyalty within the scope of this research, word of mouth (WOM) will be discussed separately from other levels of customer loyalty (section 2.6.2.3).

2.6.2. Key phases with design perspectives

2.6.2.1. Satisfaction and design

If the design value of service is construed as described in section 2.5.3, it is necessary to investigate whether it is associated with other consumer behaviour processes (key phases in section 2.6.1). After a customer perceives the design value of offerings, the person may feel satisfied or dissatisfied with the offerings. Since satisfaction is dominantly affected by value from delivered services (Heskett et al., 1994), understanding satisfaction is crucial to understand how a business is performing (Fecikova, 2004) and the key to investigate further phases within section 2.6.1. Then, what is satisfaction? And how can it be measured?

Satisfaction is a judgement of offerings, which is based upon the perceived performance over the personal expectation (Kotler et al., 2012). It is also "the overall level of customer pleasure and contentment" from what is offered (Hellier et al., 2003, p. 1764).

Satisfaction in Oliver (1997, p.13) is described as follows:

"Satisfaction is the consumer's fulfilment response. It is a judgement that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under- or over-fulfilment"

Oliver (1997) classified two types of individual (customer) satisfaction based upon the number of service encountered in a customers' history: one transaction and time-accumulated satisfaction. Depending upon the number of encounters, the consequences which can be interpreted as behavioural intentions are demonstrated as complimenting, complaining and word of mouth (one transaction) and attitude, loyalty and switching (time-accumulated). In order to access satisfaction appropriately, the number of previous visits (or frequency) needs to be questioned along with the degree of satisfaction.

How can design be implemented into the satisfaction concept described above? First of all, satisfaction measured in this study should be derived from offerings' design value. If the outcome of satisfaction's evaluation is driven by every aspect of what is provided, the contribution of design to customer satisfaction is blurred and invalid to investigate the relationship between design value and later phases. In short, measuring multiple items for design satisfaction can make the analysis ambiguous and unclear. It should be the customers' *overall* evaluation of design instead. Customers may have different levels of appreciation with various service encounters. Given that every customer has different weighting factors for design elements of service encounters, the outcome of multiple item satisfaction can be distorted by a few bias assessments. (e.g. if a customer has the significantly greater preference for table and chair design in a restaurant, it could be possible to obtain moderate or good level of satisfaction regardless of other dissatisfied design elements). Thus, the measurement of design satisfaction needs to be perceived holistically and responded to within a single survey question. Another definition of satisfaction from Oliver (1999, p. 46), "satisfaction is a *singular response* occurred through value dimensions as defined by Holbrook", underpins the argument of measuring satisfaction in a single but holistic response. A possible survey question for design satisfaction is proposed as follows:

Q: By considering design elements mentioned in previous questions, I am satisfied with the overall design of the store.

2.6.2.2. Loyalty

If customers are satisfied with single or multiple purchases from a business, they become loyal or disloyal for the provided products and services. The result of customer loyalty can be repurchasing, paying price premiums, word of mouth (Zeithaml et al., 1996; Cronin et al., 2000; Ryu et al., 2012), cost savings (Reichheld and Sasser, 1990; Heskett et al., 1994; Reichheld, 1996), resistance to switching (Dick and Basu, 1994). Given that customer loyalty

triggers these future behaviour of customers, it is closely related to a successful business (Heskett et al., 1994; Reichheld, 1996; Oliver, 1997).

Oliver (1997, p.392) defined loyalty as follows:

"Customer loyalty is a deeply held commitment to rebuy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour"

By considering their actual contribution to the repurchase intention, four levels of loyalty (Cognitive, Affective, Conative and Action) were classified (Oliver, 1997). Determining the hierarchy of loyalty is critical for managing resources efficiently (Reichheld, 1996). It helps a business to aim appropriately, depending upon its strategic focus at certain stages of the business. Given that different customer behaviours contribute to the success or failure of a business differently, the behavioural intentions derived from design activities needs to be investigated in discrete levels. By putting levels of loyalty after design satisfaction, it can be viable to pursue the contribution of design value in different degrees.

Given the above situation, how can these four phases of loyalty be construed in terms of design perception? This study directly quotes the phases of loyalty which have been already defined by Oliver (1997). However, the questions used in this study that interrogate the phases of loyalty are modified to include the term, *design*, within the questions used in this section of the questionnaire. By doing so, customers can determine the levels of their loyalty which is derived from overall satisfaction triggered by holistically perceived (through four dimensions) design value.

The examples of four loyalty phases are described in Oliver (1997) as shown in table 2-9.

Table 2-9. *Loyalty Scales* (Oliver, 1997, p. 398)

Loyalty phases	Examples
Cognitive	Brand X has more benefits than others in its class
Affective	I have grown to like brand X more so than other brands
Conative	I intend to continue buying brand X in the future
Action	When I have a need for a product of this type, I buy only brand X

First of all, Oliver (1997) explained that cognitive loyalty is based upon explicit information related to brand quality or superiority. The benefits are derived from the first gatekeeper which customers encounter in the first impression of the offerings (or experienced impression in case of repurchasing or returning customers) such as cost, location, brand logo, product / service related design. With the significant development of information technology and SNS (Social Network Service), there are various channels for building customer loyalty. In other words, customers can get sufficient information about a business with explicit personal preferences more easily. This can lead to higher vulnerability of customer loyalty and urges various activities of delivering greater customer value. Furthermore, the diversity of customer preferences makes it even more challenging to delve into specific elements (questions to ask about) which affect customer loyalty in various situations. Given that customer's perceived value is regarded as customer benefits from that which is sacrificed, loyalty derived from design value is necessary to be evaluated *freely* from design value dimensions described in section 2.5.3. In order to obtain freely evaluated results from respondents within the scope of this research, it is preferable to have comparison targets. As Oliver (1997) determines, loyalty is premised on the existence of competitive products and services. By allowing customers (respondents of the survey) to recall possible competitors of a chosen brand by themselves, it can be viable to elicit

cognitive loyalty. Thus, this study proposes the following question to determine cognitive and affective loyalty.

Q: Think about similar stores of the chosen brand and write down freely

Condition: *In terms of experiencing design of the chosen brand through previous questions, choose statements (one or more, maximum four) which appropriately describe your current attitude to Brand X.*

S1: Brand X has more benefits than similar shops

S2: I (have grown to) like design of Brand X more so than other brands

S3: I intend to continue buying Brand X in the future

S4: When I have a need for a product of this type, I buy only Brand X

Brackets are used in question S2 to encompass existing and newly aroused preferences of design elements and principles from the brand.

In order to argue the positive or negative influences of design for a business, it is critical to comprehend phases closely related to the business performance. As descriptions of loyalty in table 2-9 show further behavioural intentions which are willingness to repurchase or re-patronise, questions in the later two phases remain as they are originally described. By doing so, the contribution of design can be disclosed as forms of the loyalty phases.

2.6.2.3. Word of Mouth (WOM)

WOM is also a key outcome of business activities. The impacts of WOM as transforming the neutral or negative position toward a brand into the positive one are more effective than traditional ways of advertising (Mazzarol et al. 2007). The flourish of daily communication medium (such as SNS , Social Network Service) amplifies its impacts. However, not all loyal customers spread positive WOM (WOM, word of mouth) nor are its ripple effects the same. In this research, WOM is distinguished from loyalty. Although positive WOM is derived from loyalty with the chosen brand, it is arguably not clear which level of loyalty is related to generate positive WOM. In addition, locating

WOM within the loyalty phases (Oliver, 1997) is particularly difficult. Given that WOM is created and delivered in highly subjective manner by human being, it is problematic for conceptualising an individual's willingness to generate positive WOM and measuring its impact upon others. Thus, WOM seems similar to loyalty, but it needs to be regarded in a discrete domain (Sweeney, et al., 2010).

In order to constellate and measure WOM as a discrete domain, it is necessary to review antecedents and elements of WOM. WOM has been defined as "*informal communications between private parties concerning evaluations of goods and services*" (Anderson, 1998, p.6). The experience of an individual is proliferated through various ways in this contemporary business situation. First, for the emotional and message delivering purpose, the experience of WOM providers should be vivid and persuasive (Sweeney et al., 2010). Second, only positive WOM needs to be considered for measuring its impact upon business performance. Although researchers found that negative WOM from loyal or satisfied customers may be helpful (e.g. providing the advice for improvement), the influence of negative WOM is much less than the that from positive WOM (Sundaram et al., 1998; Sweeney et al., 2010).

In addition, the impacts of WOM is greater if it is delivered in an intensive and vivid way (Herr et al., 1991; Anderson, 1998; Mazzarol et al., 2007; Sweeney et al., 2010). The elapsed time and richness of the experience from the point of consumption can be significant for delivering the message in a vivid manner. Thus, once a customer has experienced the service provision and is willing to share this positive experience of the brand, this type of vivid expression needs to be addressed in this study. The questions interrogating this matter are as follows:

Q: When did you have the experience of the service?

Q: I would like to share (or already shared) positive experience from the shop, if I am asked about the similar shops.

Q: I think I can share the positive experience vividly (if you are asked) or already shared vivid experience with friends and families and most of them were agreed with my experience

In section 2.6.2, the key business phases which can determine the path to a successful business were addressed. In order to investigate the impacts of design for a service business, it is also critical to research the relationship between key phases. Without validating the positive relationship toward higher levels of loyalty or positive WOM, the measured results are not compelling. Assessing only design value is not practically sufficient to describe the impacts of design in a business. Thus, it is necessary to address the relationships between key phases in order to confirm design's impacts upon the business performance.

2.6.3. Relationship between key phases

By considering the previous review, the phases which will be addressed in this research are; *perceived (service) design value*, *design satisfaction*, *customer loyalty*, and *Word of Mouth (WOM)*. In order to investigate the relationship between these phases, previous studies will be reviewed in this section. This section will focus on the findings related to relationships among the perceived value, satisfaction, and loyalty. Additional findings explaining other relationships outside of these phases were coloured in grey in order to emphasise the main relationship which this study pursues to address.

Although an in-depth understanding of how customers perceive value for a specific business is unveiled, it is still difficult to research direct monetary contributions of loyalty to business performance (Reichheld, 1996). In this case, the behavioural intentions (such as word of mouth) of customers arguably play a key role of increasing potential sales. The interrelationship

between phases from previous research was investigated (Cronin et al., 2000). Given that the reviewed literature considered value from the uni-dimensional perspective, value in this research stream is derived from the perceived benefits from sacrifice and quality. Although the concept of perceived value is uni-dimension in the research by Cronin et al. (2000), the meaning of its outcome for the present study is to provide the general idea of the relationship between business phases.

Thus, what Cronin et al. (2000) summarised are modified to reflect the scope of the present study as shown in figure 2-9 (the out-of-scope relationships and antecedents coloured in grey). The key differences between these previous models are; whether customer satisfaction plays the mediating role between the perceived service value and behavioural intentions; and whether the perceived service value has direct impacts upon behavioural intentions.
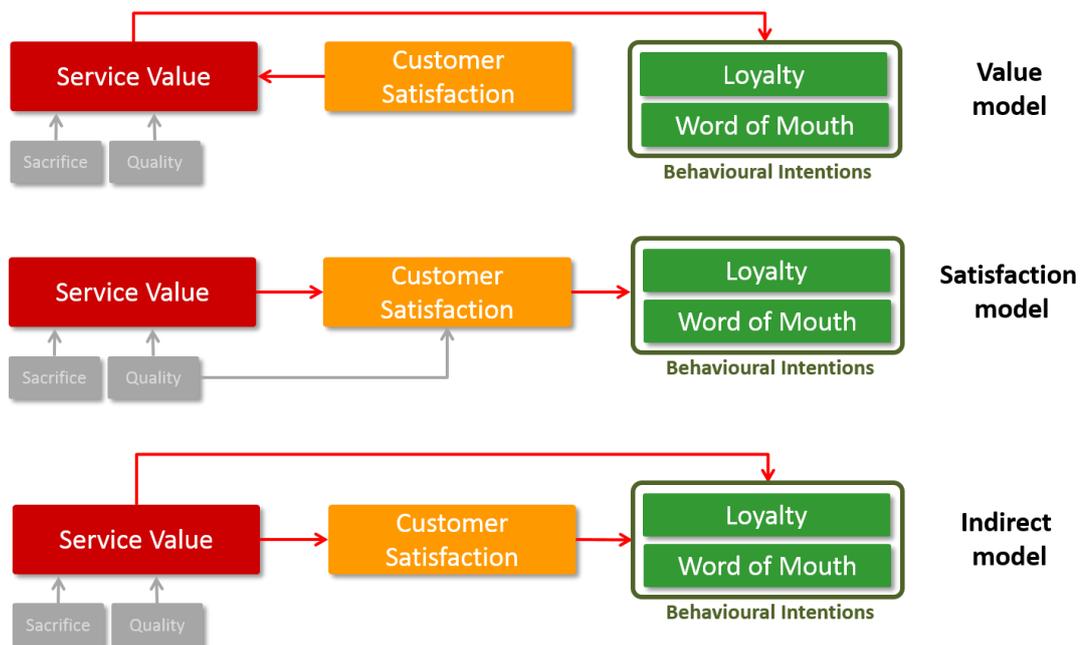
Figure 2-9. **Highlighted relationships within key phases – 1 (modified from Competing models, Cronin et al., 2000, p. 198)**

Similarly, Hellier et al., (2003) suggested and tested a model for customer repurchase intention. Their original model was modified with their testing results and the scope of this research is shown in figure 2-10 below.
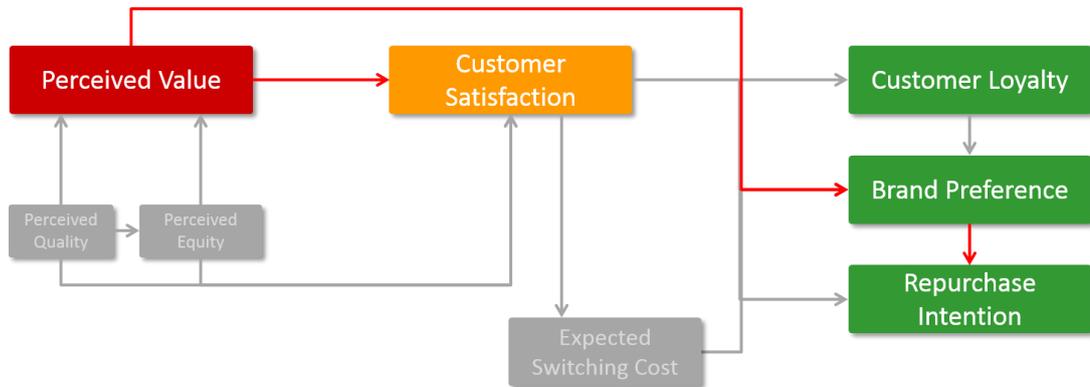
Figure 2-10. **Highlighted relationships within key phases – 2 (modified from the research model, Hellier et al., 2003, p. 1765)**

The relationship of customer loyalty to brand preference and customer satisfaction to customer loyalty was removed from their analysis due to the lack of understanding for customer loyalty in the research (Hellier et al., 2003). However, they argued that the relationship between customer satisfaction and repurchase intention should be mediated by brand preference which is one type of the loyal behaviour for customers. In this context, it can be argued that the customer's overall satisfaction affects various levels of loyalty which is significantly related to profitable behaviours (such as repurchase, re-patronise, and positive word of mouth).

Parasuraman and Grewal (2000) modified the traditional quality-value-loyalty chain with specific components within the phases as described in figure 2-11.
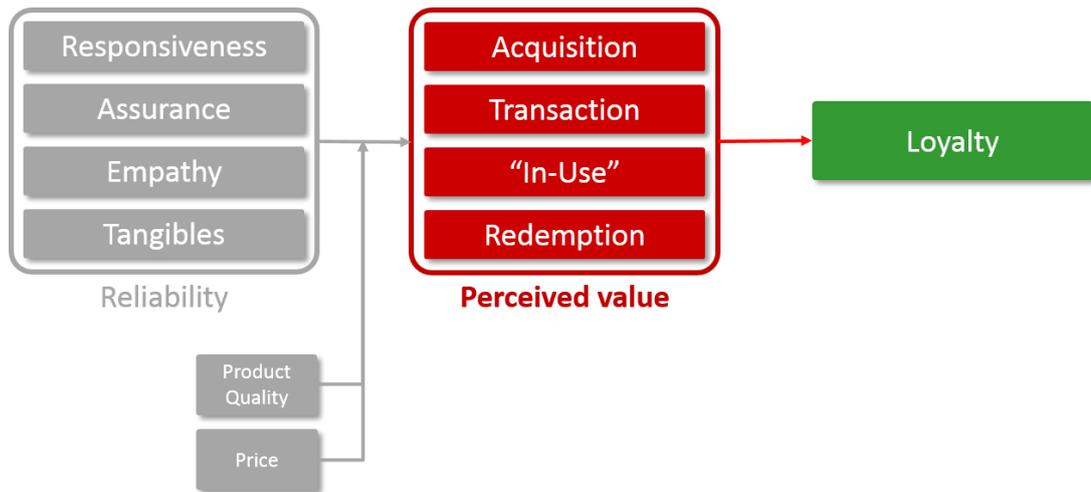
Figure 2-11. **Highlighted relationships within key phases – 3 (modified from the expended model of customer loyalty, Parasuraman and Grewal, 2000, p. 170)**

Parasuraman and Grewal (2000) regarded the service quality as the reliability and classified components of the reliability. Given that not all service provision entails products, product quality and service quality are separated in this model and product quality plays the supporting role. This relationship model explains customer loyalty without the satisfaction phase. In this context, this model is out of scope for this study. However, the meaningful implications of this relationship model are; dynamic relationship between components within the perceived value, and their individual impacts upon customer loyalty. These relationships will be considered in the conceptual framework (chapter 4).

By regarding Holbrook's consumer value typology dimensions as the individual antecedents for the service-profit chain, Gallarza and Saura (2006) tested the relationship between the phases as presented below. They tested the model under a particular situation (university students, travel industry). Due to these particular factors, they found direct impacts of Holbrook's value dimensions upon customer satisfaction and customer loyalty. However, their empirical findings clearly indicate that there is a strong and linear relationship from perceived value to customer loyalty. These findings can be used to support the role of customer satisfaction as the mediating function to link

perceived value and customer loyalty. However, it also indicates that the direct impacts from value dimensions should not be underestimated.
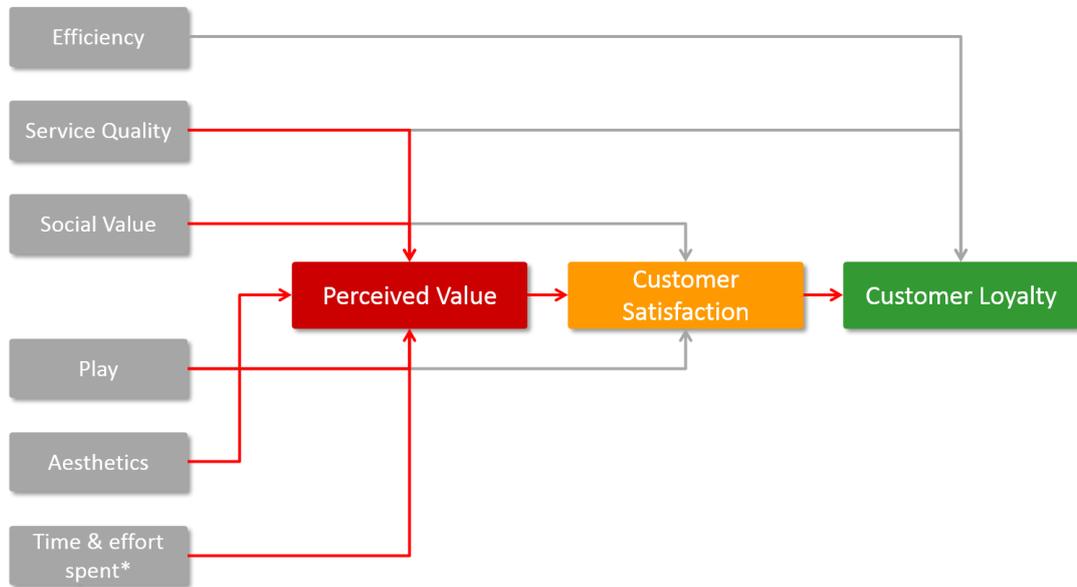
* Time & effort are considered as sacrifices of customers; thus, it is negatively related to the Perceived Value

Figure 2-12. **Highlighted relationships within key phases – 4 (modified from the revised model, Gallarza and Saura, 2006, p. 447)**

Chen and Chen (2010) investigated the holistic concept of perceived value and its relationship with other phases. Given that Chen and Chen examined the relationship within the heritage tour industry, the antecedents of perceived value and the richness of customer loyalty are very limited in terms of explaining the contemporary business situation. However, their results indicated that there can be multiple impacts of a phase on other phases. These findings support the argument of Cronin et al. (2000) that there are direct impacts of the perceived value and its antecedents to the behavioural intention in a certain industry.
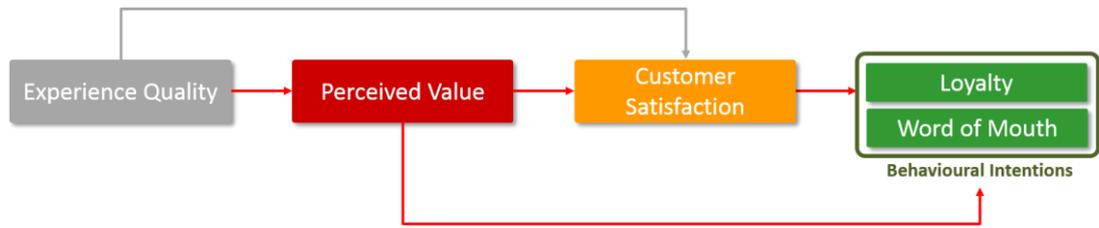
Figure 2-13. **Highlighted relationships within key phases – 5 (modified from the conceptual model, Chen and Chen, 2010, p. 30)**

In terms of investigating the food and beverage service industry, Ryu and Han (2010) proposed the model by emphasising the role of the perceived price as described in figure 2-14.

Figure 2-14. **Highlighted relationships within key phases – 6 (modified from the conceptual model, Ryu and Han, 2010, p. 317)**

Ryu and Han (2010) investigated the direct relationship of quality to customer satisfaction mediated by the perceived price. With this conceptual model, it is difficult to understand the concept of value from the customer perspective. In addition, by considering the fact that quality is mediated by the perceived price, this model can be interpreted as an uni-dimensional approach. The meaningful implication of this model to the present study is the fact that behavioural intentions are influenced by customer satisfaction, not by the quality dimensions in the context of the food and beverage service industry.

Evaluating and understanding the customers' design value is critical to this study. However, it is arguably more significant to research the impacts of

design for a business if design aims to be acknowledged as a part of management strategy. In this context, this study determines the phases of consumption experience for customers as; *the perceived (service) value*, customer *overall satisfaction*, *loyalty* (in four hierarchy), and *WOM* (word of mouth). In terms of explaining the relationships of these experience phases, past studies can be divided into two categories; the *direct impact of the perceived value* to the behavioural intention and the *indirect impact of the perceived value* to the behavioural intention mediated by the overall satisfaction level of customers. Given that these two theories are disputed, it is worth investigating relationships of aforementioned phases without biased view. Details of building the conceptual framework regarding these relationships will be discussed in chapter 4.

This raises the question; how can design value and its impacts be visualised? This study will measure the phases outlined above in order to visualise design value in a numeric way. Many researchers have attempted to measure design value. For demonstrating the originality of this study, it is necessary to review past studies related to measure and quantify the contributions of design. In the next section, it will be addressed how past and current researchers consider ways of measuring design value (section 2.7.1 and section 2.7.2) and the originality of this study (section 2.7.3).

2.7. Measurement for Design Value

Fair and effective assessments can help students to acknowledge their status and performance and then go on to improve and complete more difficult work. Likewise, the intention behind measuring business performance is to identify the current status of the business as objectively as possible. As a target of measurement, how a company can effectively design its offerings and systems is essential to surviving in a highly competitive contemporary market (Moultrie et al., 2006b). In other words, the system's design, products and services are essential for a successful business.

Despite well-recognised contributions, it is difficult to reveal the effectiveness of design. It is challenging to quantify the benefits of design in a business (Hands, 2011). This difficulty is arguably due to the ambiguity surrounding design (Cooper and Press, 1995; Bruce et al., 1999) and a lack of theoretical and empirical research (Moultrie et al., 2006b; Moultrie and Livesey, 2010). In addition, Topalian urges researchers to cultivate "novel means of communicating" by using language from a business perspective (Topalian, 2012, p.34). Thus, it is important to overcome the vagueness of design through clear definitions of interdisciplinary approaches. In other words, it is necessary to investigate how design effectiveness can be comprehended and measured in a successful business.

How can design be comprehended in terms of its impacts upon the success of a business? As Kaplan and Norton (1996b) argued, the role of measured outcome needs to put greater emphasis on guiding future directions than simply stating the current position.

SMEs (Small and Medium Enterprises) were first focused upon as key clients for design audit purposes due to their business vulnerability (Bruce et al., 1999). Moultrie et al. (2006b) proposed a tool for assessing design performance in SMEs (Small and Medium Enterprises). Their systemic approach to success factors, both the process and the product, enables them to identify key success factors in new product development processes and confirm design contributions.

Kaplan and Norton (1996a, 1996b) introduced a holistic, precise and long-term measurement tool for businesses. It has four dimensions (financial; customer; internal business process; and learning and growth) that are referred to as the balanced scorecard. Borja de Mozota (2011) demonstrated the implementation of the Balanced Scorecard to the concept of design value.

Fiscal evaluation of design functions in a business is crucial for being appreciated as a contributor of performance (Cooper et al., 2011). Given that the financial contribution is derived from happy customers, appropriately managed design increases value for both customer and company. To determine the sources of design value (from a customer perspective) and the

linkages between phases of their perceptions, this research uses the concept of value and scrutinises relationships between design value and customer perceptions (key phases: satisfaction, loyalty and word of mouth).

Prior to investigating and determining the linking relationships between key phases, previous studies that measured (design related) value needs to be addressed. In a broad view, measuring design value studies can be divided into two categories: business (organisation) centric and customer centric. Business centric approaches focus on how well the organisation is structured and managed for delivering greater benefits to customers in design perspectives. On the other hand, customer centric approaches emphasise how customers perceive value of offerings in their sense.

However, unlike manufacturing industries, there are subtle differences between products and services offered by service companies. Swann (2002) argues that design influences people by using artefacts and situations that possess a high level of uncertainty. Assessing the output of design activities (e.g. auditing the system for higher productivity or profitable attention towards a new product) is arguably insufficient for comprehending critical issues within the service industry sector. It is necessary to contemplate the factors beyond outputs; in other words, how stakeholders perceive the value of having interactions in a business.

In order to build a model which can encompass contemporary issues of measuring design value, this research focuses on the following factors. First, the measured results need to state not only the current or past status, but also appropriate future directions for a business (Kaplan and Norton, 1996b). Given that the strategic manoeuvre of design can impact more upon a business' long-term goal (Borja de Mozota, 2006), the measured results should support and suggest strategic decisions for a business' future directions. Second, in order to be utilised practically, the model should be concise. Due to the fact that practitioners often find difficulties in applying new theories and models in their projects, the resultant model should have a good degree of ease of application as this is preferred by practitioners. Third, this research aims to find elements and disciplines that are a mix of perceptions

between customers and business points of view. This thesis mainly focuses on the customer perception, however, what customers can perceive needs to be derived from design activities in order to guide design activities within a business.

By considering the application of design perspectives, theories of measuring value will be discussed in the next section (business focused – section 2.7.1; customer focused – section 2.7.2).

2.7.1. Business Centric Value Measurement

Business centric value measurements emphasise the organisational improvements (such as effective system for New Product Development and communication methods for smoother collaboration among teams). Given that the aim of this research is to investigate value from the customer perspectives, most of the business centric researches can be deemed irrelevant to the present study. However, due to the fact that prior research urges the investigator to align the two concepts (business and customer centric value and its measurement), it is also worth reviewing the business centric value measurement. The cross-perceptual relationships between business and customer concepts is a relevant and worthy topic for further study as an extension of this present study.

2.7.1.1. The Balanced Scorecard

When assessing whether investments in design are effective, Borja de Mozota explains four advantages of utilising the balanced scorecard (Borja de Mozota, 2006, 2011). First of all, it provides a dynamic and long-term perspective. The four perspectives (financial, customer, internal, and learning and growth) in the balanced scorecard represent a holistic view of a business's performance. This holistic characteristic enables the results to be viewed longer term regarding the assessment of aims to desired goals. In addition, the dynamic characteristic allows management to utilise the four perspectives flexibly, thus, the business agility dependent upon a business situation can be

realised. The long-term view of business performance can be critical for design to be acknowledged as a contributor to success. Secondly, it is applicable to any design project or decision; due to its similarity to design thinking and design coherence, the Balanced Scorecard can easily embrace design perceptions. Thirdly, it broadens the design outcome of financial perspectives. Given that the balanced scorecard includes the financial benefits of design, the objectivity of design investment (both financial and non-financial) can be realised. Lastly, it is the language which is frequently tackled within a business situation. As Topalian (2012) prompts, the development of languages which both parties can easily understand (but originated from the business field), the design embedded Balanced Scored can arguably be an effective communication tool.

However, there are some limitations when employing the Balanced Scorecard for investigating the value within the scope of present study. Firstly, since the Balanced Scorecard is a 'results-based' view of company-based activities it is difficult to include the causes behind each stakeholder's decision to remain within the network. For example, the core customer measure in its matrix includes the customer satisfaction survey, market share, new customer acquisition and customer retention. It is difficult to answer questions such as 'why customers are satisfied with products and services?', 'why we have new customers (or lose our customers)' or 'why customers keep consuming our products and services?'. Understanding the causes of these questions can contribute to supporting the effective management of a business. Secondly, the scope of the Balanced Scorecard is too broad to specify design elements and principles for measuring. As case studies of Borja de Mozota (2006) demonstrates, key measures of the same perspective differ from their business' situations or their sector. It requires further studies to specify elements and principles of each dimension. Lastly, but most importantly, the implications of measured results are not suited the scope of this research. The measured results aim to change business influential factors *within* the organisation such as the behaviour of employees or setting a new vision (Kaplan and Norton, 2001). It can be difficult to understand how those changes affect *customers'* perceptions for a business' offerings. It is one of

the keys to this study to understand the attitudes of customers to the activities of business. Thus, the actual impacts of a business' design activities can be assessed in terms of allocating resources to design.

2.7.1.2. Design Audit

The audit provides the objective information about current operation to its management. Since design becomes a major strategy of a company's operation, management becomes increasingly interested in whether its design strategies operate effectively and accord with corporate missions. Since Kotler and Rath (1984) introduced the audit list of design sensitivity and design management effectiveness, auditing design function has become noteworthy.

Although specific measures of design audit are rarely mentioned, Cooper and Press (1995) argues that there are three levels to be considered when design is audited; the corporate philosophy and strategy, how the company operates, and how design function communicates. Cooper and Press (1995, p.214) also argued that there are four hierarchies of design audit; Physical manifestations of design, Design management, Corporate culture, and Environmental factors. By employing this view, design activities within a corporate can be clearly classified, thus, the design audit for functions within a company can be addressed. However, since the stakeholder mainly focused in this view is the business organisation itself, other stakeholders' perception cannot be easily applied (such as the customer who this study focuses on).

Despite its business organisation restricted perspective, what Cooper and Press argue in their research can be construed as building the value of employees. Leadership, competencies, management, and people are positively related to the loyalty of employees, which arguably stem from greater employees' value and satisfaction on their work situation (Martensen and Grønholdt, 2001). In addition, the satisfied employees are the key for delivering greater value to customers (Heskett et al., 1994).
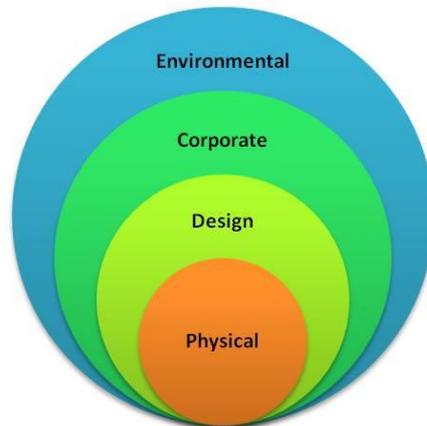
Physical manifestations of design
- Visual identity
- Corporate design standards
- Product
- Work environment
- Pre-project

Design management
- Design resources: human, physical, internal, external
- Design skills
- Design training
- Design management: process, procedure, guidelines
- Design funding: investment and return
- Design department: location, services, aims and objectives
- Project management

Corporate culture
- Corporate design strategies
- Design awareness/understanding
- Design champions
- Design and other function integration
- Design activities undertaken

Environmental factors
- Market trends which could impact design decisions
- Design trends
- Legislation
- Standards

Environmental

Corporate

Design

Physical

Figure 2-15. **The levels an organisational design audit might address (Cooper and Press 1995, p. 214)**

Thus, the key contribution of the design audit hierarchy (Cooper and Press, 1995) in terms of evaluating design value is the fact that it identifies design audit principles and elements depending upon the levels of practical activities in a business. In doing so, a company can strategically focus on a certain level of design activities.

By analysing design management processes of targeted companies, Bruce et al. (1999) showed eight different cases of auditing design activities with the concept of design audit argued in Cooper and Press (1995). Bruce et al. (1999, p. 302) classified three types of evaluation; the concept against brief, product or concept against success in the market place, and corporate design strategy and performance against competitors. The aim of the evaluation was to examine current understanding of utilising design management skills in a business. Thus, the method and outcome are not necessarily related to increasing the customer perceived value and its measurement. However, the result is relevant to this study in terms of suggesting that design activities should be related to customer requirements. In other words, it is necessary to

understand a company's design activities in the context of how customers perceive value from offerings.

By considering the NPD (New Product Development) process as a part of the design process, Moultrie et al. (2006b) argued that a product audit can be performed along with a process audit. The role of process audit is to evaluate a company's system which aims to duplicate successful practices continuously. Thus, the process audit emphasises the maturity of management skills such as product and cycle time excellence, and R&D effectiveness. On the other hand, product audit can be classified into seven categories: "core benefit, engineering quality, product usability, product desirability, product producibility, product profitability, and product novelty and differentiation" for delivering good design to customers (Moultrie et al., 2006b, p. 194). Given that product audit is more relevant to customer focused value creation, this part of audit will be discussed in the section 2.7.2.4. Although, the product focused audit (thus, customer perception of the product can be addressed) from same researchers was investigated in the other study (refer to section 2.7.2.4), what Moultrie et al. (2006b) argued in their study is meaningful in terms of bridging the process audit (business centric) and the product audit (customer centric).

Later, Yin et al. (2011) investigated key criteria of measuring design performance. By defining five indicators of design performance measurement (*efficiency*, *effectiveness*, *collaboration*, *management skill* and *innovation*), Yin et al. (2011) argued and prioritised the specific lists of each category. For example, the most critical element of design management effectiveness is "delivering to the brief" (Yin et al., 2011, p. 169). Given that the brief is a communication tool derived from understanding of customer needs within a business organisation (Hales, 1990), it can be argued that how customers perceive value created by various design activities is the key to examine the *effectiveness* in design perspectives. The aim and outcomes of Yin et al.'s research is to provide feedback and analysis in order to optimise the system for creating desirable products and services to customers. Similar to other

business-centric measurements, the results of audit emphasise the systemic approach for increasing organisational efficiency.

Although the business-centric evaluations pay attention to the improvement and modifications within an organisation, most of studies urge the alignment of these business activities to the customer perceived value. The effective business system corresponding with the highest customer perceived value is arguably the goal which every company pursues. In this context, this study focuses on the customer perceived value from the outcomes of design activities within a company. The studies which had addressed how to measure the design value will be discussed in the next section.

2.7.2. Customer Centric Value Measurement

Customer centric value measurements focus how and why customers react (like or dislike) to offerings in a specific manner. Given that the concept of brand equity pertains the customer satisfaction dimension within the measurement, the concept of brand equity is included in this section. Along with brand equity, the previous attempts for classifying dimensions of value and measuring will be addressed in this section.

2.7.2.1. Brand Equity

Given that branding the service is about managing the experience of customers in a service firm (Kotler et al., 2012), the concept of managing brand as the equity of a firm is worth for investigating. From the broad viewpoint of the brand value, Aaker defines the concept of brand equity as "a set of brand assets and liabilities linked to a brand, its name and symbols that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers" (Aaker, 1991, p.15). Aaker (1991) argues that there are four major dimensions (brand loyalty, brand awareness, perceived quality, and brand associations) and the other proprietary brand assets (competitive advantage) for measuring brand equity. Due to the fact that Aaker's four dimensions of brand equity can be utilised practically for

measuring the value of a brand to the company and customer, it could be an important reference for evaluating the customer value of a brand. However, employing the brand equity concept in present study has following restrictions.

First, the concept of value in this study is to structure elements and principles for measuring design's contribution from customer perspectives. Thus, the result of measurement can be converged as one phase of customer – service provider relationship. However, given that brand equity already contains the profitable and effectiveness concept, it is the overall assessment of a brand, not the concept of customer value for researching the relationship in the customer – service provider relationship. By considering the causal relationship between satisfaction and value, satisfaction should not be within the same domain of value (Oliver, 1999).

Secondly, the key dimension, brand loyalty, in brand equity is defined as the result of experience through the actual consumption behaviour (Aaker 1991), thus, the assessment of brand equity is based upon the post-purchase evaluation of consumers. However, the development of information technology and various ways for stimulating customer senses contributes to the significant increase of indirect experience of offerings before a customer's visit. In other words, contemporary customers are exposed to the pre-purchase experience through many different sources. Consumers can build their brand familiarity through these sources. Ha and Perks (2005) argued that brand familiarity can be built during their information search phase. The brand familiarity is substantiated as the key positive factor of customer satisfaction and perceived quality (Ha and Perks, 2005). Therefore, in order to evaluate the customer value holistically, it is necessary to investigate the ultimate sources of customer needs beyond the moment of interaction.

Finally, there is arguably a limitation of comparing cultural differences through assessing brand equity. Yoo and Donthu (2002) compare and find the invariance of the brand equity creation process in the US and Korea. Findings from Yoo and Donthu demonstrate similar correlations in both countries between phases in building brand equity through perceived quality, brand loyalty, and brand awareness and associations. While they found similar

perceptions on building brand equity in both countries, they also identified cultural differences in the effects of each dimension. Nevertheless, the findings cannot clearly explain the degree of difference in each country and why they are different. Although many companies are globalised in producing and offering products and services, it is arguably caused by the fact that consumers cannot be free from their local culture and prefer appropriate promotions of the mixed third culture with their own traditions (Arnould et al., 2004). Therefore, understanding and adopting local culture is as important as standardisation (consistency) of a company's offerings. Given that Holbrook's value typology contains dimensions of individual's emotional reasons for determining how they perceive, it can measure the changes and differences in customer value in various ways including cultural differences.

2.7.2.2. Emotional bonds between customers and suppliers

By considering the customer's emotional bond to a provider as the most significant determinant of customer value, Butz and Goodstein (1997) argued that the procedure of understanding customers is a key to measure the customer value. Butz and Goodstein classified five steps for understanding customers; customer identification, planning the data collection, collecting the data, measurement and implementation. Within the five steps, the measurement and implementation step is categorised as five levels of the customer bond (preferential, favouritism, commitment, referential and exclusive). It is arguably similar to the loyalty phases (Oliver, 1997) mentioned previously. Given that the customer bond is considered as the contributor of long-term relationship, it is also relevant to investigate in the field of service.

However, although it can be identified why customers prefer (or dislike) the offering by understanding the customer's value in the data collection step in Butz and Goodstein's study, it was not examined that how the customer perception is connected to the level of the bond. As it is reviewed in section 2.6.3, greater customer value does not guarantee a higher level of loyalty. Thus, it is necessary to identify the relationship and link between the steps. Furthermore, it was not specified how the obtained data can be analysed

regarding to emerged issues in the paper. Instead, their findings and suggestions are meaningful in terms of urging the in-depth understanding of how customers perceive value and the necessity of measuring value from the customer perspective.

2.7.2.3. SERV-PERVAL scale

By encompassing the hedonic concept of value, Sweeney and Soutar (2001) developed the PERVAL scale with 19 items with four value dimensions (quality, emotional, price and social). Given that the scale and dimensions are not suitable for epistemic value (Sweeney and Soutar, 2001), the application of PERVAL for design value in the service industry can be difficult. However, the logical structure of developing the scale and four dimensions are relevant to the present study. Thus, Petrick (2002) proposed SERV-PERVAL scale which can be utilised for measuring the perceived value in a service business.

Unlike the perceived value of tangible products, Petrick (2002) argued that it is necessary to consider the four key characteristics of the service (intangible, perishable, variable and inseparable) in order to understand the perceived value of a service. Five dimensions (quality, emotional response, monetary price, behavioural price and reputation) of the perceived value were generated by considering responses of a customer at the point of purchase. By following the development of the PERVAL scale, Petrick (2002) modified the PERVAL scale into a multi-dimensional scale for measuring the perceived value of a service (SERV-PERVAL).

Given that the SERV-PERVAL scale was developed in the multiple (five) dimensions of the perceived value, it can be useful for companies to investigate what customers need (Petrick, 2000). However, it is arguably not sufficient to suggest specific solutions for companies. For example, if a family-oriented restaurant find the problematic result in the emotional response dimension, how can it be improved? There are numerous methods for improving the emotional responses for a family restaurant. In order to be practically utilised for suggesting solutions, the perceived value dimension should be determined by the customer's psychological factors. The five items

which belong to the emotional response dimension in the SERV-PERVAL are; (1) makes me feel good, (2) gives me pleasure, (3) gives me a sense of joy, (4) makes me feel delighted, and (5) give me happiness. However, none of these can explain where the emotional responses come from. Identifying the sources of customer's judgement is arguably critical to improve the perceived value for customers.

In addition, the utilisation of the SERV-PERVAL scale is limited to the *after sale* evaluation (Petrick, 2000). By considering the development of information technology, the amount, as well as the quality, of information which customers can obtain before their actual visits is arguably greater and richer. Thus, the perceived value for customers can differ at various stages of the experience (Parasuraman and Grewal, 2000) and be accumulated throughout a whole set of experience. The social networking services (SNS) and internet reviews in blogs are playing out as the key contributors of the pre-purchase perception for customers. For example, the good reputation and expensive looking images of a restaurant from the internet can increase the pre-purchase value and expectation for a customer. If the restaurant fails to meet the expectation or the perceived value is different from what was promised, the degree of disappointment can be significant. In short, in the contemporary market situation, the leverage of the social media and internet as the determinant for creating customer perceived value before experiencing the service should not be underestimated.

2.7.2.4. Product Design Audit Tool (for SMEs)

The tool introduced in Moultrie et al. (2006a) encompasses not only essential design issues within a business, but also emotional responses emerged from customers. Seven discrete categories of the product audit tool were determined in the research: core benefit, engineering quality, profitability, usability, desirability, producibility and novelty & differentiation. By encompassing a wide range of design issues, the tool can be utilised for practitioners to discover current issues and managing the directions of product improvements or developments (Moultrie et al., 2006a). In addition, the tool

can be expanded to the service design audit, due to its seven audit categories that are applicable to service aspects of a business. For example, engineering quality can be interpreted to environmental design (designing architecture, interior and landscaping) for the service industry.

However, emotional responses from customers by using or owning a product was superficially covered in their research. Given that emotions are derived from customer perceptions, emotional responses such as "a sense of pride", "positive emotional response", "improves status amongst peer group, (Moultrie et al., 2006a, p. 1173) are important to understand customers. The scope of this study is to categorise those emotions from offerings and investigate how they emerge from the experience. Thus, how customers value their offerings needs to be comprehended further.

2.7.2.5. Three categorical approach: the gross value added (GVA), the triple bottom line system and the service usability

Løvlie et al. (2008) introduced three different ways of measuring value of design in the service sector. First, they utilised the concept of gross value added (GVA) for evaluating the impact of a design project. The estimated impact of design is calculated by existing financial indexes (such as the government's expenses on the benefits for unemployed person). After implementing design projects, the monetary value of design projects can be calculated by multiplying the index by the improved cases. This is particularly suitable for the public service sector (Løvlie et al., 2008). Second, they argued that the return on investment (ROI) can be classified into three bottom line returns (financial, environmental and social return). Given that this concept contains non-monetary value, it can be more broadly utilised in the service industry (Løvlie et al., 2008).

First two approaches in the research consider the ROI for the justification of design projects. Although the triple bottom line approach includes the more holistic concept of measuring value of design projects, it is still difficult to provide a solution or in-depth understanding of how design issues can be managed from the customer perspective. Thus, Løvlie et al. (2008) introduced

the concept of service usability index that can help businesses to answer why customers defect or how they can improve the service. By asking four key parameters (proposition, experience, usability and accessibility), they argued that this approach can achieve the broader view (from the boardroom to the frontline) of a business. Given that it utilises the touch-point based analysis of the customer journey, it can propose possible improvements from the customer perspectives (Løvlie et al., 2008).

However, these approaches are slightly out of scope for this study for following reasons. First, although three approaches contains certain aspects of non-monetary value of a design project, the aim of the approaches is to estimate financial contributions of design projects and propose solutions for enhancing the performance of a business. Furthermore, the concept of value which the this study pursues is the design value for customers. In this context, whether value is added to offerings is determined by customers (Butz and Goodstein, 1997), not by increased business performance. Second, It can be argued that what can be analysed by the *Design Value Typology* is the holistically perceived *customer* value and where the customer perception originates. Thus, these approaches can be utilised for determining the profit and growth in future studies, but not for evaluating the perceived design value. It is critical to research the link between the behavioural intentions (customer loyalty and WOM in this research) and the financial returns for the practical use of the *Design Value Typology*.

2.7.3. Identification of the gaps in the literature for value measurements

The concepts of measuring value were reviewed for the scope of this study. The summaries of each perception are described in table 2-10 – business centric view and table 2-11 – customer centric view.

Table 2-10. *The Business centric View of Value Measurements*

	Limits for this study	Implication for this study
Cooper and Press, 1995	• Organisational perspective • Not related to customer value	• Understanding of actual action items in hierarchic manner
Bruce et al., 1999	• Organisational perspective • Not related to customer value	• Raising the necessity for linking business activities to the consumer value
Moultrie et al., 2006b	• Organisational perspective	• Raising the necessity for linking business activities to the consumer value • Product audit elements are relevant to the concept of value
Yin et al., 2011	• Organisational perspective • Exclude customer satisfaction • Difficult to link the financial outcomes	• The concept can be utilised for investigating action items in a business in relationship to customer value
Borja de Mozota, 2006; 2011	• Organisational perspective • Result-based • Too broad	• Long-term view of the relationship • The concept of financial returns on design investment (future study)

Table 2-11. *The Customer centric View of Value Measurements*

	Limits for this study	Implication for this study
Aaker, 1991	• Differences between the concept of brand equity and value cannot be easily aligned • Post-purchase evaluation only • Cannot detect cultural factors	• Raise the questions of differentiating brand equity and customer value
Butz and Goodstein, 1997	• Difficult to apply practically • Missed the in-depth understanding of why customer are emotionally attached • Without identifying the customer satisfaction, direct relationship between value and loyalty is irrelevant.	• Determined different levels of loyalty for the customer bonding to the offerings • The levels of loyalty was determined for the long-term customer relationship
Petrick, 2002	• Difficult to investigate the root cause of customers' response • Underestimated the influences of contemporary technologies (internet and social network) for creating the "*pre-experience*" of a service.	• Classified five dimensions of customer value • Service-oriented analysis
Moultrie et al., 2006a	• Need the conceptual framework for categorising emotional responses of customers	• Flexibility of the tool is critical for the practical application • Product-oriented research, but applicable for service researches.
Løvlie et al., 2008	• Lack of the in-depth understanding of customer perceived value • Focused on financial returns, value should be conceptualised in order to align with financial outcomes	• Specified key financial related outcome. • Critical viewpoints for addressing *profit & growth* in the service profit chain.

Research for the business centric value measurements emphasise improving internal systems. However, given that understanding the customer perceived value should entail practical action items within a business, reviewing business focused viewpoints is arguably necessary to enrich a customer focused research. The business centric research also urges the investigation of the customer focused value in a practical method (Bruce et al., 1999; Moultrie et al., 2006b).

In this context, this study has identified the gaps in current research as follows. First, there is not sufficient theoretical and practical studies to understand the link between a company's design activities and customers' perception from them. This can be particularly important in the service industry due to the intangible characteristic of service. Unlike product design, service design is the design of a platform or a symbolic space where interactions between people occur (Pacenti and Sangiorgi, 2010). Every interaction has different actors and actresses of perceiving value within the given platform or space. Thus, it can be more difficult to predict a certain perception from a customer. If the customer perceive value is not considered, a service delivery system can fail to satisfy customers. In other words, auditing an organisational effectiveness to deliver offerings is not sufficient for understanding contemporary market. It can be argued that evaluating how the delivered offerings are perceived by *customers* needs to be contemplated.

Second, although value is highly acknowledged as the most useful source of understanding customers, it still needs to be understood in-depth (Heinonen et al., 2013). In contemporary marketing research, value for customers is dominantly emphasised. Within the context of customer and service focused theories, value is no longer delivered. Value is regarded as the co-created perception with customers. The customer involvement in creating value for a business becomes crucial for a successful business (Grönroos and Gummerus, 2014). Therefore, knowing how customers perceive value is arguably critical for every stakeholder involved in a business.

Lastly, but most importantly, it is necessary to understand design from the customer perspectives with the lens of value. By comparing the cost of

modification of its products and services, the settings of a service delivery can be changed easily and frequently. However, the customer perception on the changes has not been fully understood (Bitner, 1992). Although the cost of modifying the setting in the service industry is relatively less expensive than the manufacturing industry, the frequent failure of customer-oriented service setting can cause not only the loss of the financial asset, but also the customer defection. However, the field of customer value in design perspective and its measurement in order to examine the impact of design in the service industry still remain unexplored.

Therefore, this study aims to develop the conceptual framework and model which can encompass holistically perceived customer design value and its measurement. In order to achieve this aim, this study also combines multiple methods and methodologies. The detail will be discussed in following methodology section.

Chapter 3
Research Methodology

3.1. Introduction

Given that the aim of this study is to propose a tool which can measure the holistically perceived design value for customers, there are three key factors which should be considered to achieve this aim; (1) theoretical and conceptual understanding of design value and its measurement, (2) in-depth review and modification of existing (or extrapolated from the preliminary study) framework, and (3) testing and validating the proposed framework and model. By considering these factors, it is problematic to utilise a single methodology for resolving these factors.

In this context, this study employs two main research methodologies; soft systems methodology, and mixed methodology. By having practical data, soft systems methodology enables research to be modified continuously to reflect the real world. Mixed methodology is the combination of qualitative and quantitative methods. Design studies traditionally utilise qualitative methods for analysing data. However, by considering the aim of this study as developing a *measuring tool* for design value, the result-based quantitative data analysis should be performed simultaneously with the process-based qualitative approaches. Therefore, each methodology will be discussed briefly (section 3.2 and 3.3) and then, how this study utilises two different methodologies will be addressed in section 3.4. Lastly, how this research is designed (in terms of data collection, sampling procedure, data analysis methods, scale of data and the distribution methods) will be addressed (section 3.5)

3.2. Soft systems methodology

Soft systems methodology is a learning system with system models which encompasses complex human activities (Checkland, 1985). By reviewing conceptual frameworks and models for explaining the real world situation, it pursues more practical solutions for reflecting complex issues. The detailed steps of soft systems methodology is illustrated in figure 3-1.
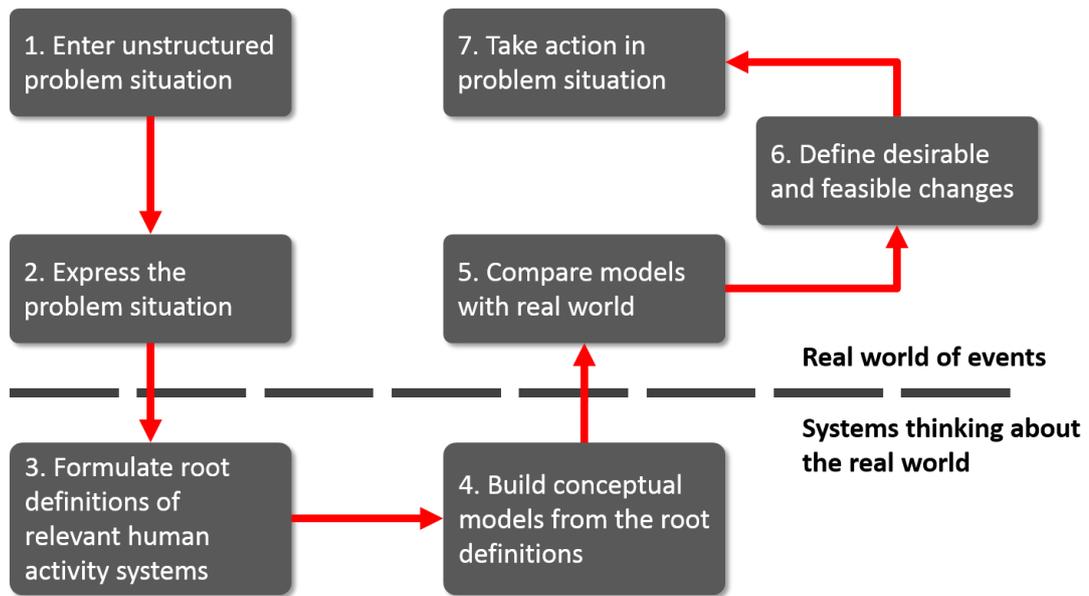
Figure 3-1. Soft systems methodology as a learning system. (Checkland, 1985, p.823)

Generally, soft systems methodology is utilised for improving a problematic situation in a specific business (Checkland and Scholes, 1999). The traditional examples of the research question for soft systems methodology is "how to educate students as an effective problem-solver and situation improver in the complex and dynamic world of modern agriculture" (Macadam and Packham, 1989, p. 352) or "How can development issues be taken into consideration in the planning of rural telecommunications infrastructure?" (Andrew and Petkov, 2003, p.78). Thus, a solution which can be generated by soft systems methodology is arguably narrow.

However, Checkland and Scholes (1999) argued that the transformed utilisation of soft systems methodology can guide researchers to solve complex contemporary business problems. Thus, this study utilised two appropriate concepts of soft systems methodology: (1) the concept of the continuous modification for a tool and (2) the distinction between the real world and the system world in order to enhance the practicality of the developed tool.

3.3. Mixed methodology

Mixed methodology can be utilised if it is difficult to suggest a relevant framework or model with a single methodology. The characteristics of quantitative, qualitative and mixed method approaches are presented in table 3-1.

Table 3-1. *Dimensions of contrast among the three methodological communities.* **(Teddlie and Tashakkori, 2009, p. 22)**

Dimension of contrast	Qualitative position	Mixed Method position	Quantitative position
Methods	Qualitative methods	**Mixed methods**	Quantitative methods
Researchers	QUALs	Mixed methodologists	QUANs
Paradigms	Constructivism (and variants)	**Pragmatism**; transformative perspective	Post-positivism Positivism
Research questions	QUAL research questions	MM research questions (QUAN plus QUAL)	QUAN research questions; research hypotheses
Form of data	Typically narrative	Narrative plus numeric	Typically numeric
Purpose of research	(Often) exploratory plus confirmatory	Confirmatory plus exploratory	(Often) confirmatory plus exploratory
Role of theory; logic	Grounded theory; inductive logic	Both inductive and deductive logic; inductive-deductive research cycle	Rooted in conceptual framework or theory; hypothetico-deductive model
Typical studies or designs	Ethnographic research designs and others (case study)	MM designs, such as parallel and sequential	Correlational; survey; experimental; quasi-experimental
Sampling	Mostly purposive	Probability, purposive, and **mixed**	Mostly probability
Data analysis	Thematic strategies: categorical and contextualising	**Integration of thematic and statistical; data conversion**	Statistical analyses: descriptive and inferential
Validity / trust worthiness issues	Trustworthiness; credibility; transferability	Inference quality; inference transferability	Internal validity; external validity

The characteristics and philosophical stand related to this study are emphasised in bold in table 3-1. By utilising mixed methodology, the academic goal of this study is to develop a model with a high level of practicality. Thus, the philosophical position of this study is pragmatism.

Given that different stages in soft systems methodology should be performed with different approaches, interview and literature review (qualitative), and statistical analysis of data (quantitative) are performed simultaneously.

3.4. Application of two methodologies

Given that some key steps in soft systems methodology (such as drawing the rich pictures and performing CATWOE analysis) are not appropriate for generalising a model of the boarder concept in the targeted industry, they were not considered in this study. Drawing rich pictures and CATWOE analysis are arguably more suitable for improving the system for a specific brand (or a company).

However, as mentioned previously, not all aspects of soft systems methodology was applied to this study. Given that soft systems methodology can be utilised for advising researchers to discourse on current issues (Checkland and Scholes, 1999), this study employed few logical concepts of soft systems methodology for the following reasons. Firstly, the concept of the continuous loop of development cycle is employed. Given that the research for measuring design value in the service industry is a relatively unexplored area, it is difficult to find relevant frameworks and models. It is thus necessary to approach the concept through the trial and error method. Including the preliminary research, this study performed three field tests in order to find any logical and theoretical improvements. Secondly, the concept of the distinction between real world and system world is adopted. Building a conceptual framework based on theoretical and qualitative analysis is important. However, in order to be utilised practically, testing the conceptual framework

in the real world is also critical. In addition, by considering the aim of this study as a project within a broader scope, the logical stream of soft systems methodology is relevant to the this study. In summary, soft systems methodology contributed to build the structure of this thesis limitedly, but significantly through its logical order and concept.

Qualitative and quantitative approaches of application were performed at the different stages within this research. Purposes of utilising qualitative approaches in this research are; (1) building a conceptual framework, (2) achieving comprehensive understanding of the conceptual framework and model proposed in this study, and (3) modifying the framework and model for a better fit to the real world. On the other hand, the goal of quantitative approach is to test hypotheses and confirm the practicality of the suggested conceptual framework and model. The detailed stages with different methodologies will be addressed in the next section.

3.5. Research design

The summary of data collection and analysis is described in figure 3-2.

First stage	Second stage (1)	Second stage (2)	Mid-stage	Last stage
• Sample size: 9 • Off-line survey • Purpose: pilot test for value dimensions	• Sample size: 120 • Online survey • Purpose: relationship among value, satisfaction and loyalty	• Sample size: 277 • Online + Off-line survey • Purpose: relationship among value dimensions	• Sample size: 26 • Interview (focus group, individual, e-mail) • Purpose: modify questions	• Sample size: 438 • Online + Off-line survey • Purpose: relationship among value dimensions and key phases

Figure 3-2. **Data collection and analysis steps of the research**

Qualitative approaches were utilised in the mid-stage only. In the reminder of the stages, quantitative approaches were employed. Details of the sampling and analysing methods will be addressed in following sections.

3.5.1. Data collection

This study consists of three main stages; (1) the preliminary stage for addressing problematic issues and the pilot study – first stage in figure 3-2, (2) first quantitative analyses – second stages in figure 3-2, and (3) second quantitative analysis – last stage in figure 3-2. Qualitative approaches (interviews – mid stage in figure 3-2) were performed between first and second quantitative analyses in order to investigate the potential improvement of the model.

In terms of collecting quantitative data, this study collected the data randomly by using online survey agencies and offline visit survey. Qualitative data was gathered through face to face interview (individual and focus group), telephone interview and e-mail interview.

At the first stage, the pilot testing of the conceptual framework was performed. The purpose of pilot testing is to examine the feasibility of the proposed conceptual framework for the larger scale of data collection. The offline survey at a café in Bolton abbey, Leeds, was performed. Due to the fact two returned surveys include some unanswered questions, 9 survey responses out of 11 were utilised for analysing. The detailed analysis and findings will be discussed in chapter 6 – Tool development.

At the second stage, the same set of survey questions was tested with a larger group of participants. The survey was performed in three different regions; the UK, the USA, and Asia. The second stage (1) in figure 3-2 is an on-going phase for collecting data within the UK and Asia, before collecting data from the US. The purpose of the second stage (1) is to test the relationship of design embedded value and other business indicators prior to the extension of data collection (Nam and Carnie, 2014a).

The second stage (2) in figure 3-2 includes the data from the US and the reason for including the Americans (USA) in this research is to enable more globalised results with sufficient numbers of responses for the statistical analysis (Nam and Carnie, 2014b). The total data collected was 277 samples (27 from offline survey and 250 from online survey). The target industry was

restricted to the café industry (coffee shops). The distribution of gender is female (159 responses, 57.4%) and male (118 responses, 42.6%). The more detail distribution of sample population is as shown in figure 3-3.

Nationality (# of people, %)

Age distribution (# of people)
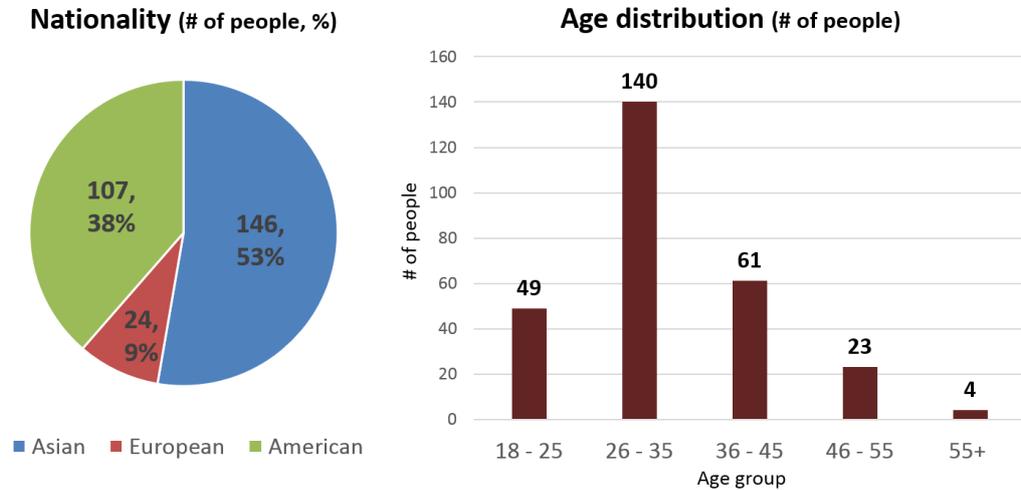
Figure 3-3. **Demographic information of the second stage (2) research**

By focusing on the café industry, the purpose of the second stage (2) is to investigate the relevance of the survey questionnaire and the relationship within *Design Value Typology* for this given service sector (Nam and Carnie, 2014b). By considering the fact that spreading out the international chains (such as Starbucks, Illy, Coffee bean) enables the generalisation of coffee and warm beverage consumption and the expectation of the service (Thompson and Arsel, 2004), the unequal distribution of samples among regions was disregarded at the second stage of study.

Between the second and last stages of this study, various types of interview (face to face, telephone and e-mail) were performed in order to modify the questionnaire. Although overall relationships among researched phases can be addressed, it is necessary to identify further understanding of relevant questions for each design value dimensions. The tasks of the interviewees were; (1) to determine factors for Design Value Typology by brainstorming, and (2) to locate the factors within pre-determined design value dimensions. Three different types (focus group interview, 5 participants; individual and face to face interview, 6 participants; and e-mail interview, 15 participants) of

interviews were performed. In order to encompass broader viewpoints, participants include design professionals (8 people) and the general public (18 people).

Firstly, two focus groups from the design profession were interviewed with verbal consent. All participants hold the MBA degree in design management. The first focus group has two UX (User Experience) designers in a Korean electronics company. The second focus group has one ex-marketer from an international IT company, one UX designer from a Korean electronics company, and one marketer from a newspaper company. The interview started with the question, "what is the most important factor (for you) to decide to go for dining?". Participants were given the four categories of design contribution; product, environment, information, and corporate identity (Gorb in Cooper and Press, 1995) to provide any opinion by using the sticky notes at the first task. Then, the pre-determined design value dimension board was provided. In the second task, they were asked to discuss and locate the ideas on the board (refer to appendix B.1).

Secondly, three individuals in the professional group were interviewed using face to face interview (2 participants) and phone interview (1 participant). The first participant is a freelancer furniture designer. The interview procedure for this person was the same as the group interview. The second participant is a CEO of a Korean business consultancy and had a face to face interview. The interview was performed without a form and the CEO provided his views on a successful design management in the service industry. The third participant is a service designer from the UK service design consulting company in the UK and this interview took place through phone interview. The interview procedure was the same that was utilised for the second interviewed participant. The professional group interview was voice-recorded for further analysis. Detail interview results will be discussed in chapter 6.

The general public group (18 participants) was interviewed by e-mail with the use of a pre-determined form (refer to appendix A.1). Although participants in the general public group are not professionals employed in the design industry, they have been educated in the art and design schools. Thus, it can

be argued that the general public group also has the certain level of design cognition. They were asked to fill the form or freely answer the question, "what is the most important factor for choosing a restaurant, a café, or a bar?".

With these interview methods, 130 factors were collected and categorised in order to find relevant contents for each design value dimension (refer to appendix B.2). By considering the findings from the interviews and literature, the final questionnaire (refer to appendix A.3) was determined and performed in the larger scale at the third stage of this research. Firstly, the target industry is broadened to the whole food and beverage service sector. Although the café is a good representative of the food and beverage service industry, it is necessary to include the whole industry in order to claim the generality of this study. Secondly, the sample size for each region (South Korea, UK and US) was balanced and specified. Despite the globalisation of food consumption, the influence of local culture should not be underestimated (Robertson, 1995). Before analysing three different regions as the whole research population, it is worth analysing the results separately in order to find any cultural differences among groups.

Thus, the survey was conducted mainly through online means (487 participants, 94.4%). 29 responses (5.6%) from the UK participated from offline survey at University of Leeds. Due to this factor, the age distribution of British participants has slightly larger young population than other countries. Participants are clearly classified by their nationality (South Korean, British and American). The numbers of participants for each region are; South Korean, 172 participants; British, 173 participants; and American, 171 participants. In order to minimise the variation within sample, these samples were filtered and the filtering reasons and methods will be discussed in section 3.5.2.5. The detail demographic information about the survey participants is described in figure 3-4, 3-5, 3-6.

Gender (# of people, %)

62, 36%
110, 64%

■ Male ■ Female

Age distribution (# of people)

35 76 42 12 7

18 - 25 26 - 35 36 - 45 46 - 55 55+

Age group
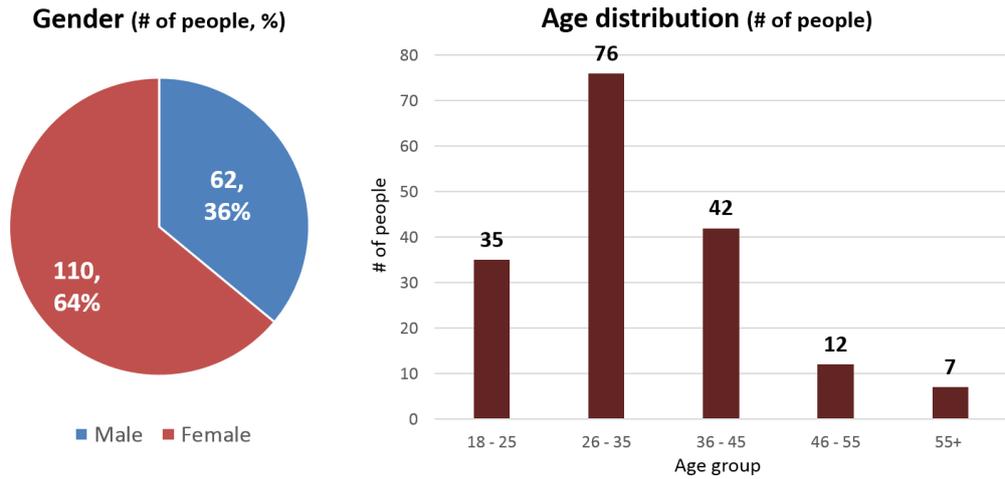
Figure 3-4. Demographic information (last stage) for South Korean participants

Gender (# of people, %)

70, 40%
103, 60%

■ Male ■ Female

Age distribution (# of people)

62 44 36 22 9

18 - 25 26 - 35 36 - 45 46 - 55 55+

Age group
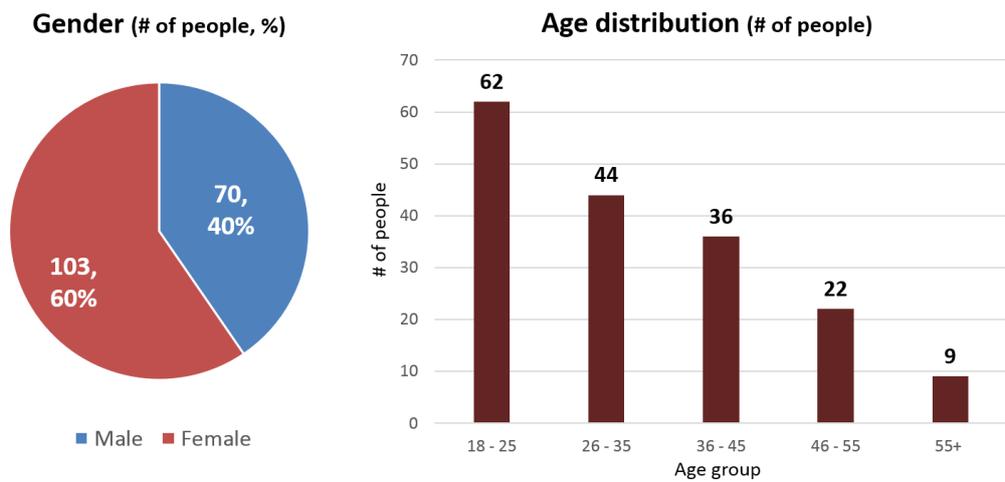
Figure 3-5. Demographic information (last stage) for British participants
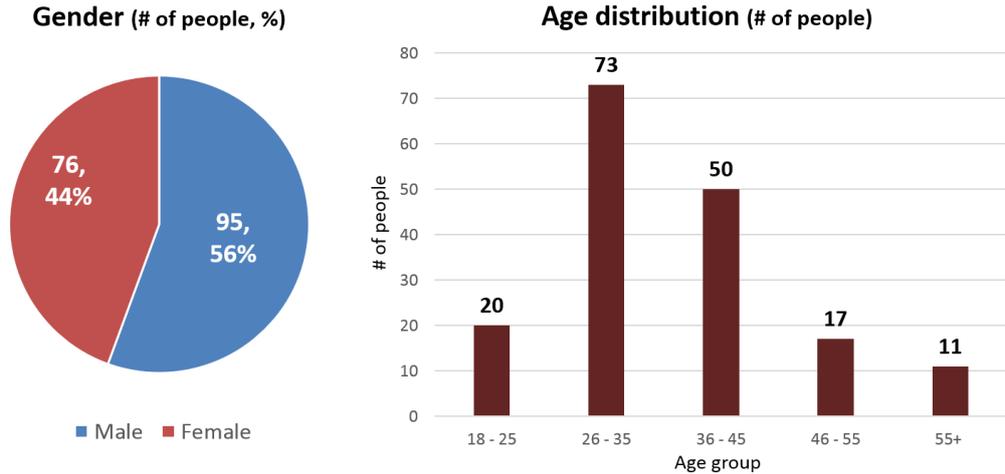
Figure 3-6. Demographic information (last stage) for American participants

3.5.2. Sampling procedure

All quantitative data analyses in this study are based upon the same condition. Employing the alpha level as 0.05, seven-point Likert scale, and an acceptable margin of error as 0.03, the minimum sample size (118 responses) is chosen by the calculation of the simple random questions for continuous data (Bartlett et al., 2001, p. 46).

3.5.2.1. First stage sampling procedure

For the first stage (pilot study), samples were gathered by offline survey method. Data was gathered in one day. The researcher physically visited a café in Bolton Abbey, Leeds with printed survey questions on August 2013. Participants were randomly chosen who visited the café with their verbal consent obtained. 11 participants returned the survey questions and 9 completed questionnaires were obtained.

3.5.2.2. Second stage (1) sampling procedure

The purpose of the second stage (1) data collection was to confirm whether design value was related to other phases (satisfaction and loyalty) before further data was gathered. Given that coffee consumption is globalised in terms of the customers' expectation (Thompson and Arsel, 2004), it was assumed that there is no variation among nationalities of survey participants. The limits of assuming no variation among nationalities will be addressed in chapter 6 – Tool development. Thus, data (84 from South Korea, 36 from the UK) is based on the geographical location. The survey was performed through the online survey service provider (Surveymonkey.com) from August 2013 to October 2013.

3.5.2.3. Second stage (2) sampling procedure

The goal of this stage was to investigate the relationship across the design value dimensions. In order to contain more holistic perception of value and acquire the confidence numbers of sample, participants from the USA were also considered. Thus, additional survey through online survey service provider (mTurk.com – Amazon) was performed in February 2014 and collected 107 survey responses from the USA. Along with the online survey, offline survey was also performed at a South Korean café in Seoul (fresh mixed juice service provider) on January 2014 and collected 22 appropriate responses. For the multiple regression analysis in this step, the previously collected data from the second stage (1) was also combined and analysed together.

3.5.2.4. Mid-stage sampling procedure

The participants for the interview were carefully chosen by considering two factors. Firstly, given that the aim of the interview is to generate the relevant idea of reflecting design perceptions into the pre-defined value dimensions, participants should have the certain level of awareness for design. Secondly, if participants meet the precondition described above, it is preferred to have

mixed participants from professionals and non-professionals. In order to have the non-biased view within the in-depth interview, it was also necessary to have non-professional opinions. Therefore, 8 design professionals (3 UX designers, 1 CEO, 1 service designer, 1 furniture designer, and 2 marketers) and 18 non-professionals (17 university students and 1 ex-designer) were chosen for the interview participant.

3.5.2.5. Last stage sampling procedure

In order to minimise other factors influencing the data analysis, the group of participant was restricted by nationalities. Except for 29 responses from the UK, all data was collected from the online survey. Survey questions were created by utilising the online service (www.onlinesurveys.ac.uk) and distributed via survey agencies (South Korea – Embrain.com; UK – Clickworkers.com; US – mTurk.com). The original data from these survey agencies is as described in section 3.5.1 (South Korean, 172 participants; British, 173 participants; and American, 171 participants).

However, the survey responses needed to be filtered for clearer identification of participants. There are some data which can be disputed for representing and analysing the researching target. 23 participants from South Korea and 1 participant from the UK answered that their experiences were outside of their countries. Given that the customer perception for an offering and their behaviour towards similar offerings can be changed for another cultural environments (Luna and Forquer Gupta, 2001), analysing the experience from other cultural environments can be overly generalising the customer perception.

In addition, the different attitudes for the online and offline survey should not be underestimated. Van Selm and Jankowski (2006) argued that there are several advantages for utilising the online survey; (1) the availability of reaching participants who have the internet experiences, (2) the possibility for targeting specific experiences, (3) the anonymity of the survey, (4) higher response rate than pencil and paper based survey, (5) the economic advantages, (6) the faster responses, (7) free of the interviewee's bias, and

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(8) the convenience for respondents. However, given that the accessibility for public to the internet-based survey has become popular, the range of online survey participants is sufficiently normally distributed as shown in figure 3-4, 3-5, 3-6 (section 3.5.1). Furthermore, given that the internet users for targeted countries are large enough for representing the whole population of each country as shown in figure 3-7, it can be argued that the survey was exposed to the representative public from each country.
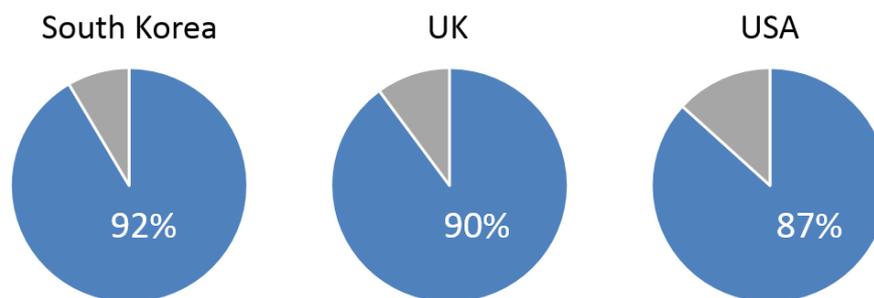
Figure 3-7. **Internet users by country 2014 (source:**
http://www.internetlivestats.com/internet-users-by-country -
accessed by 13/October/2015)

Thus, the argument from Van Selm and Jankowski (2006) which stated that online survey is targeted specific participant among internet users only can be no longer valid.

The key advantage of an online survey from Van Selm and Jankowski's research (2006) is the anonymity. Due to the fact that the survey is designed for asking the demographic information, but not personal information, the level of anonymity from the online survey is arguably greater than the offline survey. Even if the physically distributed survey questions did not ask any personal information, the presence of the researcher can affect to the result in some respects. Therefore, this study selected the online survey for the analysis.

In case of samples from the USA, sample was randomly selected by utilising the SPSS software in order to match the sample size to other countries (South Korea, 149 participants and the UK, 143 participants). By using random

sampling function in the SPSS software, 146 samples (out of 171 samples) were selected.

In addition, by considering the characteristics of the online survey (paid after completing the survey), the further refining process is required. Given that the participant who gave all same score has the high potential of choosing the answer without thinking deeply, the data with 0.00 standard deviation is arguably considered as irrelevant data. Thus, the data with 0 standard deviation was omitted.

The final data sets for the analysis contain 148 participants (South Korea), 137 participants (United Kingdom) and 141 participants (United States). The demographic information for these countries are described in figure 3-8, 3-9 and 3-10.

Gender (# of people, %)

91, 61%   57, 39%

■ Male ■ Female

Age distribution (# of people)

Age group	# of people
18 - 25	33
26 - 35	70
36 - 45	29
46 - 55	10
55+	6
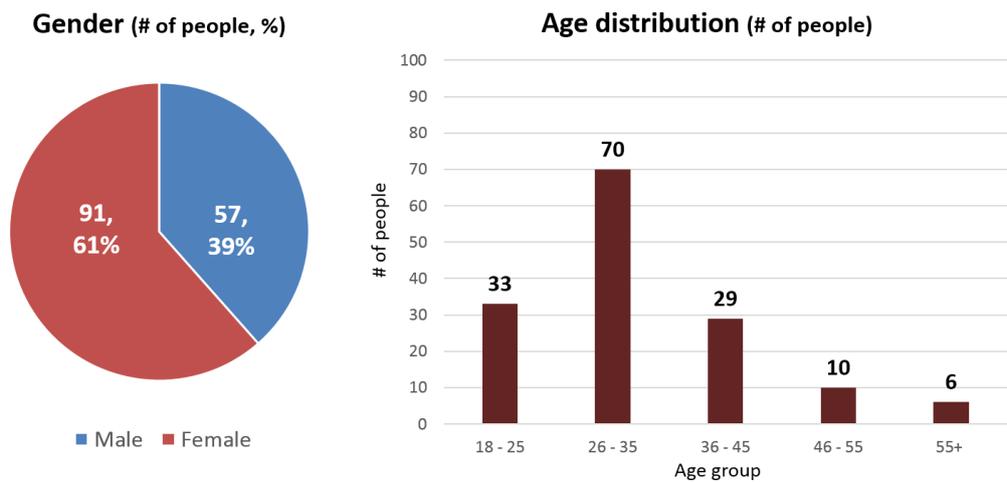
Figure 3-8. **The filtered demographic information (South Korea)**

Gender (# of people, %)

72, 53% 65, 47%

■ Male ■ Female

Age distribution (# of people)

18 - 25	26 - 35	36 - 45	46 - 55	55+
37	37	36	20	7
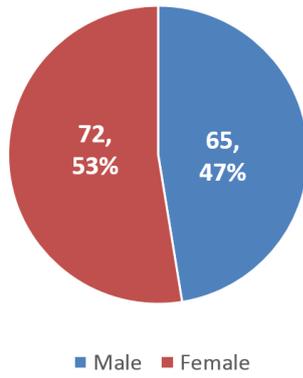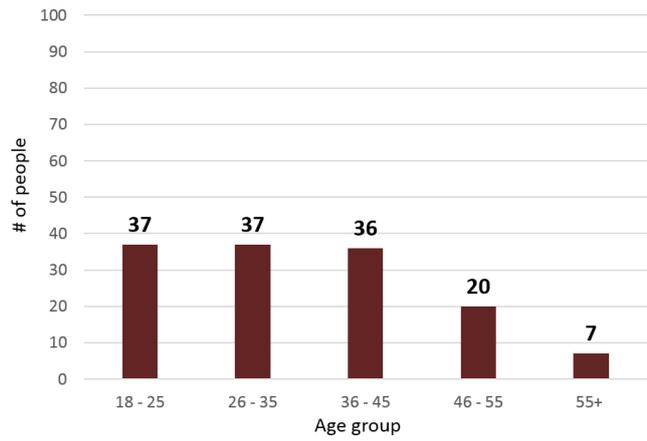
Figure 3-9. **The filtered demographic information (UK)**

Gender (# of people, %)

63, 45% 78, 55%

■ Male ■ Female

Age distribution (# of people)

18 - 25	26 - 35	36 - 45	46 - 55	55+
15	61	42	12	11
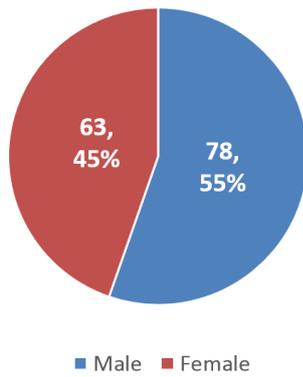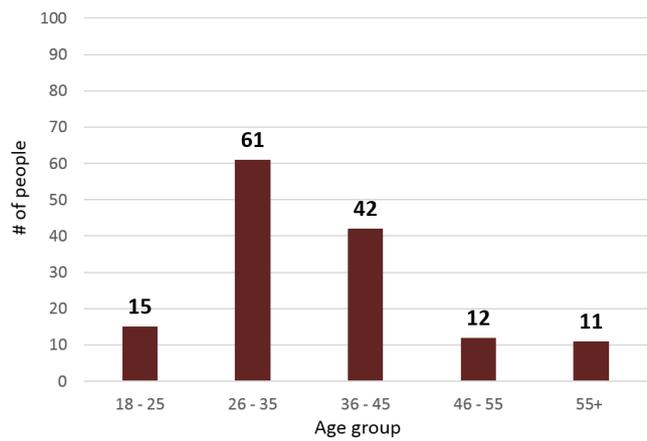
Figure 3-10. **The random sampled demographic information (USA)**

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3.5.3. Data analysis

In the previous section (3.5.2), it was reviewed how this research collected data and the subsequent results. In this section, the analysis methods for each stage will be addressed. Due to the fact that the preliminary data analysis for the pilot study did not obtain a sufficient sample for the statistical analysis, the data analysis for the pilot study (first stage) is omitted. However, all analysis results will be presented in Chapter 6 or Chapter 7.

3.5.3.1. Data analysis for the second stage (quantitative data)

Data analysis for the second stage is divided into two steps in order to confirm specific relationships in design value dimensions (Nam and Carnie, 2014b) and key phases (Nam and Carnie, 2014a). The whole process will be described in a logical manner as follows:

(1) Investigating individual relationship within design value dimensions (correlation coefficients)

First, correlation coefficients for design value dimensions was calculated (Nam and Carnie, 2014b). Given that relationships among design value dimensions was not fully explained in the pilot study, it was necessary to examine one dimension to the other single dimension. If correlation coefficients are large enough to demonstrate a strong relationship between two dimensions, the result can lead to generate a regression equation. The correlation coefficients are between -1 and 1. For example, if the correlation coefficient is 1, two factors are perfectly related with a linear and positive relationship. On the other hand, if correlation coefficient is -1, two factors are perfectly related with a linear and negative relationship.

(2) Investigating the key determinant, R square (multiple regression analysis)

Second, as the correlation coefficients are reasonably large to explain positive relationships among two dimensions in every cases, Nam and Carnie (2014b)

proceeded to the next phase of analysis – regression analysis. Nam and Carnie(2014b) performed the multiple regression in order to obtain R square and regression coefficients by setting one dimension as a dependent variable and other three dimensions as independent variables. By doing so, the relationship of one dimension against the other three dimensions can be unveiled. If the result can demonstrate the relationship among dimensions, it can be argued that design value dimensions are correlated and affect each other (Nam and Carnie, 2014a, 2014b). Within the regression analysis result, the key determinant for explaining relevance of the followed equation is R squared value. R squared is between 0 and 1.0. Given that R squared tells how accurately the linear equation can explain the whole population, the greater R squared represents the greater chances for generalising the relationship. For example, R squared 1.0 means the followed equation can explain 100% of all cases, while with R squared 0 , nothing can be explained. The results of R squared in this stage are disputable (Nam and Carnie, 2014b). Although the decision of accepting R squared is up to the researcher's opinion in various fields of research (Sirkin, 2006), the result had slightly large variation (from 0.267 to 0.498) for determining any conclusion. Thus, Nam and Carnie (2014b) investigated further for a more detailed result from the multiple regression analysis.

(3) <u>Further investigation for each dimension's correlation coefficients (multiple regression analysis)</u>

Third, the individual correlation coefficients for every relationship were reviewed. The outcomes of the second step also contains the correlation coefficients for the relationship between one dimension (dependent variable) and the other three dimensions (independent variables). Three cases out of four had at least one insignificance (p-value is greater than 0.05) within the equation (Nam and Carnie, 2014b). This can be interpreted that the relationship across the design value dimensions cannot be explained with the equation calculated by the multiple regression analysis. In other words, there are one or more dimensions which are not related to the dimension set as

dependent variable. For example, for the case which set the "goal" dimension (self-oriented – intrinsic dimension), p-value for the "help" dimension (other-oriented – intrinsic dimension) was 0.549. Therefore, the design factors belonging to the "help" dimension do not influence the factors in the "goal" dimension (Nam and Carnie, 2014b, p. 1388).

Given that the insignificance happened randomly through the dimensions under investigation, Nam and Carnie (2014b) concluded that it is difficult to determine the relationship in the design value dimensions. Thus, each design value dimension was considered as independent.

(4) <u>Examination of the relationship between design value and other phases (single regression analysis)</u>

After confirming how to measure design value from the customer perspectives, it is necessary to examine how it is related to other key phases (satisfaction and loyalty). Nam and Carnie (2014a) tested the relationship between these phases by utilising single regression analysis. Although this step is logically the next step after determining the independence of design value dimension (Nam and Carnie, 2014b), it was performed before testing the independence of design value dimensions in order to confirm the positive relationship of design value dimensions with the other key phases (satisfaction and loyalty). By considering this fact, the sample size is limited in this step, but arguably meet the minimum sample size (118 participants) of the statistical analysis (total – 120 participants; UK – 36 participants and South Korea – 84 participants). At this step, the analysis was separately performed by region in order to find any difference in regions for the further utilisation of data. The results (refer to section 6.2.1) indicated that there are stronger relationship if the customer satisfaction mediates loyalty.

In conclusion, from the first quantitative data analysis, there are two findings; (1) design value dimensions are independent (thus, the strategic focus on the specific dimension can only improve the targeted design value) and (2) there is a stronger relationship between design value and customer loyalty, if it is mediated by customer satisfaction. However, it can be disputed that the result

of the independence of design value dimensions cannot be fully supported by the statistical analysis due to its questionable results. More fundamentally, the relevance of the questionnaire used at this stage of the study was not confirmed. Given that the questionnaire was derived directly from a small part of SERVQUAL measurement, it can be problematic to justify the questionnaire used at this stage in terms of representing design value dimensions. Thus, it became necessary to collect and analysis qualitative data in order to understand the relevant factors in design value dimensions thoroughly.

3.5.3.2. Data analysis for mid-stage (qualitative data)

All professional interviews were performed for 60 to 90 minutes and voice-recorded for the analysis. Firstly, within the focus group interviews, participants were asked to brainstorm key factors for choosing a food and beverage service industry and locate them within the design value dimensions (refer to appendix B.1). Secondly, within the in-depth individual interviews, one interview (with a freelancer furniture designer) was followed by the same procedure as the focus group interview. The other two individuals (a CEO of the Korean business consulting company and a service designer of the UK service design consulting company) provided their opinion freely about the key success factors in the service industry. Lastly, other individual interviews through e-mail utilised the form (appendix A.1).

The main purpose of these interviews was to investigate the important design concerns for each dimension in Holbrook's value dimension. By generalising what have been found through the interview results, it can be argued that relevant question factors for each dimension can be verified. Thus, all factors found in the interviews were listed and categorised by dimensions in Holbrook's typology of consumer value.

A total of 126 responses were collected and re-categorised by Gorb's identification of design's contributions as demonstrated in figure 3-11.

	A	B		G	H	I
1				Design management perception	Typology of Consumer value	
2		**Contents**	▼	Design category ▼	Intrinsic / Extrinsi ▼	Self / Other ▼
3		Employees' uniforms / how they dress		Corporate Identity	Ext	Self
4		Presenting cookers & machines		Environmental	Ext	Self
5		Scent (e.g. roasting coffee)		Corporate Identity	Int	Self
6		Opportunities for other experiences		Environmental	Ext	Self
7		Convenience for communicating		Environmental	Int	Self
8		Wooden tables & chairs		Environmental	Ext	Self
9		Higher ceiling		Environmental	Int	Self
10		Observation - for both side (e.g. large glass wall to the outside)		Environmental	Int	Self
11		Special local menu (e.g. Donkatsu - port cutlet burger @ McDonald Japan)		Product	Int	Self
12		Healthy food / Vegeterian menu		Product	Int	Self
13		Taste		Product	Int	Self
14		Special seasonal menu (e.g. Christmas coffee @ Betty's)		Product	Int	Self
15		Menu		Product	Int	Self
16		Available information before visit		Information	Int	Self
17		Long history		Corporate Identity	Int	Self
18		Celebrity chef		Corporate Identity	Int	Self
19		Hygiene		Environmental	Int	Self
20		Signs		Corporate Identity	Ext	Self
21		Distance between tables		Environmental	Ext	Self
22		Atmosphere of lingering		Environmental	Ext	Self
23		Comfortable chairs		Environmental	Ext	Self
24		Power sockets		Environmental	Ext	Self
25		Kids playing spaces		Environmental	Ext	Self
26		Waiting time		Environmental	Int	Self
27		Smoking facilities		Environmental	Int	Self
28		Parking space		Environmental	Ext	Self

| ◀ ▶ | Original list | **Analysis** | Questions | Interviewees | ⊕ | | | ◀ | |

Figure 3-11. **Analysing the interview data**

The analysis of the result and its application process can be summarised as follows: (1) listing all responses from interview, (2) categorising the list with Gorb's classification of design contributions (Cooper and Press, 1995), (3) classifying the list with Holbrook's typology of consumer value (Holbrook, 1999), (4) determining key factors for each dimensions, and (5) modifying the previous questions for each dimension with key factors revealed in step (4). Therefore, by utilising the categories determined through the literature review and the classification from in-depth interview results, it can be argued that the modified questions represent the design value for each dimension.

3.5.3.3. Data analysis for the last stage (quantitative data)

The data analysis for the last stage can be divided into two: the relationship _within_ Design Value Typology and the relationship _outside_ Design Value Typology (refer to section 4.2.1 for the classification). Although these relationships were tested in the preliminary phase of the research, it is necessary to reconfirm the logic in the larger scale with non-biased samples. Therefore, the analysis of the third stage will be similar to previous two stages, however, in order to make clear statements, further steps for checking validities will be included.

(1) Examination of the relationship within _Design Value Typology_

In the preliminary research (Nam and Carnie, 2014b), multiple regression analysis was conducted without the in-depth understanding of the relationship. Multiple regression analysis is "the technique of developing predictive equation where there is more than one independent variable present" (Sirkin, 2006, p. 500). Given that the calculation of the prediction has several prerequisites (such as the linearity of the relationship and the normality of data), it is necessary to review the data further.

The analysis (Nam and Carnie, 2014b) was also homogenised among different cultural backgrounds. This homogenisation can be overestimated in the globalisation of food and beverage consumption. Thus, in this stage, each cultural group was clearly identified with the nationality and their local consumption (matching the nationality and the location of consumption). In addition, the survey question is categorised by Gorb's classification (refer to Cooper and Press, 1995). Each design value dimension contains the same category of question. For example, the product (service) category question for each design value dimension can be presented as table 3-2.

Table 3-2. *Product Category Questions by considering Design Value Dimensions*

Question Category	Question
Self-oriented – Extrinsic design value	The way of delivering products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) at the store was excellent and effective to me
Self-oriented – Intrinsic design value	Products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) at the store were appealing and enjoyable
Other-oriented – Extrinsic design value	Consuming products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) from the store reflect my desired character / personality
Other-oriented – Intrinsic design value	Consuming products and services from the store will help other communities (e.g. suppliers of the origin, local communities, social minorities, etc.)

In this situation, the responses from the same category (but different design value dimension) need to be analysed discretely. In summary, data analysis for the relationship within *Design Value Typology* will be divided by the nationalities of respondents and question categories.

After performing these analyses, there will follow an examination of the independence of the aggregated concept of design value dimensions. This will confirm the relevance of the suggested equation (see equation figure 2-7 in section 2.5.3) for *Design Value Typology*.

(2) Examination of the relationship outside *Design Value Typology*

Given that some researchers argue the direct impact of value to customer loyalty (Cronin et al., 1997; Sweeney et al., 1999; Cronin et al., 2000), it is necessary to neutralise the analysis. In other words, the statistical analysis between the perceived design value and the behavioural intentions (loyalty

and word of mouth) will be performed as well as the relationship between satisfaction and behavioural intentions. The conceptual frameworks for testing the outside *Design Value Typology* will be discussed further in chapter 4.

In this stage, samples will be also classified by their nationality in the same way as in the previous analysis phase of the study. The data will be also tested on how the relationship between the perceived design value and other phases if the perceived design value is aggregated.

3.5.4. Data analysis scale

The Likert scale provides two types of different information for researchers: the direction and the intensity of the individual respondent's attitude (Matell and Jacoby, 1971). By having the agreement range from strongly disagree to strongly agree, this study employs a 7 point Likert scale. It is generally accepted in various research that using 5 point or 7 point Likert scale can minimise the inconvenience of respondents and increase the reliability and validity of data (Dawes, 2007). Thus, a 7 point Likert scale was utilised and the actual scale example can be described as table 3-2 below.

Table 3-3. *The 7 Point Likert Scale in this Study*

	1 - Strongly disagree						7 - Strongly agree
Question content	1	2	3	4	5	6	7

Given that this study will propose the equation for calculating design value and the cumulated loyalty score by allowing participants to select the multiple choices from the loyalty hierarchy, further details of how this scale can be utilised will be discussed in section 5.2.1 (equation for Design Value Typology) and section 6.4 (the cumulated loyalty score).

3.5.5. The completed survey and its distribution

The completed survey question tool is described in appendix A.3. The survey was designed with Bristol Online Survey platform (BOS, a British-based survey design service provider, https://www.survey.bris.ac.uk). The survey was performed from 08/Jun/2015 until 30/Sep/2015. In order to expedite the return of the responses, the researcher utilise a paid system for the online survey through the following agencies; South Korea, www.embrain.com; United Kingdom, www.clickworker.com; United States, www.mturk.com.

Chapter 4

Conceptual Framework

4.1. Introduction

Two conceptual frameworks (*Design Value Typology* and its relationship with other phases) will be discussed in this section. Each framework considers concerns which have come to light in the Literature review section of this thesis. Firstly, Holbrook's typology of consumer value is regarded as one of the most sophisticated theory for value in the contemporary business context (Holbrook, 1999; Leclerc and Schmitt, 1999; Gallarza and Saura, 2006; Sánchez-Fernández and Iniesta-Bonillo, 2007; Sánchez-Fernández et al., 2008). However, dimensions within Holbrook's typology are often criticised for the ambiguity between the active and reactive dimensions (Brown, 1999; Leclerc and Schmitt, 1999; Wagner, 1999; Sánchez-Fernández et al., 2008). Although the active and reactive dimensions are combined in this research, the relationships among the other dimensions still remain unanswered. The ambiguity of the dimensions has arguably occurred due to the unavailability of finding any relationship within these dimensions. Thus, it is necessary to continue the investigation in order to find any relationship in the other dimensions if Holbrook's typology of consumer value is to be modified to reflect design perceptions. In this context, the conceptual framework for investigating the relationships within the combined design value dimensions (Self-oriented – Extrinsic, Self-oriented – Intrinsic, Other-oriented – Extrinsic, and Other-oriented – Intrinsic) will be discussed in this chapter.

Secondly, in order to argue the positive design impacts upon business performance indicators, the relationship between the perceived design value and other key phases (satisfaction, loyalty and word of mouth) needs to be conceptualised. In addition, given that there are conflicting views about the direct impact of the perceived value to loyalty, each phase needs to be set as an individual variables. By doing so, it can be argued whether design influences any business indicator (satisfaction, loyalty and word of mouth) and the role of overall satisfaction mediates the relationship between the perceived value and behavioural intentions.

In summary, the conceptual frameworks need to be built through the consideration of the conflicting issues identified in the Literature Review section in this thesis. Building frameworks will be performed in two separate concepts: the relationship _within_ Design Value Typology and _outside_ Design Value Typology. In both concepts, it will be also addressed how design perspectives were embedded in existing concepts of business theory.

4.2. Building Conceptual Framework

4.2.1. Integration of theoretical backgrounds

The literature review of this study focuses on two major research topics: how customer perceive design value in a service business and how the perceived design value can be acknowledged as a key business indicator. In order to investigate the former, how the customer perception of design can be constructed will be discussed in the next section. Then, the latter will be examined by undertaking a literature review of the key business phases (creating value, satisfaction, loyalty and word of mouth).

4.2.1.1. Design Value Dimensions

By defining the aesthetic value as a result of perceiving, evaluating and judging physical aspects of the _Servicescape_, the experience of a customer is the key to deliver greater value (Wagner, 1999b). Although the aesthetic (style) value of offering is a highly subjective (thus, self-oriented) judgement (Wagner, 1999a), this study aims to characterise design value of offerings in a broader and holistic view.

Given that consuming services is a holistic experience from a service provider, Wagner (1999b) argued that value which stems from a holistic design experience subsumes other dimensions of value (such as efficiency related value or ethical value). Thus, contributions of design in the service industry are not arguably restricted within the aesthetic value. Below are two examples

that demonstrate how aesthetically designed services that include other value dimensions.
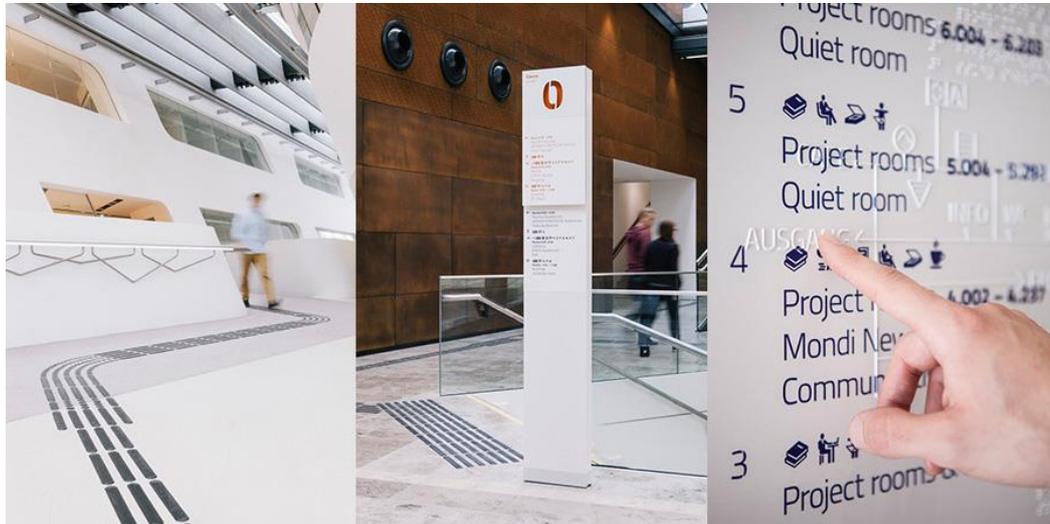
Figure 4-1. Campus of Vienna's University of Economics & Business (Red Dot 21, 2014)

The recently built Vienna University site won the Red Dot award in 2014. By considering the colour of floor guiding tile with highly contrast colours, people with low vision can easily find their route around the campus. Tactile design of signs also effectively helps sight impaired students, staff and visitors to find their destinations on campus. This case of inclusive design not only minimises the disturbance of the public, but also harmonises well with the overall design of the site.

Figure 4-2. **My Taxi - Public service design (iF design, 2014)**

The collaboration between Kia automotive design and Hyundai card Design Lab won iF design award in Discipline Professional Concept at 2014 by designing a creative passenger friendly taxi system. Removing the front passenger seat maximises the boot capacity and the control panel on the back of driver's seat enables customisation of the car audio system and real time monitoring of taxi cost and current location for the customer. By using a smartphone application, it also allows customers to find the nearest available car and send a taxi to their families and friends. Not only for its practical usage, but also for safety reasons, parents who have children commuting by public transportations in South Korea can be relieved from the late night return of their children by this real time monitoring system. What can be argued with the previous two examples is the fact that designing services in the contemporary context should consider multiple (and holistic) needs of customers. In order to meet the needs of contemporary customers, a business should design its offerings beyond their appearance.

The meaningful findings of what Nam and Carnie argue (2014a, 2014b) are: design can be perceived in four discrete dimensions from the customer perspective and the perceived design value can be constellated. Thus, relationships (related to a business' performance) after perceiving design value can be investigated. However, given that the names of each dimension suggested in previous research (Nam and Carnie, 2014a; 2014b) can be disputed, the names of the dimensions remain as described follows.

Given that a well-designed service offers pleasant experiences for customers, the perception toward a specific object or an element of service provision raises various emotions. Those emotions derived from the design of offerings can be categorised in four dimensions as presented in figure 4-3 as Holbrook (1999) argued. In the situation when design of a service provision is perceived by these value categories, this study calls it **Design Value Typology**.

Figure 4-3. **Design Value Typology**

Firstly, Design Value Typology has self-oriented and other-oriented aspects. If customers appreciate design as an offerings for themselves, value created by this perception belongs to self-oriented dimensions. For example, enjoying the atmosphere of an antique café at Paris may offer artistic inspirations and pleasure to customers. In addition, comfy sofa and chair with consistently aligned (designed) to the café's atmosphere can elevate the positive consumption experience for customers. The customer perceived design value of offerings incurred in this situation can be classified into the self-oriented dimensions. On the other hand, ethical / moral considerations and supporting self-esteem of customers are regarded as other-oriented value. For example, the café's design considerations and its expressions for social minorities (such as people with disability, ethnic groups at the coffee origin, local minority groups) may offer feelings of helping others while consuming the offerings. Additionally, for someone who had a dream to visit an antique cafés in Paris, the consuming experience may increase the self-esteem and the fulfilment of these individuals.

The other classification of design value is whether value of offerings has extrinsic or intrinsic meanings to a customer. The extrinsic value of offerings plays a role as the facilitator of what a customer ultimately aims to achieve (Holbrook, 1999). For example, customers may appreciate the previously exemplified sofa in the Paris' antique café in terms of the comfort for lingering and reflecting their character. However, the sofa itself can rarely be attributed to the ultimate purpose of visiting the café. It is arguably the atmosphere of the café or the products and services offered to the customer. Thus, *design value* can arguably have four discrete measurable dimensions as proposed in Holbrook's typology of consumer value (Nam and Carnie, 2014a; 2014b).

Classifying design value into four dimensions is particularly important for a practical use of the dimension. Although the design value of a service provision is perceived holistically through the customers' mind, investigating the source of the customer perception is arguably significant for the strategic focus in a business. For example, a restaurant which already has the good reputation of food and service quality (*Self oriented – Intrinsic dimension*)

wants to boost its revenue, but has limited current asset for improving interior considerations (*Self oriented – Extrinsic dimension*). Assuming that the satisfaction of the customer is more significantly derived from self-conscious elements of the restaurant (such as the feeling of being served in a friendly manner, *Other oriented – Extrinsic dimension*) than the ethical and moral acknowledgement of the restaurant (*Other oriented – Intrinsic dimension*), developing or modifying the current service provision to meet self-conscious customer needs (e.g. employee training for friendly services, friendly memo on the receipt) can contribute the greater value of customers and increase the amount of sale under the financial limitation.

Thus, in order to overcome these issues and build the conceptual framework, the modifications of the concept and the survey design were conducted as shown in figure 4-4.
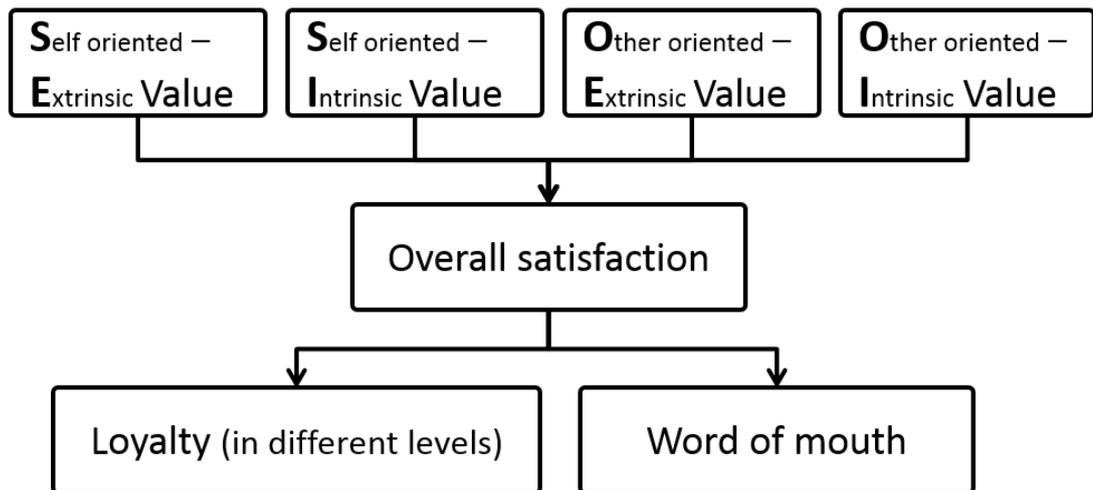
Figure 4-4. **The modified logical path for participants**

As shown in figure 4-4, participants were asked to assess the perceived value individually, then, guided to determine their overall satisfaction. By doing so, the satisfaction of customer cannot be overly assumed by the average of the satisfaction from different dimensions. The logical issues of the preliminary research structure will be addressed in chapter 6.

In addition, the structure and contents of the survey question in each dimension needs to be consistent from a design perspectives. By interviewing

participants and categorising lists of design concerns with Gorb's classification of design contribution (product, information, environment and corporate identity), it can reflect design perspectives appropriately. Therefore, the questions for each dimension are same, but differentiated by emotional responses from Holbrook's typology of consumer value.

After clarifying the two issues above, the independence of design value dimensions can be established and subsequently discussed. As addressed above, given that the preliminary questions for each dimension was inconsistent in terms of the number of question and the contents, it was unnecessary to conclude the independence of design value dimension. However, by modifying the questions and its structure with two improvements discussed above, the new question set can be described as shown in figure 4-5.
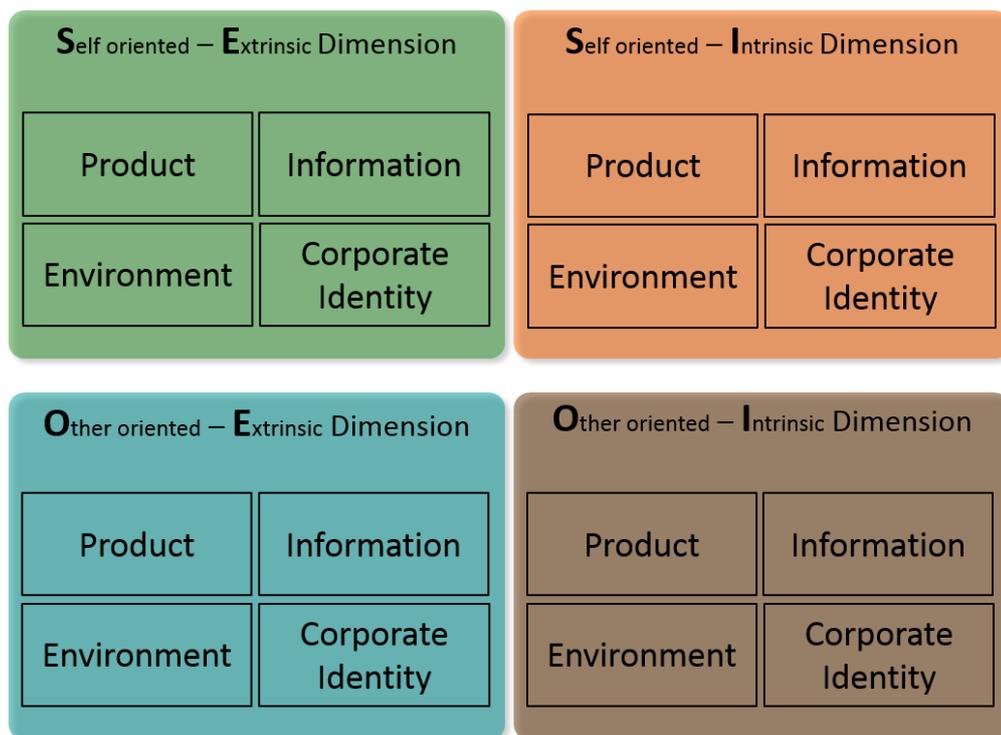
Figure 4-5. The illustration for the structure of question categories in Design Value Typology

Each design value dimension has four question categories classified by Gorb (Gorb in Cooper and Press, 1995). For each category, a single question was

asked, thus, four questions for each dimension (total 16 questions for the whole design value dimensions) were asked to the survey participants. Confirming the independence of design value dimensions will be divided into two scopes: narrow and broad scopes. In the narrow scope, it needs to be addressed how a question from the same category but in different design value dimension acts. After investigating the narrow scope, four answers from the same design value dimension should be averaged in order to compare the results with the other design value dimensions in the broad scope. By doing so, clearer understanding of the independence of design value dimension can be investigated without any preconceptions. In order to compare design value dimensions for their independence, for example, the responses from the product categories from each dimension should be compared. It is the logical leap to compare the responses from product category in Self-oriented Extrinsic dimension with the responses from environment category in Other-oriented Intrinsic dimension. By including categories of design contributions, the conceptual framework for *Design Value Typology* is proposed as shown in figure 4-6.
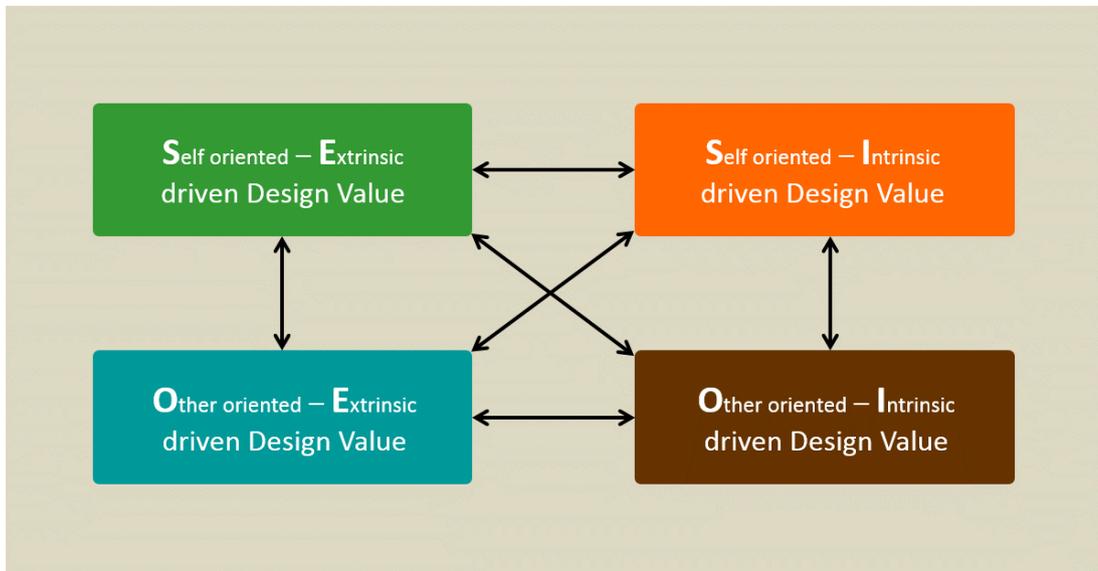
Figure 4-6. **The conceptual framework for Design Value Typology**

The perceived design value for customers consist of four design value dimensions which are derived from two classification (Self-oriented or Other-oriented, and Extrinsic or Intrinsic). As illustrated in figure 4-6, all dimensions are mutually related to constellate the perceived design value. Given that the managerial implication of this conceptual framework can be dependent upon the reciprocal relationship among dimensions, the detail analysis of these relationships will be discussed in chapter 7.

This raises the question; how can a business scrutinise value of *designed* offerings beyond their appearance? This study pursues the answer from the research question from the specific view of a business, design management perceptions. By understanding design as a management tool which encompasses "problem solving activities", "creative thinking", and "strategic planning process" (Cooper and Press, 1995, p. 16), it arguably needs to include various business outputs from customers within the scope of this research. The creation of design value and the measured results are arguably more significant if the relationship between design value and aforementioned business phases (satisfaction, loyalty and word of mouth) can be addressed. Therefore, the business phases for linking to the design value concept will be reviewed in the next section.

4.2.1.2. Review of the relationship among Key Phases

As mentioned earlier, the key business phases in this research are the *perceived design value for customers* (through Design Value Typology), the *overall design satisfaction*, (accumulated) *loyalty* and *word of mouth*. Although this study focuses on the mediating role of the overall design satisfaction, it will be regarded as one of the antecedents for the behavioural intentions (loyalty and word of mouth). By doing so, it can be revealed whether the perceived design value has stronger direct impact upon the behavioural intention than overall design satisfaction.

In addition, prior to calculating the perceived design value as a whole, each design value dimension needs to be investigated separately. The aggregated sum (or average) of design value dimensions can blur the impact from a

specific dimension. Thus, it is arguably more important to analyse the impact of each design value dimension separately than the aggregated figures in terms of the practicality. The conceptual framework for design value dimensions and key phases can be illustrated in figure 4-7 below.
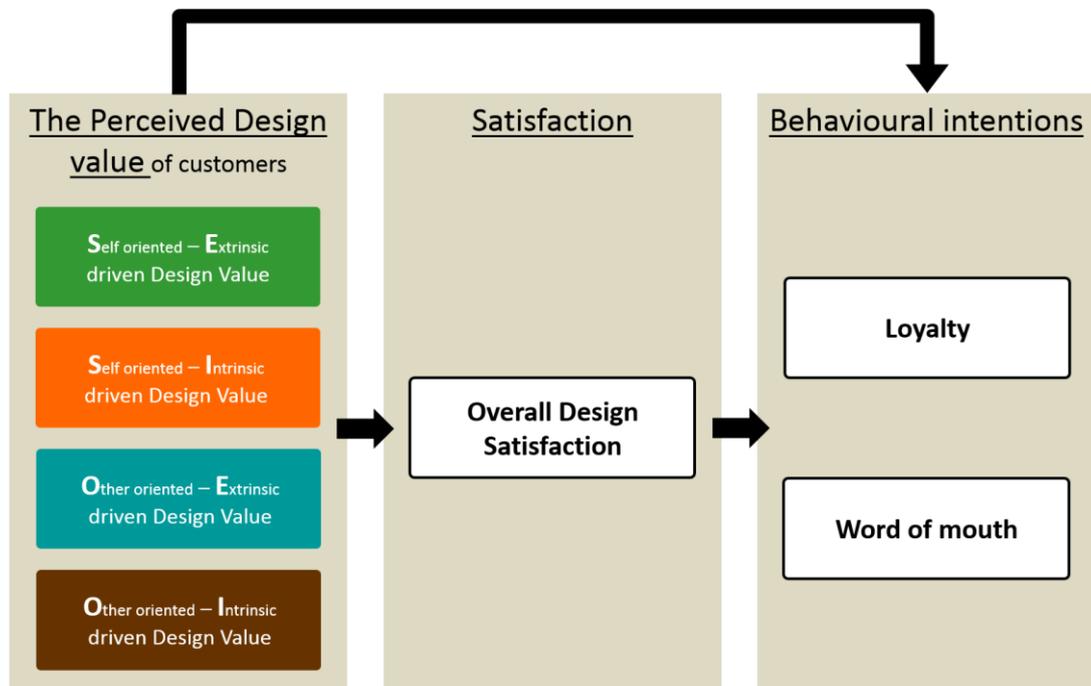
Figure 4-7. **The simplified conceptual framework for the relationship (outside Design Value Typology)**

Each column represents the major phases and the arrows mean the relationship path. Given that the hierarchy of loyalty (Oliver, 1999) is utilised in this study, the different levels of potential reactions from the customers, loyalty is categorised in the behavioural intention column. However, as discussed in section 2.6.2.3, word of mouth should be investigated separately. Although there can be a relationship between loyalty and positive WOM (word of mouth), it can be presumptive to assume any relationship at this stage of research. By considering the scope of this research, it is assumed that there is no relationship between loyalty and word of mouth. Thus, the impacts of overall design satisfaction to loyalty and word of mouth will be examined

discretely. The summary of independent and dependent variables are presented in table 4-1.

Table 4-1. *The dependent and independent Variables for the Relationship*

Dependent variables	Overall design satisfaction	Loyalty	Word of mouth
Independent variables	S-E* design value	S-E design value	S-E design value
	S-I* design value	S-I design value	S-I design value
	O-E* design value	O-E design value	O-E design value
	O-I* design value	O-I design value	O-I design value
		Overall design satisfaction	Overall design satisfaction

* Design Value Typology (S-E: Self oriented – Extrinsic; S-I: Self oriented – Intrinsic; O-E: Other oriented – Extrinsic; and O-I: Other oriented – Intrinsic)

However, at the next stage, the view of the perceived design value as a whole is also necessary to review. The detailed investigation of individual design value dimension and other phases can propose practical action items for the strategic focus on the specific dimension. On the other hand, if the perceived design value can be understood as one concept, its utilisation can be utilised for the macro level of understanding for the business. These results are arguably useful for comparing the value proposition of a business within the same industry sector. This issue will be discussed in section 8.3.1 - Practical implication of *Design Value Typology* for further details

4.3. Research direction (the scope of this study)

The research hypotheses will be discussed in chapter 5. However, it is worth clarifying the scope of this research at this point. By reviewing the scope at this stage, it is relevant to find sources for further direction.

If value is perceived holistically and in a non-hierarchic way as described previously, it is worth investigating how value is created and influences stakeholders. The emergence of new cultural boundaries has been caused by greater fragmentation, pluralism and older, weakened collective solidarities in contemporary markets; these have triggered change in consumer behaviour (Amin, 1994). Developments in modern technology have encouraged involvement by creating value from stakeholders who were formerly passive buyers or observers. The value of a brand (shop) no longer exists for one specific stakeholder, but for every stakeholder who directly or indirectly influences it.

Since maintaining a business involves complex relationships between stakeholders, some may argue that it can be impossible to satisfy every stakeholder within the network. These researchers insist that focusing upon one stakeholder's value can maximise the overall efficiency of the resources used - value maximisation theory (Jensen, 2001). However, in the contemporary market, it can be argued that the most significant stakeholder in maintaining business is not a single group or a single stakeholder. The central stakeholder, in terms of measuring any given value, can change as each value is measured and evaluated. For example, businesses that participate in Fairtrade® or 'ethically sourced' content for their food products include logos on their packaging that is designed to increase awareness of responsible consumption. In the past, the value of everyday food stemmed from providing high quality food at low prices (consumer-centric value) (Nam and Carnie, 2014b). Today, the value of everyday food in the contemporary market has the added dimension of social responsibility, which includes suppliers and local communities (multiple stakeholder value). From a long-term perspective, considering multiple stakeholders within a network will provide agility in a business model and therefore allow the business to survive.

In addition, it is also important to consider multiple groups of customers within the value-creating network. Borja de Mozota (2011) argues that managers in process-oriented companies are being challenged to develop a solution that is applicable to multiple users. Not only the providers of value, but also the receivers of value may be comprised of more than one group within a business network. In this context, Nam and Carnie (2014b) proposed the conceptual framework of sustaining a business as demonstrated in figure 4-8.
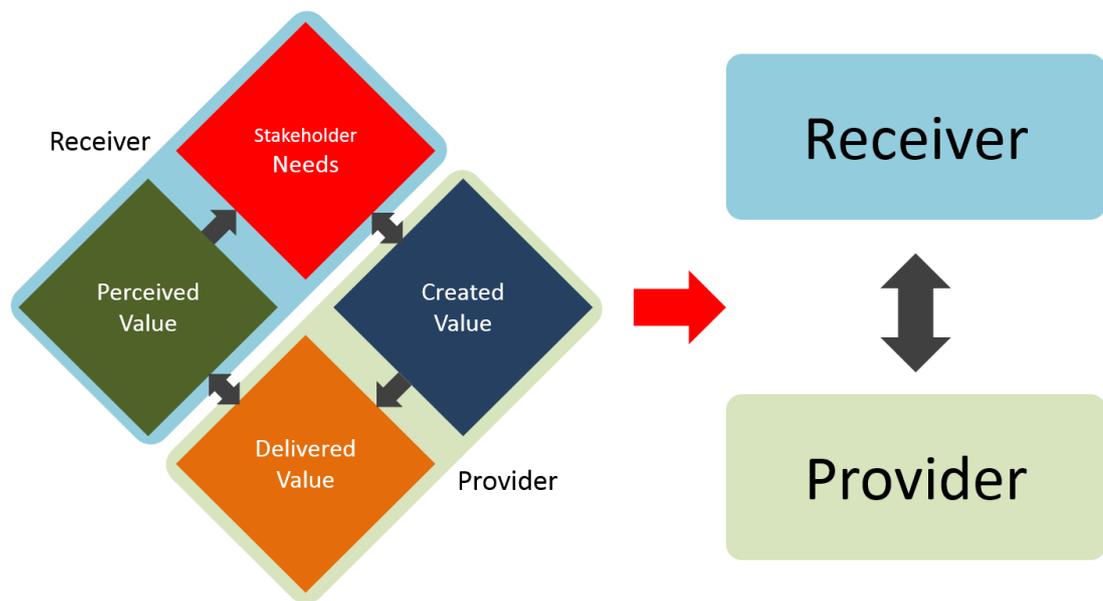
Figure 4-8. **The conceptual framework of sustaining a business (Nam and Carnie, 2014b, p. 1378)**

Given that this concept was based upon the flow of the created value, figure 4-8 illustrates the conceptual framework of sustaining a business and how to determine the relationship. To maintain a profitable business, the series of activities expressed in the diagram (emergence of needs, created value, delivered value and perceived value) must keep circulating. Exceeded positive value enriches the business environment in a society and stimulates expectations for another transaction (Holbrook, 1999). Within these activities, Nam and Carnie (2014a) argue that there are mutual relationships between stakeholders' needs and created values; delivered values; and perceived values. The development of information technology and the increase of social

responsibility enable mutual relationships between those phases. Activities within the sustainable business can be classified as being a provider or receiver. Thus, the mutual relationship and the co-creation of value enhance the overall value of a business network.

The main point of this proposed framework is the fact that any stakeholder within a business can be either value provider or value receiver. This is also rational to connect to the concept of co-creating value. For instance, besides customers, employees can be the receivers within the suggested framework. Given that the superior value for employees can be considered as the key antecedent for the superior value for customers (Heskett et al., 1994), the working environments (service design for employees) for greater employee's job satisfaction is significant for all stakeholders. Physical environments as well as the effective system and considerations for relevant compensation can encourage higher job satisfaction. In addition, by considering service employees as emotional labourers, the emotional interaction between employees and other stakeholders is arguably the most important issue for the job satisfaction in the service industry. In this context, the proposed framework can be agile in terms of determining a key stakeholder for the strategic focus at any given business situation.

However, this study focuses on value from the customer perspective. Although value for other stakeholders can be significant for a business and the prerequisite for the customer perceived value, value for customers is arguably the most critical concern for a service business. By arguing customer value as the next competitive advantage, Woodruff (1997) pointed out three important, but issues in research and practices; (1) the lack of *measuring* effort for customer satisfaction, (2) the lack of understanding the voice of customer for improvements, and (3) the misalignment of customer satisfaction and business performances. The first and second issues can be considered as the cause of the third issue. From the business operation viewpoint, the amount of resources dedicated to certain activities should be justified by appropriate methods (Woodruff, 1997). In other words, due to its significance, there is cogent argument for conceptualising and measuring the customer perceived

value and satisfaction. Nevertheless, it can be argued that the investigation of value still needs to be matured from the customer viewpoint.

The other theoretical position (and direction) for this study is pragmatism, the practicality of frameworks and models proposed. As discussed in the research methodology (chapter 3), this study utilised both qualitative and quantitative methods in order to build conceptual frameworks and test them. Pragmatism is defined as "a philosophy that stresses the relation of theory to praxis and takes the continuity of experience and nature as revealed through the outcome of directed action as the starting point for reflection" (Audi, 1999, p. 730). By considering the aim of this research as the development of a model which can explain the relevancy of design investments for the service industry, the outcomes of this research should encourage more design activities in the targeted industry. In order to achieve this aim, the biased view of current challenging issues will not be helpful. Thus, the attempts for testing the proposed frameworks were undertaken not only for confirming the framework, but also for reviewing its practicality in real world business situations.

In addition, the in-depth interviews with professionals and non-professionals can be seen as the efforts for improving a reflection of the real world. The knowledge acquired by interviews will operate as the "instrument" (Audi, 1999, p. 730) for tuning the previously proposed frameworks and models. This process is arguably the key factor for having the practicality within this research. Therefore, the analysis of interviews is important and will be discussed further in chapter 6.

In summary, a review was undertaken of the relationship within and outside *Design Value Typology* in this chapter. By having pragmatism as the key philosophical position, the preliminary researches (Nam and Carnie, 2014a; 2014b) are arguably enhanced by the result of this section.

Chapter 5

Research Hypotheses

5.1. Introduction

Based on the conceptual frameworks discussed in chapter 4, research hypotheses will be discussed in this chapter. As it is necessary to separate two conceptual frameworks from the previous chapter, the hypotheses will be also addressed discretely. In addition, given that *Design Value Typology* can be perceived as a whole concept for comparing a brand with competitors, the aggregated design value will be considered as a phase within the business phase (perceived value – overall satisfaction – loyalty and word of mouth). The majority of analysis will be tested with multiple regression analysis.

5.2. The relationship model

The relationship model can be divided into two categories: (1) the relationship within *Design Value Typology* (four design value dimensions) and (2) the relationship of *Design Value Typology* with the other business phases (overall design satisfaction, loyalty and word of mouth). Thus, the research hypothesis will be discussed in the following sections.

5.2.1. Research hypotheses for the relationship within Design Value Typology

As discussed in the section 3.5.3.3 and 4.2.1.1, there will be an examination of the independence of design value dimensions by question categories (product, information, environment and corporate identity). If each design value dimension of discrete question categories demonstrates similar patterns (such as consistently positive relationship), it can be argued that the four design dimensions are all inter-related. The purpose of investigating the inter-relationship within *Design Value Typology* is to confirm that a specific design activity cannot influence negatively on the other design value dimension. It is critical to demonstrate there is no negative impact within *Design Value Typology* for the practicality of the proposed model. For example, if a

company's activities for improving a specific value dimension of customers results in negative effects for the other dimensions, it can be difficult and complex to apply the *Design Value Typology* in a real world situation. Thus, the first objective is to investigate the negative impacts within *Design Value Typology* for the individual question category and hypothesised as shown below.

$H_{0(P)}$: There is no negative relationship (product category) within design value dimensions

$H_{0(I)}$: There is no negative relationship (information category) across design value dimensions

$H_{0(E)}$: There is no negative relationship (environment category) across design value dimensions

$H_{0(C)}$: There is no negative relationship (corporate identity category) across design value dimensions

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After reviewing these hypotheses, the aggregated concept of the design value dimensions (calculated value of each dimension) will be tested. If four question categories demonstrate consistency in scale, averaging the four question categories is arguably relevant for explaining the design value dimensions. Thus, the survey results from the four question categories will be averaged after confirming the reliability of the questions (section 6.5) in order to represent each design value dimension. An example of the diagram for *Design Value Typology* was illustrated as shown in figure 5-1.
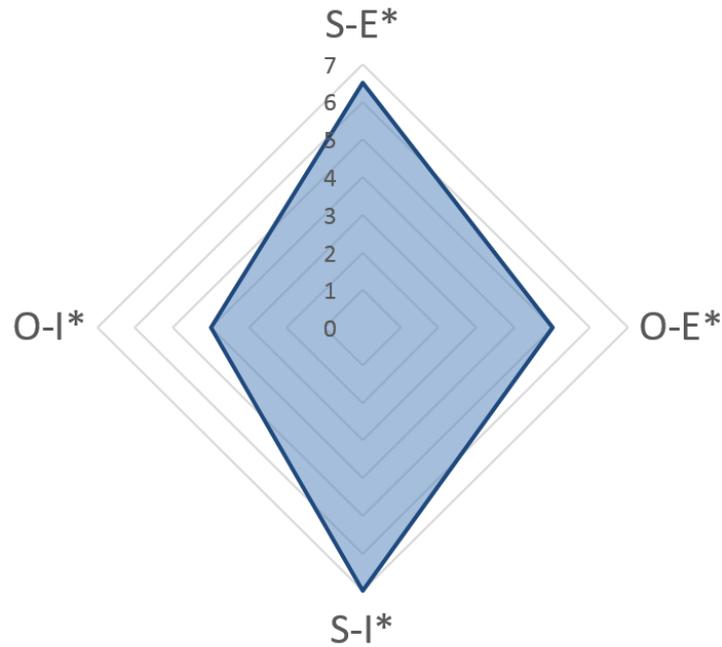
*S-E: Self-oriented – Extrinsic value dimension
*S-I: Self-oriented – Intrinsic value dimension
*O-E: Other-oriented – Extrinsic value dimension
*O-I: Other-oriented – Intrinsic value dimension

Figure 5-1. **An example of the radar chart for calculating the perceived design value for customers**

The figure 5-1 above demonstrates the example of how an individual result can be plotted in a diamond shape. It may look like X-Y axis, however, it is a radar chart with four corners. Given that each corner can imply certain interpretation, the location of each dimension was determined by the conceptual meanings of the dimensions.

First of all, it is arguably more distinctive between the self-oriented dimension and the other-oriented dimension. Thus, the self-oriented dimensions are located vertically, while the other-oriented dimensions are positioned horizontally in order to provide clear distinction between the self-oriented and the other-oriented dimensions. Extrinsic and intrinsic dimensions were located accordingly. In terms of extrinsic and intrinsic dimensions, it is noteworthy that one dimension can be transformed to the other dimension. For example, figure

5-2 shows a café in South Korea which emphasises the self-study area within the store.

Figure 5-2. **A picture of a café with the self-studying area (South Korea)**

From the unsorted survey data (South Korea, 172; UK, 173; and US, 171), South Korea shows a relatively higher number of responses for the purpose of visiting as "to spend time alone (reading books / magazines, studying, enjoying atmosphere)" – South Korea: 26, 15%, UK: 12, 7%, US: 0, 0%. This result reflects a trend for changing the main function of a café from consuming foods and drinks to spending time for one's own interests. In this case, the intrinsic value of the café for customers is arguably the environments which allow them to enjoy the time by themselves, which was traditionally the extrinsic value for customers in the café industry. By considering the availability of shifting between intrinsic and extrinsic value dimensions, thus, the corners of *Design Value Typology* was determined. Given that the diamond shape is drawn by the radar chart, there is no implicative meaning

among the neighboured dimensions. Therefore, the proposed equation for calculating the aggregated design value is described in figure 5-3 below.

$$\text{The perceived design value} = \frac{(S\text{-}E \text{ design value} + S\text{-}I \text{ design value}) \times (O\text{-}E \text{ design value} + O\text{-}I \text{ design value})}{2}$$

Figure 5-3. **The equation for the perceived design value**

The equation in figure 5-3 describes the area of the diamond shape. Thus, the calculated result can represent the aggregated individual customer's perceived design value.

Within the preliminary research, the independence of each dimension was regarded as the precondition for utilising the equation proposed above (Nam and Carnie, 2014a; 2014b). However, the independence of the dimensions is arguably not the prerequisite for the equation. Firstly, unless there is any negative relationship among the dimensions, the independence of the dimensions is not significant for the practical implication of the model. Secondly, the measured result is a holistic understanding of how customers perceive design value at the time of answering the questions posed in the study. Although it is necessary to understand the dimensions discretely, it does not need to perform independently. In other words, the individual's differences for perceiving design value dimensions should be respected.

The goal of analysing the aggregated value dimensions is to examine the behaviour of dimensions for the design embedded value typology. Thus, the independence of dimensions is not mandatory at the current stage of this research. Similar to previous hypotheses, the hypothesis for the aggregated design value dimensions is as described below.

$H_{0(A)}$: There is no negative relationship among design value dimensions

By confirming these hypotheses, it can be unveiled how design embedded value dimensions are related to each other. In addition, if the aggregated

design value demonstrates similar patterns as discovered in the separated design value dimensions, it can be argued that the proposed equation can be utilised for calculating the overall perceived design value. By doing so, one can compare a business to a business or a branch to a branch.

5.2.2. Research hypotheses for the relationship outside Design Value Typology

As discussed in chapter 4, the relationship across the key phases will be investigated neutrally. Given that previous research determined Holbrook's value dimensions as the individual antecedents (Gallarza and Saura, 2006; Sánchez-Fernández et al., 2008), approaching the design value dimensions as one concept without understanding the individual relationship to other phases is risky in terms of generalising the results. Thus, the overall picture of the individual relationships referred to the conceptual framework is described in figure 5-4.
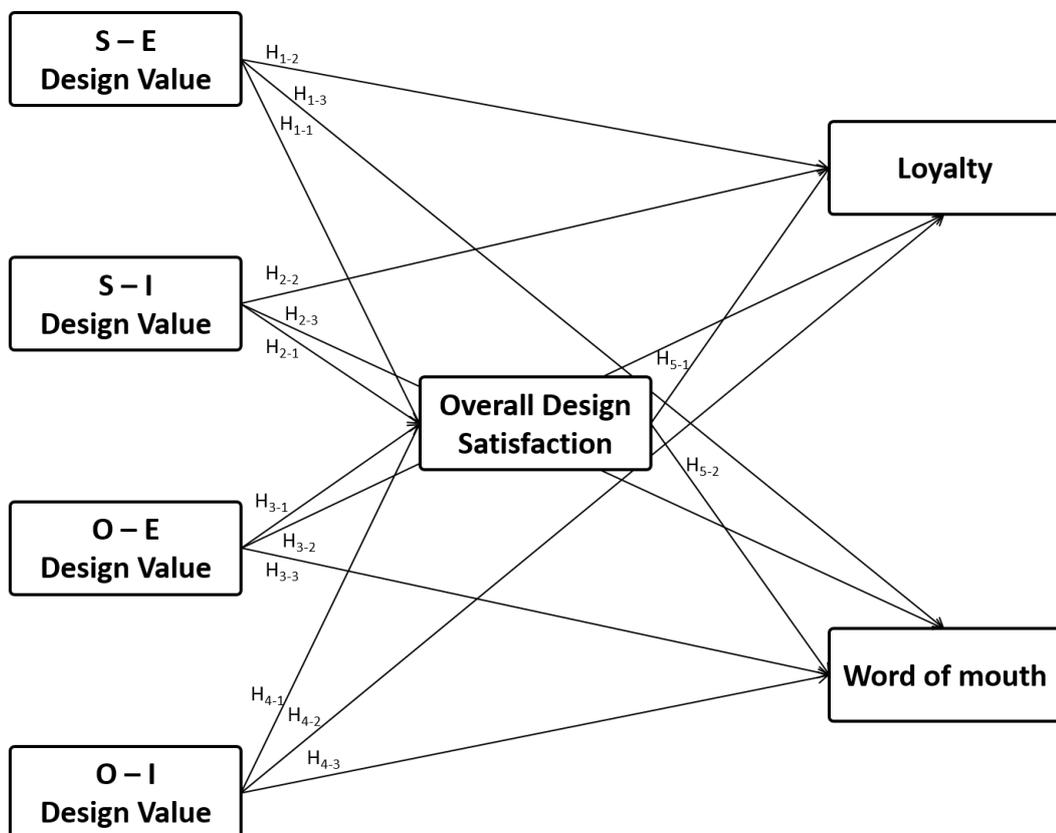
Figure 5-4. **The conceptual framework with hypotheses**

The first part of research hypotheses is to investigate the individual design value dimensions' relationship to the overall design satisfaction. Given that the customer retention can maximise the profit of a service business (Heskett et al., 1994), a customer's repeated visits is important in a service business (Williams and Soutar, 2009). Williams and Soutar (2009) argued that the evaluation of post-purchase needs to be aligned with the pre-purchase expectation. In this context, value dimensions which are created by both the information searching process (pre-purchase) and the post-evaluation can be more sophisticated and completed antecedents to satisfaction (Williams and Soutar, 2009). In addition, the concept of quality is already included in the S-E design value dimension. Thus, the four design value dimensions can be antecedents for the overall design satisfaction. The relationships are hypothesised below.

> H_{1-1}: S-E design value dimension is positively related to the overall design satisfaction
>
> H_{2-1}: S-I design value dimension is positively related to the overall design satisfaction
>
> H_{3-1}: O-E design value dimension is positively related to the overall design satisfaction
>
> H_{4-1}: O-I design value dimension is positively related to the overall design satisfaction

As discussed previously (section 2.6.3), there are arguments among researchers about the direct influence of value to loyalty. Although Heskett et al. (1994) argued loyalty is driven by satisfaction, other researchers have identified a considerable direct relationship between value and loyalty (Cronin et al., 1997; Cronin et al., 2000; Gallarza and Saura, 2006; Williams and Soutar, 2009). Thus, the direct impacts of design value dimensions upon behavioural intentions (loyalty and word of mouth) will be investigated with the following hypotheses.

H_{1-2}: S-E design value dimension is positively related to loyalty

H_{1-3}: S-E design value dimension is positively related to word of mouth

H_{2-2}: S-I design value dimension is positively related to loyalty

H_{2-3}: S-I design value dimension is positively related to word of mouth

H_{3-2}: O-E design value dimension is positively related to loyalty

H_{3-3}: O-E design value dimension is positively related to word of mouth

H_{4-2}: O-I design value dimension is positively related to loyalty

H_{4-3}: O-I design value dimension is positively related to word of mouth

The next part of research hypothesis is made of the holistically acknowledged design satisfaction can impact upon loyalty and word of mouth. In order to confirm this relationship, the hypotheses can be determined as shown below.

H_{5-1}: The overall design satisfaction is positively related to loyalty

H_{5-2}: The overall design satisfaction is positively related to word of mouth

In this research, the relationship between loyalty and word of mouth will be disregarded. Given that the hierarchy of loyalty (Oliver, 1997) and word of mouth are judged by a customer's holistic experiences, it is difficult to determine which phase is the antecedent for the other at the current stage of research. In addition, the development of information technology enables the distribution of experiences without physical restrictions. In this situation, the willingness to share the experience and the level of loyalty related to generating word of mouth can be changed due to the ease of distributing methods. Therefore, the relationship between loyalty and word of mouth will not be addressed in this research.

In the next chapter, it will be addressed how the tool (a set of questions for measuring design value) has been developed within the scope of this study.

Chapter 6

Tool development

6.1. Introduction

The tool used in this study is the survey questions and its structure. This chapter will discuss how the tool was developed and modified. The development of the preliminary research will be also discussed in order to find the relevant improvements for the current tool.

To clarify the utilised methodologies and statistical approaches, the process is described as shown in figure 6-1 below.
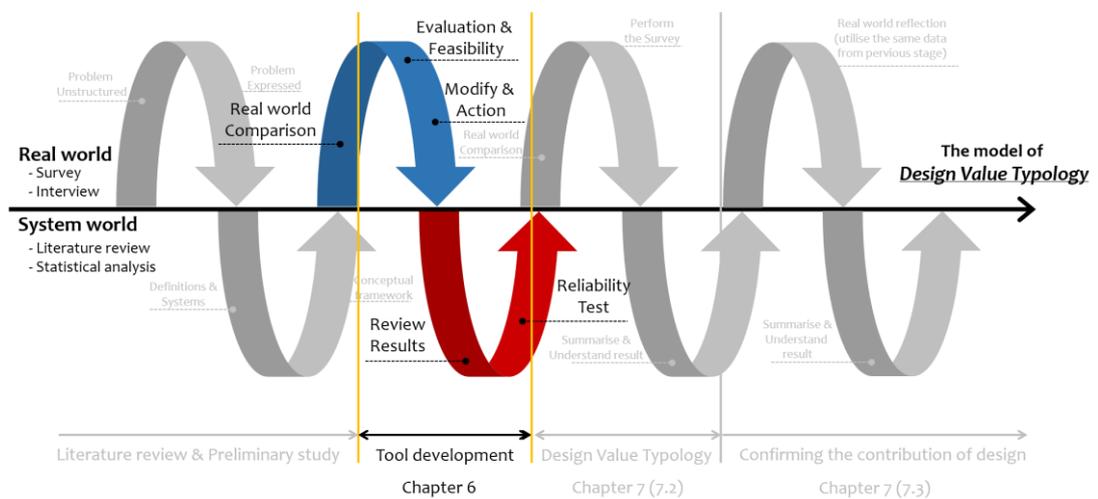
Figure 6-1. **The application of methodologies for chapter 6**

The preliminary tool (question) was tested through the survey in order to confirm the conceptual framework and propose the Design Value Typology (section 6.2.1). Given that the chances of improvement were identified (section 6.2.1.4), this study employed the qualitative approach (various types of interviews) with the further theoretical understanding of design's contribution - Gorb's identification of design's four contributions (section 6.2.2). Then, a review of modified question was performed for confirming the improvement of the tool (section 6.3). Lastly, by testing the reliability of questions (section 6.5), this study obtained the enhanced structure of the tool (question) with the statistical confidence.

6.2. Survey question

6.2.1. The preliminary research questionnaire design

Nam and Carnie (2014a, 2014b) developed the initial survey questions for understanding the relationships within the dimensions of *Design Value Typology* and outside phases (satisfaction and loyalty). They employed the SERVQUAL: SERVice-QUALity (Zeithaml et al., 1990) measurement for embedding design perspectives to that of the service quality measurement tool. By utilising and modifying design related questions within the SERVQUAL measurement (Questions 1 – 4, Zeithaml et al., 1990, p. 181), a set of service design assessment questions was created. Other design related questions were created by considering elements and principles of the design audit hierarchy (Cooper and Press, 1995). The questionnaire was classified into phases from the Service-Profit chain: *Created Value* (*Design Value Typology*), *Satisfaction* and *Loyalty* (Heskett et al., 1994). Two differently focused analysis were performed: investigating the relationship between phases (Nam and Carnie, 2014a) and design value dimensions (Nam and Carnie, 2014b). In summary, the preliminary question set was designed by simply adding the term, *design*, into the existing questionnaire within the SERVQUAL measurement.

6.2.1.1. Test for the relationship between phases

It is necessary to confirm if the design perception of customers also follows the service-profit chain (Heskett et al., 1994). If the co-created design value, design satisfaction, and design loyalty correspond to what the service-profit chain confirms, it could be argued that the design efforts and results contribute to profit and growth. It subsequently becomes possible to investigate the effectiveness of design in the food and beverage service industry. Thus, the hypotheses under this investigation was like below.

H$_1$: Design value affects to design satisfaction

H$_2$: Design satisfaction affects to loyalty

It is empirically proven that end-user loyalty, which could lead to repurchase by customers, is derived from overall satisfaction more significantly than customer value (Spiteri and Dion, 2004). It is clearly indicated in Spiteri and Dion's research that overall satisfaction drives customer loyalty, focusing on the degree of impact upon loyalty without judging the order between customer value and satisfaction. This result underpins that co-created value cannot directly affect stakeholder loyalty. Instead, it can be argued that it is necessary to have a mediating phase; *the design satisfaction of stakeholders*.

Therefore, the relationship between phases favours the simple correlation coefficient method. Since this preliminary research accepted the Service-profit chain (Heskett et al., 1994), the relationship between phases needs to be investigated separately as mentioned previously. From the simple correlation coefficient analysis, the important hypothesis can be confirmed; whether each phase has positive or negative relationship.

Figure 6-2. **Single regression result of design impact upon each phase (Nam and Carnie, 2014a, p. 1724)**

Figure 6-1 shows the single regression result of the survey. F values between phases in this analysis were calculated by dividing the explained variance with unexplained variance. Significance F values indicate the possibility of occurring in these relationships by chance. Therefore, higher F values demonstrate that the relationship between phases can be explained by calculated relationships between phases with significantly low chances of occurring coincidentally. As Heskett et al. (1994) proposed the mediating role

of satisfaction, the design perception of customers can be linked to design satisfaction and loyalty.

The additional table 6-1 shows further details of the analysis result. R squared values underpin the statistical significance of relationships within investigated phases.

Table 6-1. *The Further Analysis for the Relationship*

	Design value ➔ Design Satisfaction			Design Satisfaction ➔ Design Loyalty		
	R^2	Adjusted R^2	Std. Error of the estimation	R^2	Adjusted R^2	Std. Error of the estimation
UK	0.655	0.645	7.679	0.644	0.634	10.824
South Korea	0.710	0.706	8.981	0.688	0.685	10.423

6.2.1.2. Test for the relationship between design value dimensions

Each design value dimension is a discrete category and individually affect stakeholders. When a business requires strategic decisions to improve its performance, focusing on a weak point within Design Value Typology can be pointless, if each dimension is not clearly determined. In order to utilise the visualising method in a radar chart, Nam and Carnie (2014a, 2014b) argued that each dimension should not be correlated. Thus, multiple regression analyses were performed to investigate any potential relationships between the dimensions.

Table 6-2 indicates moderate (correlation value; 0.3–0.5) and strong (correlation value; 0.5–1.0) relationships between the four dimensions. The following was the hypothesis (H_3) of the multiple regression analysis, using the assumption of a linear relationship between each of the dimensions:

H_3: One design value dimension is influenced by the other three dimensions.

While R squared and adjusted R squared values can be disputed by having F-values with a significantly low p-value, the H_3 of the multiple regression analysis can be accepted (see Table 6-3 for details).

Table 6-2. *Pearson Correlation Value*

	Tool	Goal	Rank	Help
Tool		0.512	0.615	0.507
Goal	0.512		0.526	0.310
Rank	0.615	0.526		0.385
Help	0.507	0.310	0.385	

Table 6-3. *Multiple Regression Analysis Results*

	Set input y as Tool	Set input y as Goal	Set input y as Rank	Set input y as Help
R^2	0.498	0.335	0.443	0.267
Adjusted R^2	0.492	0.328	0.437	0.259
F-value	90.104*	45.828*	72.341*	33.140*
Std. error of the estimate	0.681	1.177	0.878	0.969

* p-value < 0.001

However, in order to accept the hypothesis and formulate a relationship between the dimensions, regression coefficients' needed to be reviewed. Table 6-4 presents the regression coefficients from multiple regression analysis.

Table 6-4. *Regression Coefficients of Design Value Dimensions*

Dependent variable	Model	Un-standardised coefficients		Standardised coefficients	t	Sig. (p-value)	95% confidence interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
Tool	(Const.)	1.770	0.209		8.489	0.000	1.360	2.181
	Goal	0.145	0.034	0.218	4.285	0.000	0.079	0.212
	Rank	0.317	0.043	0.388	7.400	0.000	0.233	0.401
	Help	0.246	0.040	0.290	6.180	0.000	0.168	0.325
Goal	(Const.)	0.849	0.402		2.111	0.036	0.057	1.640
	Tool	0.434	0.101	0.289	4.285	0.000	0.235	0.633
	Rank	0.411	0.077	0.335	5.322	0.000	0.259	0.563
	Help	0.044	0.073	0.035	0.600	**0.549**	- 0.101	0.189
Rank	(Const.)	0.452	0.301		1.502	**0.134**	- 0.140	1.045
	Tool	0.527	0.071	0.430	7.400	0.000	0.387	0.667
	Goal	0.229	0.043	0.281	5.322	0.000	0.144	0.313
	Help	0.083	0.055	0.080	1.521	**0.130**	- 0.024	0.191
Help	(Const.)	1.259	0.325		3.878	0.000	0.620	1.899
	Tool	0.498	0.081	0.423	6.180	0.000	0.340	0.657
	Goal	0.030	0.050	0.038	0.600	**0.549**	- 0.068	0.128
	Help	0.101	0.066	0.105	1.521	**0.130**	- 0.030	0.232

If one dimension can be explained by the other three dimensions, all coefficients are required to be statistically significant. Some p-values (help dimension in the dependent variable: goal, 0.549; help dimension in the dependent variable: rank, 0.130; goal and rank dimensions in the dependent variable: help, 0.549 and 0.130) reject some regression coefficients and make it difficult to formulate the relationship of dimensions.

Despite some positive relationships between the dimensions, it is very difficult to describe the relationships between the dimensions. Give that there is argument of R squared values and the rejection of the regression coefficients, Nam and Carnie (2014b) argued that each design value dimension cannot be

explained in a consistently formulated relationship. Thus, each dimension is independent and should be measured separately.

6.2.1.3. Result of the preliminary research

In summary, the results of previous two analyses suggest two key points: the relationships between phases after design value is created, and the relationships between design value dimensions when they are constellated. First of all, the created design value affects design satisfaction and loyalty is mediated by design satisfaction. Given that the expected variance is greater than the unexpected variance (high F value) and almost all events are likely occurred within the estimations (low significance F value), Nam and Carnie (2014a) argued that the result can indicate positive relationships between the aforementioned phases (created value – design satisfaction and design satisfaction – loyalty). Secondly, due to some statistically insignificant regression coefficients, the relationships between the dimensions cannot be explained, thus, each dimension pertains independently and performs discretely (Nam and Carnie, 2014b).

6.2.1.4. Arguments for the initial questionnaire and its result

However, the researcher identified that the findings from the preliminary studies have opportunities of improvement of the survey and its analysis. In order to review identified flaws in the preliminary survey question, it is necessary to confirm the layout at first. The preliminary question set (refer to appendix A.2) is classified by the designated dimension and the phases in table 6-5.

Table 6-5. *The Summary of the Preliminary Questionnaire*

Value dimension	Phase	Question # (in appendix A.2)
	The perceived value	Q1 – Q6
Value as goal	Satisfaction	Q7 – Q11
	Loyalty	Q12 – Q14
	The perceived value	Q16
Value as tool	Satisfaction	Q17
	Loyalty	Q18 – Q19
	The perceived value	Q20 – Q21
Value as rank	Satisfaction	Q22 – Q24
	Loyalty	Q25 – Q26
	The perceived value	Q27 – Q29
Value as help	Satisfaction	Q30 – Q31
	Loyalty	Q32 – Q33

The arguments for the preliminary study can be classified into three category; contents (questionnaire), structure (logic), and interpretation of the results.

(1) <u>The arguments for content</u>

The first concern for the contents is the ambiguity of satisfaction in the survey question. Except for the question in design as goal, no question is asking for how a survey participant is satisfied with the service provision. Instead, the questions in the satisfaction category are asking for factors which arguably belong to the other phases. For example, in question 21, *other customers in the café X are similar to me* and question 23, *the café's atmosphere reflects my characteristic* are designated in different phases (question 21 – the perceived value and question 23 – satisfaction). According to Holbrook's classification for the Other-oriented – Extrinsic dimension, the status and esteem of an individual belong to this dimension. Thus, both questions are a

better to fit in the perceived value phase. In addition, question 30, *I can recognise from the design of the café X that my consumption at the café X supports others mentioned in questions 27 and 28* is within the satisfaction phase, however, it is arguably describing the acquisition of the relevant information, not the level of satisfaction about the design activities.

The second concern is the irrelevant questions for each phase. For instance, the purpose of visiting was asked in question 15, then question 16 asked whether design of the shop had helped to achieve the goal. Without describing the elements of design which can contribute to the goal for customers, this is arguably a leap in logic. Thus, the answer for question 16 cannot be suitable for questioning the impacts of design for the customer's goal. In addition, the question 29, *I believe that cafés should operate in a manner that includes a diversity / range of customers and use ethically sourced ingredients and products,* is asking the ethical / moral position of the customer against any café, not for the café which the participant was answering. Question 33 also has the same issue as question 29. It is difficult to say this question asks about the design value of the experienced café.

(2) The arguments for the structure

The first concern for the structure of the survey question is the differences in the number of question designated in each dimension. Given that the analysis for the independence of design value dimensions were performed by averaging responses from each dimension, the unequal numbers of the question for each design value dimension can generate a significant flaw for the statistical analysis. For example, in terms of design value dimensions, the number of questions allocated in each dimension are; design as goal, 6 questions; design as tool, 1 question; design as rank, 2 questions; and design as help, 3 questions. Besides the inconsistent question contents mentioned previously, the unequal numbers of question can distort the results. In this case, it can be argued that the design of the survey is lacking in consistency in order to produce appropriate statistical data for analysis.

The second concern is the mixed utilisation for loyalty and word of mouth. As discussed previously, loyalty has a known hierarchy (Oliver, 1997) and is therefore difficult to conceptualise through the use of only a single question in the survey. Within each phase, loyalty was interrogated through the question which states willingness to revisit the café. The willingness to revisit or repurchase is determined as the conative loyalty (Oliver, 1997) in this research. Asking the specific level of loyalty is arguably not enough in order to fully comprehend the actual level of loyalty for customers. In addition, the willingness to share the positive experience for the Other-oriented – Intrinsic dimension is missing. Above all, there is no distinction between loyalty and word of mouth. Loyalty and word of mouth were averaged and analysed as one phase (loyalty). This approach is arguably problematic to determine actual loyalty and its practical impacts upon the brand's profit and potential growth.

The third concern is the design of the survey questions. As discussed in the section 4.2.1.1, participants were required to complete the survey addressing each of value dimension. In other words, questions of satisfaction, loyalty and word of mouth about each value dimension were asked separately. In addition, the analyses of satisfaction and loyalty for different value dimensions were achieved by averaging scores from different value dimensions. Given that value is a "relativistic" concept (Holbrook, 1999, p. 5), satisfaction derived from value can be grouped in many different ways. An example is given in table 6-6 for providing further explanation of this concern. If a person gives the satisfaction score as in table 6-6, the average satisfaction score is 5.25.

Table 6-6. *An Example for Averaged Satisfaction Score in the Preliminary Study*

	Satisfaction score	Average
Self-oriented – Extrinsic dimension	7	5.25
Self-oriented – Intrinsic dimension	6	
Other-oriented – Extrinsic dimension	3	
Other-oriented – Intrinsic dimension	5	

Given that each participant can offer different weightings for each dimension, a simple averaged satisfaction cannot represent the overall satisfaction for any individual participant in the study. If the person's major reason for choosing a café is the Self-oriented – Extrinsic dimension (such as relaxing atmosphere or accessibility to other interested places), the overall satisfaction can be greater than 5.25. However, if the person's best concern is the Other-oriented – Extrinsic dimension (such as popular place for sharing through the social network services), the overall satisfaction for the brand can be lower than 5.25. Thus, without asking participants for their overall satisfaction, calculating the overall satisfaction by averaging satisfaction scores from different dimensions may provide a misleading result in terms of generating the overall satisfaction score in this study. The analysis of loyalty also has been identified as having the same issues.

(3) The arguments for the interpretation of results

For the analysis in the preliminary research (Nam and Carnie, 2014b), it is necessary to revisit the result for the Pearson correlation coefficients. As described in table 6-2 (p. 139), all Pearson correlation coefficients have a positive value. Nam and Carnie (2014b) moved to the next part of the analysis without deeply understanding the all positive results. Pearson correlation coefficient is ranged from -1.0 to 1.0. 0 coefficient can be interpreted as no

relationship, while negative and positive coefficients mean negative and positive relationships respectively. The key finding is that all dimension are related to each other with positive relationship. This result implies that, if a customer likes one specific aspect of design from a shop, the other aspects of design can be perceived positively by the person.

For example, if a family restaurant invested to build an appropriately designed children's play space at the corner of the store, the dominant perceived value from the play space is arguably value from the S-E dimension (related to the convenience of dining). However, the positive perception from the play space cannot be limited to the convenience of dining, it arguably contributes to value of the restaurant for the customer's desire to be acknowledged as a family-oriented person (the O-E dimension) and enjoying the child-friendly atmosphere (the S-I dimension).

For the practical use of *Design Value Typology*, this is arguably the most important finding. Despite the variance of coefficients, if all dimensions are positively related, efforts for improving any dimension can affect the other dimensions positively. Thus, depending upon the strategic focus of a business, a business can try to improve any design value without worrying about losing value from other dimensions.

Thus, the interpretation of the preliminary analysis should focus on the findings of the positive relationship among all design value dimensions. In terms of measuring design value of a brand or investigating each value dimension's relationship with other phases (satisfaction, loyalty and word of mouth), the independence of value dimensions is not significant. In addition, although the customer perception consists of several dimensions, Pine and Gilmore (1999) also argue that designing a customer experience should be based on dynamic changes between dimensions. Thus, in order to maintain sustainability and enhance the customer experience, a company should understand the result of measuring design value holistically and not overestimate the significance of a specific dimension.

In addition, given that the key relationship referred in the preliminary research is the service-profit chain (which regards that there is no direct relationship

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between created value and loyalty), Nam and Carnie (2014a) deliberately omitted the analysis of the direct relationship between the created value and loyalty. However, if the relationship between the perceived value and loyalty is performed (by using the same set of data), the result is as shown in table 6-7.

Table 6-7. *The Relationship between the Created Value and Loyalty* (data from Nam and Carnie, 2014a)

	R^2	Adjust R^2	Std. error of the estimate	Regression Coefficients (B)	t	Sig. (*p*-value)
South Korea	0.637	0.632	11.2512	0.961	11.991	0.000
UK	0.679	0.669	10.2874	1.196	8.472	0.000

The above results also indicate that there are positive significant relationships. If the assumption (no or insignificant relationship between created value and loyalty) is true, this is either caused by an inappropriate designed questionnaire or the mediating role of satisfaction is weak on the target industry. However, given that many researchers have found the relationship between value and loyalty, the interpretation of this result should guide to further investigation for the structure of the survey questions and the neutralised conceptual framework for capturing the relationship among the business phases.

In conclusion, by reviewing the preliminary phase of the research (Nam and Carnie, 2014a; 2014b), the researcher found the necessity for enhancing the survey questions, thus, ensuring a logical structure to the relationship within the conceptual framework and generating in-depth understanding of satisfaction and behavioural intentions (loyalty and word of mouth) for clearer distinction and the analyses. In order to improve the quality and relevance of the survey question, interviews (focus group interview, individual interview and e-mail interview) were performed. It will be discussed in the next section

how the findings at this phase of the study have led to modification of the next phase of the survey questions and the arguments to support these changes.

6.2.2. Modifying the survey questionnaire

The most important challenge for performing interviews was to explain the concept of *Design Value Typology* to participants. Thus, this research employed the identification of the key design contributions (product, environmental, information and corporate identity - Gorb in Cooper and Press, 1995) in order to remind the participants of previous experiences within the food and beverage service sector.

Then, by analysing and identifying considerations and *reasons* of selecting a specific service business, the researcher utilised provided answers from interviews to generate the questions used to develop the survey for Design Value Typology. By doing so, it is possible to minimise confusion by the participants and categorise the survey questionnaire appropriately.

In order to obtain and categorise major considerations of service businesses from the customer perceptions, interviews through various methods were performed. Individual (6 participants); focus group (5 participants); and e-mail (15 participants) interviews were performed (total 26 participants). Participants were from South Korea (11) and the United Kingdom (15). Interviewees were asked to answer within the guided category (but not limited) about the most important considerations when choosing a food and beverage service business (refer to appendix A.1).

In order to find the key representative elements for each category, all activities (brainstorming and interview idea) were listed in the Excel sheet for analysing. The ratio of responses for each category (product, information, environment and corporate identity) is shown in figure 6-2.
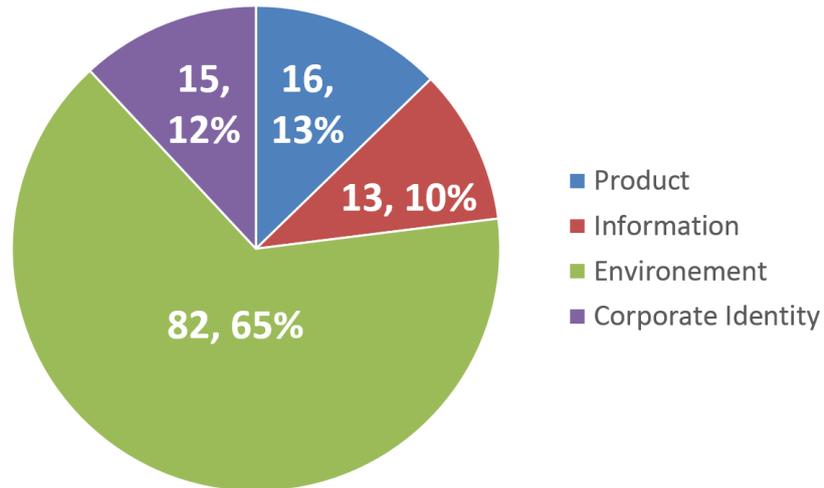
***Figure 6-3.* Number of responses for each category (responses, %)**

65 per cent of answers are related to the environment design of the food and beverage industry. This result highlights the importance of the environment design in the food and beverage service industry. The environmental design includes the design of "architecture, interior and landscape" (Cooper and Press, 1995, p. 28). These physical surroundings can contribute to the perception for the overall atmosphere of the service provider. Thus, the emotional arousal through physical surroundings is particularly important and relevant in the food and beverage service industry (Ryu and Han, 2010).

The next step is to encapsulate the overlapped contents in order to find the key contents for each category (overlapped answers and irrelevant responses to design items were omitted). The development of questions by category will be discussed in following sections.

6.2.2.1. The product design category question

First of all, the answers within the product category were sorted in order to investigate design related items as shown in table 6-8. (for the detail key words classification, refer to appendix B.2-1)

Table 6-8. *The Answers in the Product Category*

Key words	Number of responses (#, %)
Food presentation	3, 75%
Supportive items	1, 25%

The design element which can be summarised in the product category is the visualisation of the product (food presentation related item – 75%). Participants responded that the consistency of the food presentation as the key consideration in this category. One of the interview participant from the e-mail interview answered,

I prefer restaurants who whilst offering a strong variety of choices – also have an overarching consistency (usually from a certain region or cuisine) – I feel less happy in places that are inconsistent/ have random products

- *PhD student, e-mail interviewee*

Especially in the food and beverage service industry, the consistency of food presentation provides the confidence for customers by allowing them to predict the possible scenarios of dining (Johns and Pine, 2002).

In addition, by considering the service as the key offering from the food and beverage service industry, it is also necessary to include the service elements in the product category. Given that employees are the key source for delivering services to customers (Heskett et al., 1994), answers related to employees are included in the product category. Participants mentioned that the friendly and courteous attitude of employees as well as the appropriate

dress can attract them to choosing a particular café. Participants from the face to face and the focus group interview mentioned,

… in order to attract younger population, some coffee shops deploy good-looking boys in the front line for attracting female customers, which will likely engage male customers, too…

- *CEO of business consulting company, individual interviewee*

… I like to visit a restaurant where employees dressed formally, it gives me the feelings of being served…

- *freelancer furniture designer, face to face interviewee*

No responses were given by any of the participants about take-away situations. However, given that food and beverage service businesses also provide the food and drink for take-away, packaging is necessary to be questioned. Thus, the food related items (product) and the employee related item (service) are considered in the product category question. In order to reflect the interview results, the contents of questionnaire was designed in this manner presented below.

… products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.)…

6.2.2.2. The environment design category question

Table 6-9 below is a summary of the environment related answers from participants. (for detail of the key words classification, refer to appendix B.2-2)

Table 6-9. *The Answers in the Environment Category*

Key words	Number of responses (#, %)
Interior	45, 60%
Location	12, 16%
Architecture	3, 4%
Atmosphere	15, 20%

The first three categories were mentioned in Cooper and Press (1995). Given that the definition of design in this research is determined as *various activities in a business which deliberately stimulate senses of targeted stakeholders*, the non-visual elements which can stimulate the senses of customer also need to be considered. In terms of perceiving the physical environment from the customer perspective, the atmosphere is arguably the end-result of the environment design. The atmosphere derived from environment design is classified and contains elements as described in table 6-10.

Table 6-10. *The Classification of Atmospheric Elements*

Researcher(s)	Classification	Contents
Baker, 1986	Ambient cues	Temperature, music, noise, lighting
	Design cues	Style, layout, architecture
	Social cues	Customer, store employees
Bitner, 1992	Ambient conditions	Music, noise, temperature, lighting, odour
	Spatial layout and functionality	Layout of mechanical equipment, facilities, furniture, furnishing, spatial correlations
	Sign, symbols and artefacts	Signboard, decorations, store image designs
Turley and Milliman, 2000	External variables	Sign, entrance, window, building, etc.
	General interior variables	Flooring, colour scheme, lighting, music, etc.
	Layout and design variables	Space design, waiting area, location, furniture, etc.
	Point-of-purchase and decoration variables	Point-of-purchase display, sign, card, wall decoration, etc.
	Human variables	Employee characteristics, uniforms, customer characteristics, privacy

As shown in table 6-10, the atmosphere is classified into various design related activities. Given that some aspects of the atmosphere are derived from non-visual elements, the atmosphere of the shop is included discretely in this research.

An interesting finding from the literature and interviews is the fact that customers perceive other customers as one of the environmental factors that

they consider when choosing a café. The responses from participants related to this issue are like below.

… I look at who is in there, like if it's empty I don't tend to go in …
- *undergraduate student, e-mail interviewee*

… I think the consideration for others also includes the fact who are the other customers and how the person wants to be seen by those people…
- *freelancer furniture designer, face to face interviewee*

Given that the service provider can manage and design the seating arrangement in order to reflect the characteristics of their customers, it is arguably an area that falls under design management in the food and beverage service industry. For example, some restaurants allocate their target customers to window seats in order to attract hesitating customers who may be passing the café. Thus, the presence of other customers can be regarded as one of environmental factors in the food and beverage service industry.

In order to encompass non-visual design elements (such as music, other customers), this study includes the atmosphere within the environmental consideration. The question, therefore, includes these considerations can be stated as expressed below.

… Location, building, interior and atmosphere of the store …

6.2.2.3. The information design category question

As technology has become more ubiquitous in terms of promotion and advertising through online media, participants considered the website is the most relevant resources for obtaining information about a shop. However, it was also revealed that decorations within the shop and the design of the menu play a significant role for building a holistic image for customers. The summary of answers is described in table 6-11.

Table 6-11. *The Answers in the Information Category*

Key words	Number of responses (#, %)
Online information	5, 50%
Loyalty card	2, 20%
Display of menu	1, 10%
Other decoration in the store	2, 20%

However, depending upon the characteristics of a brand, the service provider can apply a variety of strategies in terms of the information delivering methods. It is difficult to standardise the design elements in the information category. Instead, by linking emotional responses from the information, it can demonstrate value driven by information materials. Thus, the questionnaire is designed to interrogate the following areas pertinent to this study as indicated below.

… information about the store (through its website, menu, posters on the wall, media displays, etc.) …

6.2.2.4. The corporate identity design category question

In the case of corporate identity design, it was challenging to categorise the responses and these are presented below. (refer to table 6-12 below)

Table 6-12. *The Answers in the Corporate Identity Category*

List
Employees' uniforms / how they dress
Scent (e.g. roasting coffee)
Long history
Celebrity chef
Signs
Famous and trendy brands
Local shops (not a franchise chain)
Signs
Events
Expected perceptions (of oneself) from others
Atmosphere
Marketing (events)
Mission statement of the restaurant
Bragging rights of being there and supporting them (if the restaurant gets popular)

The challenge of generating the above categories for corporate identity can be attributed to the ambiguity of understanding of the accepted definition of corporate identity within the academy. Balmer (2001) argued that corporate identity is the narrower scope of business identity. Business identity includes; *corporate identity*, *organisational identity*, and *visual identity* (Balmer, 2000). By considering the answers from the interview participant, what Gorb

identified as corporate identity needs to be contemplated as business identity in this research.

*… corporate identity emerges from the **various business activities** and its process … I think the picture of corporate identity is **automatically imprinted** into the customer's mind through activities performed through previously mentioned categories (product design, environment design and information design) …*
- *service designer, individual (phone) interviewee*

… I think some of the above go into corporate identity … if they care so much about x type of food as the best, I like to be part of that by supporting it and being part of its success …
- *PhD student, e-mail interviewee*

In response to the determined scope of this study, it was decided not to further probe the define corporate identity and business identity. However, it needs to be clarified that what this study determines as corporate identity is more relevant to the definition of business identity in Balmer (2001) and derived from the holistic view of a business activity. Thus, the question about the corporate identity can be described as below.

… the image of the shop through the previous three criteria …

6.2.2.5. Applying categorised questions to Holbrook's value typology

From the previous sections, the key words related to each category were determined. The next step is to modify and embed questions to address Holbrook's value typology. In order to assign the relevant questionnaire into these dimensions, it is necessary to review emotions or reactions related to Holbrook's value typology.

Table 6-13. *The Extended Emotions and Reactions in Holbrook's Typology of Consumer Value*

		Extrinsic	Intrinsic
Self-Oriented	Active	Efficient, Convenience, Effective	Fun, Enjoyable
	Reactive	Excellent, Higher quality	Beautiful, Appealing, Attractive, Interesting
Other-Oriented	Active	Successful, Impression management, Personality, Characteristics	Ethics, Justice, Virtue, Morality, Consideration, Social responsibility
	Reactive	Esteem, Reputation, Possessions	Faith, Sacredness

(1) <u>Self-oriented – Extrinsic dimension</u>

The feelings of efficiency are driven by the *personally* assessed outputs over the inputs (Holbrook, 1999). Due to their similarity and confusion, it is necessary to review the difference between efficiency and effectiveness. Efficiency in a business is defined as "<u>the ratio of useful work performed</u> to the total energy expended or heat taken in", while effectiveness is defined as "powerful in effect; producing a notable effect; effectual" and "(effective) of a work of art, a design, a literary composition, etc.: <u>producing a striking or pleasing impression</u>" (Oxford English Dictionary online, accessed by 28/Oct/2015). Given that efficiency is always personal and of significant impact upon the individual customer, questioning the participants about a matter of efficiency about which they do not have enough information can be irrelevant in certain situations. For example, within the information design questions category, a question may be asked about the website or bulletin board. Customers passively observe the information on the website, board or wall. If the researcher asks about the efficiency of this information material, participants may consider the amount of efforts which the *service provider* had put into producing this material. In this situation, participants cannot clearly determine the efficiency due to the lack of information about how much money and effort were spent from the business side. In short, efficiency arguably

contains more objective manners of perception, while effective demonstrates the subjective feelings of customers. By asking how effectively the offerings contribute to value for participants, it is arguably necessary to question the participants about the impact of the products and services within the survey. Thus, this study will question the participants about the effectiveness of the offerings.

The factor which the self-oriented – extrinsic value needs to focus can be also found within the e-mail interview responses as follows.

… is good as a restaurant and bar because the interior design compliments both eating and drinking in terms of having two separate areas which flow well together …
- *undergraduate student, e-mail interviewee*

As described above, even if the layout of the restaurant was designed by the store, the participant described the effectiveness of the layout (flow well together) from their own perspective. Therefore, if efficiency is utilised for questioning, the survey participants can be confused whether the efficiency is for themselves or from the business perspectives.

In addition, there is an interesting comment from the focus group interview expressed below.

… in my opinion, the extrinsic value is something which a service provider can maximise the profit. Quite often, customers do not have high expectations for the elements within the extrinsic dimension. Thus, a little surprise can please the customer and the moment of surprise is entirely personal for the person…
- *ux designer at a Korean electronics company, focus group interviewee*

Thus, the experiential value from the extrinsic dimensions is personal and needs to be asked in the subjective manner.

In the case of the reactive aspects, this study employed a spectrum of *excellence* to describe value in this dimension. Given that reactive aspects act

upon the survey participant (Holbrook, 1999), it is the passive side of value. Interview participants often describe the dining experience as something sophisticated, trendy and interesting event.

… I think I would rather go to a nice area, somewhere where there's a nice view or an interesting part of town …
- *undergraduate student, e-mail interviewee*

… eating food in a restaurant is an event to me …
- *PhD student, e-mail interviewee*

… I love to visit some trendy places and find a new one which is not very famous yet, but has high quality of interior and food …
- *ux designer at a Korean electronics company, focus group interviewee*

Given that excellence is defined as "the state or fact of excelling; the possession chiefly of *good qualities* in an eminent or unusual degree; *surpassing merit*, skill, virtue, worth, etc.; dignity, eminence" (Oxford English Dictionary online, accessed by 28/Oct/2015), excellence can represent these types of value.

Thus, the key words for the self-oriented – extrinsic design value are; **excellence** and **effective**. These terms were modified and embedded in the questions used at this phase of the study. By doing so, survey participants can judge the extrinsic value from their perspectives (self-oriented). The questions within the self-oriented – extrinsic dimension are described in table 6-14.

Table 6-14. *The Questions for the Self-oriented – Extrinsic Dimension*

Category	Question
Product design	The way of delivering products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) at the store was excellent and effective to me
Environment design	Location, building, interior and atmosphere of the store are effectively organised
Information design	Information about the store (through its website, menu, posters on the wall, media displays, etc.) was effectively presented to show products and services of the shop
Corporate identity design	The store creates its image effectively through previous three criteria

(2) Self-oriented – Intrinsic dimension

The self-oriented – intrinsic dimension in Holbrook's value typology includes "fun" and "beauty" (Holbrook, 1999, p. 12). Given that the emotional responses for each question category can be different, this study has focussed on finding the representative emotions for each product category from interviews.

… so it's not just about the product, but a culture of eating with loads of <u>*interesting*</u> *… importantly though – there also needs to be* <u>*distinctiveness*</u> *… deliberately considered the environment they offer – unique furniture/ cutlery (again has to be* <u>*consistent*</u>*)*
- *PhD student, e-mail interviewee*

… there are some places where suddenly <u>catch my eyes</u> from the outside view. If the building looks <u>interesting</u> from outside, I'd love to visit …

- *ux designer at a Korean electronics company, focus group interviewee*

… depending upon the characteristics of the restaurant, I think there are some places where everybody can <u>enjoy</u> and feel trendy, in other words, cool …

- *ex-marketer in an international IT company, focus group interviewee*

Thus, the questions for the self-oriented – intrinsic dimension are described in table 6-15 below.

Table 6-15. *The Questions for the Self-oriented – Intrinsic Dimension*

Category	Question
Product design	Products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) at the store were appealing and enjoyable
Environment design	Location, building, interior and atmosphere of the store were attractive and interesting
Information design	Information about the store (through its website, menu, posters on the wall, media displays, etc.) was consistent with its atmosphere and looked appropriate
Corporate identity design	The image of the shop through the previous three criteria is positive

(3) <u>Other-oriented – extrinsic dimension</u>

The other-oriented – extrinsic dimension in Holbrook's value typology includes "status" and "esteem" (Holbrook, 1999, p. 12). As many different types of the food and beverage services are introduced, the meaning of consuming foods is not simply limited to the food itself (Andersson and Mossberg, 2004). Given that the dining experiences are often accompanied with friends or families, it arguably contains considerable social implications. In other words, consuming food and drink becomes one of the ways to express identity. A notable number of interviewed participants mentioned this type of value in their consumption experience.

… visiting a café definitely has two different perspectives; considering others or not considering others … when it comes to consider the exposure self to strangers, I think the person may matter the <u>view from others</u> …
- *Freelancer furniture designer, face to face interviewee*

… showing what I ate through social media has special implications for me. I would like to share what I like and enjoy the responses from friends or even strangers … the food which I would love to share through social media <u>reflects my character</u> …
- *ux designer at a Korean electronics company, focus group interviewee*

… if I feel like <u>I am not the right person for a restaurant</u> by observing others already in the restaurant or the atmosphere, I do not usually visit the restaurant …
- *ex-marketer in an international IT company, focus group interviewee*

The major consideration for participants in this dimension (other-oriented – extrinsic) is *to be acknowledged by others*. Thus, the questions for the other-oriented – extrinsic dimension are presented in table 6-16.

Table 6-16. *The Questions for the Other-oriented – Extrinsic Dimension*

Category	Question
Product design	Consuming products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) from the store reflect my desired character / personality
Environment design	Location, building, interior and atmosphere of the store reflect my desired character
Information design	By using information materials (website, menu, posters on the wall, media displays, etc.), I have become more familiar with the store and think that the store reflects certain aspects of my character
Corporate identity design	My image in terms of using this store will be viewed by others as a reflection of the character expressed in the store design

(4) <u>Other-oriented – intrinsic dimension</u>

Despite the fact that Holbrook argued the Other-oriented – Intrinsic dimension contained elements such as ethics and spirituality (Holbrook, 1999), the mention of ethics and spirituality were insignificant in the responses by participants in this study. In terms of spirituality in the Other-oriented - Intrinsic dimension, it was rarely found in neither literature or interview. This may be rooted the fact that practitioners and survey participants do not contemplate food and drink consumption deeply. Spirituality is arguably difficult to conceptualise from a design perspective with the broad scope of food and beverage service providers. Thus, in this research, only ethics will be discussed in this dimension.

However, it was also challenging to gain any feedback about ethical issues from the interviewees. It is arguably due to the lack of understanding the

notion of ethical issues in a business from design perspectives. Therefore, instead of forcing design perspectives into the ethical issues, this study approaches the design issue in the Other-oriented - Intrinsic dimension indirectly by asking consistent questions from the previous dimensions. This is done by reminding survey participants whether survey participants were able to find relevant material and efforts for the ethical activities and can acknowledge the management's considerations for ethical issues.

Therefore, the Other-oriented – Intrinsic dimension can be represented by ethics in this study. Given that the ethical aspects of a business is critically related to the success of a business (Joyner and Payne, 2002), the ethical aspects of value and its understanding through design perspective is arguably significant. The questions for the Other-oriented – Intrinsic dimension are presented in table 6-17 below.

Table 6-17. *The Questions for the Other-oriented – Intrinsic Dimension*

Category	Question
Product design	Consuming products and services from the store will help other communities (e.g. suppliers of the origin, local communities, social minorities, etc.)
Environment design	I could find design considerations for people with disability (e.g. access ramp, wheel chair friendly tables, etc.)
Information design	I could find information about the store's social responsibility activities
Corporate identity design	The image of the store includes ethical / moral activities in some respects

6.3. The structure of the tool

In section 4.2.1.1, it was discussed how the conceptual framework has been developed by considering logical concerns. In this section, it will be investigated why the preliminary survey structure needs to be modified and how the new structure can be more relevant to address the current issues in this study.

6.3.1. The preliminary structure of the survey question

The preliminary research included satisfaction and loyalty within the value dimensions (refer to appendix A.2). In order to conceptualise the relationship within design value dimensions, it is necessary to review how the elements for each dimension are constructed. The original proposal of *Design Value Typology* from Nam and Carnie (2014b) presents the following arguments; (1) the validity concern for each dimension's questionnaire and (2) the manner used for conceptualising the relationship within design value dimensions.

In terms of validity of the survey question, there are two concerns as mentioned earlier; the different number of questions in one dimension and the representativeness of questions for each dimension. First of all, in order to examine the relationship among the dimensions, the number of items addressed needs to be same. This was not the case at this initial phase of the study where different numbers of questions for each dimension were asked of the participants. (see appendix A.2 for further information). For example, the questions which were used to interrogate the "design as tool" dimension (Nam and Carnie, 2014b, p. 1394) were 14 (including the concept of satisfaction and loyalty), while "design as goal" dimension only used only 5 questions. In this case, given that the dimension with the greater number of questions can have greater variation for individual responses, investigating the correlation between these two dimensions can be arguably misleading. Secondly, due to its simple changes from the use of the SERVQUAL measurement (Zeithaml, et al., 1990), the survey questions were not fully validated as to whether these questions reflected the design characteristics of the designated dimension

under investigation. By performing qualitative analysis and modification, the relevance of the questions used is arguably improved as discussed in section 3.5.3.2.

Given that the interaction within Holbrook's typology is often disputed (Holbrook, 1999; Gallarza and Saura, 2006; Sánchez-Fernández et al., 2008), it is necessary to investigate clearly the relationship across the design value dimensions using the following procedure.

The issue of conceptualising the framework of the relationship occurred within the design of survey structure. The concepts of satisfaction and loyalty were not separated from the perceived value. Given that satisfaction derived from the perceived value should be considered an *overall judgement* from the customers as discussed in section 2.6.2.1, asking questions about satisfaction separately in each value dimension can blur the concept of *overall* satisfaction in this research. In addition, the lack of understanding about customer loyalty and other key business indicator (such as word of mouth) can weaken the practical utilisation of the this study (see figure 6-4 below).
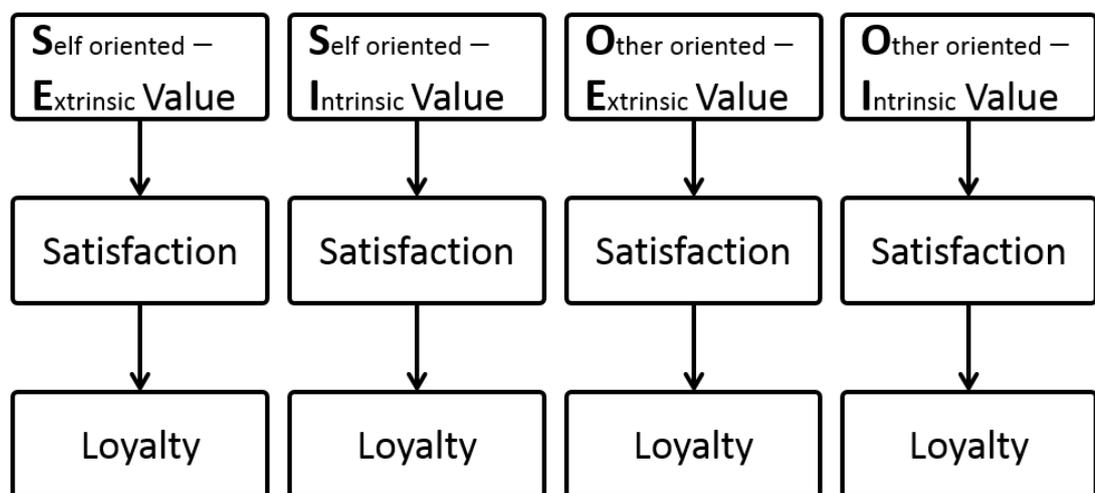
Figure 6-4. **The logical path for participants within the preliminary question**

Due to the fact that the preliminary question set was designed to interrogate satisfaction and loyalty within the individual value dimensions, the results of satisfaction and loyalty were averaged in order to test the relationship across

the phases in the preliminary research (the perceived value and satisfaction, satisfaction and loyalty). In this case, the satisfaction derived from one specific dimension can impact upon the satisfaction from other dimensions while the survey probes satisfaction discretely. Without asking about overall satisfaction from the perceived value, averaging the satisfaction which is derived from discrete antecedents has led to shortfalls in this phase of the survey question design which need to be addressed moving forward.

6.3.2. The modified structure of the survey question

The modified structure was mentioned in section 4.2.1.1 and 4.2.1.2 for building the conceptual framework of this research. The advantages of the modified structure can be classified into three categories; (1) removing statistical concerns, (2) emphasising the role of satisfaction, and (3) improving the relevance of the questionnaire.

Firstly, taking this approach to modifying the questionnaire removes the statistical concern from the preliminary structure. As discussed above, a significant concern was identified as using different numbers if questions for discrete variable's and their subsequent comparison. This can cause invalidity of data due to the fact that the single item question was utilised by itself, while the multiple item question was averaged. As discussed previously, taking this approach will reduce the statistical variances by having same numbers of item for each section.

Secondly, putting the overall satisfaction between the perceived value and behavioural intentions can emphasise the mediating role of overall satisfaction. Although this research investigates neutrally across the relationships outside the design value dimensions, the overall satisfaction still plays a key role and is essential. By considering the logical order of the survey structure (the perceived design value ➜ overall satisfaction ➜ loyalty and word of mouth), the survey participant needs to determine his/her level of satisfaction, then, answers the levels of loyalty and the degree that the participant attributes to word of mouth. Given that loyalty derived from higher

satisfaction has the stronger business impact (Zeithaml et al., 1996), the mediating role of overall satisfaction is critical in this research. In addition, given that this research considers satisfaction as the *singular response* occurred by the perceived design value dimensions, the concept of overall satisfaction is more relevant (Oliver, 1999) and the "better predictor" for loyalty (Yang and Peterson, 2004, p. 804). Thus, by having the overall satisfaction addressed within the survey structure, greater confidence can be gained in the data collected that addressing the issue of loyalty.

By modifying the approach taken thus far, the relevance of questions for each dimension in terms of implanting design into a business theory is improved. The other concern for the preliminary survey question was the lack of reflecting the real world situation through qualitative approaches. Given that the preliminary question set was derived from the existing survey tool for the service quality (SERVQUAL, Zeithaml et al., 1990), simply switching a few key words that interrogate design is arguably not sufficient for embedding design perspectives into the business theory. The various qualitative approaches for the in-depth understanding of design related value can enhance the coherence of the survey question as well as the relevance of it.

In conclusion, the modification of the survey structure and the enhanced understanding of design value dimensions arguably enabled the overall relevance of the survey tool. However, given that the survey questions allow participants to choose multiple choice responses in order to reflect the real level of loyalty, how the multiple choice responses can be converted into the 7 point Likert scale will be addressed in the next section.

6.4. The scale of the tool

Given this research utilises a 7-point Likert scale, all data will be scaled from 1 to 7 except the aggregated design value. The concept of the aggregated design value was introduced in the preliminary study (Nam and Carnie, 2014a; 2014b). By plotting the four corners of design value dimensions into a radar

chart, the customer's perceived design value can be visualised as shown in figure 2-6 in section 2.5.3. (Nam and Carnie, 2014b). Nam and Carnie (2014b) also argued that the plotted area can be calculated and represents the design value for individuals or the targeted branch or brand if responses are averaged. The detail conceptual framework and related hypotheses were discussed in chapter 4 and 5.

However, there is another data scale which needs to be confirmed at this point. This study employs a hierarchy of loyalty with four levels following the findings from Oliver (1997). The survey participants were asked to choose multiple statements which describes their current attitudes towards the brand they have experienced. In order to fit into the 7 point scale, the choices need to be reviewed. For example, The lowest choice, the cognitive loyalty, is built by obvious information which participants can notice without considering this information in-depth. Although cognitive loyalty contains a slightly positive position towards a brand (Oliver, 1997), this level of loyalty is very vulnerable against simple information with small benefits from other competitors (Oliver, 1997; McMullan and Gilmore, 2003).

Taking the above approach into account it raises the question, how can four choices of loyalty be interpreted within the 7 points scale? In this research, there are few important assumptions applied; (1) each loyalty level increases linearly, (2) the gaps between loyalty phases are same, and (3) the lower levels of loyalty are the basis of higher levels of loyalty (Oliver, 1997). In other words, higher levels of loyalty without lower levels of loyalty can be weaker than those which includes lower levels of loyalty.

The reason for not simply determining the action loyalty as 7 points and the cognitive loyalty as 4 points is due to the consideration of the survey type utilised at this phase of the study. The main advantage of online survey is to get the result quickly and a sufficient quantity to use in order to make suitably supported claims. However, given that participants were paid to respond to the survey questions, it could be assumed that some of participants may want to complete quickly in order to receive their financial compensation. In this situation, the use of multiple choice questions are arguably more reliable in

terms of the respondent expressing their opinion or attitude accurately. Thus, the answer that selected action loyalty without choosing any other options can be deemed to be expressing a weaker loyalty than a respondent that chooses every possible option in this category of questions in the survey.

Thus, the completed set of loyalty hierarchy in this research with their 7 point transformed figures can be demonstrated in table 6-18. (selection A = Cognitive loyalty, B = Affective loyalty, C = Conative loyalty, D = Action loyalty)

Table 6-18. *The Loyalty Score by Multiple Loyalty Scores*

	Choices	Rank	Loyalty
Cognitive loyalty(A) = "The chosen store has more benefits than similar stores"	A	1	0.5
	B	2	1.0
	AB	3	1.5
	C	4	2.0
Affective Loyalty(B) = "I (have grown to) like the design of the store more so than other shops"	AC	5	2.5
	BC	6	3.0
	ABC	7	3.5
Conative Loyalty(C) = "I intended to continue buying from the chosen store in the future"	D	8	4.0
	AD	9	4.5
	BD	10	5.0
	CD	11	5.5
Action Loyalty(D) = "When I have a need for products or services of this type, I buy only from the chosen store"	ACD	12	6.0
	BCD	13	6.5
	ABCD	14	7.0

6.5. The confirmation of reliability for the survey question

Any phase with a multiple item scale needs to be confirmed in terms of having the consistency for responses. Therefore, the reliability was tested by calculating Cronbach's alpha in *Design Value Typology* and WOM (word of mouth)

6.5.1. The reliability for questions within Design Value Typology

In order to confirm the new set of questionnaire is relevant for further analyses, the reliability needs to be tested. The reliability test was performed by utilising SPSS among question categories. The Cronbach's alpha demonstrates the reliability within the same category of questionnaire depending upon the consistency of responses. In general, the Cronbach's alpha above 0.7 demonstrates the high consistency of questionnaire in the social science. Thus, the reliability was tested by the question category and nationalities of participants. In this section, the results will be demonstrated in the brief summary. For the detail SPSS results, see appendix B.3.

Table 6-19 shows Cronbach's alpha for each country. Given that each question category is also divided by the design value dimension, the consistency of question category is deemed to be *not* critical for the scope of this study. However, as the preliminary studies (Nam and Carnie, 2014a; 2014b) argued, it can be expected to have positive correlations across design value dimensions. In this circumstance, the consistency of question category can be increased despite the discreteness of data. By considering this factor, Cronbach's alphas throughout all countries show moderate or high consistency of question. This can be interpreted that the categorised questions from discrete value dimensions (but same question category) still have high consistency. This finding underpins the positive correlation between design value dimensions from the preliminary research. Thus, it can be argued that the questions are consistent and appropriate for further analyses.

Table 6-19. *The Cronbach's alpha for Question Categories*

Nationality	Question category	Cronbach's alpha
South Korea	Product	0.721
	Environment	0.728
	Information	0.671
	Corporate identity	0.720
United Kingdom	Product	0.725
	Environment	0.689
	Information	0.675
	Corporate identity	0.685
United States	Product	0.635
	Environment	0.599
	Information	0.634
	Corporate identity	0.721

However, there is a finding which researcher should not underestimate for the future study, the reliability of questions from the Other-oriented – Intrinsic dimension. All data collected from this study indicate that the consistency of question can be improved if the item from the Other-oriented – Intrinsic dimension is omitted (see table 6-20).

Table 6-20. *The Changed Cronbach's alpha without the O-I Question*

Nationality	Question category	Cronbach's alpha	Cronbach's alpha if O-I* question is deleted
South Korea	Product	0.721	0.832
	Environment	0.728	0.852
	Information	0.671	0.816
	Corporate identity	0.720	0.824
United Kingdom	Product	0.725	0.823
	Environment	0.689	0.806
	Information	0.675	0.767
	Corporate identity	0.685	0.759
United States	Product	0.635	0.714
	Environment	0.599	0.687
	Information	0.634	0.664
	Corporate identity	0.721	0.712

* O-I: Other-oriented – Intrinsic design value dimension

Except in the O-I question, all other dimensions' question positively contribute to the reliability of the question (thus, other dimensions' questions decrease Cronbach's alpha, if they are deleted). This is arguably caused by the inconsistency of questions between the O-I dimension and other dimensions. However, this study could not obtain the relevant qualitative data for embedding design related items for the O-I dimension. This outcome could also be attributed to the lack of awareness of ethical/moral design in the general public. More importantly, given that each value dimension is derived from discrete classifications (self-oriented versus other-oriented and extrinsic versus intrinsic), the consistency of the questionnaire can be limited. Therefore, the survey questions including the O-I design value dimension will remain at the current status in order to focus the scope of this study. The

issues for the O-I dimension will be discussed further in chapter 8 for future studies.

6.5.2. The reliability for questions in WOM

Table 6-21. *The Reliability Test Results for Questions in WOM*

Nationality	Cronbach's alpha
South Korea	0.735
United Kingdom	0.826
United States	0.719

Table 6-21 demonstrates the reliability of items in WOM questions. Two different items were test for the consistency. The first WOM question asks the willingness to share the experience and the second WOM question is how vividly the participant would like to describe the experience. As mentioned in section 2.6.2.3, the vividness of an experience is critical to deliver the positive message to others. Thus, the participants' intention of sharing experience and how vividly they would share the experience were asked for WOM in this study. As a result, with the confidence level of consistency in the results, the items in WOM can be utilised for further analyses in this study.

Chapter 7

Analyses and Results

7.1. Introduction

The analyses of data were performed using two different methods; Spearman's correlation analysis and multiple regression analysis. Using Spearman's correlation analysis assists in explaining the relationship if participants perceive value differently across the design value dimensions. In addition, by considering the characteristics of data as the ordinal data, it is necessary to employ a non-parametric analysis at first. Given that Spearman's correlation analysis can demonstrate negative, positive, or no relationship between two *non-parametric* variables, it is arguably the signal for the possibility of mathematising the relationships. Additionally, a multiple regression analysis is employed for investigating the detail betas (coefficients) with their significance level (p-value). By having multiple regression analysis results, the detailed contribution of each dimension to the dependent variable can be revealed. Lastly, in order to build a model for explaining the behaviour of customers by utilising the data, Structural Equation Modelling (SEM) was employed. SEM is a statistical technique which conceptualises a set of phenomenon into a model (Byrne, 2001). It can be regarded as the mixture for CFA (confirmatory factor analysis) and multiple regression (Byrne, 2001; Schreiber et al., 2006). Given that the objective of this research is to establish a model which can explain the perceived design value and its relationship with other business phases, it is critical to underpin the model with statistical evidences.

In summary, Spearman's analysis and multiple regression analysis will be utilised to investigate the relationship *within Design Value Typology*. The relationship outside of *Design Value Typology* (in other words, how design and its impacts upon other business phases such as satisfaction and loyalty can be structured) will be modelled by facilitating the SEM technique with SPSS Amos software.

7.2. The analysis for the relationships within Design Value Typology

Before starting this section, figure 7-1 is utilised for confirming the current stage and the utilisation of methodologies for this section.
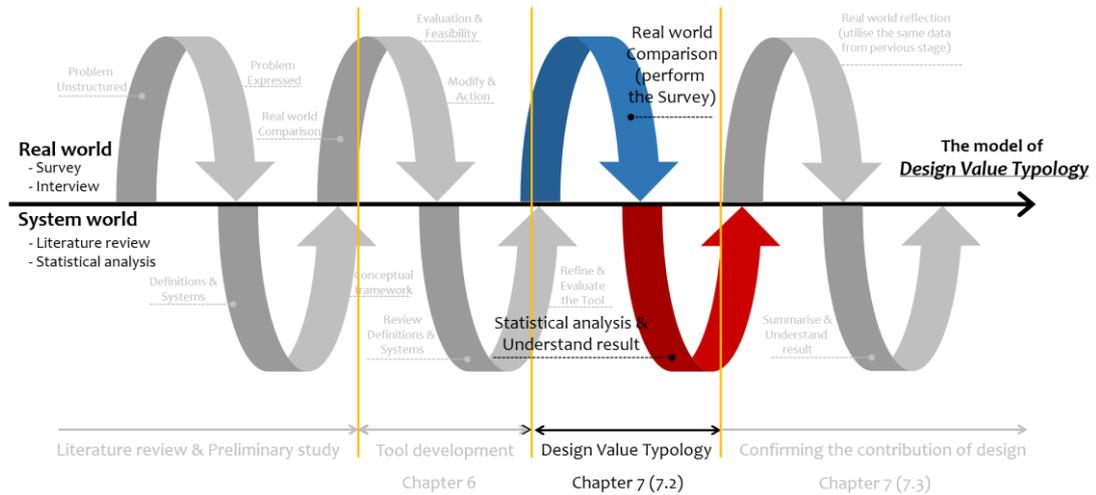
Figure 7-1. The application of methodologies for chapter 7 (section 7.2)

The modified tool from the previous chapter was utilised for testing the relationships *within Design Value Typology* by the online survey method. The statistical analyses were divided depending upon the nationalities of the survey participants (section 7.2.1 – South Korea; section 7.2.2 – the United Kingdom; section 7.2.3 – the United States). In the last section (7.2.4), the analyses will be summarised and the result will be interpreted for the continuous understanding of Design Value Typology for the following section (7.3).

In order to perform the relevant analysis for Design Value Typology, it is necessary to revisit the hypotheses from the previous section. As discussed, the hypotheses for Design Value Typology are classified into two categories; the relationship across the question categories and the relationship across the design value dimensions. The reason for doing this is due to the fact that each design value dimension includes four question categories generated in response to Gorb's classification.

$H_{0(P)}$: There is no relationship (product category) across the design value dimensions

$H_{0(I)}$: There is no relationship (information category) across the design value dimensions

$H_{0(E)}$: There is no relationship (environment category) across the design value dimensions

$H_{0(C)}$: There is no relationship (corporate identity category) across the design value dimensions

After confirming these hypotheses, the average score for each design value dimension will be investigated. By doing so, it can be unveiled whether the dimensions are related each other. Therefore, the hypothesis for the averaged design value dimension can be proposed as below.

H_1: There is no relationship across the design value dimensions

In short, the individual hypotheses for question categories will be reviewed in order to have summarised information about the relationship *within Design Value Typology*. Thereafter, the scores from question categories will be averaged in order to represent each design value dimension. Confirming these hypotheses will be conducted separately by the nationality of respondents.

In order to confirm the hypotheses, appropriate analysis methods should be employed. The logical flowchart of choosing relevant methods for the relationships within *Design Value Typology* is described in figure 7-2.
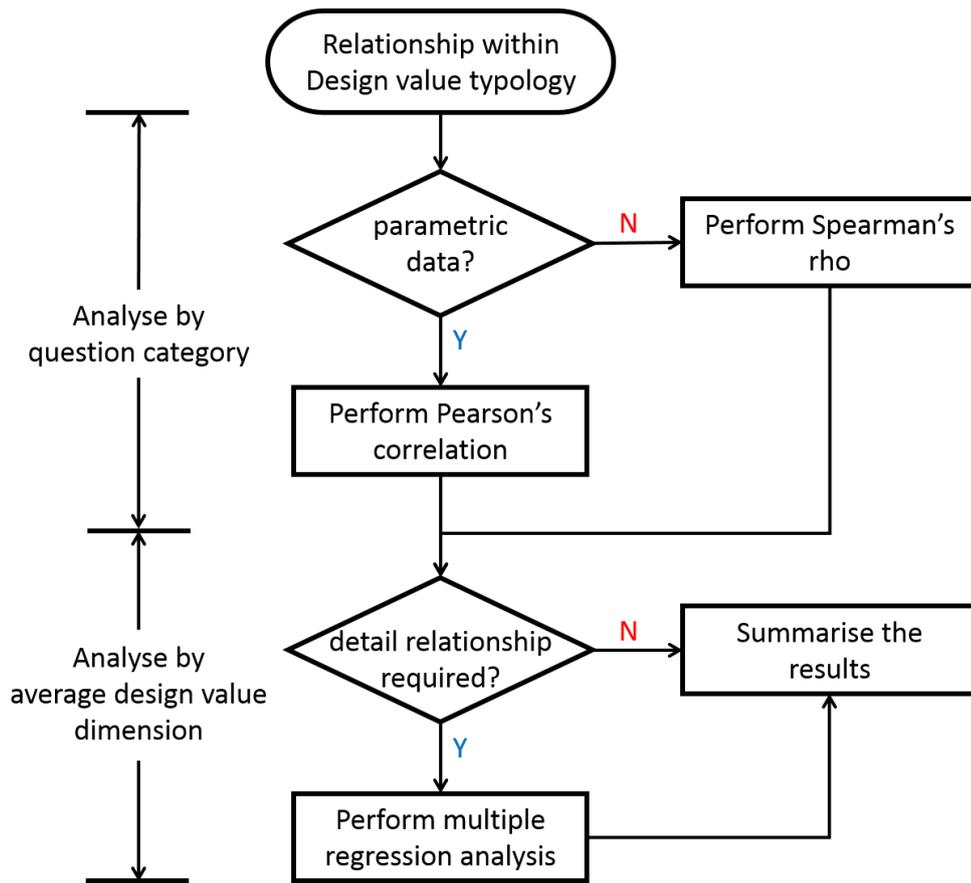
Figure 7-2. **The flowchart for determining analysis methods (Design Value Typology)**

As shown in figure 7-2, the first step in the analysis is in order to investigate and establish the correlation coefficient by question categories in order to determine the relationship between two responses of different value dimensions from the same person. Given that the survey was performed using a 7 point Likert scale, the data is non-parametric. In order to prevent any uncertain assumption (such as the linearity of data and the normality of data), this study will perform Spearman's method for analysing the ordinal data. By considering the non-parametric characteristics of data, it is necessary to check individual question category's relationship before averaging the numbers. Then, the responses from the four question categories will be averaged in order to perform the analysis of the relationships across the design value dimensions (multiple regression analysis).

Thus, it is necessary to start with Spearman's rho correlation coefficients. Given that Spearman's rho correlation coefficient represents the strength of the relationship as well as the significance of the relationship, comparing two dimensions are either positively or negatively related if p-value is less than 0.05 and the correlation coefficient is not 0. If the Spearman's correlation coefficient is 0, it indicates there is no relationship between the compared two dimensions. In addition, hypotheses will be rejected if the majority of relationships within the same question category are rejected. In other words, if Spearman's rho correlation coefficients show meaningful figures for demonstrating relationships between two dimensions, the hypotheses can be rejected.

In summary, the procedure of investigating the relationships across the design value dimensions is; (1) conducting Spearman's analysis of the relationship across the design value dimensions by question category, (2) averaging the four question categories in order to have the representative numbers for each design value dimension, and (3) performing multiple regression analysis with data from (2) for explaining the in-depth linear relationship among design value dimensions. By doing so, it can be revealed that the relationship without assumptions (Spearman's analysis) and the relationship in continuous data (transformed by averaging the question categories) in order to establish the overall understanding of how each dimension is related (multiple regression analysis). The overall procedure of analysis will be explained in the next section (7.2.1. The data analysis for South Korea) and the other two countries' data will follow the same steps as described in section 7.2.1.

7.2.1. The data analysis for South Korea (Design Value Typology)

The Spearman's analysis for South Korean data is summarised in figure 7-3, 7-4, 7-5, and 7-6.

**. Correlation is significant at the 0.01 level (2-tailed)
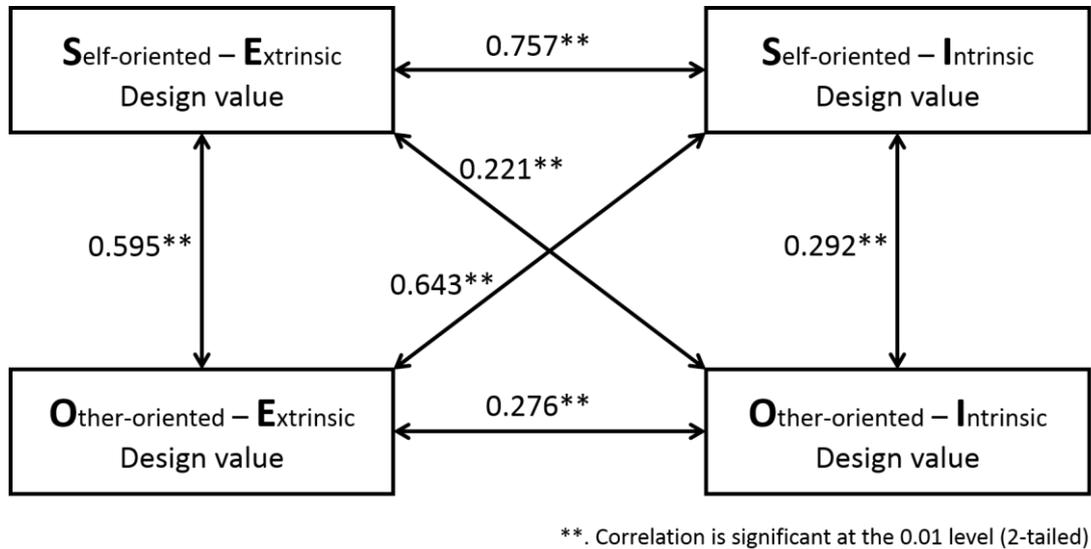
Figure 7-3. **Product category question's correlation within the design value dimensions (South Korea)**

**. Correlation is significant at the 0.01 level (2-tailed)
<--> Correlation is NOT significant (p-value > 0.05)
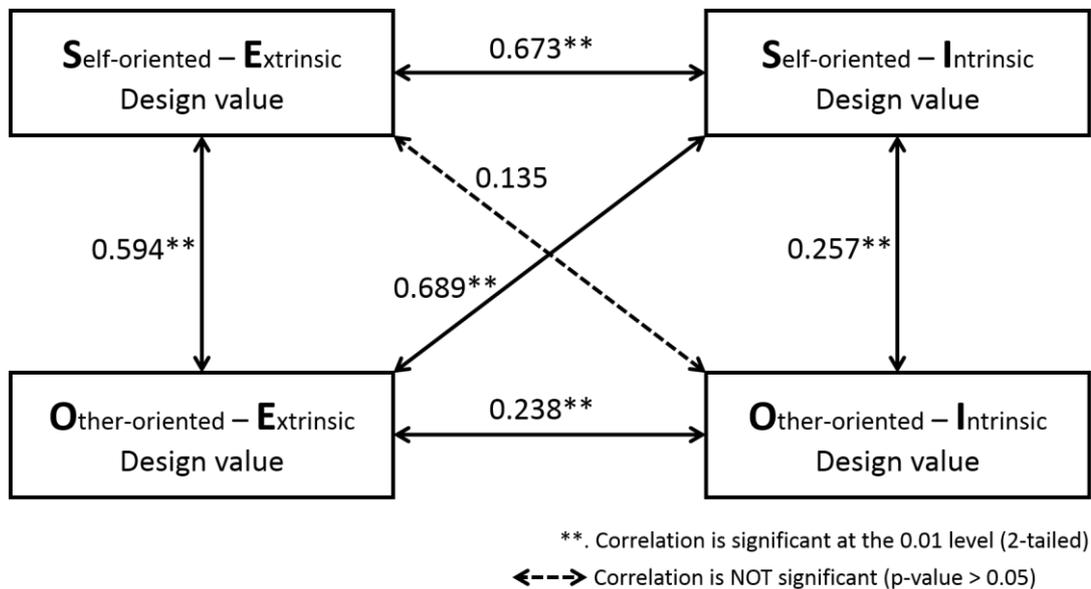
Figure 7-4. **Environment category question's correlation within the design value dimensions (South Korea)**

```
Self-oriented – Extrinsic        0.616**        Self-oriented – Intrinsic
Design value        ←──────────→        Design value

                    0.100
          0.590**        0.179*
                    0.685**

Other-oriented – Extrinsic        0.198*        Other-oriented – Intrinsic
Design value        ←──────────→        Design value
```

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)
←--→ Correlation is NOT significant (p-value > 0.05)
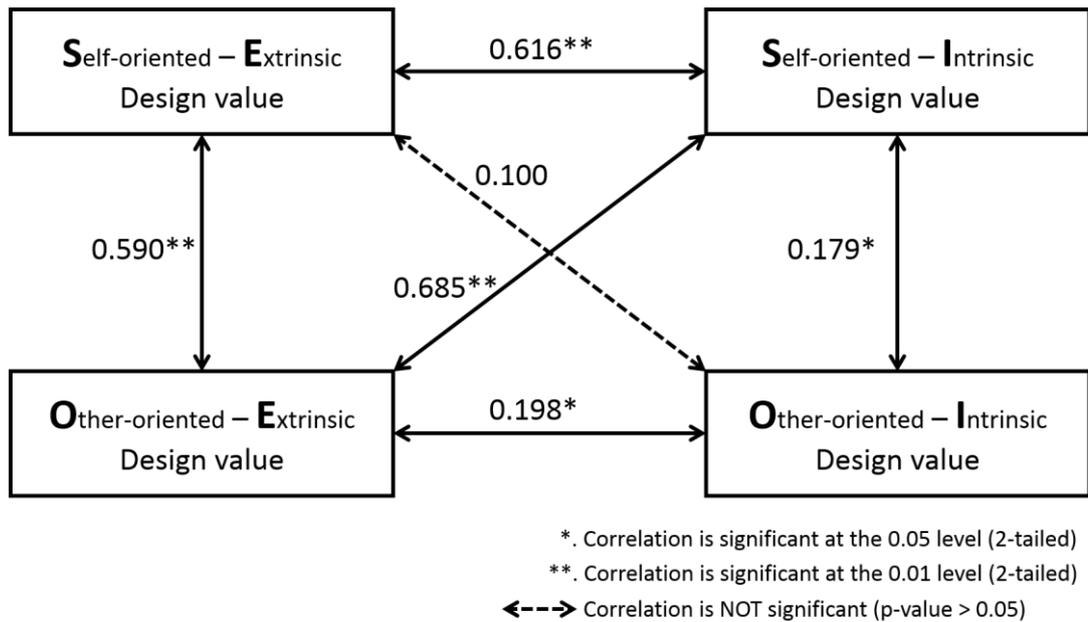
Figure 7-5. **Information category question's correlation within the design value dimensions (South Korea)**


```
Self-oriented – Extrinsic        0.671**        Self-oriented – Intrinsic
Design value        ←──────────→        Design value

                    0.185*
          0.618**        0.167*
                    0.697**

Other-oriented – Extrinsic        0.326*        Other-oriented – Intrinsic
Design value        ←──────────→        Design value
```

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)
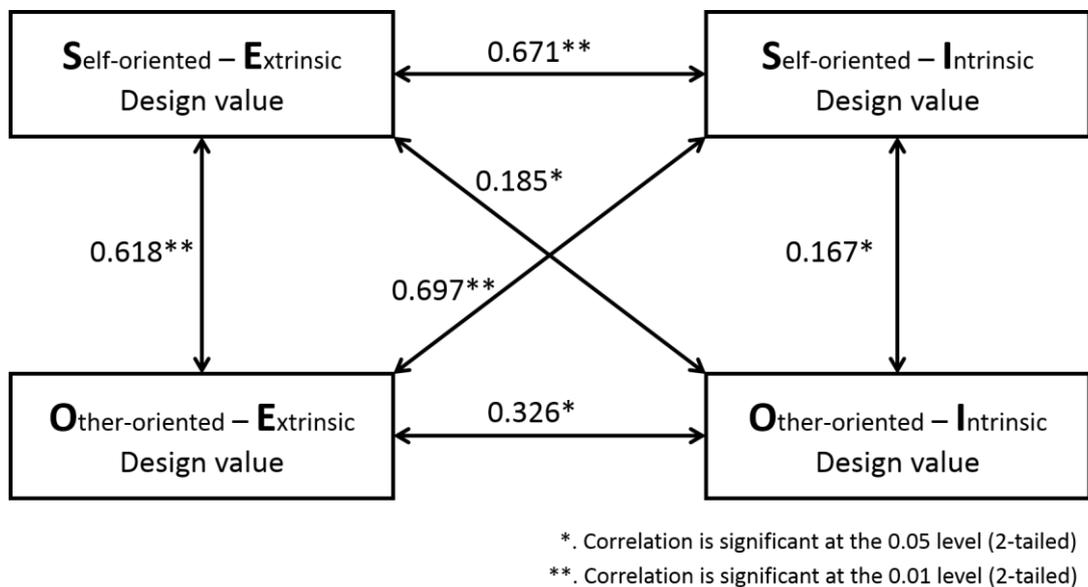
Figure 7-6. **Corporate identity category question's correlation within the design value dimensions (South Korea)**

Most of the relationships demonstrate positive correlation coefficients and significant *p*-value. However, the relationship between the S-E dimension and

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the O-I dimension in environment and information category show insignificant *p*-value. Thus, before rejecting the hypotheses, it is also necessary to investigate this relationship further. Despite the characteristic of data (ordinal), a multiple correlation analysis was performed due to the fact that a Likert scale can be considered as continuous data (Winship and Mare, 1984). Given that the survey question was design in order to answer a specific level of agreement within the 7 points scale without the descriptions of every option (such as slightly agree or neutral), survey participants were able to choose the degree of agreement without limiting the described status. Thus, the collected data can be considered as the continuous data.

In addition, the purpose of the multiple regression analysis at this stage is not for modelling the linear relationship among variables, but for investigating why the relationships in two cases are insignificant. By utilising the regression model, it can be briefly explained why the relationship is not significant.

Given that every relationship against the O-I dimension demonstrates relatively weaker correlation, multiple regression was performed by putting the O-I dimension from environment and information question categories as the dependent variable and the other three dimensions as independent variables. The regression standardised residuals are within the six sigma range (there is no outlier among the regression standardised residuals with 99.99% confidence) and normally distributed (one of precondition for the regression analysis). The results are summarised in table 7-1 (See appendix B.4-2 for further information).

Table 7-1. *The Multiple Regression Result for further Investigation in the O-I Dimension*

Question Category	R^2	Dimension	B	Std. Error	t	Sig.
Environment	0.066	S-E	-0.074	0.139	-0.528	0.598
		S-I	0.220	0.151	1.454	0.148
		O-E	0.175	0.153	1.141	0.256
Information	0.047	S-E	-0.092	0.128	-0.720	0.473
		S-I	0.201	0.149	1.350	0.179
		O-E	0.175	0.162	1.076	0.284

R squared value is extremely low and none of the unstandardized coefficients (beta) is significant. In other words, the O-I dimension in environment and information question category cannot be predicted by the other three dimensions. However, given that the other two question categories (product and corporate identity) shows a moderate relationship with significant *p*-values and the result above indicates no relationship (not a negative relationship), it can be concluded that *there is **no negative relationships** across the categorised design value dimensions* by accepting the hypotheses described previously.

This outcome raises the question; how can the relationship be modelled? It is now worth investigating relationships in the overall concept (average score from each question category for design value dimensions) with multiple regression analysis. However, by considering the characteristics of the data, the bootstrapping method is necessary to be applied in order to support the obtained *p*-value. Bootstrapping is a statistical technique which can be utilised for non-parametric data by generating a dummy data based on the original data (Efron, 1979).

As shown in table 7-2, the average data has a potential issue within the S-E dimension for Kurtosis. It is generally recommended to have skewness/standard error and Kurtosis/standard error within plus and minus

1.96 in order to be within six sigma range (however, the violation for the skewness when using a Likert scale is common).

Table 7-2. *The Result of Skewness and Kurtosis (KR)*

	S_E	S_I	O_E	O_I
Std. Deviation	1.04897	1.07125	.97669	1.32489
Skewness	-1.139	-.532	-.274	-.140
Std. Error of Skewness	.199	.199	.199	.199
Skewness / SE	**-5.724**	**-2.673**	-1.377	-0.704
Kurtosis	3.035	.237	-.156	-.446
Std. Error of Kurtosis	.396	.396	.396	.396
Kurtosis / SE	**7.664**	0.598	-0.394	-1.126

Therefore, the bootstrapping technique was also utilised when multiple regression analysis is performed. In order to generate confidence in the results, the interval from the bootstrapping should not include 0 value in order to argue the significance of coefficients (Efron, 1979).

Table 7-3. *The Multiple Regression Analysis (bootstrapped) for Design Value Dimensions (KR)*

Dependent variable	Model	R^2	Un-standardised coefficients		Sig. (2-tailed)	Bootstrap Confidence interval	
			B	Std. error		Lower	Upper
S-E	(Const.)	0.562	1.335	0.338	0.003	0.710	1.932
	S-I		0.585	0.175	0.001	0.170	0.903
	O-E		0.201	0.116	0.091	0.005	0.438
	O-I		**-0.042**	0.060	**0.489**	**-0.140**	**0.088**
S-I	(Const.)	0.781	-0.143	0.304	0.646	-0.698	0.315
	S-E		0.304	0.153	0.036	0.071	0.633
	O-E		0.710	0.147	0.001	0.433	0.900
	O-I		0.016	0.046	0.729	-0.079	0.123
O-E	(Const.)	0.746	0.833	0.262	0.004	0.336	1.265
	S-E		0.101	0.061	0.048	-0.028	0.298
	S-I		0.685	0.050	0.001	0.584	0.769
	O-I		0.066	0.033	0.047	0.000	0.128
O-I	(Const.)	0.103	1.859	0.643	0.003	0.647	3.328
	S-E		**-0.137**	0.268	**0.587**	**-0.708**	**0.149**
	S-I		0.101	0.299	0.737	-0.472	0.864
	O-E		0.429	0.214	0.049	-0.002	0.837

Table 7-3 demonstrates the multiple regression results with each dimension's average score (marked in red and bold font where the relationship is negative). The insignificance of some *p*-values and the bootstrapping results which explain the relationship between dependent variable and independent variables causes the discrepancies in modelling the relationship. For example, the S-E dimension can be modelled with the S-I dimension only, while the S-I dimensions can be explained with the S-E dimension and the O-E dimension. In this case, it is difficult to conceptualise the model in order to explain the relationship across the design value dimensions. Thus, the hypotheses (H_1) below should be accepted.

H_1: There is no relationship across the design value dimensions

In addition, the other goal for multiple regression is to discern any meaningful negative relationships across the design value dimensions. If one design value dimension has a negative impact upon other dimensions, a company's efforts for enhancing design value in a dimension can decrease the design value from another design value dimension. In this case, it is difficult to argue that *Design Value Typology* is relevant when measuring the design value for the company. The negative impact of the design value dimension can be observed in the correlation coefficient (beta). Even though there are two negative relationships (negative correlation of O-I dimension to S-E dimension and S-E dimension to O-I dimension), these two relationships are meaningless with the insignificance of correlation coefficients. In other words, O-I dimension and S-E dimension cannot predict each other. Thus, there is no concern in having negative relationships *within Design Value Typology*.

In summary, the hypotheses can be accepted for the following reasons. First, as the results from Spearman's analysis demonstrated, there is no negative correlation across the design value dimensions in the question categories. There are a few insignificant relationships, however, by considering the purpose of the analyses in this section (to find negative relationships within the model), the insignificant relationships cannot prevent modelling the relationship for *Design Value Typology*. In addition, the in-depth investigation by utilising multiple regression analysis indicates that there are some negative relationships, however, they are *statistically insignificant*. In other words, the negative relationship from multiple regression analyses can be disregarded. Thus, it can be argued that ***there is no negative relationship within design value dimensions from South Korean data***.

7.2.2. The data analysis for the United Kingdom (Design Value Typology)

The Spearman's analysis for the British data is summarised in figure 7-7, 7-8, 7-9, and 7-10.

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)
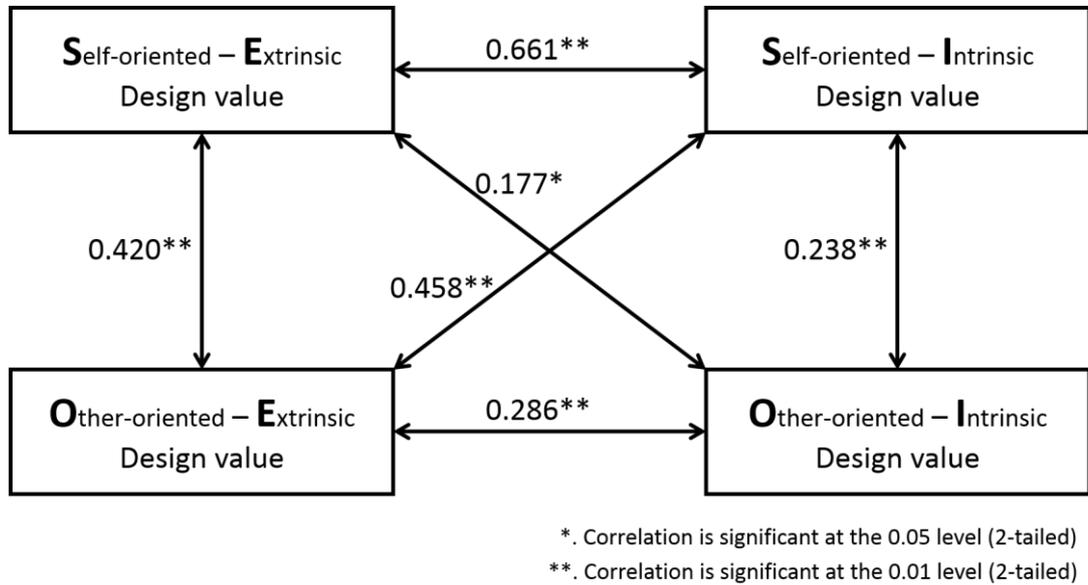
*Figure 7-7.* **Product category question's correlation within the design value dimensions (UK)**

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)
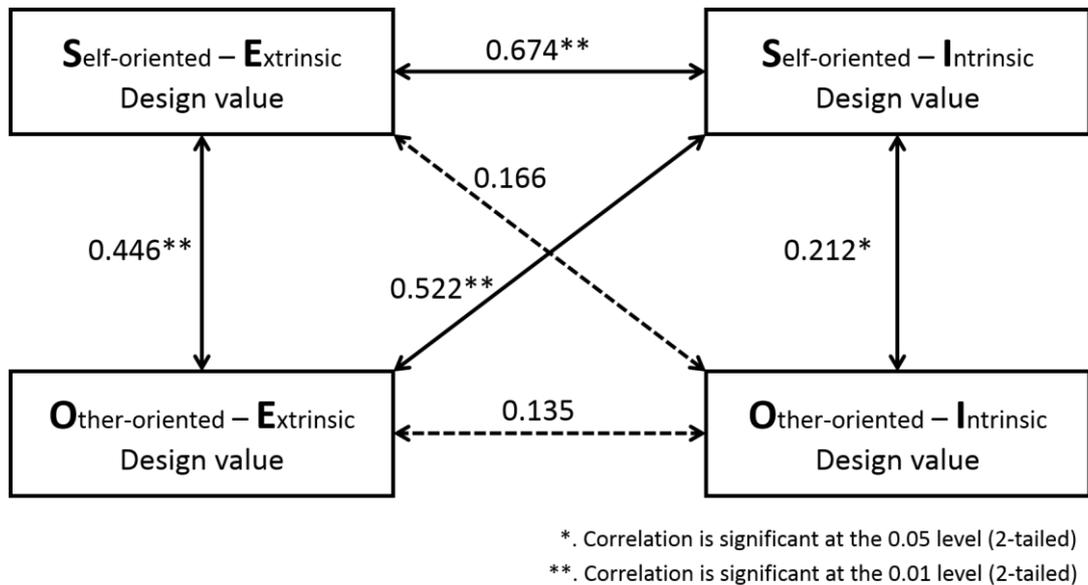
Figure 7-8. **Environment category question's correlation within the design value dimensions (UK)**

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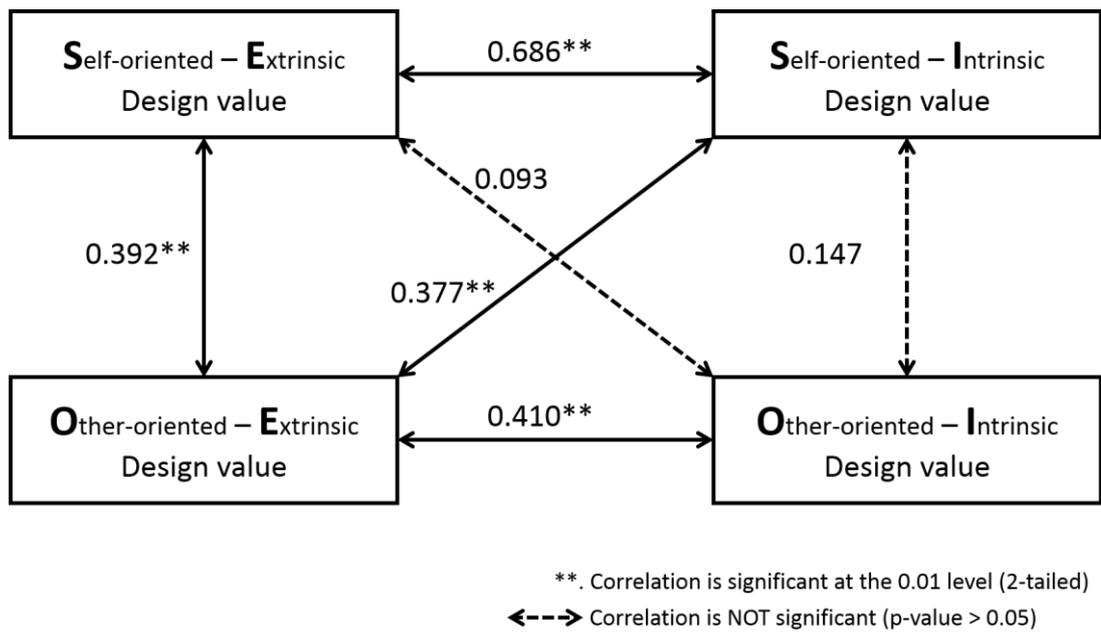
Figure 7-9. Information category question's correlation within the design value dimensions (UK)
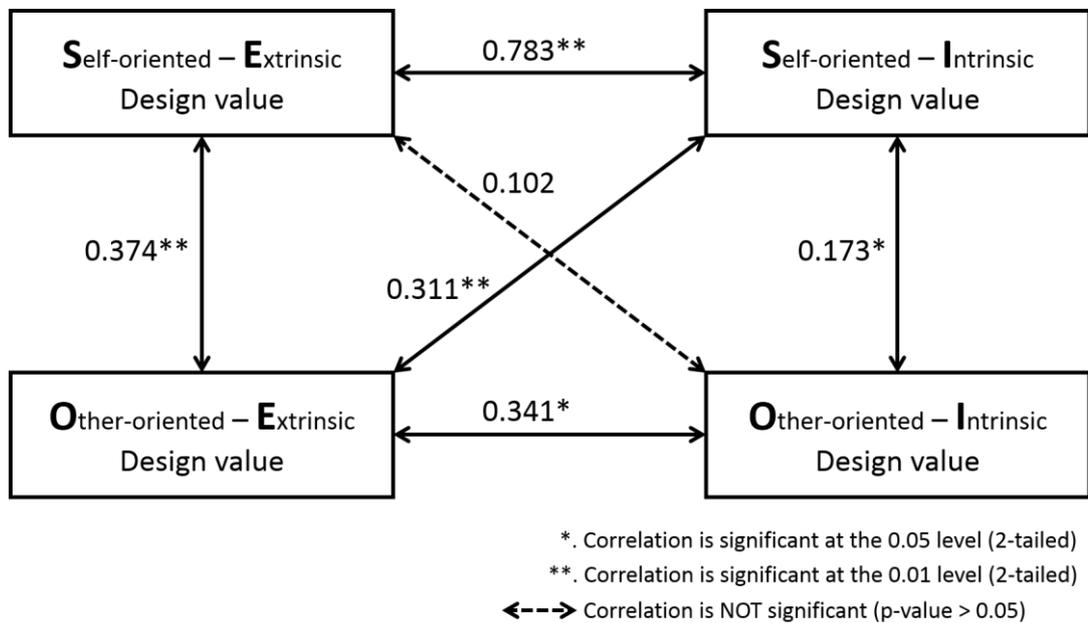
Figure 7-10. Corporate identity category question's correlation within the design value dimensions (UK)

Data from the UK shows a similar pattern. The relationships towards O-I dimension in information and corporate identity category questions demonstrate some insignificant relationships. As it was discussed in the previous section, these insignificant relationship prevent modelling the relationship consistently. Thus, without further investigation, it can be argued that the relationship *within Design Value Typology* cannot be modelled.

However, in order to examine the overall concept (averaged design value dimension) of *Design Value Typology*, the multiple regression analysis still needs to be performed. Prior to performing multiple regression, the skewness and Kurtosis test were performed in order to confirm the characteristics of data.

Table 7-4. *The Result of Skewness and Kurtosis (UK)*

	S_E	S_I	O_E	O_I
Std. Deviation	1.04897	1.07125	.97669	1.32489
Skewness	-1.303	-1.455	-.687	-.099
Std. Error of Skewness	.207	.207	.207	.207
Skewness / SE	**-6.295**	**-7.029**	**-3.319**	-0.478
Kurtosis	2.516	2.815	.565	-.727
Std. Error of Kurtosis	.411	.411	.411	.411
Kurtosis / SE	**6.122**	**6.849**	1.375	-1.769

By considering the results from table 7-4, it is also recommended that bootstrapping is performed for the UK data. The multiple regression result with bootstrapping for the average design value is described in table 7-5.

Table 7-5. *The Multiple Regression Analysis (bootstrapped) for Design Value Dimensions (UK)*

Dependent variable	Model	R^2	Un-standardised coefficients		Sig. (2-tailed)	Bootstrap Confidence interval	
			B	Std. error		Lower	Upper
S-E	(Const.)	0.785	0.908	0.238	0.001	0.370	1.403
	S-I		0.810	0.049	0.001	0.711	0.909
	O-E		0.080	0.045	0.080	-0.006	0.178
	O-I		**-0.065**	0.035	**0.076**	**-0.133**	**0.001**
S-I	(Const.)	0.795	0.093	0.312	0.765	-0.505	0.752
	S-E		0.857	0.068	0.001	0.708	0.979
	O-E		0.080	0.051	0.114	-0.014	0.184
	O-I		0.078	0.036	0.031	0.008	0.153
O-E	(Const.)	0.392	0.661	0.483	0.173	-0.191	1.711
	S-E		0.304	0.163	0.070	-0.012	0.653
	S-I		0.289	0.166	0.085	-0.054	0.621
	O-I		0.238	0.070	0.002	0.104	0.367
O-I	(Const.)	0.180	1.920	0.503	0.001	0.841	2.911
	S-E		**-0.385**	0.191	**0.035**	**-0.732**	**-0.012**
	S-I		0.441	0.183	0.020	0.075	0.815
	O-E		0.371	0.113	0.002	0.151	0.604

The British data demonstrates one significant negative impact. As it can be observed in the previous Spearman's analysis, the O-I dimension behaves differently compared with other dimensions. The detail interpretation of this result will be discussed in the summary section (section 7.2.4). From the analyses in table X, the hypotheses for the UK needs to be rejected. Thus, from British data, there *is* a negative relationship within Design Value Typology.

7.2.3. The data analysis for the United States (Design Value Typology)

The same analyses were proceeded for American data.


```
┌─────────────────────┐      0.699**      ┌─────────────────────┐
│ Self-oriented –     │ ←───────────────→ │ Self-oriented –     │
│ Extrinsic           │                   │ Intrinsic           │
│ Design value        │                   │ Design value        │
└─────────────────────┘                   └─────────────────────┘
         ↕                    0.178*                ↕
      0.429**                                     0.276**
                             0.477**
┌─────────────────────┐      0.273**      ┌─────────────────────┐
│ Other-oriented –    │ ←───────────────→ │ Other-oriented –    │
│ Extrinsic           │                   │ Intrinsic           │
│ Design value        │                   │ Design value        │
└─────────────────────┘                   └─────────────────────┘
```

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)
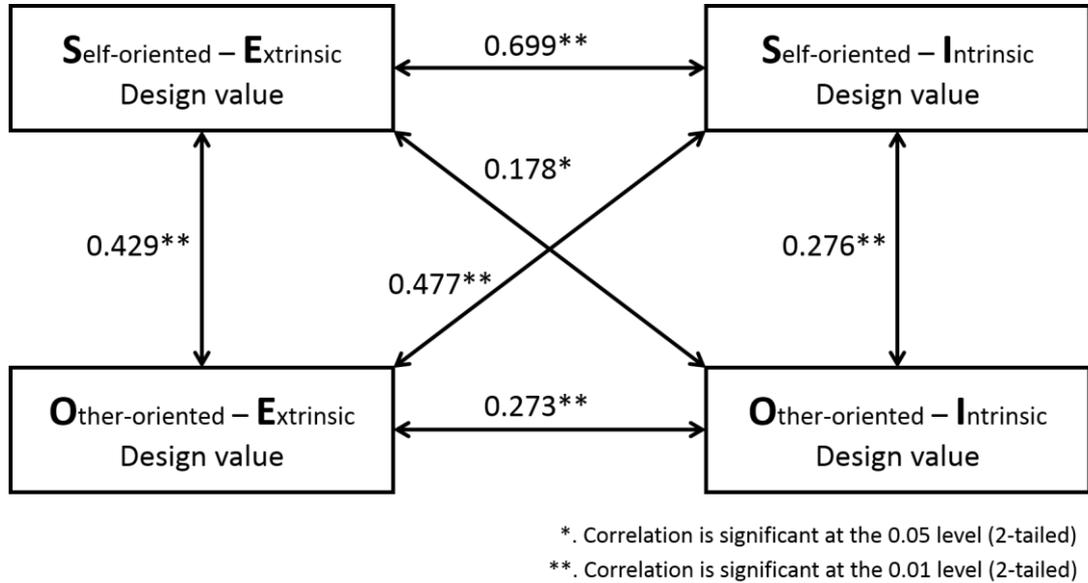
Figure 7-11. Product category question's correlation within the design value dimensions (US)


```
┌─────────────────────┐      0.614**      ┌─────────────────────┐
│ Self-oriented –     │ ←───────────────→ │ Self-oriented –     │
│ Extrinsic           │                   │ Intrinsic           │
│ Design value        │                   │ Design value        │
└─────────────────────┘                   └─────────────────────┘
         ↕                    0.147                 ↕
      0.357**                                     0.266**
                             0.544**
┌─────────────────────┐      0.262**      ┌─────────────────────┐
│ Other-oriented –    │ ←───────────────→ │ Other-oriented –    │
│ Extrinsic           │                   │ Intrinsic           │
│ Design value        │                   │ Design value        │
└─────────────────────┘                   └─────────────────────┘
```

*. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)
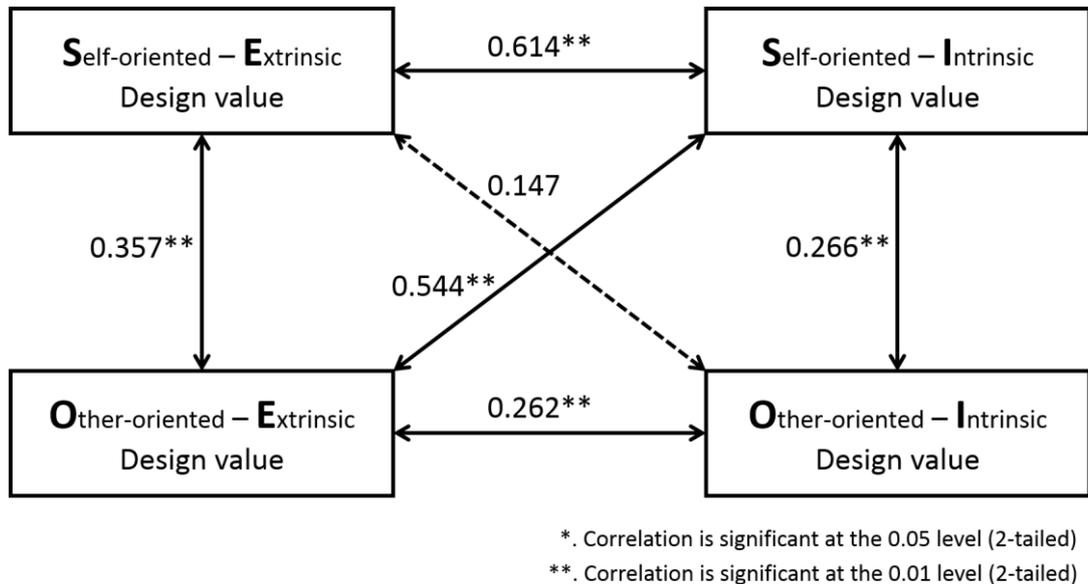
Figure 7-12. Environment category question's correlation within the design value dimensions (US)
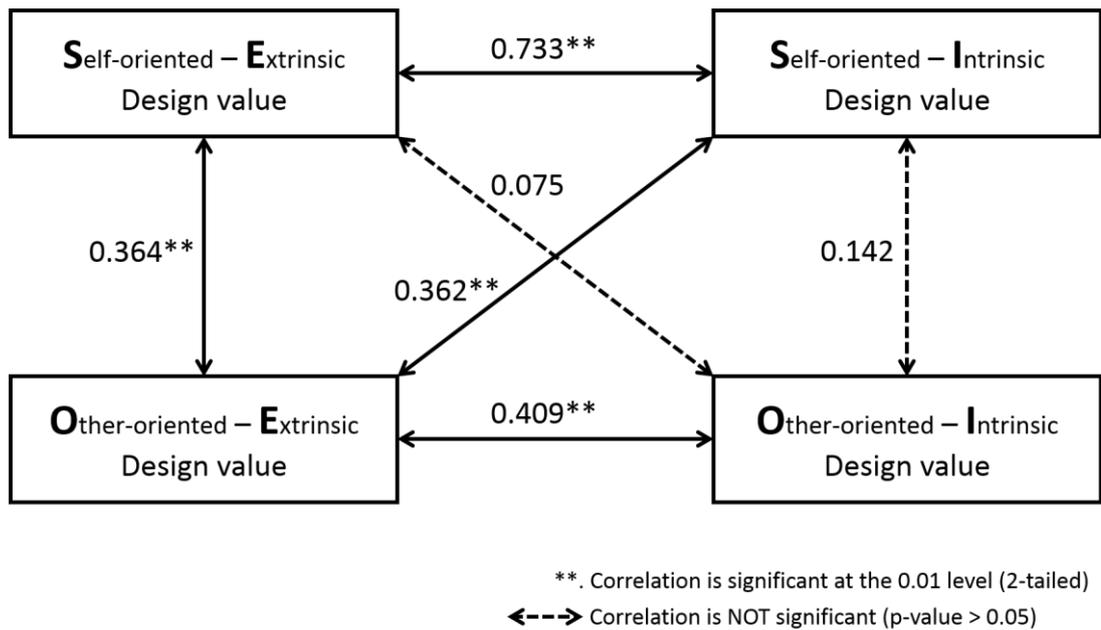
Figure 7-13. Information category question's correlation within the design value dimensions (US)
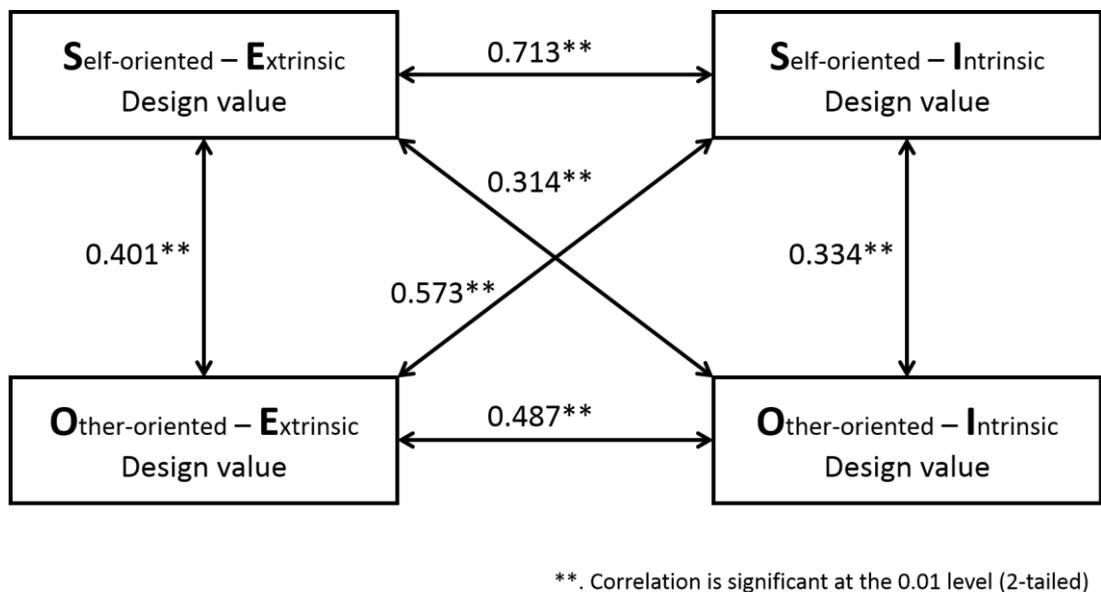
Figure 7-14. Corporate identity category question's correlation within the design value dimensions (US)

Similar to the previous two analyses, it can be concluded that there are a few question categories (product and corporate identity category) which have

significant relationships. However, given that it cannot be generalised throughout all question categories, it is difficult to argue that there is a relationship within design value dimensions.

The skewness and Kurtosis test results in order to confirm the characteristics of data are described in table 7-6.

Table 7-6. *The Result of Skewness and Kurtosis (US)*

	S_E	S_I	O_E	O_I
Std. Deviation	.79376	.85572	1.46303	1.28518
Skewness	-.520	-.673	-.685	.110
Std. Error of Skewness	.204	.204	.204	.204
Skewness / SE	**-2.549**	**-3.299**	**-3.358**	0.539
Kurtosis	-.035	.139	.321	-.385
Std. Error of Kurtosis	.406	.406	.406	.406
Kurtosis / SE	-0.086	0.342	0.791	-0.948

By comparing with previous two analyses, the data from the US demonstrates fewer problems (although skewness is still slightly out of an acceptable range). However, in order to have the consistency across the analysis, this study will perform bootstrapping for the multiple regression analysis. The multiple regression analysis for the average design scores from the US is presented in table 7-7.

Table 7-7. *The Multiple Regression Analysis (bootstrapped) for design value dimensions (US)*

Dependent variable	Model	R^2	Un-standardised coefficients		Sig. (2-tailed)	Bootstrap Confidence interval	
			B	Std. error		Lower	Upper
S-E	(Const.)	0.639	1.502	0.272	0.001	0.943	2.123
	S-I		0.730	0.050	0.001	0.636	0.817
	O-E		0.024	0.045	0.598	-0.064	0.123
	O-I		**-0.022**	0.039	**0.582**	**-0.097**	**0.051**
S-I	(Const.)	0.678	0.782	0.404	0.045	0.034	1.561
	S-E		0.758	0.077	0.001	0.601	0.890
	O-E		0.104	0.041	0.013	0.021	0.196
	O-I		0.049	0.034	0.155	-0.010	0.113
O-E	(Const.)	0.381	-1.077	0.914	0.219	-3.140	0.732
	S-E		0.143	0.254	0.582	-0.326	0.608
	S-I		0.582	0.227	0.015	0.153	1.035
	O-I		0.400	0.089	0.001	0.224	0.588
O-I	(Const.)	0.246	1.436	0.683	0.046	-0.024	2.822
	S-E		**-0.123**	0.212	**0.573**	**-0.506**	**0.246**
	S-I		0.259	0.188	0.160	-0.121	0.638
	O-E		0.376	0.091	0.001	0.195	0.574

Similar to South Korean results, there are two negative relationship, but not significant. Thus, it can be argued that ***there is no negative relationship within design value dimensions from the US data***.

7.2.4. The summary of the relationships within Design Value Typology

In this section (section 7.2.), three different methods were employed for analysing data from three different nationalities; Spearman's correlation coefficients, multiple regression for the insignificant relationship, and multiple regression for the average design value scores. The goals for performing the three different analyses can be summarised as follows.

First step is the Spearman's coefficient. The collected data from the Likert scale survey is arguably positioned between ordinal and continuous data. Traditionally a Likert scale with the description of levels (such as slightly agree or disagree) is considered as the ordinal data. Given that the ordinal data often violates some key assumptions (e.g. the normality of residual, the constant variance of errors), it can be risky for utilising the data without the results from non-parametric analyses. The results from Spearman's correlation analysis for all countries demonstrate high or moderate relationships with most of the design value dimensions. It indicates that each dimension is correlated, thus, *the design value dimensions are sufficiently inter-dependent each other*.

However, in order to clarify some exceptions in the correlation, a multiple regression was performed in the second step. By omitting the detailed description of the agreement level in the survey questionnaire, survey participants can only observe the description from each end of the spectrum used in the survey. In this case, although the data was collected in the monotonic scale, the researcher argues that it can be considered as continuous data for the purposes of this study. In addition, the purpose of conducting multiple regression at this point is to investigate why there are weak correlation among certain dimensions, not to build a model with the relationship. In this context, the low R squared value and insignificant correlation coefficients underpin the O-I dimension as the outlier in this research.

Given that Spearman's correlation can briefly demonstrate the direction (positive or negative) of the relationship with the level of significance, the result from Spearman's correlation analysis is arguably not sufficient to determine the relationship *within Design Value Typology.* Thus, by having similar relationships within question categories (positive relationships and the patterns of weak relationships), it is necessary to analyse the average design value dimensions.

In the third step, the scores from different question categories were averaged. By doing so, the ordinal data can be transformed into the continuous data. Given that the presence of a negative relationship between any two design

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dimensions can imply a complex and confusing relationship across the design value dimensions, it is necessary to identify whether there is any negative relationship between any two design value dimensions. Therefore, the averaged design value dimensions were utilised to determine the negative relationships across the design value dimensions.

As it was described in the previous sections, South Korea and the United States demonstrated some *insignificant* negative coefficients. These results underpin the argument, *there is **no negative relationship** across the design value dimensions* as it was proposed in the preliminary research (Nam and Carnie, 2014a; 2014b).

The British data shows one significant negative relationship of the S-E dimension with the O-I dimension. Due to this results, the hypothesis was rejected. However, the opposite relationship with the S-E dimension and O-I dimension (S-E dimension as the dependent variable and O-I dimension as the independent variable) demonstrated an insignificant relationship. The relationship of these two dimensions are described in figure 7-15.
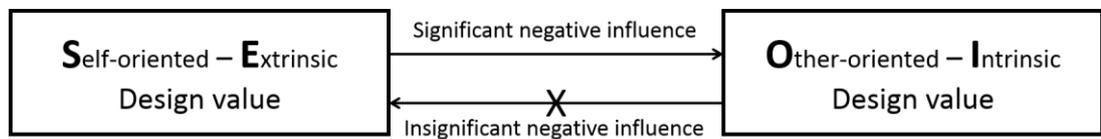
Figure 7-15. **The relationship of S-E dimension and O-I dimension from the UK data**

Given that one of the counter relationship is insignificant, it is difficult to determine that two dimensions are negatively correlated. The difference between the paths can be caused by the data type and its characteristics. How the different types of data can impact upon this result is out of scope for this research, thus, it will not be addressed in this study. However, by considering the fact that the negative relationship between these dimensions is critical, it will be addressed how further investigation can be performed in the future study section.

In conclusion, the hypotheses were tested by two separate analysis (Spearman's analysis and multiple regression analysis). Despite the conflict issue from the UK data, the hypothesis, *there is no negative relationship among design value dimensions*, can be sufficiently accepted for two reasons; (1) the insignificance of negative coefficients and (2) the inconsistency of relationship between S-E dimension and O-I dimension from the UK data. In the next section, it will be investigated how the key phases *outside Design Value Typology* are related.

7.3. The analysis for the relationship of Design Value Typology with key business phases

Figure 7-16 is utilised for explaining the methodological stage of the current section.
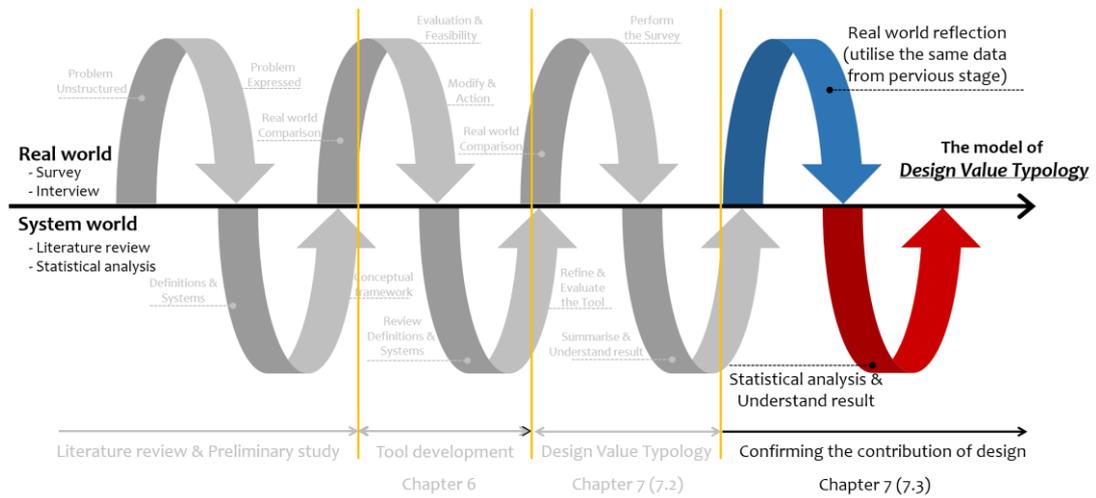
Figure 7-16. **The application of methodologies for chapter 7 (section 7.3)**

At this stage (section 7.3), the same data from the previous section was utilised for building a structural model of *Design Value Typology* and business indicators (section 7.3.2). The differences for the relationship paths among nationalities were identified (section 7.3.3) in order to confirm the relevance of the model for the targeted nationalities.

The goal of this section is to investigate the relationship *outside Design Value Typology*. If design value can be perceived as discussed in the previous section, it is necessary to understand how it is linked to the other phases of a business. By doing so, the impacts of design to the overall satisfaction, loyalty and word of mouth can be unveiled.

In order to achieve this goal, this study will analyse the data in two different ways; design value dimensions as discrete antecedents, and design value dimension as a holistic concept. The holistic concept of design value was proposed in this research and the preliminary research (Nam and Carnie, 2014a; 2014b). It was argued that the holistic concept of design value can be calculated by the diamond shape area plotted in a radar chart (Nam and Carnie, 2014a; 2014b). Given that the plotted diamond shape (refer to figure 5-1) can be easily recognised and compared with several different brands or shops, the practical usability has significant potential. Thus, it is necessary to confirm if the calculated design value has similar impacts upon other business phases as it is observed from discrete design value dimensions.

In addition, as discussed previously, the mediating role of satisfaction has been disputed. Instead of assuming the mediating role of satisfaction, this study will scrutinise the direct influences of each design value dimension upon other business phases. In other words, the structuring the model is required. This study utilised SPSS Amos software for structuring the model. Structural Equation Modelling (SEM) is "a statistical methodology that takes a confirmatory (i.e., hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon" (Bryne, 2001, p. 3). The key procedure of performing SEM is divided by two steps; Exploratory Factor Analysis (EFA) and Confirmation Factor Analysis (CFA). EFA is utilised for unstructured models in order to find irrelevant or missed covariance between observed factors by noting the pattern matrix. CFA is for testing the existing models or the established models with EFA with independent samples. Given this research is based upon preliminary research (Nam and Carnie, 2014a; 2014b), the Exploratory Factor Analysis (EFA) will be skipped. The Structural

Equation Modelling procedure will be performed with the whole data, but analysed for identifying some differences among nationalities.

7.3.1. Test preconditions for SEM

Before performing SEM, it is necessary to confirm linearity and collinearity between the comparable variables.

Firstly, the linearity of relationship is summarised in table 7-8.

Table 7-8. *The Summary of the Linearity Analysis*

Dependent	Independent	R^2	F	Sig. (p-value)
Satisfaction	S-E dimension	0.425	313.273	0.000
	S-I dimension	0.523	465.623	0.000
	O-E dimension	0.263	151.602	0.000
	O-I dimension	0.151	75.323	0.000
Loyalty	S-E dimension	0.040	17.459	0.000
	S-I dimension	0.028	12.336	0.000
	O-E dimension	0.006	2.517	0.113
	O-I dimension	0.001	0.349	0.555
	Satisfaction	0.011	4.585	0.033
WOM	S-E dimension	0.304	185.169	0.000
	S-I dimension	0.341	219.346	0.000
	O-E dimension	0.392	273.896	0.000
	O-I dimension	0.085	39.539	0.000
	Satisfaction	0.335	213.686	0.000

The linearity between loyalty and other phases show insignificant linear relationship. There can be a number of issues when numerically conceptualising loyalty scores and these will discussed in the next chapter, Future Studies (section 8.4.5).

Secondly, the collinearity test result is demonstrated in table 7-9.

Table 7-9. *The Collinearity Test Result for Variables*

Dependent	Independent	Tolerance	VIF
S-E dimension	S-I dimension	0.683	1.464
	O-E dimension	0.638	1.567
	O-I dimension	0.840	1.190
S-I dimension	S-E dimension	0.681	1.468
	O-E dimension	0.850	1.177
	O-I dimension	0.766	1.305
O-E dimension	S-E dimension	0.906	1.103
	S-I dimension	0.323	3.099
	O-I dimension	0.307	3.255
O-I dimension	S-E dimension	0.323	3.094
	S-I dimension	0.292	3.430
	O-E dimension	0.689	1.451

The collinearity can be generally accepted by having VIF (Variable Inflation Factor) values less than 10.0 (O'brien, 2007). In summary, there are little concerns in loyalty level, however, the data is sufficiently linear and has the collinearity for SEM.

7.3.2. Building the structural model

In the next step, the model was structured by using SPSS Amos software with the consideration of other control factors; the number of competitors, categorised age (18-25, group1; 26-35, group2; 36-45, group3; 46-55, group4; 55+, group5), and time elapsed from the experience (within a week, group1; within a month, group2; within three months, group3; within six months, group4).

The first objective is to build the model and confirm the Goodness of fit for the model. Given that the backgrounds of the model are Holbrook's typology of consumer value, two models (each design value dimension as the single

antecedent and the concept of aggregated design value by calculating the plotted area) will be compared.

The second objective is to investigate the mediating effect of the overall design satisfaction. As discussed in section 2.6, the mediating role of satisfaction is often disputed. Therefore, it is necessary to review how the design embedded concept will behave differently.

7.3.2.1. The Structural Equation Modeling for Design Value Typology and business phases

The result of initial structured model is demonstrated in figure 7-17.
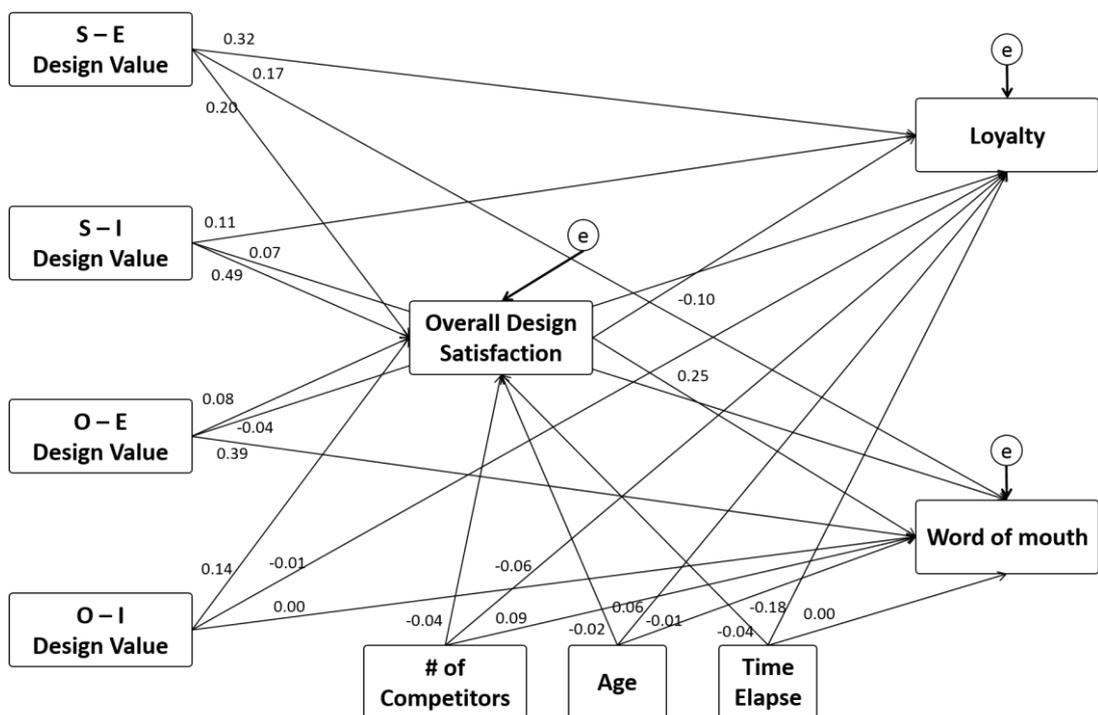
***Figure 7-17.* The initial model of the confirmatory analysis.** Non-Normed Fit Index (TLI) = -0.066; root mean square error of approximation = 0.028; chi-square(CMIN) = 754.161; degree of freedom = 22; CMIN/df = 34.280. e=error

Figure 7-17 demonstrates the SEM result without covariance between the design value dimensions. The reason for omitting the covariance at this stage is to align with previous results. As correlation coefficients indicates from Spearman's analysis indicated, there are some significant relationships within

the design value dimensions. In the previous conclusion mentioned in section 7.2, *there is no relationship within Design Value Typology*, was determined by considering the difficulties of generalising the relationships. However, given that some strong relationships among design value dimensions were observed, the model without those strong relationships can be deemed irrelevant.

Figure 7-18 is the modification indices from the Amos output. As proposed, some missing relationships among design value dimensions decrease the indicators for a model fit. The suggested modification and findings from previous section (7.2) are also coherent. Therefore, the relationships which demonstrated strong correlation need to be connected as correlated factors.
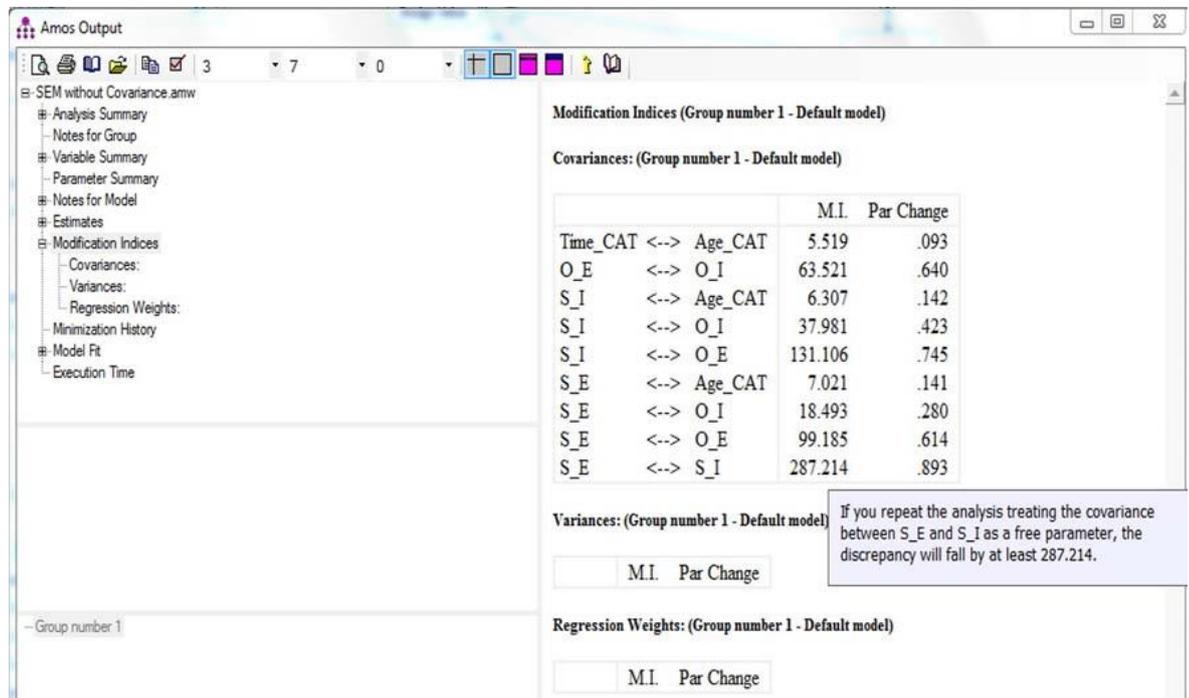
Figure 7-18. **The modification indices for the initial model**

As both modification indices and previous results propose, design value dimensions need to be connected except the S-E dimension with the O-I dimension. Given that these two dimensions frequently demonstrate the insignificant relationship, the relationship between the S-E dimension and the O-I dimension will be disregarded in the model. Thus, the finalised model is proposed as shown in figure 7-19.
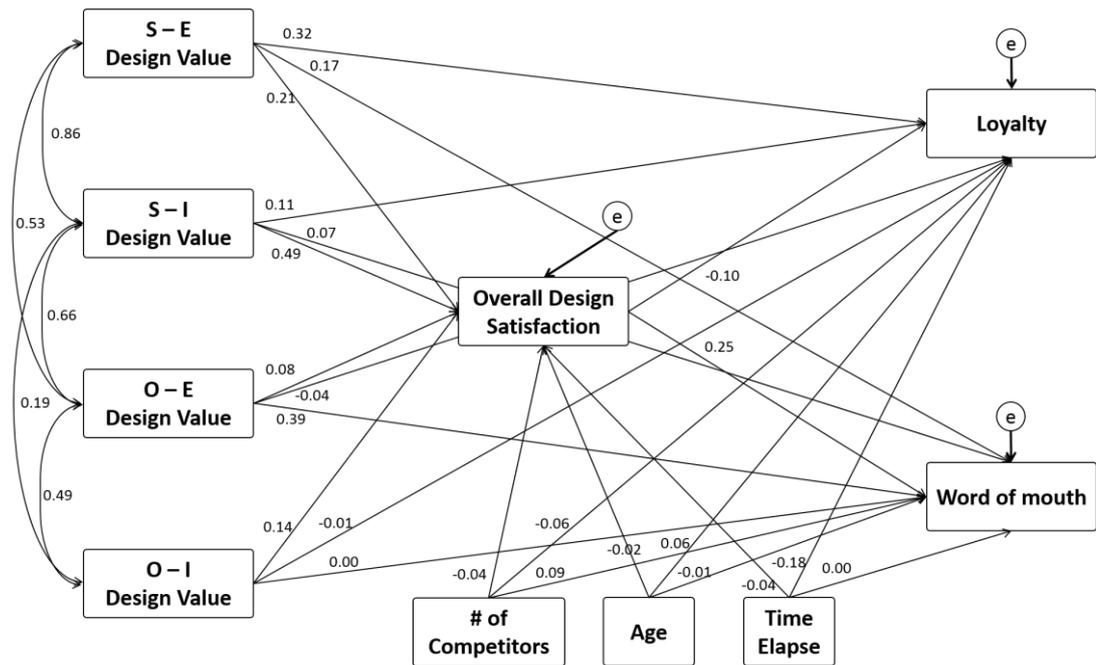
Figure 7-19. **The final model of the confirmatory analysis.** Non-Normed Fit Index (TLI) = 0.921; root mean square error of approximation = 0.076; chi-square(CMIN) = 59.026; degree of freedom = 17; CMIN/df = 3.472. e=error

The modified model now achieves every indicator for the Goodness of fit to this objective of the study. Thus, it can be concluded that the model of customer perceived design value, overall design satisfaction, loyalty, and word of mouth can be modelled as shown in figure 7-19 and controlled by the number of competitors, age, and the time elapse from the experience.

The other objective in this section is to find similarities or differences between the individual design value concepts (figure 7-19 above) and aggregated the design value concept. The key benefits for conceptualising four discrete dimensions into one overall perceived design value are; to simplify the model, and the practical utilisation of a plotted *Design Value Typology* for making comparisons. Thus, the four design value dimensions in figure 7-19 were replaced with the aggregated design value by utilising the equation from Nam and Carnie (2014a and 2014b). The result of modelling is described in figure 7-20.
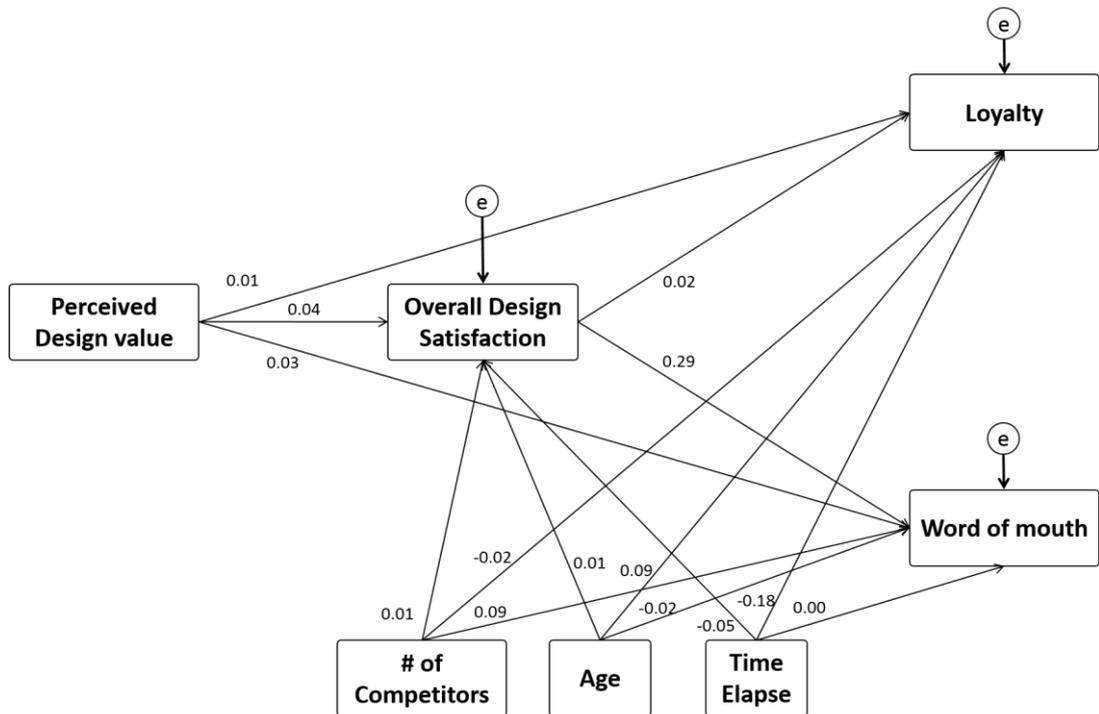
Figure 7-20. **The final model of the confirmatory analysis with the aggregated design value concept.** Non-Normed Fit Index (TLI) = 0.945; root mean square error of approximation = 0.057; chi-square(CMIN) = 16.759; degree of freedom = 7; CMIN/df = 2.394. e=error

As shown in figure 7-20, the reduced observed variables enhanced the model fit and some relationships more practically relevant. A more detailed discussion and further implication of this concept will be discussed in the next chapter. Given that the simplified model (figure 7-20) has a better fit with a similar pattern to the previous model (figure 7-19), the model from figure 7-20 will be utilised to examine the mediating effect of the overall design satisfaction within the model in the next section.

7.3.2.2. The mediating effect of the overall design satisfaction within the model

Investigating the mediation effect within the model is based on the causal relationship between the independent variable and the dependent variable (Mathieu and Taylor, 2006). Depending upon the standardised regression weight and its significance, the mediation can be classified into three categories (Mathieu and Taylor, 2006) as shown in figure 7-21.

Indirect Effect

$$X \xrightarrow{\beta_{mx}} M \xrightarrow{\beta_{ym}} Y$$

Full Mediation

$$X \xrightarrow{\beta_{mx}} M \xrightarrow{\beta_{ym}} Y$$
$$\beta_{yx}$$

Partial Mediation

$$X \xrightarrow{\beta_{mx}} M \xrightarrow{\beta_{ym}} Y$$
$$B_{yx.m}$$
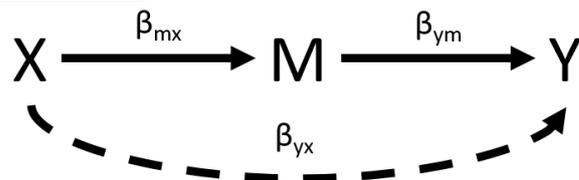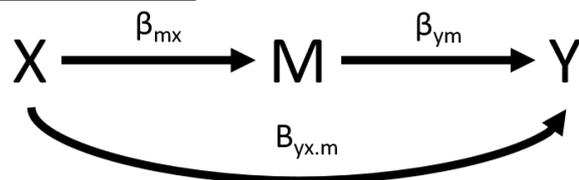
Figure 7-21. **Alternative intervening models (Mathieu and Taylor, 2006, p. 1039)**

In order to clarify differences within the models above, Mathieu and Taylor (2006, p. 1039) define each terminology as indicated below.

"Indirect effects are a special form of intervening effect where by X and Y are not related directly (i.e., are uncorrelated), but they are indirectly related through significant relationships with a linking mechanism. In contrast, mediation refers to instances where the significant total relationship that

exists between an antecedent and a criterion, is accounted for <u>in part (partial</u> <u>mediation) or completely (full mediation)</u> by a mediator variable."

Therefore, if the perceived design value and behavioural intentions (loyalty and word of mouth) are uncorrelated, the perceived design value has indirect effect on behavioural intentions. On the other hand, in the situation where the perceived design value and behavioural intensions are already correlated, the mediating effect changes by omitting the overall design satisfaction, the overall design satisfaction has a mediating effect. For example, if omitting the overall design satisfaction only reduces the regression weight, the model has a partial mediation effect through the overall design satisfaction. If removing the overall design satisfaction causes a non-significant relationship between the perceived design value and behavioural intentions, the model has a full mediation effect through the overall design satisfaction.

A key factor needs to be taken into account before analysing the mediation effect of the overall design satisfaction - The multiple choice of loyalty was converted into 7 point scale by considering the relative rankings within choices. Given that participants answered every questions using a 7 point Likert scale except the level of loyalty, there is the high potential for statistically insignificant relationship with loyalty and other phases. In this situation, loyalty and word of mouth can be combined as the behavioural intention by simply adding all figures in order to prevent an inadequate conclusion. Thus, the simplified model can be demonstrated as presented in figure 7-22.
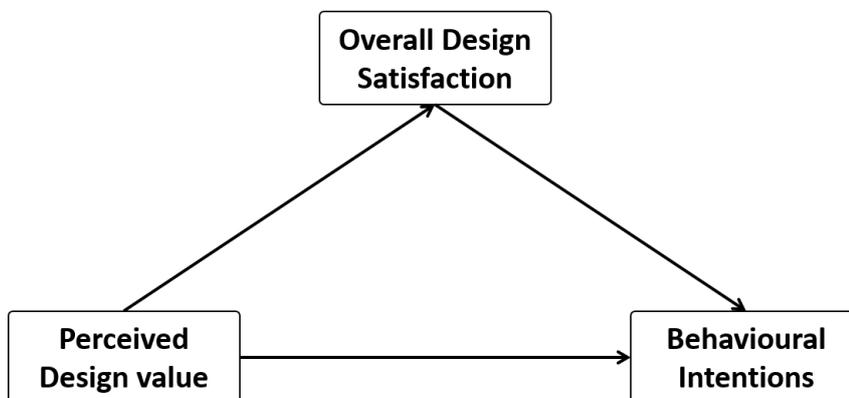
Figure 7-22. **The simplified model of the relationship**

The benefit of simplifying the model as shown in figure 7-22 is the possibility for purely observing the mediation effect of the overall design satisfaction within the model. In order to determine which mediation is suitable for the model above, the decision tree (figure 7-23) from Mathieu and Taylor (2006, p. 1040) was utilised for determining the mediation effect.
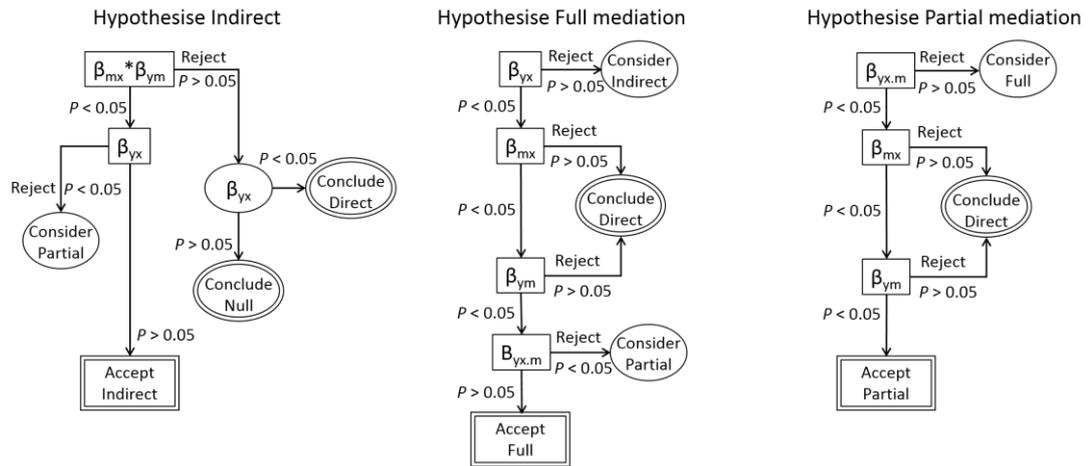
Figure 7-23. **Decision tree for evidence supporting different intervening effects**

The changes in regression coefficients and their significance is demonstrated in figure 7-24.

Relationship <u>with</u> overall design satisfaction | Relationship <u>without</u> overall design satisfaction

β_{mx} = the regression coefficient of the perceived design value to the overall design satisfaction in the <u>mediated model</u>

β_{ym} = the regression coefficient of the overall design satisfaction to the behavioural intentions in the <u>mediated model</u>

$\beta_{yx.m}$ = the regression coefficient of the perceived design value to the behavioural intentions in the <u>mediated model</u>

β_{yx} = the regression coefficient of the perceived design value to the behavioural intentions in the <u>non-mediated model</u>

Figure 7-24. **The comparison model by considering the presence of the overall design satisfaction**

By following the decision tree in figure 7-23, it can be concluded that the perceived design value (derived from calculating the diamond shape area of *Design Value Typology*) has the *partial mediation effect* on behavioural intentions through the overall design satisfaction. In other words, design value can both directly and indirectly (through the overall design satisfaction) impact upon the behavioural intentions.

7.3.3. The comparison of the model for nationalities

In order to compare how the relationships within the model (figure 7-17. the final model of the confirmatory analysis in section 7.3.2.1.) change among nationalities of the participant, this study utilises the multiple group comparison for Chi-square differences in SPSS Amos. Given that the programme only supports the comparison between two groups, the

comparison will be perform in three steps: (1) South Korea and the United Kingdom, (2) South Korea and the United States, and (3) the United Kingdom and the United States. The model from figure 7-17 contains four design value dimensions. Thus, it is possible to investigate the changes in the impacts of individual design value dimensions. In addition, the goal of the comparison is to identify any significantly different relationship within the model by nationalities. By doing so, it can be investigated how participants from two different countries (for each comparison) perceive and behave differently.

7.3.3.1. South Korea and the United Kingdom

After removing insignificant paths within the model (South Korea and the UK), the model is changed as shown in figure 7-25.
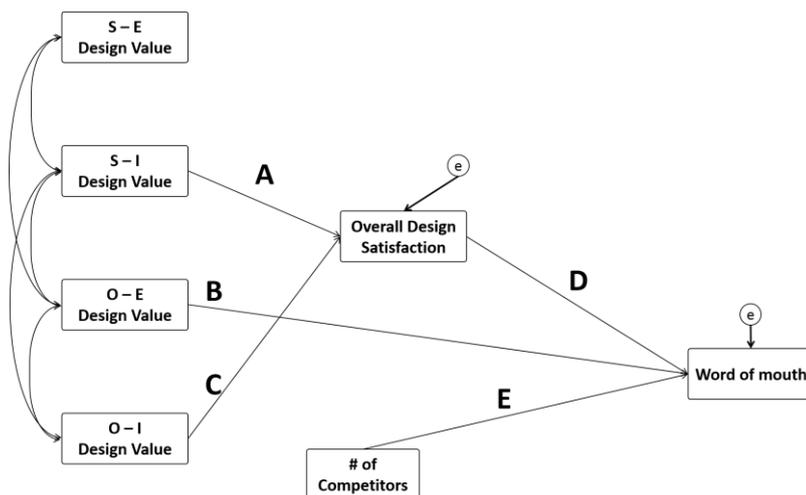
Figure 7-25. **The significant paths for comparing Korean and British data**

By considering the model above, the chi-square test result for both unconstrained and fully constrained tables can be generated as shown in table 7-10 (by utilising Excel macro programmed by Gaskin, 2012a).

Table 7-10. *Chi-square Thresholds for South Korean and the United Kingdom by utilising the Excel macro*

	Chi-square	**df**
Overall Model		
Unconstrained	52.994	22
Fully constrained	65.503	27
Number of groups		2
Difference	12.509	5
Chi-square Thresholds		
90% Confidence	55.70	23
Difference	2.71	1
95% Confidence	56.84	23
Difference	3.84	1
99% Confidence	59.63	23
Difference	6.63	1

Then, individual paths in figure 7-25 need to be review. The Chi-square values for all paths were calculated and summarised in table 7-11.

Table 7-11. *The Chi-square Test Result for Each Path (South Korea and the UK data)*

Path	Chi-square	df	Different?
A (S-I dimension→ overall design satisfaction)	56.226	23	Yes, there is 90% confidence level for the difference in this path between KR and the UK
B (O-E dimension → WOM)	54.640	23	No, there is no difference in this path between KR and the UK
C (O-I dimension→ overall design satisfaction)	55.654	23	No, there is no difference in this path between KR and the UK
D (overall design satisfaction → WOM)	57.328	23	Yes, there is 95% confidence level for the difference in this path between KR and the UK
E (# of competitor → WOM)	52.994	23	No, there is no difference in this path between KR and the UK

The Chi-square test result should be greater than the thresholds in order to have significant difference for each level of confidence (Gaskin, 2012a).

In summary, South Korean and British perceive differently in paths for the S-I dimension to the overall design satisfaction and the overall design satisfaction to WOM. In other words, the way of being satisfied by the S-I dimension (where fun, enjoy and aesthetic related emotions occur) is different within the two compared countries (South Korea and the United Kingdom). In addition, the impact of the overall design satisfaction upon the willingness to share the positive experience with friends and families is different in South Korea and the United Kingdom.

7.3.3.2. South Korea and the United States

The data from South Korea and the United States was compared using the same procedure as described in previous section.
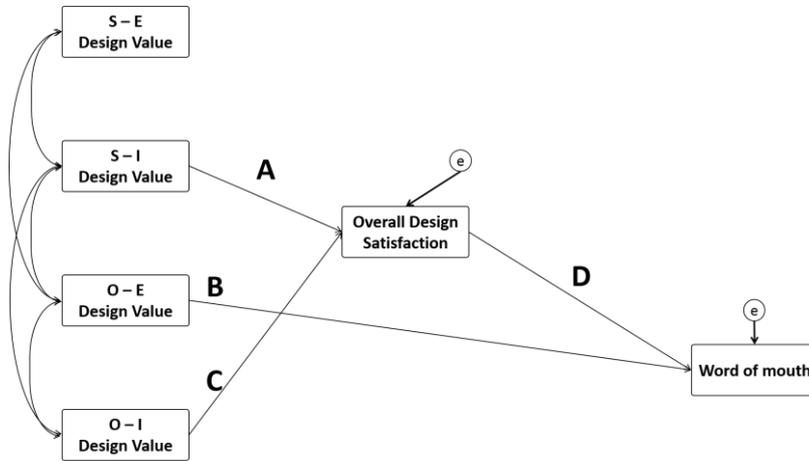
Figure 7-26. **The significant paths for comparing Korean and American data**

Table 7-12. *Chi-square Thresholds for South Korean and the United Kingdom by utilising the Excel macro*

	Chi-square	df
Overall Model		
Unconstrained	46.294	12
Fully constrained	48.328	16
Number of groups		2
Difference	2.034	4
Chi-square Thresholds		
90% Confidence	49.00	13
Difference	2.71	1
95% Confidence	50.14	13
Difference	3.84	1
99% Confidence	52.93	13
Difference	6.63	1

Table 7-13. *The Chi-square Test Result for Each Path (South Korea and the US data)*

Path	Chi-square	df	Different?
A (S-I dimension→ overall design satisfaction)	46.336	13	No, there is no difference in this path between KR and the US
B (O-E dimension → WOM)	46.360	13	No, there is no difference in this path between KR and the US
C (O-I dimension→ overall design satisfaction)	46.737	13	No, there is no difference in this path between KR and the US
D (overall design satisfaction → WOM)	47.090	13	No, there is no difference in this path between KR and the US

As shown in table 7-13, none of Chi-square values from each path is greater than the threshold for minimum 90% of confidence. Therefore, it can be concluded that both Korean and American participants demonstrate the statistically same pattern for all of the significance paths. In other words, the two groups are not different in both the model and the path level.

7.3.3.3. The United Kingdom and the United States
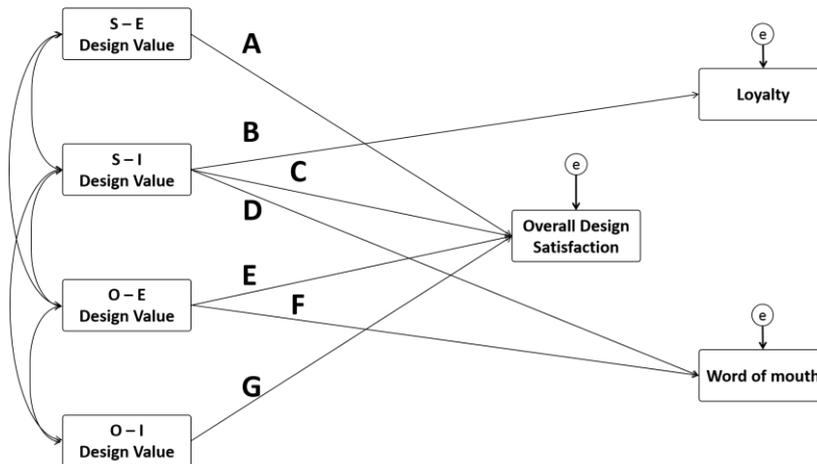
Figure 7-27. **The significant paths for comparing British and American data**

Table 7-14. *Chi-square Thresholds for the United Kingdom and the United States by utilising the Excel macro*

	Chi-square	df
Overall Model		
Unconstrained	41.969	18
Fully constrained	52.645	25
Number of groups		2
Difference	10.676	7
Chi-square Thresholds		
90% Confidence	44.67	19
Difference	2.71	1
95% Confidence	45.81	19
Difference	3.84	1
99% Confidence	48.60	19
Difference	6.63	1

Table 7-15. *The Chi-square Test Result for Each Path (the UK and the US data)*

Path	Chi-square	df	Different?
A (S-E dimension→ overall design satisfaction)	42.786	19	No, there is no difference in this path between UK and the US
B (S-I dimension → Loyalty)	42.158	19	No, there is no difference in this path between UK and the US
C (S-I dimension → overall design satisfaction)	41.969	19	No, there is no difference in this path between UK and the US
D (S-I dimension → WOM)	42.028	19	No, there is no difference in this path between UK and the US
E (O-E dimension → overall design satisfaction)	42.402	19	No, there is no difference in this path between UK and the US
F (O-E dimension → WOM)	43.077	19	No, there is no difference in this path between UK and the US
G (O-I dimension → overall design satisfaction)	43.758	19	No, there is no difference in this path between UK and the US

Similar to the previous result (section 7.3.3.2), there is no significant difference between the UK and the US data in both the model and the path level.

7.3.4. The summary of relationship of Design Value Typology with other key business phases

In this section, it was investigated how the perceived design value can impact upon other business phases (overall design satisfaction, loyalty, and word of mouth). In order to research the relationship, this study built a model by utilising the structural equation modelling (SEM) (section 7.3.2), then, the responses from different countries were compared (section 7.3.3). Due to the inconsistency of the survey type, the loyalty behaves unexpectedly and uncorrelated with other phases (this will be discussed in the future study section).

However, as the analyses from section 7.3.2 proposed, the design perspectives can be embedded into the concept of value and the design embedded model can be structured as demonstrated previously. In addition, from the simplified model, it can be argued that the perceived design value has both direct and indirect (through the overall design satisfaction) impacts upon the behavioural intentions.

The analyses from section 7.3.3 indicate that there are different ways of perceiving design value, satisfaction and word of mouth between South Korea and the United Kingdom. However, the other comparisons propose that there is no difference for perceiving relationships within the model. This is a conflict issue due to the fact that there are significant differences between South Korea and the UK, while the other two comparisons (South Korea and the US; the UK and the US) demonstrate no differences. Given that SPSS Amos software compares selected group within the data set, the significant paths vary in each case. The data for analysis and the significant paths within comparing data can be shifted by each case. In other words, given that the comparing two data can lead the different result in modelling, the structural model and its significant paths can be changed depending upon the characteristics of the comparing data. Thus, the logical causal relationship (if KR = US and US = UK, KR = UK) cannot be established in this case.

In addition, the significant difference from the Chi-square difference test result between nationality needs to be construed that it is necessary to include more

latent variables to explain the model with the relationships of two comparing samples (Werner and Schermelleh-Engel, 2010). By considering the stage of this study, further research can be required to understand why South Korea and the UK participants demonstrated the differences within the structural equation model. It will be discussed in the future study how the differences can be investigated further.

In order to summarise the result, the hypotheses for the relationship of *Design Value Typology* with other business phases need to be revisited.

H_{1-1}: S-E design value dimension is positively related to the overall design satisfaction

H_{2-1}: S-I design value dimension is positively related to the overall design satisfaction

H_{3-1}: O-E design value dimension is positively related to the overall design satisfaction

H_{4-1}: O-I design value dimension is positively related to the overall design satisfaction

The decision for these hypothesis is summarised in table 7-16 below.

Table 7-16. The Decision Table (design value dimensions to the overall design satisfaction)

Hypothesis	Estimate	Std. Error	Sig. (*p*-value)	Decision
H_{1-1}	0.206	0.060	0.000	Accept
H_{2-1}	0.485	0.061	0.000	Accept
H_{3-1}	0.079	0.035	0.024	Accept
H_{4-1}	0.142	0.028	0.000	Accept

All relationships are significant, thus, it can be concluded that all four design value dimensions are positively related to the overall design satisfaction. The next set of hypotheses is the relationship between design value dimensions and behavioural intentions.

H_{1-2}: S-E design value dimension is positively related to loyalty

H$_{1-3}$: S-E design value dimension is positively related to word of mouth

H$_{2-2}$: S-I design value dimension is positively related to loyalty

H$_{2-3}$: S-I design value dimension is positively related to word of mouth

H$_{3-2}$: O-E design value dimension is positively related to loyalty

H$_{3-3}$: O-E design value dimension is positively related to word of mouth

H$_{4-2}$: O-I design value dimension is positively related to loyalty

H$_{4-3}$: O-I design value dimension is positively related to word of mouth

Table 7-17. *The Decision Table (design value dimensions to behavioural intentions)*

Hypothesis	Estimate	Std. Error	Sig. (p-value)	Decision
H$_{1-2}$	0.318	0.139	0.023	Accept
H$_{1-3}$	0.168	0.071	0.017	Accept
H$_{2-2}$	0.107	0.149	0.473	Reject
H$_{2-3}$	0.072	0.075	0.339	Reject
H$_{3-2}$	-0.035	0.080	0.659	Reject
H$_{3-3}$	0.391	0.041	0.000	Accept
H$_{4-2}$	-0.006	0.067	0.933	Reject
H$_{4-3}$	0.003	0.034	0.936	Reject

S-E dimension has a positive relationship with both behavioural intentions and O-E dimension has a positive relationship with word of mouth. The remaining relationships are statistically insignificant. The next set of analyses is the relationship between the overall design satisfaction and behavioural intentions.

H_{5-1}: The overall design satisfaction is positively related to loyalty

H_{5-2}: The overall design satisfaction is positively related to word of mouth

Table 7-18. *The Decision Table (design value dimensions to behavioural intentions)*

Hypothesis	Estimate	Std. Error	Sig. (p-value)	Decision
H_{5-1}	-0.098	0.111	0.378	Reject
H_{5-2}	0.246	0.056	0.000	Accept

The relationship between overall design satisfaction and loyalty is insignificant, while the relationship between the overall design satisfaction and word of mouth demonstrates a significant relationship.

As shown in the results above, the paths to loyalty is generally problematic. The participants were asked for choosing the best statements which describe their loyalty to the brand, then, the researcher ranked the possible options in order to scale them into 7 points. In this case, it can be argued that the intervention of the researcher was greater than it should be. Although there is a conflicting issue in loyalty, this result can be interpreted that the multiple choice and the Likert scale cannot coexists for the scope of this study. It will be discussed how this issue can be resolved in the future study (section 8.4). Due to the conflict issue, the mediation of the overall design satisfaction was investigated by combining loyalty and word of mouth as the one variable (behavioural intentions). The result (section 7.3.2.2) clearly indicates that the overall design satisfaction mediates partially to the behavioural intention. In other words, the perceived design value (through design value dimensions) can effect both overall design satisfaction and behavioural intentions.

In summary, despite some conflict issues (the question design for the O-I dimension and the inconsistency of the survey type for loyalty), the results indicate that design can be embedded in the concept of value for measuring its impact upon other business phases.

7.4. Summary of analyses and results

In this chapter, the collected data from three different countries were analysed for two categories: (1) investigating the relationship within *Design Value Typology* (S-E dimension, S-I dimension, O-E dimension, and O-I dimension) and (2) structuring and understanding the relationship of other business phases (satisfaction, loyalty, and word of mouth) with *Design Value Typology*. In the next chapter, the major findings will be addressed along with contributions to new knowledge and the practical implications of this study. Directions for future study in order to enhance the proposed model will also be discussed.

Chapter 8

Discussion and Conclusion

8.1. Introduction

Unlike the general research stream for design, this study attempted to describe the design from the different perspectives. Given that there is the lack of research for design and value; design and statistical interpretation, the value of this study is proposing a new way of understanding design in the service industry. The various perspectives of design can enrich the acknowledgement for design in a business. From the business perspectives, it can highlight the role of design for bridging the exploratory project outcomes to the feasible products and services in order to overcome the "valley of death" (Moultrie, 2015, p. 1). In addition, Moultrie (2015) argues that the bridging and supporting role of design in this situation is relatively unexplored. Thus, understanding the role of design from the different perspective is significant for being appreciated in a business.

Besides the proposal of perceiving design from the different perspectives, the outcomes of this study acknowledge the positive contribution of design for building the superior value to consumers. Given that consumer value can be considered as the most significant indicator of a successful business (Heskett et al., 1994; Woodruff, 1997; Holbrook, 1999; Cronin et al., 2000; Grönroos, 2008), the identification of the design's contribution for consumer value can encourage further studies with practical approaches. Furthermore, given that the model of design value and business indicators (satisfaction, loyalty and word of mouth) was determined as discussed in section 7.3.2, this study proposes the theoretical position of design within the Service-profit chain (Heskett et al., 1994) in order to be appreciated as the key business indicator.

From the next section, it will be discussed that the detailed major findings, contributions of this research (section 8.2) and its practical implications (section 8.3), and how to improve this research by reviewing conflict issues revealed in the analysis chapter (section 8.4).

8.2. Major findings and Contributions

In order to align the findings with research objectives of this study, each research objective established for the study is reiterated below.

1. To better understand design in the contemporary business situation.
    i. To determine stakeholders who can affect the perception of customers in a business.
    ii. To define the elements and principles of the design agenda.
2. To understand the procedure of confirming the design impact to a business.
    i. To understand and define the impacts of design for consumers
    ii. To understand how consumers perceive the impacts of design
    iii. To determine the best industry sector for testing proposed models and framework
3. To investigate visualisation methods for evaluating design resources.
    i. To identify gaps by investigating existing research streams
    ii. To review the evaluating tools for design
    iii. To implement design perspectives into the evaluation tool
4. To perform quantitative data analysis in order to confirm the contribution of design
    i. To identify characteristics of data and perform analyses
    ii. To identify improvements within the proposed method for future studies

8.2.1. The identification of the research stream for design value (Obj1, Obj2, Obj3)

This study classified two research streams for measuring design value; the business-centric stream and the customer-centric stream. Given that the classification can identify the pros and cons of the two research stream, the classification is important for the collaboration of the research.

The impact of *Design Value Typology* can be maximised when the parallel effort of evaluating value for an organisation is conducted. As discussed in section 2.7.1, the business-centric research stream for measuring value which investigates the effectiveness of an organisation in creating superior value for customers and employees can contribute to understand the customer-centric research stream. Given that a superior business system cannot be sufficient for understanding the customer perceived value (and vice versa), these two research streams should closely work together.

In addition, this study identified the mutual relationship between value-provider and value-receiver (refer to figure 4-8, p. 121) based upon understanding of the fact that stakeholders within a business can both enhance value of the business network and benefit from the network.

Therefore, it can be mutually beneficial to compare analyses in order to pursue deeper understating of value and the measurement of it for all stakeholders.

8.2.2. The statistical understanding of design's contribution (Obj4)

The lack of the statistical interpretation for design may be derived from the ambiguity of conceptualising the contributions of design in number. The process undertaken in this study clearly demonstrated how the evaluation of design with statistical methods can be viable. The two methodologies of this study (soft systems methodology and mixed methodology) propose the procedure of understanding design from the statistical perspective.

First of all, the continuous improvement of the assessing tool (question) is necessary. As the soft systems methodology indicates, the loop of the theoretical enhancement and the real world comparison can enrich the result both theoretically and practically. The other key point of building a model for explaining design aspects of business in a statistical method is to consider utilising both qualitative and quantitative methods. The pragmatism which lies under the mixed methodology can be achieved by considering and performing the two methodologies (Teddlie and Tashakkori, 2009).

In addition, the key contribution of the statistical understanding which should not be underestimated is the fact that the appropriately described number has the power of being acknowledged by various disciplines. As Topalian (2012) urged, the investigation of common language for design is critical for the collaboration of design with different disciplines in the research and departments in an organisation. The researcher believes that expressing the contribution of design in numbers can be a way of communicating with other functions and disciplines.

8.2.3. Design Value Typology (Obj3)

The most significant finding as well as contribution of this research is the proposed *Design value typology*. From the analysis and literature review, Design Value Typology can be defined as below.

> ***Design Value Typology*** *is the holistic concept of value*
> *which enables to understand how a stakeholder appreciates*
> *value derived from design aspects of a business from the*
> *emotional perspectives.*

The stakeholder is limited to the customer in this research, but not necessarily restricted to further studies. By proposing the *Design Value Typology*, there are three major findings and contributions of this research: (1) the numeric understanding of design value, (2) understanding design value from the customer emotional perspective, and (3) the confirmation of similarity between the individual dimension's behaviour and the aggregated dimension.

Firstly, both value and design were not investigated extensively in terms of measuring and visually presenting. Furthermore, the combined two concepts was not rigorously explored. Many practical surveys from the service industry focus on how customers are satisfied with their services. Given that satisfaction is a discrete antecedent for the outcome of a business (Oliver, 1999), it is necessary to differentiate and understand how customers perceive

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value from products and services. By providing information about the emotional antecedents for satisfaction and behavioural intentions from design perspectives, *Design Value Typology* can represent a blueprint which enables researchers and practitioners to diagnose the current status of a business and find the most efficient way to improve the situation.

In order to enhance the communication within a cross-functional team, the appropriately translated numeric outcome can contribute to smoother collaboration. Developing an agreed scale of business performance indicator is arguably the most critical objective for successful collaboration (Topalian, 2012). In this context, the key contribution of *Design Value Typology* is arguably to provide an open platform which can be modified for specific circumstances around a business and better understood through the generation of a visual representation of the situation. How *Design Value Typology* can project the outcome in a visual way will be addressed in the practical implications section.

Secondly, the four design value dimension is derived from the Holbrook's (Holbrook, 1999) value typology of consumers. This factor allows *Design Value Typology* to contain full scope of emotional reactions from the products and services. Not only for the traditional concept of value (benefits over sacrifices), but also for other irrational reasons of choosing and favouring the chosen brand can be investigated. In the postmodern era of consumption, the experience is fragmented and distorted by the endless flow of media (Elliott, 1997). Thus, it is arguably impossible to consider every influencer for consumption. In this context, what researchers and practitioners can do is arguably to conceptualise the pre- and post-evaluation of consumption through the information received from the targeted stakeholder.

Especially in the service industry sector, what remains in terms of consuming the offerings is the afterimage of the experience. Although the afterimage can be distorted by certain factors during or after the experience, the altered image of the experience is arguably a part of the brand. Thus, it is important to understand how customers perceive value in order to build the overall image

of the brand. In order to achieve this, structuring a blueprint of customers by utilising *Design value typology* is a worthy strategy.

Lastly, it is found that *Design Value Typology* can impact individually (through four design value dimensions) or holistically (as one aggregated value) upon other business phases. As described in the result (section 7.3.2.1), the individual concept and holistic concept can be modelled in the same structure. This can provide researchers and practitioners with a tool to apply *Design Value Typology* flexibly in order to determine the characteristics of researching industries or brands. The detail implication of the flexible model to a practical situation will be discussed in section 8.4.

Following on from this discussion; who can be the beneficiaries of Design Value Typology? The core concept of Design Value Typology is to understand a customer's emotional response from offerings. However, utilising a single evaluated data can be risky in terms of efficient investment. For example, if one specific branch from a brand is evaluated with Design Value Typology and obtains an average 3.0 score for S-I dimension, it is difficult to argue that the specific branch has poor-performance unless it is compared with others. If other branches receive less than 3.0 for S-I dimension, the branch is performing well within the brand. From the broader perspective, by comparing the industry-wide data, the company can identify weak and strong points of their business. This is similar to SWOT analysis, however, SWOT analysis is normally performed within the organisation. Therefore, strong and weak points of a company are determined by the company, not by customers. The misalignment of a company's competitive position within the market can lead the ill-defined strategy for the business.

By considering the example above, the first key beneficiary of Design Value Typology can be the management team within a company. As one of the interviewees mentioned, the consistency of service provision provides the emotional trust for a company. If there is a customer perceptual gap between branches, it can weaken the consistency of the brand's image. If Design Value Typology is measured within the same cultural background, it can help

business managers to identify their position in the market and manage branches to build unified identity throughout the brand.

The second beneficiary can be the government organisation which help and guide small and medium businesses in the local area. Collecting a large quantity of data by utilising Design Value Typology can guide a business appropriately. Given that collecting this type of data for a small business can be cost and time consuming, the government support for collecting and sharing the information can be critical to encourage, diversify and maintain customer value standards across local businesses.

In addition, by plotting the evaluation result on a radar chart, Design Value Typology can provide clearer understanding of current business situations. Practitioners can compare their businesses with the industry sector average, competitors, or even in a same company for consistent / differentiated services. This will arguably allow practitioners and management teams to determine their unique strategies in a market.

In conclusion, this study utilises Holbrook's typology of consumer value for visualising the contribution of design. The benefits of employing the view from Holbrook are: (1) to facilitate the in-depth understanding of how customers perceive design value from the emotional perspectives, and (2) to provide a platform which mediates the communication between business and design researchers with practitioners. The outcome, *Design Value Typology*, is arguably robust and sophisticated in terms of projecting the contributions of design visually and quantitatively. Thus, Design Value Typology can help business managers and government organisation to achieve their goals.

8.2.4. The relationship within Design Value Typology (Obj3)

The preliminary researches (Nam and Carnie, 2014a; 2014b) proposed the independence of design value dimensions. However, as the result from section 7.2 indicates, this study proposes a modified way to describe the relationship - There is *no negative relationship* within *Design Value Typology*.

Above all, having no negative relationship within *Design Value Typology* is practically more significant than the independence of design value dimensions. Given that every customer has their own standards for evaluating the offerings, the dynamic of design value dimensions can be transformed for each customer. In this situation, finding and fixing the relationship can be meaningless and inefficient. Furthermore, the argument for proposing the independence of design value dimensions is to calculate the aggregated design value. However, when the aggregated design value is calculated, the independence of design value dimensions does not play a pivotal role for the result. The calculated result is totally dependent upon the individual customer's own standard, thus, it can be shifted as mentioned above. Design value dimensions for some customers can play independently. However, the more important factor for calculating and utilising *Design Value Typology* is arguably the holistic concept of design value without any negative correlation.

In addition, this study found that there *is* the relationship within *Design Value Typology*. As discussed in chapter 7, most of relationships among design value dimensions are significant and positively correlated. Given that the O-I dimension behaves differently, it was difficult to build an unified equation for modelling the relationship. Thus, it cannot be concluded that design value dimensions are independent, but the relationship within *Design Value Typology* cannot be explained with a single equation.

Then, why does the O-I dimension behave differently? In order to find the root cause, it is necessary to compare the characteristics of the O-I dimension with other dimensions.

Firstly, the focus of the O-I dimension is on other people in a different degree comparing the other dimensions. The O-E dimension, for example, is the Other-oriented dimension. However, the emotions related to the O-E dimension (such as status, reputation or self-esteem) are all related to the considerations of the view of others. If actions for others aim to achieve further goals (e.g. donating money for being acknowledged as a generous person), it needs to be allocated in the O-E dimension (Holbrook, 1999). In this context, the outcome of consumption from ethical and moral aspects of the experience

can differ from other emotional responses. In other words, all other dimensions are related to purchase for own interest, while emotions from the O-I dimension remind customers to view their purchases from a different angle. This can cause the O-I dimension to behave differently.

In addition, there is arguably insufficient research and practical implementation for understanding how design can contribute to the ethical and moral aspects of a business. Thus, the designed question for the O-I dimension is restricted to observe what the service provider displays, while other dimensions ask for the perception from the observation (refer to appendix A.3). In short, participants answered the question based on their observation (the O-I dimension) and perception (the other dimensions). This unequal scope of the survey question can lead to the inconsistency with other dimensions and few insignificant relationships with the business phases. It will be discussed how the O-I dimension can be improved in terms of reflecting design aspects in the ethical and moral dimension in section 8.4.

8.2.5. The confirmation of positive design contributions to key business phases (Obj4)

The goal of this study is not proposing a mathematised relationship between design value dimensions and other business phases. The goal of investigating design contributions to key business phases is to confirm whether design can statistically impact upon business phases significantly. Although there is an issue from scaling loyalty, the results from section 7.3. clearly indicate that design *does* impact upon satisfaction and behavioural intentions.

In addition to SEM (Structural Equation Modelling) result, there are more supportive results for the positive design contributions to a business – the positive effects to the overall design satisfaction and the behavioural intentions.

The multiple regression result in table 8-1 demonstrates the relationship between the four design value dimensions (individually) and the other business phases (overall design satisfaction and behavioural intentions).

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Table 8-1. *The Multiple Regression Analysis for Design Value Dimensions and Other Business Phases*

Dependent variable	Model (dimensions)	R²	Un-standardised coefficients		Sig. (2-tailed)
			B	Std. error	
Overall Design Satisfaction	(Const.)		0.639	0.209	0.002
	S-E		0.204	0.061	0.001
	S-I	0.575	0.476	0.061	0.000
	O-E		0.087	0.035	0.014
	O-I		0.144	0.029	0.000
Behavioural Intentions	(Const.)		2.408	0.703	0.001
	S-E		0.759	0.205	0.000
	S-I	0.388	0.462	0.206	0.025
	O-E		0.759	0.118	0.000
	O-I		0.052	0.098	0.592

As described in table 8-1, all design value dimensions positively effect to the overall design satisfaction and behavioural intentions (all regression coefficients are positive). This result implies that greater design value can impact upon greater overall design satisfaction and behavioural intentions. In other words, *design can positively impact upon a business*. The insignificant relationship between O-I dimension and behavioural intentions will be discussed in the section 8.4.

In addition, although the first industry sector for applying Design Value Typology was the food and beverage service businesses, it can be utilised in various businesses. Given that Design Value Typology is based upon the emotional factors, it can be more suitable for Business to Customer markets where understanding of stakeholders' emotional responses are critical. For example, not only other service industries (such as travel agencies, banks or education services), but also manufacturing industries (such as home

electronics, car manufacturers) can utilise Design Value Typology for comparing and understanding customer responses to their products. Knowing own products' position within the market from key stakeholders can help businesses to determine appropriate strategies. Along with traditional marketing tools (such as SWOT analysis), Design Value Typology can provide a distinctive method for understanding any type of business from various perspectives.

In summary, as discussed earlier, a reluctance to invest in design is arguably a situation with an uncertain outcome for the ongoing success of a business within the service sector. The results of this study clearly indicate that improvement of design can result in greater satisfaction and more willingness to re-patronise and share the experience. Then, the next question which practitioners ask can be "how much efforts (financially or non-financially) do we need to put into?". Given that the results in table 8-1 were collected with the restriction to a specific business, it is difficult to suggest something for practical purposes with the result above. Instead, by using a restricted industry sector for this study, it can predict the outcome and help a business to make appropriate decision. This matter will be discussed in both practical implication and future study section.

8.3. Practical implications

Practical implications can be classified into two categories: (1) how *Design Value Typology* can be utilised by itself (section 8.3.1) and (2) how the relationship between *Design Value Typology* and other business phases can be understood in the broader viewpoint (section 8.3.2).

8.3.1. Practical implications of Design Value Typology

This study proposes *Design Value Typology* in order to understand how consumers perceive offering emotionally. It is necessary to identify how it can be utilised.

Firstly, given that *Design Value Typology* can be plotted on a radar chart (Nam and Carnie, 2014a; 2014b), the differences can be easily compared visually. Three competitors (Café Nero, Costa, and Starbucks) of café industry in the UK were compared by utilising *Design Value Typology* and the collected UK data.

	S-E	O-E	S-I	O-I
Caffe Nero	5.20	4.75	5.48	3.61
Costa	5.62	5.10	5.72	4.42
Starbucks	5.89	5.39	5.75	3.32
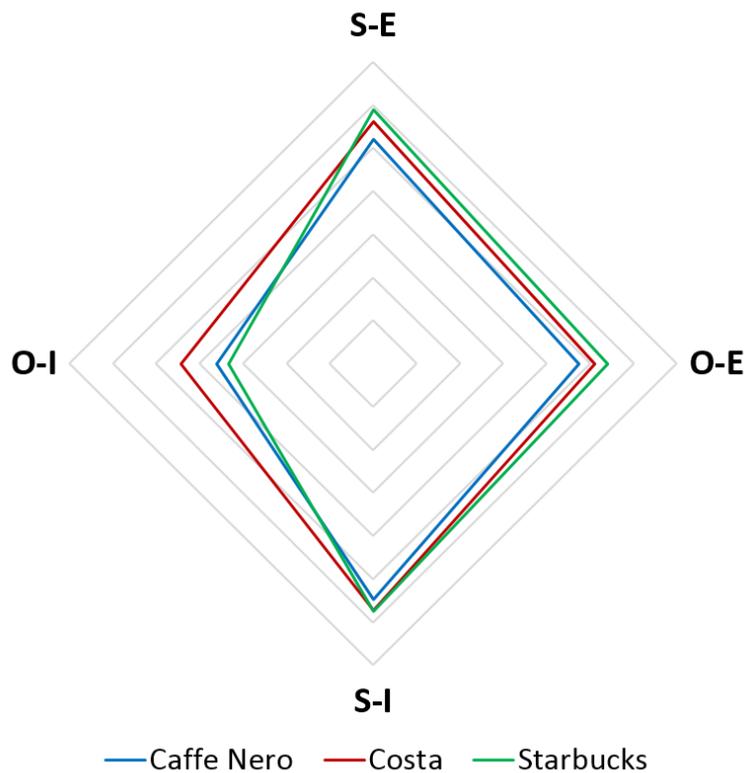
Figure 8-1. **An example of the practical implication for Design Value Typology**

Figure 8-1 demonstrates the example of visualising the comparison within a same industry sector. According to the visual plotting above, it can be construed that all brands have similar customer perceived design value for their interior, architecture, location and environmental design (the S-I dimension). In other words, customers do not recognise a significant difference in design in terms of enjoying themselves and having fun with

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friends and families. However, other-oriented value dimensions show slightly different result. Data from Starbucks demonstrates the highest O-E design value, but the lowest O-I design value. It can be interpreted that Starbucks fulfils the customer needs for projecting themselves to others, however, their ethical activities are relatively less appreciated from customers. On the other hand, Costa shows slightly less O-E design value, but greater O-I design value. In this case, Costa is believed to deliver more ethical or local friendly value to customers.

Given that the analysed data has a small (33 samples) and unequal sample size (Starbuck, 7 samples; Costa, 15 samples; Caffe Nero, 11 samples), it is problematic to generalise the result. However, as the example analysis demonstrated, this methodological approach can be utilised for comparing several competitors or branches in order to understand the current customer perception toward a brand.

Another benefit of plotting Design Value Typology is to identify areas for potential improvement for a business. If, for example, Starbucks recently noticed that their sales were decreasing, they can utilise *Design Value Typology* for diagnosing the root causes. If the result is the same as the example above, the efforts to enhance the O-I design value can positively impact upon satisfaction, loyalty, word of mouth, and subsequently the increase of sales. Starbucks does have many different types of social responsibility activities (such as caring people in the country of origin and local communities). The relatively weaker value in the O-I dimension may be caused by the different expectation as an international company which dominantly leads the global market. Thus, developing different ways of advertising their social responsibility activities may arguably help to improve the O-I value.

This type of investigation can support the business decision in a specific level. Then, why is it necessary to calculate the plotted diamond area of *Design Value Typology* for the practical purpose? For this case, *Design Value Typology* can contribute to the overall understanding of a firm's improved design activities. If the goal of the investigation by utilising *Design Value*

Typology is to compare before and after investing the resources, the management team may have more interest in the overall improvement (not only for a specific increase from one dimension). In order to compare easily, the overall design value in figures needs to be demonstrated together.

In summary, the plotted *Design Value Typology* can be utilised for: (1) identifying a company's position within its industry sector, (2) suggesting a specific guide to the strategic focus, and (3) evaluating a company's design value before and after implementing design activities.

8.3.2. Practical implications for the broader concept

For the broader concept of application, *Design Value Typology* can be utilised for understanding whether the improved design value can positively impact upon the satisfaction, loyalty, and other behavioural intentions of customers. This study developed the model of relationships with *Design Value Typology* as shown in section 7.3.2. By comparing differences in satisfaction and loyalty after implementing design projects, the changes in satisfaction and loyalty by the enhanced design value can be identified.

Table 8-2 demonstrates the simple example case for understanding the broader concept of this implication.

Table 8-2. *An Example of the Improved Case*

Phases	Before			After		
	Design Value	Satisfaction	Loyalty	Design Value	Satisfaction	Loyalty
Survey result	60	5	4	70	6	5

Design value in table 8-2 is the calculated *Design Value Typology* and other two phases (satisfaction and loyalty) were collected using the 7 point Likert scale. If a company obtains the result like this case, it can be argued that the improvement of design value positively influence satisfaction and loyalty of

customers. If statistically significant numbers of data can be gathered, the result can be analysed by statistical methods (such as 2-sample t test, pared t test) to determine the significance of the improvement. In addition, the specific investigation is also viable by providing the results of individual design value dimensions. Thus, by researching the outcomes of design activities, the contribution of design can be visualised and unveiled.

However, in order to be acknowledged solely, the scope of satisfaction and loyalty in this research have limitations. The limitation is caused by implementing the design perspectives into the two concepts. The limitation of this dual concept and how to improve the model in terms of presenting the design's contribution to business phases will be discussed in section 8.4.

In this section, how individual or holistic concepts of *Design Value Typology* can be utilised practically was briefly addressed. The number of opportunities for improving the current model of *Design Value Typology* were identified during analysing the results. In order to remedy the identified limitations and enhance the practical facilitation, further studies are required. In the next section (8.4), it will be considered how future studies can be planned for the extended scope of this study.

8.4. Future studies (based on findings and limitation of the study)

Design Value Typology can contribute and be practically utilised as mentioned previously. However, in order to achieve robustness of the model, it still needs to be developed further. In other words, there are few limitations of this study in terms applying the model of Design Value Typology to practical cases.

Firstly, the conceptual framework built for this study is based upon mutual relationships between stakeholders in a business. Given that this study is the first step for understanding emotional perceptions of a stakeholder, the focused stakeholder in this current study is the customer. As Heskett et al. (1994) argued, however, greater value for employees can lead to greater

customer value. Therefore, understanding of other stakeholder within a business is equally critical (section 8.4.1).

Secondly, unnecessary design perspectives within the questionnaire and missing in-depth understanding of financial concepts can hinder the justification of design investment. The goal of this study has been from a different view point in order to prove how effectively design can be invested in a company. Thus, how financial outcomes from design can be determined (section 8.4.2) and why removing design concepts from satisfaction and loyalty is necessary (section 8.4.3) should be addressed.

Thirdly, the ethical / moral consumption behaviour cannot be the only representative of the Other-oriented – intrinsic dimension according to Holbrook's typology. It is arguably easier to find design considerations for ethics and morality. However, other emotional factors in Holbrook's typology (such as magical and sacred feelings) need to be investigated in further studies. In addition, in order to understand the dimension thoroughly, it is also necessary to address why the Other-oriented – intrinsic dimension demonstrated different behaviour compared with other dimensions (section 8.4.4).

Lastly, the survey questions in loyalty was designed incorrectly. Given that the score in the loyalty phase evaluated by the researcher (not by respondents) was based on how many levels of multiple choices are selected, it is difficult to argue that the calculated score can represent the perception of respondents. Therefore, it will be addressed how the survey questions to interrogate loyalty can be modified in further studies (section 8.4.5).

8.4.1. Other stakeholders for Design Value Typology

One of the key theories considered in this study is Stakeholder theory (Freeman, 1984) which considers and encompasses multiple stakeholders for a business. In addition, Heskett et al. (1994) argue that superior customer value is driven by superior employee value. Thus, stakeholders who were involved in the generation of the proposed framework and subsequent model

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were determined to influence each other. For example, by describing an employee in the service industry as an emotional labourer, Ashforth and Humphrey (1993) mentioned the factitious behaviour of employees in order to meet the expectations from customers. In this situation, employees can feel the emptiness caused by the discrepancy between their real identity and intended identity (Ashforth and Humphrey, 1993). Given that the employee's job satisfaction through greater value has significant influences for creating greater value for customers (Heskett et al., 1994), it is also necessary to investigate the employees' perspectives.

In order to investigate how employees perceive value for a business, *Design Value Typology* can be utilised. Due to the emotional orientation of the dimensions used, *Design Value Typology* can be applicable to study other stakeholders emotional reactions for a business. The aggregated set of emotional reactions can be classified as *value* of stakeholder as the perceived customer value researched in this study. Given that the hierarchy of loyalty or understanding of satisfaction may differ between the employees to those of customers, a separate study investigating satisfaction and loyalty of stakeholders other than customers are worthy of undertaking alongside investigating value for other stakeholders.

8.4.2. Profit & Growth

The last phase of the Service-profit chain (Heskett et al., 1994) is Profit and Growth. Given that the aim of all businesses (except non-profit organisations) is to earn financial benefits and sustain their businesses, without investigating the link between the resultant model for this study and the actual financial outcomes and organisational growth, the framework and model proposed in this study are limited in terms of their practical application. Zeithaml (2000) also argues that even though understanding the perceptual consequences (such as overall perceived service quality, customer satisfaction and re-purchase intention) is important, the profitability and financial outcome with the relationship of the antecedents is also critical and worth considering.

Hallowell (1996) utilised the concept of Return on Assets (ROA) and Non-interest expense as a percentage of total revenue (NIE/Rev) for examining the relationship between customer loyalty and profit of the business. Rust et al. (1995) introduced the concept of Return on Quality (ROQ) in order to explain the financial outcome from the service quality. The ROQ is a sophisticated concept of evaluating the actual return by considering complex conditions (such as market size, market share, retention rate, competitors' retention rate) of a business.

In addition to the evaluation for financial returns, the growth of a business can be equally significant. Morrison et al. (2003) categorised three fields of growth factors for a business (intention, ability and opportunity). Wiklund et al. (2009) proposed a model of factors related to the growth of small firms as illustrated in figure 8-2.
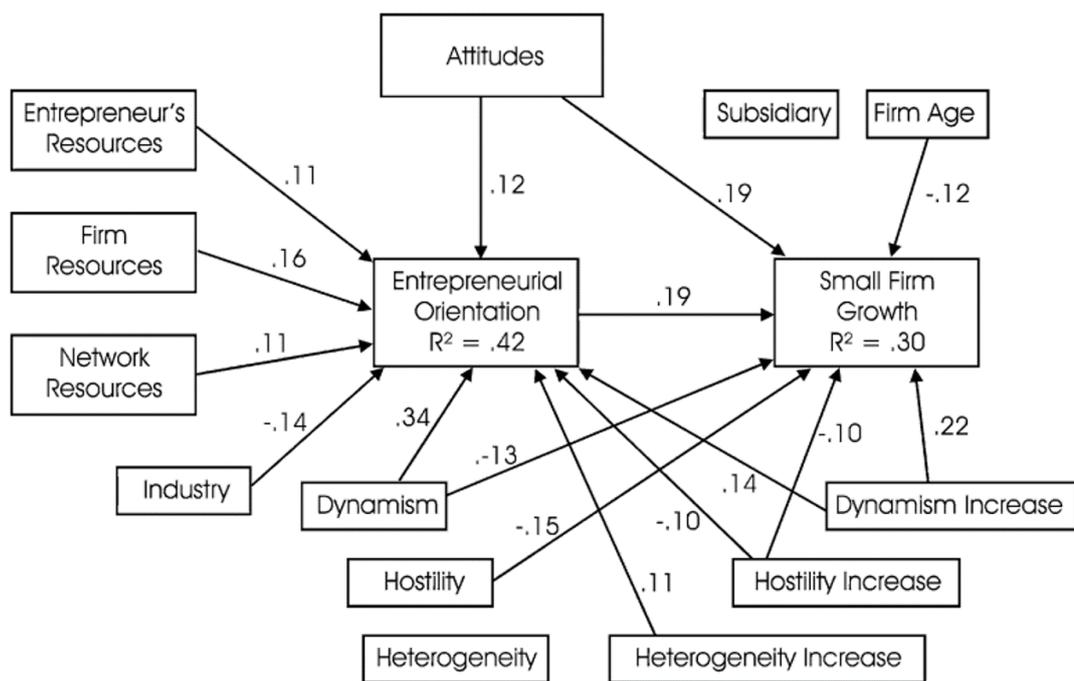
Figure 8-2. **The revised model of small business growth (Wiklund et al., 2009, p. 359)**

The definition of growth can be diverse, thus, understanding and analysing the growth of a business are highly dependent upon the characteristics of a targeted industry (Bravo-Biosca, et al., 2013). Thus, intensive research

seeking to establish factors related to the growth of a business should be performed in order to understand growth in the service industry.

In addition, profit and growth for other stakeholders should be construed in discrete views depending upon the stakeholder. Given that each stakeholder within a business has different interests and purposes, the contributions of the different stakeholder to a business can vary. For example, the contribution of greater employee value for a business can be the retention of customers through the encouragement of staff to be part of this strategy for the business. However, the contributions of greater value for local communities and suppliers are arguably a friendly attitude toward the business, the Just-In-Time delivery ratio of products and mutual trust. Therefore, further study of the extended scope outlined above would enrich and enhance the current findings of this study.

8.4.3. Overall satisfaction and Loyalty without design perspectives

This study applied design perspectives into the overall satisfaction and loyalty in order to find if the customer's design satisfaction can contribute to the loyalty of a brand. However, in order to be acknowledged as a key business contributor, the concept of overall satisfaction and loyalty should be free of design perspective. For example, this research asked survey participants to classify their satisfaction with design in general. Hence, the responses are arguably the satisfaction for design aspects of the business, not the holistic concept of satisfaction for the provided services.

In addition, the hierarchy of loyalty contains inconsistent design implication. In this study only affective levels of loyalty were probed in relation to levels of loyalty to design. The other aspects of loyalty remain in the original hierarchy of loyalty determined by Oliver (1997). In this case, the discrepancy among loyalty hierarchies can be observed. Not only for eliminating inconsistency within the collected data, but also for being appreciated as a key contributor for a business, the design perspectives need to be removed from other

business phases. By doing so, the impact of design value to the key business phases (satisfaction, loyalty, and other key business indicators related to the performance) can be determined and proved.

8.4.4. The Other-oriented – Intrinsic design value dimension

As shown in the analysis section, the O-I (Other-oriented – Intrinsic) dimension is inconsistently related to the other value dimensions and demonstrates some insignificant relationships with other business phases. This outcome can be caused by the different scope of question as mentioned earlier (the simple observation for the O-I dimension, but the perception from the experience for the other dimensions). However, this study will try to find the root cause of the anomaly of the O-I dimension from the proposed model. It can be argued that the problem occurs in two different perceptions; the customers and the businesses.

Firstly, there is arguably a lack of consciousness for observing and perceiving ethical / moral aspects of offerings from the customer perspective. Ethical decisions are complex and require several steps in one's mind (Dorst and Royakkers, 2006). However, by considering the consuming behaviour for food as a fundamental need of humans, the decision making process of choosing where to dine can occur instantly. Ethical / moral aspects of design are arguably observed and appreciated in a long-term relationship. For example, if a person has a favourite coffee shop in the city centre, multiple visits can increase the chances encountering information about the ethical aspects of the business (such as using ethically sourced products and news for local support activities). Thus, the intervention of design in the decision making process can be limited unless the customer has a long-term relationship with the business.

In addition, given that customers indicate little attention to the ethical aspects of design, their observation and perceived value of ethical/moral aspects of design can be limited. In this situation, the result of the survey cannot be attributed to the ethical / moral value of the customer; rather, the results of the

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survey can be attributed to the ethical/moral observation of the customer. How ethical / moral aspects of design value as these relate to customers emotional responses require further study in order to determine how best to include this are in the design of a future survey questionnaire.

One of the interviewees (interior designer for a fresh juice company in South Korea: http://www.beesket.com/index_eng.asp) from the preliminary research mentioned after reviewing the survey form,

… the last part of question section (O-I dimension, ethics / moral related section) is very interesting, because, as a designer, I have never thought that an interior designer should consider this aspects of design. It was quite often regulated by the government, not voluntarily considered harmonising with other design elements. But I definitely agree that we need to consider and implement this type (ethical / moral) of design…

In other words, it can be understood that, although companies are performing social responsible activities, relatively low efforts have been dedicated to design and promoting those activities. Thus, if the effects of demonstrating social responsibility activities are investigated further, companies may decide that it is worth publicising these activities if this is also determined to be an aspect of the value recognised and considered by their customers.

Bray et al. (2011) identified and modelled the hindering factors for ethical consumption as shown in figure 8-3.

Exogenous Variables

Moral Maturity   Gender   Affluence   Education level   Beliefs   Confidence   Age   Locus of Control

Impeding Factors

Outcomes

Self Interest

Cognitive Dissonance

Self Interest with Guilt

Price Sensitivity

Personal Experience

Ethical Obligation

Lack of Information

Quality

Inertia

Cynicism

Outcomes

Ethical Consumption

Boycott
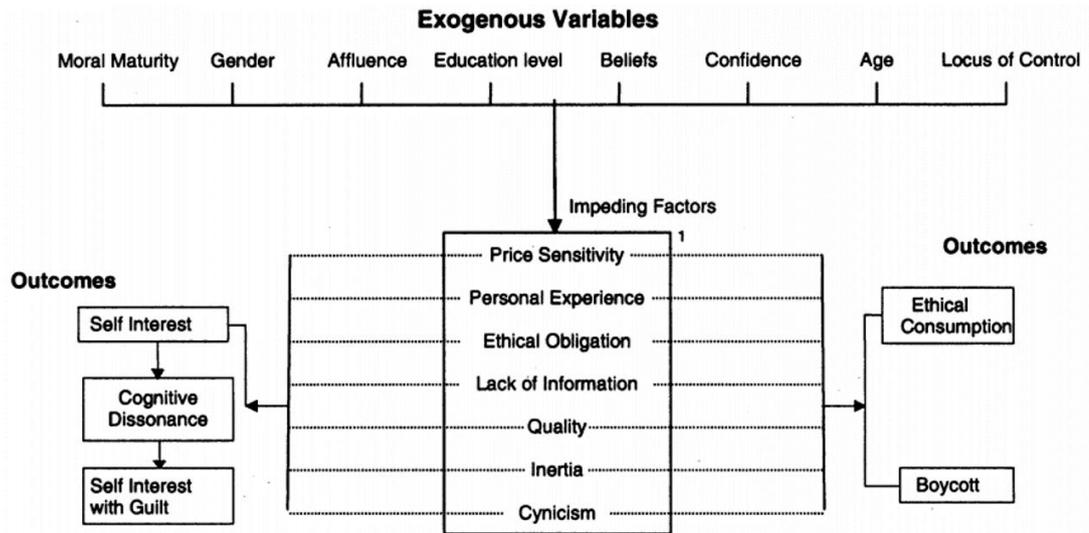
Figure 8-3. **A model of factors impending ethical consumption. (Bray et al., 2011, p. 604)**

As mentioned in the model, Bray et al. (2011) also argues the lack of information about ethical activities of the brands used in their study. However, prudent advertisement of their ethical activities is necessary when considering the factors of cynicism amongst consumers. Given that customers know that businesses aim to earn a profit, flooding customers with information about the businesses ethical may affect the image of the brand negatively (Bray et al., 2011). In addition, it was also found that significant ethical / moral failure of a brand can lead to customer defects, but greater efforts of ethical / moral perception of a brand cannot guarantee the loyalty of customers (Eckhardt et al., 2010; Bray et al., 2011).

It is challenging to acknowledge the positive impact of ethical / moral activities and even more difficult to address the intervention of design in this situation. Thus, in order to investigate the role of design for the business' ethical / moral activities, an intensive and discrete study with several case studies should be undertaken in the future.

8.4.5. The issues in the loyalty scale

The survey question generated in this study contains a 7 point Likert scale. However, the participant's attitude was only interrogated in terms of loyalty towards the experienced brand. This study made a hierarchy of possible multiple choices (14 different multiple choices for four levels of loyalty) for ranking and expression of the participant's loyalty level. Given that loyalty and other key phases (the perceived value and satisfaction) are considered as a highly correlated relationship, the insignificant relationship to loyalty is arguably caused by misinterpreting the loyalty data or intervening the other factors when participants answered the question.

In order to solve this issue, it will be worth scaling loyalty hierarchies into the 7 point Likert scale with different weight factors. Unlike satisfaction, given that loyalty cannot be determined in a singular answer or dimension (Oliver, 1997), having four levels of loyalty from Oliver is still arguably more relevant to research the practical investigation of loyalty. The table 8-3 demonstrates the example of these considerations.

Table 8-3. *An Example of the 7 Point Likert Scale with Weight Factors*

Loyalty Level	Point (response from a participant)	Weight factor	Loyalty score (Point*Weight factor)
Cognitive	7	1	7
Affective	5	2	10
Conative	4	3	12
Action	5	4	20

The Point column in table 8-3 indicates the actual response from a participant. Given that this example assumes the simple increase of weighting factor, the weight factors for each loyalty level increase monotonically. The loyalty score can be obtained by multiply Point column and Weight factor column. Thus, the final result of this example's loyalty score can be the sum of all loyalty score (7+10+12+20 = 49).

Besides the example mentioned above, separate studies for addressing how four levels of loyalty can be recognised as one concept need to be performed.

8.4.6. Other potential improvements related to the future study

<u>The distorted experience</u>

Design Value Typology is a post-evaluation of products and services, thus, the evaluation is dependent upon how well a participant recalls the experience. The memory of the experience of the customer can be deemed to their perception of value, but if the memory is distorted for some reasons, the behavioural intentions cannot be guaranteed to generate the same responses for the next consumption.

As described in section 7.3.2.1, the structured model proposes the negative impact of time elapse from the experience upon the overall satisfaction and loyalty (no relationship with word of mouth). It can be interpreted that the degree of satisfaction and loyalty decrease as time passes. However, given that the negative relationship is statistically insignificant, it is difficult to conclude the negative impact of time elapse from the experience. For the future research, it will be valuable to investigate the relationship of the specified time elapse (not categorised) and all business phases (including the perceived design value through *Design Value Typology*).

<u>Differences and similarities of the relationship among the nationalities studied</u>

As mentioned in the section 7.3.3, this study compared three nationalities (two nationalities in each case) in order to understand how people from different countries perceive and behave differently within the proposed model. The data demonstrated a similar perceiving pattern between South Korea and the US; and the UK and the US. However, the comparison between South Korea and the UK participants showed some differences in certain paths.

By considering the relevance of the overall model (modelled by data from all countries with the statistically significant level of confidence), the detected differences between South Korean and British data arguably urge adding more latent variables to structure the model. Therefore, besides the number of competitors, time elapse from the experience and age, the future study will be necessary to include factors such as distance (or travel time) to the destination. It will be worth comparing the current model and the future model with additional latent variables to confirm more relevant model for explaining the actual behaviour of consumers.

Applying different survey scales

If the scale within a Likert type survey increases, the behaviour of data can be made similar to the continuous data. As a result, the implementation of finer increments in the scale used would improve the reliability of the data. In addition, the use of the Likert scale provides three types of information; direction, intensity, and error. The directional component information is the strongest observation from a Likert scale. In other words, utilising a Likert scale is weak when trying to determine the intensity of respondents (Matell and Jacoby, 1971). Thus, in order to get rich and thoughtful responses, it will be worth extending the scale or utilising the descriptive Likert scale as employed in the research conducted by Moultrie et al. (2006b). The example from Moutlrie et al. (2006b) is demonstrated in figure 8-4.

Figure 8-4. **The descriptive survey example from Moutlrie et al. (2006b, p. 195)**

By having the detail description for both ends (rather than simply describing Strongly agree and disagree) for each question, a deeper understanding of the customer perception and more precise responses can be expected.

Enhancing and comparing the practicality of the model

By providing a platform (*Design Value Typology*), this study can enable practitioners to investigate the perceived design value and other business performance indicators. In order to extend the practicality of this study, real world implications through various case studies are arguably crucial. For example, if a researcher can find a real case of improving design value that belongs to a specific value dimension, reviewing the outcomes in terms of the other design value dimension and business performances can further validate the findings of this study.

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8.5. Concluding comments

This research aimed to delineate how the design embedded value concept can be modelled and measured in the food and beverage service industry. In order to acknowledge design as a key contributor of a business, this study employs the concept of value. Although there are numerous researches for value, Holbrook's typology of consumer value can be regarded as the most sophisticated and holistic understanding of value (Sánchez-Fernández and Iniesta-Bonillo, 2007). Given that Holbrook's typology aims to understand value from an emotional perspective, its applications can be relatively broader than other linear value concepts (such as the mean-end theory, the benefit – sacrifice concepts). In addition, the same structural model can be utilised for the other stakeholders. The design impact (value) from the multiple stakeholder perception is arguably critical for the holistic and practical understanding of a business. In this context, the proposed model with *Design Value Typology* is arguably robust and has many potential practical implications.

In addition, the true contribution of *Design Value Typology* is arguably the proposal for a platform which contemplating value of design from a different perspective. With various practical applications and theoretical mergers, *Design Value Typology* can better explain and guide real world situations for practitioners and researchers.

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Appendix A
Forms related to interview and survey

A.1 E-mail interview form (referring Gorb's classification of design contribution, Cooper and Press, 1995)

Category	Important considerations	Why? (optional)
Product Design (Design of something you purchase, e.g. food presentation, packaging materials, etc…)		
Environmental Design (Design of surroundings, e.g. table & chair, atmosphere, location, etc…)		
Information Design (Design of the means of communication, e.g. website, menu, etc…)		
Corporate Identity Design (Design of something that can help to remind the shop later, e.g. employee's dress, signs, feelings about yourself when you were there, etc…)		
Not specified		

A.2 Initial questionnaire set

Design as Tool						
1. Products and Services from the (　　　) Café are good value for money.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
2. The (　　　) Café is located in a favourable place and I like the atmosphere of the surrounding area.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
3. The (　　　) Café company has modern-looking equipment						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
4. The physical facilities at the (　　　) Café company are visually appealing						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
5. Materials associated with the service (such as tables, sofa, and tableware) are visually appealing.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

6. Materials associated with the service (such as tables, sofa, and tableware) match well with the overall atmosphere of the café.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

7. I feel comfortable to staying / hanging around at the café using the tables, chairs, sofas, tableware etc….

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

8. I like the way the (   ) Café decorates the service materials (such as tables, sofa, and tableware)

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

9. I like the logo (or signs) of the (   ) Café

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

10. I like the interior of the (   ) Café

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

11. I like the location of the (　　　) Café, because it fits in well with the surroundings						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

12. I am willing to introduce the (　　　) Café to friends, because they will also like the physical design of the (　　　) Café.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

13. I am willing to visit the (　　) Café again to enjoy the mood of the (　　) Café offerings						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

14. I will keep using the products and services from the (　　) Café, even if the price is increased. Because I like the design of the (　　) Café.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Design as Goal

15. Your main purpose of visiting the (　　　) Café is,

1	to buy products (foods and drinks) – take-away
2	to buy and enjoy products and services with friends or family
3	a business purpose (meeting with customers)

4	to spend time alone (reading books/magazines, studying, enjoying atmosphere)

16. Considering your purpose in question 15, the design of the (   ) Café helps you achieve this purpose.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

17. I feel comfortable and fulfilled, considering my purpose in question 15 by using the products and services from the (   ) Café.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

18. I am willing to introduce the (   ) Café to friends who have the same purpose of visiting.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

19. I will visit the (   ) Café again, because I trust that the (   ) Café will provide similar or better products and services than competitors.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Design as Rank						
20. The ( ) Café is a trendy place with the most recent design consideration.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
21. Other customers in the ( ) Café are similar to me.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
22. I feel a sense of belonging in the ( ) Café.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
23. The ( ) Café's atmosphere reflects my characteristic						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
24. I think other visitors also like the design of the ( ) Café.						
Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7
25. I am willing to introduce the ( ) Café to friends who are similar to me						
Strongly Disagree						Strongly Agree

1	2	3	4	5	6	7

26. I will visit the (   ) Café again, because I trust that the (   ) Café will provide similar or greater products and services

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

Design as Help

27. I can find design considerations for people with physical difficulties in the (   ) Café. (e.g. access ramp, ergonomic design)

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

28. I know that the (   ) Café uses ethically sourced ingredients and products, because of their display or logos in sign. (e.g. Fairtrade®)

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

29. I believe that cafés should operate in a manner that includes a diversity / range of customers and use ethically sourced ingredients and products.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

30. I can recognise from the design of the (   ) Café that my consumption at the (   ) Café supports others mentioned in questions 27 and 28.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

31. I think others also recognise the design of the café (design for those who have physical difficulties and using ethically sourced ingredients) at the (   ) Café easily.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

32. I trust the (   ) Café will continue to keep improving or maintaining current design considerations

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

33. I prefer to consume products and services like the (   ) Café, rather than other shops which have no considerations to their suppliers or consumers.

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	7

A.3 Final questionnaire set

Demographic information

1. Please write a country to describe your nationality

2. What is your gender?

        Female ☐   Male ☐

3. What is your age?

    18-25 ☐

    26-35 ☐

    36-45 ☐

    46-55 ☐

    55+ ☐

Most recent experience

Following questions for identifying the brand of your experience

4. Name of the brand (name of the Cafe, Restaurant, Bar, Take-away store, etc.)

5. The location of brand (City or Country)

6. When did you visit the brand mentioned above?

within a week ☐

within a month ☐

within 3 months ☐

within 6 months ☐

Others (please specify)

7. Your main purpose of visiting was

To buy products (foods and drinks); take-away ☐

To buy and enjoy products and services with friends or family ☐

A business purpose (e.g. meeting with customers) ☐

To spend time alone (reading books / magazines, studying, enjoying atmosphere) ☐

Others (please specify) ☐

The consumer experience

Following questions are about the brand chosen in the previous page

Please answer in 7 points scale (1 - Strongly disagree, 7 - Strongly agree)

8. Questions about using the brand

	1-Strongly disagree 7-Strongly agree						
The way of delivering products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) at the store was excellent and effective to me	1	2	3	4	5	6	7
Location, building, interior and atmosphere of the store are effectively organised	1	2	3	4	5	6	7
Information about the store (through its website, menu, posters on the wall, media displays, etc.) was effectively presented to show products and services of the shop	1	2	3	4	5	6	7
The store creates its image effectively through previous three criteria	1	2	3	4	5	6	7

9. Questions for products and services offered

	1-Strongly disagree 7-Strongly agree						
Products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) at the store were appealing and enjoyable	1	2	3	4	5	6	7
Location, building, interior and atmosphere of the store were attractive and interesting	1	2	3	4	5	6	7
Information about the store (through its website, menu, posters on the wall, media displays, etc.) was consistent with its atmosphere and looked appropriate	1	2	3	4	5	6	7
The image of the shop through the previous three criteria is positive	1	2	3	4	5	6	7

10. Your feeling within the store

	1-Strongly disagree 7-Strongly agree						
Consuming products (e.g. food presentation, packaging, etc.) and services (e.g. employees' interaction and their dress, etc.) from the store reflect my desired character / personality	1	2	3	4	5	6	7
Location, building, interior and atmosphere of the store reflect my desired character	1	2	3	4	5	6	7
By using information materials (website, menu, posters on the wall, media displays, etc.), I have become more familiar with the store and think that the store reflects certain aspects of my character	1	2	3	4	5	6	7

My image in terms of using this store will be viewed by others as a reflection of the character expressed in the store design	1	2	3	4	5	6	7

11. Question about considerations of the store for others

	1-Strongly disagree 7-Strongly agree						
Consuming products and services from the store will help other communities (e.g. suppliers of the origin, local communities, social minorities, etc.)	1	2	3	4	5	6	7
I could find design considerations for people with disability (e.g. access ramp, wheel chair friendly tables, etc.)	1	2	3	4	5	6	7
I could find information about the store's social responsibility activities	1	2	3	4	5	6	7
The image of the store includes ethical / moral activities in some respects	1	2	3	4	5	6	7

Satisfaction of the experience

12. Overall satisfaction of the store

	1-Strongly disagree 7-Strongly agree						
By considering design elements mentioned in previous questions, I am satisfied with overall design of the store	1	2	3	4	5	6	7

Loyalty of the brand (store)

13. Think about similar stores of the chosen brand and write down the name of other brands (as many as possible)

14. In terms of experiencing design of the chosen brand through previous questions (the consumer experience questions from p.4 to p.5), choose statements (one or more, maximum four) which appropriately describe your current attitude to the store

The chosen store has more benefits than similar stores	☐
I (have grown to) like the design of the store more so than other shops	☐
I intended to continue buying from the chosen store in the future	☐
When I have a need for products or services of this type, I buy only from the chosen store	☐

15. Sharing your experience

	1-Strongly disagree 7-Strongly agree						
If I am asked about choosing a store that offers this type of service, I would be happy to share my positive experience with others	1	2	3	4	5	6	7
When I am asked about my positive experiences with the store by friends and families, I would choose to express these experiences in a vivid / lively / animated way	1	2	3	4	5	6	7