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**TWO ESSAYS ON THE BEHAVIOURAL ASPECT OF  
OPERATIONS MANAGEMENT: EMPLOYEE  
ATTRIBUTES AND CUSTOMER PARTICIPATION**

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**Two Essays on the Behavioural Aspect of  
Operations Management: Employee Attributes and  
Customer Participation**

**Guo Yujuan**

**A thesis submitted in partial fulfillment of the requirements for the degree of**

**Doctor of Philosophy**

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## **Abstract**

Scholars in operations management (OM) have traditionally approached management problems from a technical systems perspective by adopting management methods such as operational optimisation, systems design and process standardisation. The technical parts of OM generally assume that humans are fully rational in decision-making, problem solving, and system implementation. However, this “rational man” assumption is not always effective as human beings in fact have bounded rationality in some contexts. Taking behavioural approaches, this thesis examines two issues related to behavioural aspect of operations management that are related to employee attributes in a service environment and customer participation through social media in a broad industrial setting. Specifically, the first study examines how the frontline service employees’ behaviours and cognition influence service quality. The second one investigates how the linkage between customer participation and customer satisfaction could be different under a social media environment.

In the first study, we examined the impact of employee relationships on quality of services in a labour intensive service setting. It is generally recognised in literature that, to ensure high-quality services, service industries, especially the labour intensive ones, need to have satisfied customer-contact employees. However, an under-researched issue relating to the management of service operations concerns employee relationships. Close work relationships, especially those concerning frontline staff and their supervisors,

are likely to positively influence employee attitudes during service delivery. By utilising triadic survey data drawn from 225 service shops in Hong Kong, we examined the relative impacts of leader-member exchange (LMX) and job satisfaction on service quality while recognising the moderating effects of employee-customer contact time in labour intensive, high contact services contexts. Using structural equation modeling, we found that job satisfaction does not have significant impact on service quality when LMX is included in the model. This suggests that, work relationships between employees and their supervisors influence service quality more directly than job satisfaction does. We further found that the relationships between employees and their supervisors are enhanced in empowered environments. The impact of LMX on service quality is found to remain essentially stable under both high and low service contact times. The findings suggest that cultivating high-quality relationships between managers and their customer-contact employees is an effective means of enhancing service quality in high-contact service operations.

In the second study, we investigated whether customer participation in the social media environment do help improve customer satisfaction. In the information age, companies are increasingly using social media for customer contacts and relationship management. However, the use of social media for customer participation is likely to bring both opportunities and challenges for firms. Based on an event study analysis with secondary data collected from Factiva, COMPUSTAT, and American Customer Satisfaction Index over the period 2007–2015, we empirically tested the relationship between customer

participation and customer satisfaction. The results show that customer participation through social media could have a negative impact on customer satisfaction. They further show that customer participation through social media could have a more negative effect on larger firms, which are likely to draw higher public attention. Overall, our results indicate that companies need to be aware of the potential risk arising from customer participation in social media; especially for the large firms, where customer expectations and disappointments are likely to be more widespread, intensified, and difficult to manage.

Overall, we explored two issues associated with behavioural OM that could have a direct impact on the service quality and customer satisfaction and are critical to assuring the competitive outcomes for firms. We provide empirical evidences of how the bounded rational humans could affect companies' operational performance.

### **Publications Arising from the Thesis**

Guo, Y. J., Yee, R. W. Y., & Yeung, A. C. L. (2014). *The role of leader-member exchange in high-contact service operations: An empirical study.*

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## **List of Abbreviations**

ACSI	American Customer Satisfaction Index
AVE	Average Variance Extracted
EDT	Expectation Disconfirmation Theory
GDP	Gross Domestic Product
ICC	Intra-class Correlation Coefficient
LMX	Leader-Member Exchange
OB	Organisational Behaviour
OLS	Ordinary Least Squares
OM	Operations Management
R&D	Research and Development
ROA	Return on Assets
SEM	Structural Equation Modelling
SET	Social Exchange Theory
UGC	User Generated Content
US	United States
WOM	Word of Mouth

# Chapter 1 Introduction

## 1.1 Research background

Traditionally, scholars in operations management (OM) have advocated economic and technical strategies to solve management problems. For example, academics in this area attempted to correlate supply lead time with external order quantity (So and Zheng, 2003) to standardise processes to improve operational efficiency (Davis and Heineke, 2003), and to optimise the selling price to maximise profitability (Guide Jr et al., 2003). These quantitative techniques assumed that human beings are rational with decision-making and behaviour. However, this “rational man” assumption idealises human beings’ rationality by overlooking their emotions and related behaviours. In contexts characterised by uncertainty, diversity and unpredictability, the “rational man” assumption is not always effective because it bounds human rationality. Behavioural operations, which is defined as “the study of human behaviours and cognition and their impacts on operating systems and processes” (Gino and Pisano, 2008 p. 679), has started to draw OM scholars’ attention to this point in the recent decade. Behavioural operations management has been attracting ever more OM scholars’ attention since 2006 (Bendoly et al., 2006). Currently, this field has matured fairly (Croson et al., 2013). OM scholars have noticed that people play key roles in achieving operational efficiency. Mechanisms designed for OM cannot survive without considering human factors. Fields such as psychology and organisational behaviour (OB) have developed theories related to human behaviours. Taking a behavioural perspective, this study is an interdisciplinary study combining concepts and theories involving operations management, psychology, organisational behaviour and marketing.

OM scholars indicate that employee attributes could be related to operational performance especially in service operations (Yee et al., 2008; Ekinci and Dawes, 2009; Yang et al., 2016). OM literature calls for the use of behavioural science to improve customer experience (Chase and Apte, 2007). Memorable service experiences require trained service providers to personalise service encounters and meet diverse customer demands (Heineke and Davis, 2007). It is generally recognised that customer-contact employees have a crucial role to play in service firms. This is particularly true when the firm is targeting services of superior quality. Customer-contact employees are the main, even the only, individuals who are specifically responsible for dealing with service operations that directly and significantly shape customer judgements on the services offered (Hartline and Ferrell, 1996; Roth and Menor, 2003). Therefore, investigating the attributes of service employees is crucial to achieving superior service quality (Yee et al, 2015).

Apart from motivating employees in internal organisations, OM scholars also advocate learning to collaborate with customers to provide and deliver excellent goods and services (Finch, 1999). Customer participation in the production and delivery process has transformed customers from being passive receivers into active participants (Chan et al., 2010). In today's information age, companies are increasingly using social media to connect with customers and listen to their opinions. Compared with traditional information channels, social media is able to have access to all users (Kaplan and Haenlein, 2010) and disseminate information instantly without time and location limits. Besides, the use of social media has also brought a variety of



opportunities and challenges to companies. Although the use of social media has been identified as an effective tool to enhance operational performance, such as effectiveness and innovativeness (Lam et al., 2016), no previous research has examined the impact of customer participation in social media on customer satisfaction. Therefore, it should be interesting to study customers' behaviours and expectations while they participate in the social media environment.

Overall, this thesis includes two studies pertaining to the field of behavioural operations management. The first investigates the direct impact of customer-contact service employees' behaviour on service quality. The second examines the influence of customer participation behaviour in the context of social media on customer satisfaction.

## 1.2 Research objectives

The first study adopts a behavioural approach to examine the impact of social interactions between service managers, frontline service employees and customers on the service quality. In a service encounter, the interactions between service providers and customers provide evidence for customer to evaluate the service experience. We study the role of service frontline employees' emotions and their related behaviours that matter in service delivery. Assuming the boundary-spanning role, service frontline employees seek to at once meet service managers' expectations and satisfy unique customer needs. In view of the norm of relational exchange, the first study assumes the existence of close work relationships, in particular, between frontline staff and their supervisors. Further, frontline employees' attitudinal appraisal on work

conditions are likely to positively influence employee behaviours during service delivery. It is also suggested that such positive associations could be moderated by employee-customer contact time. More specifically, this study is concerned with the following research questions:

How do manager empowerment strategies affect service quality by influencing employees' perceptions of leader-member exchange (LMX) and job satisfaction?

How does employee-customer contact time moderate the relationship between LMX and service quality and the association between job satisfaction and service quality?

The second study investigates whether customer participation in today's social media environment do improve customer satisfaction. In line with previous research, we can suppose that customer participation enables customers to transfer their efforts into improving the competitive advantage of the company. It is therefore postulated that companies adopting social media to enhance customer participation could indeed enhance customer satisfaction. On the other hand, customer participation may exert a profound impact on the customer's expectations that affect their perceptions or evaluations. The characteristics of social media increase the difficulty for the management to manage customer's expectations and appraisal outcome. The alternative hypothesis postulates that customer participation in social media will decrease customer satisfaction. In addition, the direct relationship between customer participation in social media and customer satisfaction could be moderated by firm size and firm's advertising intensity since these two firm characteristics are impacted

by the company's public awareness and public exposure. Therefore, the second study aims to answer the following two research questions:

Do customer participation in social media increase or decrease customer satisfaction?

How does firm size and firm's advertising intensity moderate the relationship between customer participation in social media and customer satisfaction?

### 1.3 Research settings

The research settings in the two studies differ according to the respective research questions. Prior literature in behavioural operations calls for further studies to examine the impact of human factors under environmental factors (Bendoly et al., 2006). The paper provides possible behavioural gaps in some areas such as quality management and product developments as the operational performance under these fields could be influenced by individual prejudices and differences. It assumes human behaviours can not be controlled and estimated precisely in such areas. Therefore, it is worth to looking into the human factors under labour-intensive customer contact operations and social media environment in this thesis.

To fill in the possible behavioral gaps, the first study draws on small service firms in Hong Kong. The service sector has taken an extremely important position in the world economy. In countries under the Organisation for Economic Co-operation and Development, services have grown to account for roughly 58% of the gross domestic product (GDP), to approximately 75% over the past three decades (Francois and Hoekman, 2010). After entering the 21st century, the service industry has been

contributing to nearly 80% of employment in the U.S. (Heineke and Davis, 2007). In Hong Kong, the significance of service may have gone even further. According to the Hong Kong Annual Digest of Statistics 2014 issued by Census and Statistics Department, 93% of the GDP in 2012 came from the service sector. In the year of 2013, the service industry created value of 1,927,531 million. The number of people engaged in related service sectors, including wholesale, retail and import/export trades, restaurant and hotels, financing, insurance, real estate and business services, reached 1,452,100 in 2014. This made up for 45.51% of the total employment in that year. In terms of the size of service firms, 91.35% establishments were composed of 1~9 engaged persons. Most service organisations in Hong Kong are small-scale. These service firms are likely to suffer from resource constraints and struggle for survival. Because large numbers of service organisations are providing similar products and services, service operations managers often seek other means to improve service quality. Since Hong Kong is basically a service-oriented economy with a high competitive service market, understanding the research context for small service firms in Hong Kong should be highly valuable for real practice.

The second study focuses on the general industrial setting in the United States (US). The US is one of the most developed countries in the world. Due to the highly developed economy, the information technology is relatively more advanced than in other countries. In 2007, the Internet covered more than 60% of the US and consumers recorded an average weekly usage of the Internet of more than 100 minutes (Rashtchy et al., 2007). Several high profile information technology based companies are headquartered in America; e.g., Apple and Google. Such extensive usage of the Internet and highly developed information technology point to the popularity of social

media. The industry pioneering social media company, Facebook, was born in the year of 2004. According to a report published by Pew Research center, almost two-thirds of adults (65%) were social media users by 2015 (Perrin, 2015). With the growing popularity of social media, the adoption of social media for customer participation is now operating in a wide general setting. The American Customer Satisfaction Index (ACSI), the only national cross-industry measure of customer satisfaction in the US, covers a wide range of target companies. The ACSI index publishes customer satisfaction data for 300 major companies in 43 industries within 10 economic sectors. Therefore, the present study examines the general industrial setting in a bid to arrive at an overall picture of the national economy of US.

#### 1.4 Research approaches and findings

Since the research settings for the two studies differ substantially, we employ two different research approaches. For the first study, to identify the significant role of human factors played in service operations, we review literature concerned with the characteristics of service industry, especially labour-intensive, high-contact service industry. To further understand the thoughts and behaviours of frontline service employees, we utilise employee attributes (e.g., LMX and job satisfaction) to explain the inner mechanism of employees' motivation. A review of related literature has identified a research gap that still needs to be filled; the relationship between service managers and frontline service employees has so far been overlooked in OM research. We adopt social exchange theory (SET) that has been well recognised as a powerful conceptual paradigm facilitating the understanding of work relationships, such as LMX (Liden et al., 1997). The norm of reciprocity underlying the exchange of benefits and obligations are explained between the parties involved in the work

relationships (Gouldner, 1960; Blau, 1964). The relationships among empowerment, LMX, job satisfaction and service quality are modeled based on SET. Next, the moderating effects of employee-contact time on these relations are examined.

To test the hypothesised model, a survey methodology is applied to arrive at a generalisation of the cause-effect relationship between LMX and customers' assessment of service quality. Surveys enable one to assemble data from a homogeneous group with respect to at least one characteristic (Cousins and Menguc, 2006; Zhang et al., 2011). The aim of the present research is to examine the impact of LMX on the service performance of the entire high-contact service industry. Thus, surveying is suitable for study one. Based on a sample from Hong Kong's high-contact service industry, multiple informants were contacted during the data collection process. As the unit of analysis was the service firm, individual responses were aggregated from individual level to the shop level. After aggregating individual data, the shop-level data were analysed employing structural equation modelling (SEM).

The SEM results revealed that management empowerment facilitates LMX development between supervisors and their frontline employees, thus leading to superior service performance. Compared with LMX, the linkage empowerment-job satisfaction-service quality has not been found to be effective in our model. In addition, we conducted multiple-group analyses using SEM to test possible moderation effects. The results have shown that the employee-customer contact time does not moderate neither the link between LMX and service quality nor the association between job satisfaction and service quality. These findings imply that, under high labour intensive

service operations, it is more important to develop close working relationships with customer contact service employees than just strive to make them happy. The positive association between LMX and service quality could be stable regardless of high and low employee-customer contact time contexts.

As for the second study, to explore the human factors especially from the perspective of “customers”, we reviewed related literature on customer participation from the viewpoint of quality management. This led to an identification of certain positive impacts of customer participation on operational performance and customer satisfaction. In the field of OM, the majority of the studies examining customer participation were based on the selected group of customers through some traditional channels such as satisfaction surveys, customer complaints, interviews, mail questionnaires and focus groups (Finch, 1999). The interactions between customers and companies are tangible and the specified informants are accessible. Nowadays, with the development of information technology, companies engaging in social media channel are tending to solicit customer participation to share information and provide suggestions. It is generally regarded that social media is an effective tool to connect with customers and develop customer-firm relationship from the marketing perspective (Rishika et al., 2013; Kumar et al., 2016). Such interactions between customers and firms enhance customer’s identification with the companies, thus intensifying the customer’s relationship with companies (McAlexander et al., 2002). However, in view of the characteristics of social media such as open participation, instant and wide information diffusion (Aula, 2010), the traditional wisdom of customer participation through social media could be different. There seems to be little research aware of the double-edged effect of social media use on customer

participation. Drawing on the traditional linkage between customer participation and customer satisfaction, we concluded that it is necessary to provide more empirical evidence under social media context. Hence, we developed the competing hypotheses to address the research objective. We used the rationale of expectation disconfirmation theory (EDT) (Oliver, 1977, 1980) to explain how customer expectation and quality perception through customer participation could influence customer satisfaction.

To test the competing hypotheses, this study collected objective secondary data from three different sources—Factiva, COMPUSTAT, and ACSI index respectively. Drawing from the idea of event study methodology, customer participation was measured by the number of news reports that focused on companies soliciting customer's opinions and feedback on the social media platform. Restricting to companies based in the US, customer satisfaction data were obtained from the ACSI, the only national cross-industry measure of customer satisfaction in the US. By combining data from different databases, a finalised unbalanced sample of 1376 firm-year observations cutting across 169 companies spread across 34 industries over the period 2007 to 2015 were compiled for data analysis. Ordinary least squares (OLS) regression was adopted to analyse the data.

The regression results indicated that customer participation through social media could decrease customer satisfaction. The results seem to suggest that customer participation could amplify the expectation-disconfirmation gap in the social media environment. To further examine potential contextual factors, we tested the moderating effects of firm size and firm-level advertising intensity on the basic relationship because these



two kinds of firms were likely to generate higher public expectation due to brand awareness and high frequency public exposure. The results showed that firm size could significantly enhance the negative impact of customer participation in social media on customer satisfaction. These findings should draw OM manager's attention towards the use of social media for customer satisfaction. This should be useful in mitigating the potential risk of customer participation in today's social media environment.

### 1.5 Research significance

Most current OM literatures assume that humans can behave rationally in decision making, problem solving, and process implementation (Gino and Pisano, 2008). However, these studies overlook the cognitive bias and emotions of humans. In view of behavioural operations, this study adopts theories from the fields of psychology, OB, and marketing to explore potential human issues that could affect OM outcomes. From the perspective of employees, the internal stakeholders of companies, our study one is the first to propose that the relationship between supervisors and employees could lead to high service quality especially in labour-intensive, high contact service firms, where the frontline service employees and the customers interact directly and closely for a certain time period (Chase, 1981; Yee et al., 2008). From the perspective of customers, the external stakeholders of companies, study two is the first to explore the linkage between customer participation and customer satisfaction through the social media platform. This channel could be accessible to the public in general, with high transparency in information transmission.

This thesis offers significant new empirical evidences. In study one, the traditional service profit-chain literature (Heskett et al., 1994) suggests that job satisfaction is the most well-known predictor of service value and profit perceived by customers. However, when LMX is involved simultaneously, the impact of job satisfaction on service quality is not significant. Under a pure service context where customer demands are extremely heterogeneous and impossible to predict, our empirical findings show that it is more vital to develop high quality relationships with customer contact employees than just to keep them satisfied with the general work conditions. It is possible that empowered environments would induce role stress which impedes employees' job satisfaction while all this could boost the adaptability and proactivity of employees facilitating LMX. In study two, based on common knowledge, social media could be an effective tool for marketing communication between companies and customers. However, our findings indicate that customer participation through social media does not always generate positive quality outcomes such as customer satisfaction. On the social media platform, the gap between customer's expectation and actual quality could be widened. This is because social media can increase customer expectation and in turn induce difficulties in quality improvement.

Additionally, this study also explores some contextual factors on the main effect. In study one, the relationship between LMX and service quality and the association between job satisfaction and service quality are supposed to be contingent on contact time. Although the results demonstrate that contact time fails to affect the above linkages, this points to a robust connection between LMX and service quality in empowered and pure service contexts. In study two, we find that conducting customer participation activities through social media is not necessarily good. To enable further

exploration of the underlying factors, it is postulated that the relationship between customer participation in social media and customer satisfaction could vary across companies due to the characteristics of firms. The results indicate that firm size could significantly moderate the main relationship. Specifically, the negative impact could be intensified in large firms.

This thesis has several theoretical implications. This interdisciplinary study has applied theories drawn from the fields of psychology and OB to explain the human behaviour in the field of OM. Study one has contributed to service literature by advancing our understanding of SET in the realm of service operations. As boundary roles, frontline service employees could be motivated to extend their extra-role behaviours according to the reciprocity norm. Empowered with flexibility and autonomy, the mutual trust between supervisors and frontline employees stimulates employees' obligation to adapt to customers' diverse needs concerning service delivery. Study two has further applied the EDT in the context of social media. Social media is an outcome of information technology and its main function is communication. Knowledge and word of mouth (WOM) communication have been identified as two factors capable of shaping expectations. Therefore, study two has sought to extend the classical EDT and explain the amplified gap between customer expectation and actual quality which in turn should influence customer satisfaction.

# **Chapter 2 Study One: Being close or being happy? The relative impact of work relationship and job satisfaction on service quality<sup>1</sup>**

## 2.1 Literature review

### 2.1.1 Customer contact in service operations

Unlike manufacturing organisations, the product of a service is intangible and is consumed at the point of production. This production and consumption process requires simultaneous participation of front-line service employees and customers during the service provision and consumption processes. This implies that the service delivery process determines the perceived service quality by customers. Previous researches considered service economy as the “experience economy” (Fitzsimmons and Fitzsimmons, 2001). Due to the service characteristics, customer contact is inevitable in service operations. Customer contact frequency has been identified as a critical attribute of service in previous research (Mayer et al., 2009).

Customer contact is defined by Chase (1978) as customer’s physical presence at service counter and direct interaction with service employees during service delivery. Chase classifies service systems crudely based on the level of contact time required during service production and consumption. A service system needing less contact time is identified as a low contact service while a system requiring more contact time is known as a high contact service. There are four types of services starting from the

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<sup>1</sup> Some content of this chapter is published in: Yee, R. W. Y, Guo, Y. J, & Yeung, A. C. L. (2015). Being close or being happy? The relative impact of work relationship and job satisfaction on service quality. *International Journal of Production Economics*, 169, 391-400.

lowest to highest customer contact: manufacturing, quasi-manufacturing, mixed services and pure services (Chase, 1978). Kellogg and Chase (1995) describe the interaction between customers and servers as being loosely or tightly coupled. Customers and servers in low contact cases are loosely coupled, and tightly coupled in high contact ones. The concept of coupling between the two parties extends the content of customer contact. Notions of “interdependence” and “information richness” get introduced at that time. Interdependence refers to the service outcomes of service employees who are directly or indirectly influenced by the customer behaviours. Information richness determines the importance of the information and resources exchanged between the customers and servers.

The delivery of high-quality or superior quality services in highly labour-intensive and high customer-contact service sectors poses a great challenge with respect to two key features arising from different customer preferences: uncertainty and complexity. Due to the inherent nature of high customer contact, boundary-spanning service employees encounter a high degree of uncertainty in dealing with service delivery. The needs and expectations from services can vary dramatically across customers. Such variability is generally regarded as a defining characteristic of a service setting (Bowen and Schneider, 1988; Fitzsimmons and Fitzsimmons, 2001). Customer variability induces uncertainty among customer-contact employees as they implement service operations. For example, in a hair salon, there is often uncertainty about understanding the exact needs of individual customers with regard to the preferred hairstyles and identifying the best ways of fulfilling individual customer desires. Moreover, the fact that a customer usually changes his/her requests in the course of service delivery leads to even greater uncertainty. To cope with the uncertainty and complexity generated from

the highly labour-intensive and high customer-contact service operations, the attitudes and behaviors of frontline service employees are worth to discuss.

### 2.1.2 Boundary roles of frontline employees

Boundary role is defined as a position that links the environment and organisation (Aldrich and Herker, 1977). Boundary roles are responsible for two functions: receive and respond to external information and represent the organisation while dealing with the external environment. In the service industry, frontline employees take on the boundary roles because they represent service organisations while they interact with customers. Boundary service employees affect service delivery and firm performance in three ways. First, frontline employees' presence represents the service firm, improving the firm's image through their oral advertisement. Second, frontline employees are the first ones to detect variations in customer needs to enable the service organisation adapt to changing market demands. Thirdly, they largely determine customers' perceptions of service delivery through interpersonal customer contact processes (Bettencourt and Brown, 2003).

Naturally, boundary employees are placed in unique positions who are assigned dual responsibilities: (i) obey the organisation's policy and rules to deliver service and (ii) deal with various customer demands during service delivery. Scholars have proposed that boundary employees are more prone to suffer role stress—role conflict and role ambiguity (Singh, 1993; Hartline and Ferrell, 1996; Chebat and Kollias, 2000). Role conflict is defined as incompatibility between the two roles. Such conflict is usually generated from one of the following two major causes. The first is interest conflict

between internal and external resources. For example, the service firm might like to control the cost (time and labour) used for each customer while the customers want more personal interaction to express their needs more clearly. The second reason for role conflict is that the imbalance between service firm's expectation on employees' to control the stress from external environment and employees' actual capability. In the case of role conflict, boundary employees might be uncertain about their role definitions so they are likely to encounter role ambiguity. Role ambiguity refers to the fact that "employees lack salient information needed to effectively enact his/her role" (Singh, 1993 p. 12). From the perspective of role set theory (Katz and Kahn, 1978), subordinate's role ambiguity is derived from a mismatch between service managers' role expectations from the subordinate. This concept is operationalised in terms of the degree of uncertainty associated with one's role expectation. (Cicero et al., 2010). When there are discrepancies between the manager's role sending and subordinate's role taking, role ambiguity is generated from the expectation gaps (Humborstad and Kuvaas, 2013).

Boundary-spanning employees face high levels of complexity while delivering high-contact services. High customer-contact service operations are characterised typically by heterogeneous and unpredictable customer requirements that are often better addressed by the employees' extra-role work behaviour, rather than simply following operating routine practices formally written down in their job descriptions (Gilson et al., 2005; Raub and Liao, 2012). This means that each customer-contact employee has to exhibit initiative while taking on the tasks required for his/her extra role work behaviour. Such extra-role tasks are usually complex because the associated

procedures may not have been written down formally – possibly because they are not regular and, hence could not be standardized.

### 2.1.3 Empowerment in a service context

Due to the uncertainty and unpredictability in a service context, service employees are suggested to be given flexibility and autonomy to deal with customers' heterogeneous requirements. Literature recommends that service management should adopt the empowerment approach to provide service employees with sufficient flexibility (Aryee et al., 2012). Empowerment might be effective in the service sectors where discretionary behaviour prevail (Seibert et al., 2011). Empowerment is examined mainly from two dimensions: structural empowerment and psychological management (Maynard et al., 2012). Structural empowerment arises from the management's perspective, aimed at transferring authority and responsibility from upper management down to employees (Bowen and Lawler III, 1992). Psychological empowerment arises from the individual's perception of the extent of control over his/her work. Psychological empowerment initially refers to employees' identification about management's delegation practice (Conger and Kanungo, 1988). A generally accepted definition of this concept has extended the previous definition along four dimensions: meaning, competence, self-determination and impact (Spreitzer, 1995). In view of its research objective, this study mainly takes an OM perspective that defines empowerment as a series of managerial practices where the management offers employees discretion in decision making and delegates job autonomy and flexibility in job-related activities (Conger and Kanungo, 1988; Jung et al., 2003).



In line with previous research, this study identifies empowerment as a critical prerequisite for assuring that customer-contact employees deliver excellent services (Hartline and Ferrell, 1996; Chebat and Kollias, 2000). It aims to assure the flexibility employees need while making decisions related to their job-related tasks (Hartline and Ferrell, 1996; Chebat and Kollias, 2000). Such flexibility is particularly important to them since frontline service employees are frequently forced to customise services by themselves in response to individual customers' needs. Empowerment is supposed to motivate boundary spanners through the following ways. (1) A dyadic relationship between managers and employees can help employees perceive that their service tasks are meaningful and important. The empowerment perception would arouse employees' desire for ownership. (2) Normative service training and sharing power may enhance employees' confidence in their competence in service delivery. (3) Endowing service employees with job autonomy can positively influence employees' desires to deliver excellent service outcomes. (4) An increased discretion in service delivery provides employees' the capacity for self-determination in customising and handling customer demands and complaints. Therefore, an empowered environment can enhance employee related factors.

#### 2.1.4 Employee attributes of frontline employees

To address the challenges of uncertainty and complexity faced by customer-contact employees, we explore employee-related factors backing their efforts towards offering highly labour-intensive and high-contact service operations. Specifically, we propose that LMX and job satisfaction are particularly effective factors determining the pursuit of excellent service quality by boundary-spanning service employees. LMX and job

satisfaction help meet the challenges associated with attaining high-quality services of highly labour-intensive, high-contact nature.

#### 2.1.4.1 Leader-member exchange

##### **Evolution of LMX**

LMX is a relationship-based construct (Graen, and Uhl-Bien, 1995; Pappas and Guenzi, 2009; Li et al., 2010). It refers to the quality of the relationship between the leader and the member (Graen and Uhl-Bien, 1995). The evolution of LMX begins from the vertical dyadic linkage (Dansereau et al., 1975). The vertical dyadic linkage model indicates that supervisor is not applying equal leadership style to the subordinates within a group but rather establishing differentiated relationships with each subordinate in a dyadic interaction. The differentiated relationships result from leaders' resource limitations. Constrained by the limited resources, leaders may only build and keep high quality relationship with some subordinates and maintain low quality exchange relationships with the rest of the members in the group. Once a number of studies have verified the differentiated relationships (Graen and Uhl-Bien, 1995), research examining the nature of the differentiated relationships starts to consolidate. Thus, the LMX concept is developed.

Grounded on role theory, LMX is formed through a series of role making activities (Graen, 1976). During a role-making process, leaders and members "test" each other and formalise their status in dyads. The role making starts when the subordinate first enters into the work group. The leader expresses an explicit role expectation to the subordinate; the subordinate responds and the leader evaluates the subordinate's response. As a result, subordinates who successfully meet or exceed leader's

expectations are recognised as “in-group” members. The rest who fail to satisfy leader’s role expectations become “out-group” members. Accordingly, leaders develop differentiated connections with members within a group. The “out-group” members become inclined to keep low quality LMX with formal job responsibilities, standardised benefits and contractual agreements between the two parties. In turn, the “in-group” members tend to establish high quality LMX based on mutual trust, respect and obligation. At this stage, the role-making process starts influencing further development of LMX.

In the third stage, the dyadic relationship between leaders and members moves beyond “in-group” or “out-group” and evolves into “partnership” (Graen and Uhl-Bien, 1995). In their influential paper on LMX, Graen and Uhl-Bien (1995), classified the development of dyadic interpersonal relationship into three steps: begin with “stranger”, then move on to “acquaintance” and finally becomes “partner”. In the first step, parties view each other as “strangers” and the exchange in this stage can be characterised as a formal economic exchange. The content of the exchange is reduced to a contractual agreement. The leader expects the member to perform what is needed. The member only fulfills the prescribed job responsibilities as stated in the contract. Leaders provide standardised and contractual payment regarding member’s performance. In the next step, the exchange between two parties goes beyond absolute economic exchange, but is still mixed with some degree of social exchange. The relationship has changed from pure “working” relationship into more “personal” and is accompanied by sharing more knowledge and resources. Generally, the equity norm is still leading at this stage and reciprocation happens within a limited time. The final step “partnership” consists of a series of social exchanges. The reciprocation begins to

extend to a long-time frame. The exchanged resources get transformed from tangible (behavioural elements) into intangible (emotional elements) ones. The relationship becomes mature and gets maintained at a stable level.

During the third stage, the exchange between two parties evolves from a purely economic exchange into a social exchange. Finally, the fourth stage expands the dyadic exchange to the system level. The organisation is then likely to build an interdependent network and the exchange is not limited to the supervisor-subordinate but among almost all the coworkers (Graen and Scandura, 1987). Scholars are curious about questions of how differentiated relationships move along and develop an air of interdependence within the organisation (Uhl-Bien and Graen, 1992). A new concept delineating the LMX within-group level named relative LMX has been developed in recent literature (Erdogan and Bauer, 2010). As the notion of LMX is still in its infancy, studies related to justice climate and LMX differentiation are poised to become new research directions (Henderson et al., 2008; Erdogan and Bauer, 2010; Vidyanthi et al., 2010). Since the present study is in the context of service operations management, it mainly focuses on the second and third stages of LMX development; these two stages are relatively mature and suitable for the interpersonal contact settings.

In sum, the essence of LMX lies in “exchange.” Through the role-making process, leaders establish differentiated exchange relationships with subordinates. A low quality LMX is limited to economic exchange where the resources exchanged are basically financial needs (Cropanzano and Mitchell, 2005). The economic exchange is contractual and the outcomes are tangible and accountable. A consequence of low

quality LMX is that leaders obtain member's routine job performance and provide members with no more than contractual benefits (Graen and Uhl-Bien, 1995). A high quality LMX is based on social exchange that is discretionary (Blau, 1964). The exchange outcomes are social-emotional and are intangible and uncountable. It is characterised by mutual support, trust and reciprocal obligation through a series of social interactions in dyads (Graen and Uhl-Bien, 1995; Gerstner and Day, 1997).

### **Current literatures on LMX**

A review of the literature on LMX published in a highly respected journal has concluded that the trend in LMX points to a research gap. In the following section, we will review the antecedents of LMX, the consequences of LMX, and LMX as a moderator.

### **Antecedents of LMX**

The predictors determining the quality of LMX are derived from leader or member perspective and their interpersonal relationship (Dulebohn et al., 2012). Because LMX is initiated by leaders, who appraise members' performance during the role-making process, members' characteristics and behaviours cannot be overlooked. Empirical evidence has indicated that disabled employees are likely to establish low quality LMX with their supervisors (Colella and Varma, 2001). Employees' goal orientation can also affect the LMX quality with leaders (Janssen and Van Yperen, 2004). The research findings show a significant positive relationship between an employee's mastery of goal orientation and LMX. However, employees' performance and goal orientation are negatively associated with LMX. Member's personality is also a

significant determinant of LMX. Subordinate's feedback-seeking behaviour, as a kind of proactive behaviour, has been verified positively in relation to LMX (Lam et al., 2007).

In an LMX relationship, the leader's position has more power on the members. Thus, the leaders' characteristics and behaviours play a key role in determining the LMX relationship prevailing in the unit. The leadership style is associated with members' perceptions of LMX. Transformational leadership has a positive impact on member's ratings of LMX, which leads to member's job performance and organisational citizenship behaviour (Wang et al., 2005). Lam and her colleagues (Lam et al., 2007) have found that employees' proactive behaviour can result in LMX. A recent study has emphasized the importance of leaders' proactivity (Zhang et al., 2012). The agreement between the leader's proactivity and that of the subordinate positively impacts LMX. If the leader-member proactivity is asymmetric, especially when the subordinate has a lower level proactivity than that of his/her leaders, the members will have a lower LMX with leaders and weaker outcomes. Abusive supervision on the part of the leader has been found to be associated with LMX (Peng et al., 2014). The interactive effects of employees' own perceptions and their coworkers' feelings of abusive supervision also affect LMX quality. The negative relationship between employees' own abusive supervision and LMX is more intense when coworkers experience less abusive supervision.

The nature of LMX lies in the interpersonal relationship between leaders and members. Therefore, interpersonal factors could influence the relationship between leaders and

members. A cross-sectional study conducted in US discovered that interactional justice is a predictor of LMX (Masterson et al., 2000). Several years later, a longitudinal study in a similar context (a public university in US) verified the positive relationship between interactional justice and LMX (Tekleab et al., 2005). The ingratiation behaviour in the leader-member dyad is also suggested to influence LMX. Although empirical evidence has demonstrated the negative relationship between employee disability and LMX, the study has further indicated that employees' integration behaviour is more positively related to LMX when employees have some disabilities (Colella and Varma, 2001). A similarity between personality traits in supervisor-subordinate dyad has also been suggested to result in LMX (Schaubroeck and Lam, 2002). The positive relationship has been empirically examined in light of the cultural factors prevailing in both Hong Kong and US contexts.

### **Consequences of LMX**

A number of empirical studies have documented the outcomes of LMX. It is certain that favourable relationships established between leaders and members benefit leaders and members, even the coworkers and the organisation.

By applying role theory and SET, certain significant relationships between LMX and employees' attitudinal, behavioural and relational outcomes have been identified. As for the attitudinal outcomes, the most predictable one is job satisfaction. High quality LMX has been noted to lead to employees' high level of job satisfaction (Masterson et al., 2000; Janssen and Van Yperen, 2004; Tekleab et al., 2005; Zhang et al., 2012). This significant relationship has been identified in both cross-sectional and

longitudinal studies. The data were collected from a variety of contexts including universities, supplier companies and service centres of banks. Affective organisational commitment, which refers to the employees' emotional identification with the organisation (Klein et al., 2009) is another kind of employees' attitudinal outcome. Also, LMX has a positive effect on employees' affective organisational commitment (Zhang et al., 2012). A lower quality LMX would stimulate employees' intentions to quit as well (Dulac et al., 2008).

In terms of behavioural outcomes, the most fundamental outcome of LMX is task performance. Judged against the norm of equity in social exchange, employees have been found to reciprocate their leaders by performing well in their job (Janssen and Van Yperen, 2004; Wang et al., 2005; Lam et al., 2007; Zhang et al., 2012; Peng et al., 2014). Besides routine job performance, LMX has a direct influence on innovative performance (Janssen and Van Yperen, 2004) and an indirect one on employees' creativity through self-efficiency (Liao et al., 2010). In a high quality LMX, employees are likely to pay extra time and energy to benefit the supervisors and organisations. There is indeed a strong support for the positive relationship between LMX and organisational citizenship behaviour (Masterson et al., 2000; Wang et al., 2005). A similar concept "helping behaviour", which is defined as the discretionary behaviour toward coworkers, has also been found to be correlated with LMX (Sparrowe et al., 2006). Employees establishing high quality LMX with supervisors are prone to help their peers (Peng et al., 2014).



Since LMX is a relational construct, the quality of LMX can affect the relationship between supervisors and subordinates. LMX has been found to affect supervisor's promotion decisions toward employees (Schaubroeck and Lam, 2002). Those employees who develop good relationships with their leaders are more likely to be promoted. A favorable relationship with leaders can improve leaders' confidence on employees' new ideas and increase the image gains expected by employees, which in turn stimulate their own innovative behaviour (Yuan and Woodman, 2010).

### **LMX as a moderator**

Since normally, the quality of LMX is differentiated across work units, LMX has been regarded as a contextual factor moderating relationships in a relational context. Empirical evidence has shown that when LMX is at a higher level, transformational leadership has a stronger effect on employee's task performance (Piccolo and Colquitt, 2006). LMX is able to moderate the association between leaders' downward influence tactics and member's helping behaviour. When LMX is low, members are reluctant to engage in helping behaviours by leaders' inspirational appeal and exchange tactics. However, leaders' consultation tactics do work in such circumstances. When LMX is high, the exchange tactics initiated by leaders can trigger helping behaviours (Sparrowe et al., 2006). Scholars have also indicated that the association between contract breach and violation is more intensive when LMX is low (Dulac et al., 2008). Further, employees' idiosyncratic deals are more positively related to organisational citizenship behaviour when employees perceive a low level LMX quality with their leaders (Anand et al., 2010).

We have conducted a systematic literature review about LMX in the field of OB and psychology. However, to our knowledge, no previous research has linked the direct work relationships between the leaders (the supervisors) and the followers (employees) to the service performance in the OM field with respect to which we postulate it could lead to an excellent service outcome. In the context of a service, “being close” in the work relationship with the supervisor positively affects the performance of customer-contact employees during service delivery.

#### 2.1.4.2 Job satisfaction

Job satisfaction concerns a pleasurable or positive emotional state arising from employee's job or job experiences (Locke, 1976, p. 1300). The well-known concept of service-profit chain proposed by scholars (Heskett et al., 1994) suggests that, in a service enterprise, job satisfaction is the most fundamental employee-related work attribute driving the value of services as perceived by the customers and, hence, organizational profits. Extensive empirical work inspired by this suggestion has demonstrated a positive linkage between job satisfaction and quality performance in service firms (Loveman, 1998; Silvestro and Cross, 2000; Yee et al., 2008).

Job satisfaction has been identified as a key determinant of service quality. Scholars (Snipes et al., 2005) have found that employees' satisfaction with the job nature and the customers, as well as their satisfaction with benefits, significantly affect customers' perceptions of service quality. Similar findings have been documented in Malhotra and Mukhrjee's (2004) study that provides empirical evidence that job satisfaction is positively related to service quality. Their findings also suggest that employee's

organisational commitment, that is a homogeneous concept with job satisfaction, could influence service quality. From an emotional perspective, frontline employees display emotions, while customers can significantly impact on service quality (Pugh, 2001).

Several studies have invoked the emotional contagion mechanism to explain the job satisfaction-customer satisfaction linkage (Pugh, 2001; Homburg and Stock, 2004; Hennig-Thurau et al., 2006; Wangenheim et al., 2007; Grandey et al., 2011). Satisfied employees are prone to display their positive emotions, as peoples' displayed emotions tend to be consistent with their inner feelings (Pugh, 2001). Therefore, resulting from a "mimicry" action (Barsade, 2002), customers catch and synchronise frontline employee's emotions. Subsequently, customers would generate the corresponding emotions as employees' (Hennig-Thurau et al., 2006). Based on the job satisfaction-customer satisfaction link, scholars have explored the frequency of customer-contact, as a boundary condition affecting this link. Homburg and Stock (2004) noted that the linkage is more intensive when customer interaction is more frequent. Similarly, Grandey et al. (2011) found the linkage to be loose in busy stores. However, Wangenheim et al. (2007) found that this link is effective even for those employees with lower interaction with customers. Therefore, although the job satisfaction-customer satisfaction has been discussed for a long time, it is worthy of further study.

Based on the above literature review, it can be said that job satisfaction is not a new concept related to quality performance. In service operations, job satisfaction has been related to service quality and customer satisfaction. Following this line of research, we

consider that 'being happy' (i.e., being satisfied) is of particular importance to service employees engaged in offering high-quality services.

#### 2.1.5 Social exchange theory

SET is regarded as the most predominant conceptual exemplification capable of explaining workplace behaviour (Cropanzano and Mitchell, 2005; Cameron and Webster, 2011). Social exchange involves a series of actions between two sides, which is mutually contingent and is accompanied by reactions that are rewarding to either party (Blau, 1964; Emerson, 1976). Blau (1964) proposes that the exchange behaviour is motivated by the returns of the interactive side's expectations. Emerson (1976) indicates that social exchange indeed contains a wider range of behaviour such as reciprocity that might not be expected by all exchange partners. That is, the social exchange is not explicitly expected but is an implicit frame.

According to Blau (1964), social exchange is different from economic exchange. The distinction between the two forms of exchange mainly focuses on two dimensions: one is the form of exchange resources while the other is the timeliness of the returns. The exchange resource of economic exchange is transactional and explicitly specified whereas that of social exchange is unspecified and open-minded (Blau, 1964; Konovsky and Pugh, 1994; Masterson et al., 2000; Cropanzano and Mitchell, 2005). Similarly, scholars have classified the associated resources into economic and social-emotional ones (Foa and Foa, 1974; Cropanzano and Mitchell, 2005). The former can be tangible and monetary whereas the latter tends to be intangible and symbolic. As for the timeliness of the returns, Emerson (1976) uses the term "reinforcement" to

describe the nature of the social exchange process. The social exchange behaviour is contingent on reinforced value return during a sustained period that indicates that the payback does not happen instantly. A subsequent study indicated that the rationale of relational exchange is based on the “norm of non-instrumental concern” (Morrison and Robinson, 1997). Unlike an economic exchange requiring instant and direct returns, the equity between exchange partners in a social exchange is organisational only in the long run (Konovsky and Pugh, 1994).

The most popular and well known norm in social exchange is reciprocity (Cropanzano and Mitchell, 2005). This principle explains the mutually beneficial outcome at the end of social exchange process, at which time the exchange parties reach an agreement to perform their obligations. Since a bidirectional transaction is required between both sides, the interpersonal interdependence between senders and responders has been underscored in social exchange literature (Molm, 1994). Thus, interdependence is the first type of reciprocity. Referring to the cultural elements, reciprocity exists as a form of common faith, for example the just world belief (Furnham, 2003). However, as a norm of exchange, not all people look at reciprocity in the same way. It has been noted that cultural and individual differences affect peoples’ orientation of reciprocity (Shore and Coyle - Shapiro, 2003; Cropanzano and Mitchell, 2005). Generally, people with high reciprocal orientation are likely to reciprocate good deeds. People with high reciprocity norm are inclined to sponsor high quality social exchange with other parties. A large amount of research has explained employees’ workplace behaviour based on their felt obligation created by reciprocity (Sparrowe et al., 2006; Dulac et al., 2008; Anand et al., 2010).

The relation postulated in this study can be best understood by SET, which helps explain work relationships in organizations. Reciprocal exchange is widely recognized as one form of social exchange (Emerson, 1976). It is generally concerned with dyadic exchange relationships through which each party reciprocates another party based on what one receives (Blau, 1964; Emerson, 1976). The nature of reciprocal exchange in work relationships leads to enhanced work performance and organizational performance (Blau, 1964; Flynn, 2003). Specifically, in a service setting, reciprocal exchanges towards frontline employees act as a platform for acquiring benefits, like trust and favourable work conditions, from their supervisors. On the other hand, to supervisors, reciprocal exchange offers a means where they receive favourable return from their employees, e.g., additional work effort, strong willingness to work and taking up extra-role task – enhance the performance of service delivery. Such favourable return is rendered because of their employees' felt obligation to reciprocate on the basis of the benefits they obtain from their supervisors.

## 2.2 Hypothesis development

### Hypotheses on main factors

Empowerment, leader–member exchange and service quality.

We expect empowerment to influence LMX, which in turn affects service quality.

Empowerment is defined as the situation in which the supervisor offers employees the discretion to make daily decisions as needed while performing job-related activities (Conger and Kanungo, 1988). Scholars in marketing (Hartline and Ferrell, 1996) and service management (Chebat and Kollias, 2000) have consistently

considered that, in service organizations, empowerment of boundary spanning employees is particularly effective in creating conditions for heightened employee motivation. The rationale is that, in the service context, frontline employees require a high degree of flexibility in making on-the-spot decisions to satisfy customers (Hartline and Ferrell, 1996; Chebat and Kollias, 2000; Hartline et al., 2000). Empirical studies have shown that empowerment has positive effects on service employees' work-related attributes, such as autonomy, self-efficacy and job satisfaction (Hartline and Ferrell, 1996; Chebat and Kollias, 2000).

LMX is a dyadic relationship developed over time from instrumentally transactional exchanges to more social exchanges between the leader and the follower (Graen and Uhl-Bien, 1995; Liden and Maslyn, 1998). As such, a leader forms a unique relationship with each of his/her individual subordinates (Gerstner and Day, 1997; Janssen and Van Yperen, 2004). Accordingly, the quality of the leader–member relationships ranges from low to high. Low quality exchange relationships typically involve role-defined interactions that are predominantly contractual obligations based on respective employment agreements (Janssen and Van Yperen, 2004). By contrast, high-quality exchange relationships are governed by mutual influence and dependence; therefore, they are distinguished by high degrees of trust, support, loyalty, respect and mutual obligations affecting how the leader and the follower feel about each another (Liden and Maslyn, 1998). Research has demonstrated that high-quality LMX is predictive of employee job performance and attitudes, e.g., in-role job performance and job satisfaction (Basu and Green, 1997; Janssen and Van Yperen, 2004).

To our knowledge, no previous researcher has examined the association between empowerment, LMX and service quality. The norm of reciprocity in SET implies that, when a person is given some kind of social benefit which is inequitably more than what he/she expects, this person will generate a sense of gratitude and felt obligations as reciprocation to the benefactor (Gouldner, 1960). Grounded in the context of SET and referring to the highly labour-intensive and high-contact service setting, when supervisors empower their service employees with decision latitudes and flexibility with respect to job-related tasks, the employees will perceive a work environment favourable to initiating, controlling and carrying out their tasks effectively without undue constraints. In return, employees reciprocate by working harder and undertaking the extra tasks needed for performance improvement. They will willingly implement the unsolicited or even the untried tasks required for their extra-role behaviours, i.e., those going beyond contractual expectations (Wayne et al., 1997). In such a situation, the exchange relationship among supervisors (leaders) and their employees (followers) is more likely to progress to a higher level. A higher level of exchange relationship means that supervisors and employees can count on each other better through an exchange process dominated by mutual trust, respect, liking and obligation (Liden and Maslyn, 1998). Moreover, in accordance with the norm of reciprocity, employees perceiving high levels of LMX tend to make extra efforts to offer high-quality services as a return to their supervisor on the basis of what they are benefited. In time, all this leads to a higher level of quality in services. Thus, we hypothesize as follows.

Hypothesis 1 (H1): Empowerment has a positive effect on leader– member exchange.



Hypothesis 2 (H2): Leader–member exchange has a positive effect on service quality.

Empowerment, job satisfaction and service quality.

Empowerment is also considered to lead to job satisfaction that, in turn, impacts service quality. As noted earlier, the degree of job satisfaction felt by an employee is closely related to his/her emotional state in the work context. Job satisfaction is promoted through favourable perceptions of job characteristics in the work setting (Russell et al., 2004; Rich et al., 2010). Favourable evaluations of whatever the organization is providing to its employees generate positive feelings arising from high job satisfaction. Employees with positive feelings are likely to be more willing to engage in behaviours dictated primarily by their job-related tasks, thus contributing to organizational effectiveness (Eagly and Chaiken, 1993; Rich et al., 2010). Empirical studies related to OB, OM and social psychology have consistently confirmed that job satisfaction has a positive linkage with work performance (Ostroff, 1992; Silvestro and Cross, 2000; Janssen and Van Yperen, 2004).

Previous research findings show that empowerment is correlated significantly and positively with job satisfaction (Chebat and Kollias, 2000). As noted earlier, in a service setting, empowerment facilitates an environment exhibiting flexibility, adaptability and discretion to motivate employees to perform tasks for service delivery. In turn, empowered employees perceive and appraise the job context favourably; this leads to higher job satisfaction on the part of the employees. According to SET, when an employer ensures favourable working conditions to employees by empowering them to perform better in their jobs, the latter are more satisfied with their jobs. In

return, satisfied employees are likely to put in additional efforts to fulfil customers' diverse requests, so service quality gets enhanced. Hence, we make the following hypotheses:

Hypothesis 3 (H3): Empowerment has a positive effect on job satisfaction.

Hypothesis 4 (H4): Job satisfaction has a positive effect on service quality.

Leader–member exchange and job satisfaction.

We contend that LMX has an influence on job satisfaction. Some researchers in social psychology have demonstrated that LMX positively affects job satisfaction (Gerstner and Day, 1997; Erdogan and Enders, 2007). Under a high-quality exchange relationship, leaders provide intangible benefits, including trust-based relationships with employees (Bauer and Green, 1996) and fair treatment (Scandura, 1999), to their employees. In a highly labour-intensive service setting, a supervisor endowed with a high-quality exchange relationship with his/her service employee is more likely to provide employees with intangible benefits. In such a setting, the latter will tend to generate a favourable perception of the work context on the basis of the benefits accorded by, which in turn leads to improved job satisfaction.

In the context of SET, when the exchange relationship between the supervisor and his/her employee is at a high level of quality embedded with intangible benefits, the employee will interpret it as a signal that his/her supervisor is going to grant favourable treatment to him/her. Following the norm of reciprocity in social exchanges (Gouldner, 1960), the employee will be motivated to return the favour by

developing a stronger emotional state towards their work, i.e., job satisfaction.

Therefore, we posit the following hypothesis.

Hypothesis 5 (H5): Leader–member exchange has a positive effect on job satisfaction.

#### Hypotheses on moderating factors

Contacts between service employees and customers have long been a core attribute of services (Bell, 1981; Chase, 1981; Bowen and Bowers, 1986; Bowen, 1990). A number of classification models have been proposed with respect to contacts associated with services. For example, the classical contact model (Chase, 1981) categorizes service firms into those engaged in pure services, mixed services and quasi-manufacturing. Bowen (Bowen, 1990) refers to the level of employee–customer contact in services to distinguish between high-contact and moderate contact services. Most classification models of services share the belief that customer contact is a defining feature of services. Yet, with regard to the attribute of contact, they explicitly state that not all services are created equal. Thus, it becomes important to examine how the degree of contact between service employees and customers affects the robustness of our research model. Contact time, referred as the time spent in direct contact between the frontline service employee and the customer within a single transaction, has been recommended by service scholars to operationalize contact (Kellogg and Chase, 1995; Soteriou and Chase, 1998; Yee et al., 2010). In line with this suggestion, we argue that, for the purpose of gaining more detailed understanding about service operations involving simultaneous participation of employees and

customers, their direct contact time may interact individually with LMX and job satisfaction which in turn affects customers' perceptions of service quality.

We expect that employee–customer contact time moderates the relation of LMX to service quality. In a service environment characterized by a high level of labour intensity, frontline employees are the most important. As a result, high-LMX employees would be more able to exert a stronger influence on the quality level of services. The longer the contact time, the more is the time the customer has for clearly expressing his/her needs and expectations and the employee has for acquiring certain understanding about the customer's exact requirements. In accordance with the norm of reciprocity, a high-LMX employee, who acquires support and trust from his/her supervisor, is likely to be more willing and committed to putting in extra effort to satisfy the customer's requests, thus yielding higher-quality services perceived by the customer. Accordingly, we postulate:

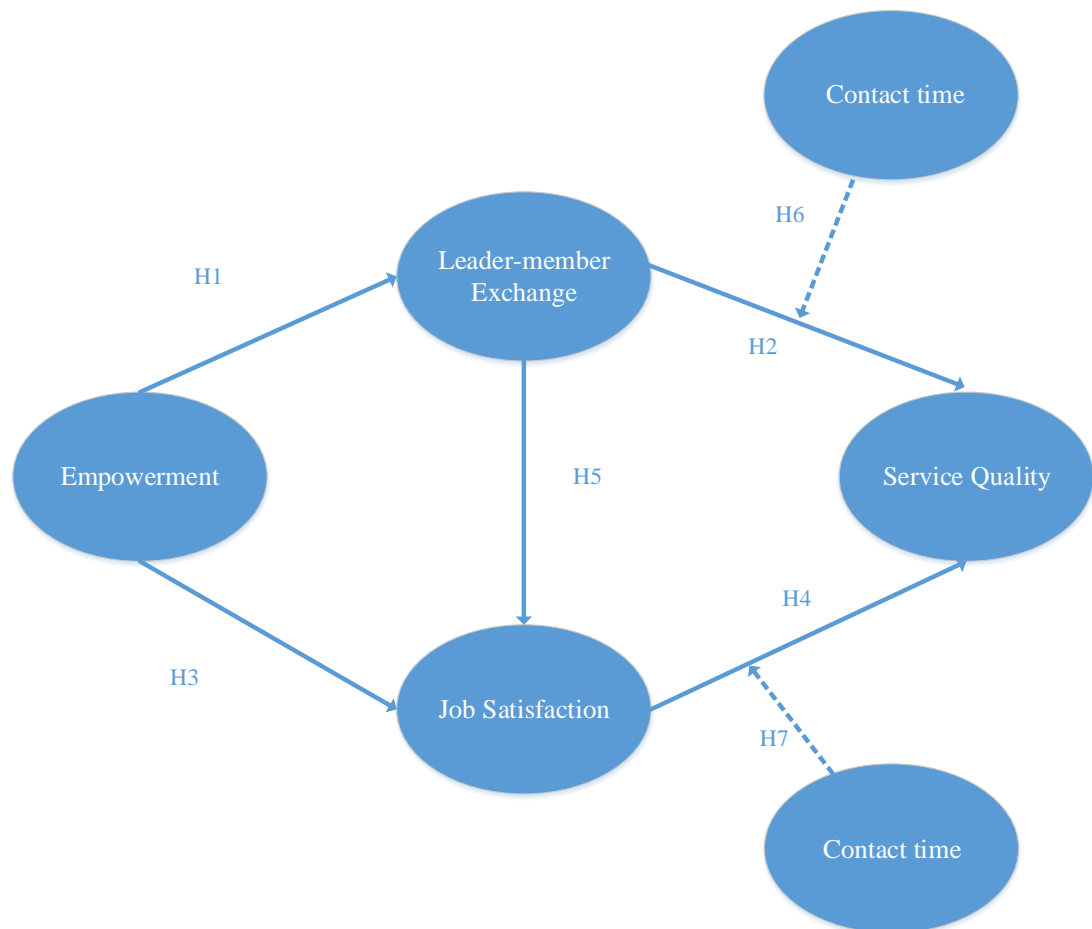
Hypothesis 6 (H6): Contact time moderates the association between leader–member exchange and service quality; the longer the contact time, the stronger the association.

We also suggest that employee–customer contact time moderates the association between job satisfaction and service quality. A satisfied employee with a long contact time with the customer is likely to transfer his/her positive emotion to the customer. The customer is therefore more likely to be positively infected by the satisfied employee's positive emotion and use his/her changed emotion while evaluating the service encounter (Pugh, 2001; Barger and Grandey, 2006). The positive mood in the customer leads to a favourable appraisal, yielding in turn, a higher level of quality in

services. Empirical organizational and psychology studies have shown that boundary-spanning employees who are satisfied with their jobs display positive emotional expressions during service encounters; resulting in higher ratings of service quality from customers (Pugh, 2001; Homburg and Stock, 2004). The longer the contact time between the satisfied service employee and the customer, the more effective is the transfer of positive emotion from the satisfied employee to the customer, the more positive are the results of the appraisal, that the customer evaluates the services acquired. Thus, we posit:

Hypothesis 7 (H7): Contact time moderates the association between job satisfaction and service quality; the longer the contact time, the stronger the association.

Figure 2-1 The overall hypothesised model



## 2.3 Methodology

### 2.3.1 Sample

To test the above hypotheses, a large-scale survey study was conducted in service shops spread across several major shopping malls in Hong Kong. The reason to choose this research context was that a high-contact service environment requires longer contact time, more information richness and more intimacy between service employees and customers (Kellogg and Chase, 1995). The face-to-face and intimate interactions that prevail in high-contact service contexts represent an environment suitable for service employees establishing relationships with their customers through the customer-contact process. This justifies the choice of high-contact service industries in Hong Kong to verify the theories examined in this study.

Small firms consisting of a shop-in-charge person with 3~8 frontline service employees were selected for the sampled shops. We chose small service shops for the following reasons. First, the small firms were independent in the sense that they were not subsidiaries of large enterprises or chain stores. Since the effect of brand name is absent, the assessment of service performance should be more accurate to that extent. The service performance then mainly depends on the frontline service employees. Second, the structures of small firms were acting simply like “operating teams”, without strong hierarchy that dominates most large organisations (Ackroyd, 1995). Therefore, supervision in small firms is direct and lacks differentiation. In addition, supervisor visibility to employees is high in small firms where the attitude of the supervisor could directly influence frontline employees (Evanschitzky et al., 2011). Leaders have a greater chance to interact with service employees and the supervision is more frequent and visible in small firms (Marlow and Patton, 1993; Sy et al., 2005;

Netemeyer et al., 2010). Therefore, the relationship between leaders and subordinates is easier to identify. This kind of behavior tends to be consistent across small firms.

With a view to increase the generalisability of the present study, our survey covered a variety of service shops but excluded shops with low degrees of customer contact, e.g., convenient stores. The sampled shops were located in the main shopping districts of Hong Kong (Tsim Sha Tsui and Causway Bay). In each district, 3~5 shopping centres were identified and the specific shops were randomly selected. Table 2-1 displays the distribution of sampled shops of high-contact service industry.

Table 2-1 Distribution of sampled shops of the high-contact service industry.

Service Sector	Number of Shops
Agency service (e.g., estate agencies and travel agencies)	17
Beauty care service (e.g., salons and beauty shops)	35
Catering (e.g., steakhouses and fine-dining restaurants)	73
Fashion retailing (e.g., dress shops and shoes shops)	37
Optical service (e.g., optometry shops and optical shops)	10
Retailing of instruments (e.g., musical instruments shops)	9
Retailing of Health care products shops (e.g., cosmetic shops)	12
Retailing of Valuable products shops (e.g., jewellery shops)	13
Others	19
<b>Total</b>	<b>225</b>

### 2.3.2 Data collection procedures

We started with a pilot study in seven service companies. The purpose was two-fold. The first was to investigate the relevance of each indicator to its corresponding construct while the other was to assure that the items in the questionnaires were readable and understandable to potential respondents.

In research models, whom or what is being studied is usually defined in terms of “unit of analysis” (Carter and Bélanger, 2005). The levels of the units of analysis should be confirmed when the research question is developed (Forza, 2002). In this study, the research questions seek to explore how the relationships between leaders and service employees affect the service performance. The related constructs of this research involve the perceptions of leaders, subordinates and customers. The unit of analysis of this study should therefore be an entire service shop rather than an individual.

Empirical studies often aim at investigating the relationships between relevant constructs. The accuracy of measurements affect the correctness of the significant relationships among variables (O'Leary-Kelly and Vokurka, 1998). The measurement error might mislead the researcher. The measured value obtained from each measurement is composed of true value and measurement error. The measurement errors including both systematic errors and random errors are inevitable in the research methodology (Van Bruggen et al., 2002). In reducing the confounding effects caused by measurement errors, the importance of using multiple informants has been stressed in many empirical studies (Ketokivi and Schroeder, 2004; Rungtusanatham et al., 2005). Multiple informants can help minimise the correlations between corresponding measurements' systematic errors by aggregating multiple responses into one composite score. The random errors can also be reduced by relying on information collected from multiple informants; this can increase the quality of collected data (Van Bruggen et al., 2002; McIvor, 2009).

In order to decrease the informant bias and increase the quality of the collected data (O'Leary-Kelly and Vokurka, 1998), we adopted multiple informants to collect



judgmental responses from more than one respondent. Specifically, we collected data from three sources in each sampled service shop – from the shop-in-charge person, the frontline service employees and the customers. Accordingly, we developed three separate survey packages: one “shop-in-charge” person questionnaire, three “customer–contact” employee questionnaires and five “customer” questionnaires for each service company sampled. As far as the degree of empowerment was concerned, the persons in charge of the shops were considered the most appropriate informants. The shop-in-charge persons or shop managers were responsible for facilitating an appropriate atmosphere in the shops where their employees work. Because they had direct interactions with their individual supervisors and the job contexts offered by their corresponding companies, customer-contact employees were asked to respond to questions on the quality of LMX and job satisfaction. Customers are the most knowledgeable informants on contact time and their perceptions on service quality as they had direct experience with the services and conducted evaluative judgements on the services. The data collected by multiple informants were aggregated to the shop level for the data analysis.

We deployed a project team to solicit the participation of companies in this survey. In the first phase of the survey, the team administrated the questionnaires to managers as well as service employees. The questionnaire–administration process was conducted through on-site visits. We visited each shop to explicitly explain in person the survey requirements to potential respondents. We guaranteed confidentiality and anonymity to each potential respondent. We also promised to reward each respondent with a cash coupon of HK\$50 (about US\$6.5). Upon collection of filled questionnaires, we contacted each respondent in person and rewarded him/her with the cash coupon

promised. In order to facilitate a high response rate, we further approached those participants who had promised to return the questionnaire but had not returned it by the due date.

In the second phase of the survey, we randomly selected five customers from each shop sampled in the previous phase to acquire data concerning contact time and service quality. We approached individual customers to complete the questionnaire after the service transaction had been completed (i.e., after purchase). By using assigned identification codes, we matched the responses with our data on the views of the manager, the employees and the customers.

Our research team visited 350 service firms in total. Initially, 263 shops agreed to be involved in our survey. However, 30 dropped out at a later stage. In the case of five firms we were not able to re-confirm the job responsibility of the person who had filled in “shop-in-charge” questionnaire. In the responses from another three firms, certain parts of the questionnaires were left blank. The eight questionnaires were removed from our finalized database. In the end, we had 225 complete sets of data from 2025 individual participants, including 225 shop managers, 675 customer-contact employees and 1125 customers. The distribution across all the sampled firms is displayed in Table 2-1.

### 2.3.3 Instrument development

The measures to be employed in our study were drawn mainly from well-developed instruments in OM, OB and marketing. All items were assessed based on a seven-

point Likert-type scale ranging from 1 (totally disagree) to 7 (totally agree). The respondents were asked to rate each item with their personal subjective consciousness. The questionnaires are shown in the Appendix.

### Empowerment

Empowerment refers to manager delegating responsibility down the hierarchy so as to give employees discretion to make decisions (Leach et al., 2003). We intended to evaluate the degree to which leaders empower the service employees in their working environment. The degree of empowerment was assessed using the eight items in the LBDQ XII (Cook et al., 1981) and used in prior research (Hartline and Ferrell, 1996; Chebat and Kollias, 2000; Hartline et al., 2000).

### Quality of leader–member exchange association

LMX is defined as the quality of the exchange relationship between supervisors and employees (Liden et al., 1997). We assessed this construct based on the employees' perceptions of their relationship with supervisors. We measured the quality of LMX using six of the seven items based on member versions of the scale developed and used in previous research (Wayne et al., 1997; Janssen and Van Yperen, 2004). The item, "defend and justify the decision of my supervisor", was deleted because the respondents in the pilot study had commented that this item was not appropriate in small work contexts characterised by simple organisational structures such as those found in the small service shops sampled in this study. The selected items and data have been adopted by several previous scholars (Yee et al., 2014).

### Job satisfaction

Job satisfaction is defined as a worker's affective response resulting from his appraisal of the job factors in the working environment (Kim et al., 2005). We intended to measure employees' attitudinal feelings about various aspects of work conditions. We assessed satisfaction on the job using the items composing the Job Descriptive Index (Smith, 1969). These have been widely adopted in studies of OB (Van Yperen and Janssen, 2002) and organisational psychology too (Kinicki et al., 2002). The Job Descriptive Index covers five dimensions: satisfaction with pay, work, promotion, supervisor and co-workers.

### Service quality

Service quality is defined as a comparison between customers' desires and their perceptions of the actual service performance. Service quality was measured by SERVQUAL instrument (Parasuraman et al., 1988). The instrument contains five dimensions: tangibility, reliability, responsiveness, assurance and empathy. In view of capturing customers' overall perception on service quality, we followed past studies (De Jong et al., 2005; Yee et al., 2013) to employ a single SERVQUAL item for each of the five theorized dimensions, rather than using all the 22 items in the SERVQUAL scale developed by Parasuraman et al. (1988). Typically, the chosen items reflected service employee-related facets of service quality. These items and data have also been adopted by Yee et al. (2013).

## Contact time

Contact time refers to the time that the boundary-spanning employee and the customer remain in direct interaction with each other within one service encounter. We assessed contact time on the basis of the estimated average time spent on acquiring the services entailing a transaction.

### **Translation of questionnaire items**

The questionnaire in this study was drafted originally in English and was then translated into traditional Chinese as the sample context is in Hong Kong. As the respondents among the high-contact service industry were mostly blue collar workers, we tried to make the questionnaire as easily understood as possible. Following the suggestions by several previous scholars (Mullen, 1995; Wild et al., 2005), back-translation was conducted to ensure the translation equivalence. The translation procedures were as follows. First, a bilingual academic of English and Chinese translated the original English questionnaire into Chinese. In the second step, another bilingual expert of English and Chinese back-translated it into English. We then compared both the original and the translated versions to identify any discrepancies in meaning. Thus, the accuracy of the questionnaire translation was ensured.

#### 2.3.4 Data aggregation

Since the unit of analysis in our study was the shop, we aggregated all individual responses from frontline employees and customers across the shops surveyed. As for employee constructs of LMX and job satisfaction and the customer construct of service quality, we statistically justified aggregation to higher levels of analysis by

examining within-shop inter-rater agreement ( $r_{wg}$ ) and the corresponding intra-class correlation coefficients. Use of an acceptable level of inter-rater agreement and reliability assessment justified the aggregation and demonstrated the existence of shop-level effects.

### **Inter-rater agreement**

Inter-rater agreement refers to the extent of multiple raters' concordant ratings on the objective (Dunlap et al., 2003). Calculating the  $R_{wg}$  provides a widely used method of assessing inter-rater agreement (James et al., 1984). Two parameters can be used for estimating within-group inter-rater agreement: single-item estimator, and multiple-item estimator. The single-item estimator represents the within-group inter-rater reliability for a group of judges on a single item. The multiple-item estimator reflects the within-group inter-rater reliability of the judges across several items under the same construct (James et al., 1984). As all the instruments in our study contain more than one item, we used the  $r_{wg(j)}$  estimator, which is "the within-group inter-rater reliability for judge's mean scores based on essentially parallel items" (James et al., 1984 p. 88) The value of  $r_{wg(j)}$  varied between 0 and 1.0, with higher values pointing to higher levels of agreement among different raters. The lower limit for the inter-rater agreement was 0.7 (James et al., 1984).

For each shop, we obtained data for related constructs from three service employees and five customers. We then estimated inter-rater agreement value at the shop level. The constructs LMX and job satisfaction information was collected for each of the three service employees. The  $r_{wg(j)}$  values for the two variables were 0.920 and 0.932, respectively. Service quality information was collected from each of the five

customers. The corresponding  $r_{wg(j)}$  value was 0.975. All the values were above the 0.7 cutoff value (James et al., 1993) indicating an acceptable level of inter-rater agreement after aggregating different rates into the same target.

### **Inter-rater reliability**

Many scholars have argued that  $r_{wg(j)}$  does not distinguish between inter-rater consensus and inter-rater consistency, e.g., (Kozlowski and Hattrup, 1992). Whereas inter-rater agreement refers to inter-rater consensus, inter-rater reliability referred to inter-rater consistency among different raters. It is concerned with proving the existence of a group effect in each unit of analysis (Bliese, 1998). One commonly used measure for inter-rater reliability is intra-class correlation coefficient (ICC) which includes ICC (1) and ICC (2) (Bartko and Carpenter, 1976; Bliese, 1998; Schneider et al., 1998).

The formulas for ICC (1) and ICC (2) are derived from one-way analyses of variance. For both, the measured construct is the dependent variable and the group category (employees or customers) is the factor. The following is the formula for ICC (1) calculation:

$$ICC (1) = \frac{(MSB - MSW)}{[MSB + (C - 1)MSW]}$$

In this formula, MSB (mean square between groups) represents the average variation between responses from different groups. MSW (mean square within groups) stands for the average variation between responses from within the same group. C is the group

size that is the number of raters. ICC (1) measures the degree of agreement by comparing the variance between groups to the variance within group from the individual ratings of each respondent (Bartko and Carpenter, 1976; Schneider et al., 1998). The generally acceptable level of ICC (1) is 0.12 (James, 1982).

Unlike ICC (1), which uses individual responses to measure the ratio, ICC (2) assesses the relative status by averaging the ratings from the number of independent raters within each group (Bartko and Carpenter, 1976; Schneider et al., 1998). A commonly acceptable lower bound for ICC (2) is 0.60 (Boyer and Verma, 2000). ICC (2) is calculated as follows:

$$ICC(2) = \frac{(MSB - MSW)}{MSB}$$

In our study, we calculated both ICC (1) and ICC (2) to prove the existence of a group effect based on independent ratings. As the unit of analysis in this study is at shop level, ICC (1) and ICC (2) were generated at the shop level. The ICC (1) values for LMX, job satisfaction, and service quality were 0.339, 0.407, and 0.334 respectively, each of which far exceeds the generally acceptable level of 0.12 (James, 1982). The ICC (2) values for the above constructs were 0.607, 0.673, and 0.715, respectively. Note that the values exceed the recommended cut-off criterion of 0.6 (Boyer and Verma, 2000). The ICC (1) and ICC (2) statistics indicate sufficient inter-rater reliability among different raters at the shop level.



### 2.3.5. Common method variance

The existence of common method variance is a potential problem when the respondents measure two or more constructs which are themselves supposed to be correlated (Podsakoff et al., 2003). Although we had collected data from three different sources (i.e., managers, employees and customers), common method variance might still be a concern with respect to one linkage postulated in our theoretical model: the link between employee perception of LMX and employee job satisfaction. To rule out such a bias, we firstly separated the measurement items of LMX and of job satisfaction in the questionnaire. We then followed Podsakoff and Organ's (1986) suggestion to employ Harman's one-factor analysis to determine the effect of common method variance on the collected data of LMX and job satisfaction. According to the procedure, all of the measurements in each pair were entered into a factor analysis (Podsakoff and Organ, 1986). The results generated two explicit constructs for LMX and job satisfaction. This suggested that common method variance was not a matter of important concern in the current study.

## 2.4 Data analysis and results

We employed SEM for data analysis using LISREL and evaluated the goodness of fit of the model using absolute and relative indices. In agreement with relevant literature (Ojha et al., 2014; Shin et al., 2015; Sin et al., 2015), we followed the two-step approach of Anderson and Gerbing (1988) for estimating a measurement model before estimating the structural model. In the following, we present the results of our measurement model analysis, structural model analysis, testing of hypotheses and the associated moderating effects.

#### 2.4.1 Measurement model results

Before assessing the overall measurement fit, a confirmatory factor analysis was conducted to test convergent validity and discriminant validity.

Convergent validity is the extent to which each measurement item correlates with other items associated with the same construct (Chau, 1997). It is indicated when there is high inter-item correlation between indicators corresponding to the same construct. It can be evaluated in three ways: item reliability (Fornell and Larcker, 1981), construct reliability (Bagozzi and Yi, 1988) and average variance extracted (AVE) (Fornell and Larcker, 1981). The item reliability can be estimated from the squared standardised factor loadings from each measurement item to their latent variables. If all the standardised factor loadings of the measurement items exceed 0.7, the item reliability reaches 0.5 points (Chau, 1997). Our results indicate that all the standardised factor loadings are greater than the cutoff value of 0.7 at a significant level, confirming item reliability. The values of construct reliability were in the range of 0.888 for service quality and 0.932 for LMX; both exceeded the generally agreed threshold of 0.8 (Nunnally, 1978). This indicates high correlations between the indicators under the same constructs. All the AVE values were higher than the recommended cut-off point of 0.5 (Fornell and Larcker, 1981)—0.584 for empowerment to 0.727 for job satisfaction. This demonstrates that the variance due to the corresponding construct is greater than that due to measurement error. Thus, the scales indicate high convergent validity. This suggests that the indicators were highly correlated with each other under the corresponding observed variable and therefore sufficiently represent their relevant constructs.

Unlike convergent validity which calls for high correlation among the indicators within one construct, discriminant validity refers to the ability that an indicator of a construct successfully differentiates against measures of other constructs (Chau, 1997). The rationale behind discriminant validity is that measurements should correlate strongly with the items under the same construct and comparatively weakly with the items belonging to other constructs. Discriminant validity is critical because it indicates that the construct is sufficiently unique and can be identified among all the constructs by respondents. Discriminant validity can be tested by fixing the correlation between any pair of observed variables at 1.0, and then recalculating the modified model (Segars and Grover, 1993; Chau, 1997). In essence it is the same as specifying one new construct consisting of the items from two different constructs (Hair et al., 2006). Discriminant validity can be confirmed if there is significant difference of chi-square values between the new construct model and the model with two constructs. A better way is to compare the AVE for any pairs of constructs with the squared correlation coefficient of these two constructs (Hair et al., 2006). Discriminant validity can be determined if the AVE values of two observed variables are higher than the corresponding coefficient (Segars and Grover, 1993; Chau, 1997). Our results confirmed that all constructs examined had sufficient discriminant validity.

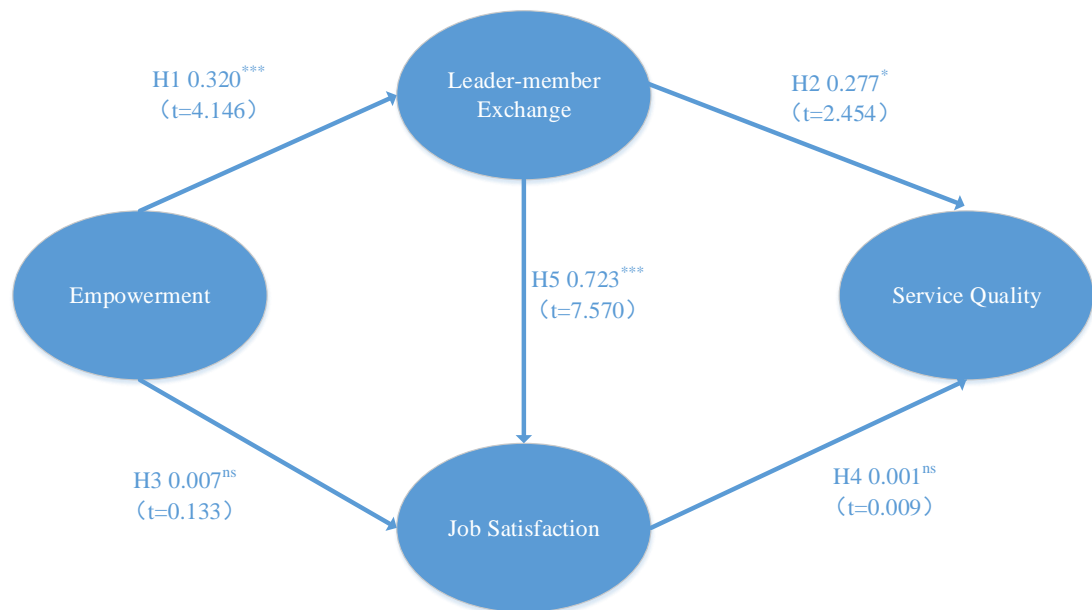
Measurement model specifies the association between observed indicators and the latent variables and evaluates the reliability of each construct for estimating the causal relationships (Hair et al., 2006). Prior to identifying the structural model, the measurement model was identified following the two-step approach of Anderson and Gerbing, (1988). To assess the goodness-of-fit against the overall measurement model, we input all the items below their corresponding latent variables in AMOS 24.0. The

resulting measurement model was found to provide an adequate fit with our data ( $\chi^2=417.016$ ;  $\chi^2/df=1.700$ ; GFI=0.867; RMSEA=0.055; NFI=0.953; TLI=0.978; CFI=0.956; AGFI=0.822). Taken together, the above results explicitly indicate that our data possessed adequate convergent validity as well as discriminant validity for further use in hypothesis testing.

#### 2.4.2 Structural model results and hypotheses testing

In the wake of confirming the good fit of our measurement model, we examined the hypothesised model. We found that the hypothesised model fits the data well ( $\chi^2=417.812$ ;  $\chi^2/df=1.692$ ; GFI=0.867, RMSEA=0.055; NFI=0.953; TLI=0.978; CFI=0.980; AGFI=0.839). Overall, the results supported several, but not all the hypotheses made in this study. Hypothesis 1 was supported by the significant association between empowerment and LMX ( $P=0.320$ ,  $t=4.146$ ,  $p<0.001$ ). The estimate of the standardized path coefficient indicated LMX influenced service quality significantly, supporting  $H_2$  ( $P=0.277$ ,  $t=2.454$ ,  $p<0.05$ ). However, contrary to our expectation, we did not find a significant association between empowerment and job satisfaction; therefore, Hypothesis 3 is not supported. Likewise, contradicting Hypothesis 4, job satisfaction did not affect service quality. The linkage between LMX and job satisfaction was significant ( $P=0.723$ ,  $t=7.570$ ,  $p<0.001$ ), thus supporting Hypothesis 5. Figure 2-1 shows the hypothesised model and its path estimates.

Figure 2-2 Results for Hypothesised model and its paths



Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

### 2.4.3 Results of moderating effect testing

We performed multiple-group analysis using SEM to assess the moderating effect of contact time among the customer-contact employee and the customer in transactions on the associations described in the previous section. Following suggestions from Homburg and Giering (2001) concerning multiple-group analysis, we firstly made median splits on employee–customer contact times (i.e., the moderator variable) in our samples. Next, we compared the group exhibiting high contact times against the one with low contact times.

To conduct multiple-group analysis using SEM, it requires comparing the general model with a restricted model. In theory, there is one less degree of freedom in the general model than in the restricted one, so the general model has a lower chi-square value than the restricted model. Moving from the restricted model to the general one,

if there is a significant increase in chi-square value, it points to the situation that distinctive impacts of the moderator on the association exist in the two sub-sample groups. This offers statistical evidence for the hypothesis on the moderation effect. As a standard, such procedures are commonly adopted in previous research (Yee et al., 2010).

Table 2-2 shows the findings of the multiple-group analyses. Contrary to our prediction, we did not find statistical support for the associations hypothesised. The chi-square difference ( $\Delta\chi^2=2.652$ ,  $p<0.001$ ) did not display a significant moderating effect of employee– customer contact time on the relation of LMX to service quality (since  $\Delta\chi^2<3.841$ ). This means that Hypothesis 6 has not been supported. Likewise, the moderating effect of employee–customer contact time on the link of job satisfaction to service quality was not significant ( $\Delta\chi^2=1.205$ ,  $p<0.001$ ). This indicates that Hypothesis 7 has not been supported.

Table 2-2 Results of multiple-group analyses

Association	Low value of employee-customer contact time	High value of employee-customer contact time	Chi-square difference ( $\Delta df=1$ )
Lead-member exchange to service quality	0.060 <sup>ns</sup> (t=0.436)	0.504* (t=1.982)	2.652 (=736.707-734.055)
Job satisfaction to service quality	0.203 <sup>ns</sup> (t=1.196)	-0.045 <sup>ns</sup> (t=-0.305)	1.205 (=735.260-734.055)

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

## 2.5 Discussion and conclusion

This research has examined several employee-related factors associated with performance benefits in service operations exhibiting high labour intensity and high customer contact. We have adopted an inter-disciplinary approach to study what is mainly an OM problem concerning service operations through the lenses of OB and psychology (Bendoly and Hur, 2007), thereby filling a notable gap in service OM research. Building on well-established theories concerning the importance of customer-contact employees in service firms, we have conceptually developed and empirically investigated a model incorporating empowerment, LMX, job satisfaction and service quality. The service firms studied were operating clearly in contexts requiring high levels of employee engagement in response to the uncertainty and complexity associated with their service operations. Our methodological approach has maintained rigour by employing a multiple informant approach while collecting data from three sources: managers, customer-contact service employees and customers. Previous research has indicated that, in service OM research, it is very important to

simultaneously relate the service aspects to firm, employee and customer variables (Kassinis and Soteriou, 2003; Payne and Webber, 2006). We have tested the hypotheses underpinning our research model using data collected from 225 service shops, including 225 shop managers, 675 customer-contact employees and 1125 customers associated with highly labour-intensive, high-contact service firms. The findings have shown that service quality is affected by LMX, but not job satisfaction whereas empowerment impacts LMX, but not job satisfaction. We have also found that employee–customer contact time does not moderate the association between LMX and service quality or between job satisfaction and service quality. This demonstrates that the importance of LMX in the pursuit of superior service quality can be taken to be universal.

The notion of service-profit chain contends that satisfied employees are expected to perform better in service delivery (Heskett et al., 1994). The premise is that when frontline employees feel satisfied with their job, they tend to become more involved in their job-related tasks in service delivery and more dedicated to offering services, thereby resulting in services of higher quality. This premise has received considerable support from service scholars (Heskett et al., 1994; Loveman, 1998; Silvestro and Cross, 2000). Previous empirical research has also demonstrated that job satisfaction yields improved service quality (Hartline and Ferrell, 1996; Silvestro and Cross, 2000; Malhotra and Mukherjee, 2004; Yee et al., 2008). However, past research on the relationship between job satisfaction and quality performance had not considered work associations simultaneously within one single research model. As far as work associations, particularly associations between leaders (supervisors) and followers



(customer-contact employees) are concerned, this study has demonstrated that the impact of job satisfaction is minimal or even insignificant. In other words, our findings clearly demonstrate that LMX, but not job satisfaction, has a significant influence on the quality level of services. It cannot be denied however that, to a certain extent, there are some conceptual overlap between job satisfaction and LMX. More specifically, work associations constitute just one facet of job satisfaction. Nevertheless, the two constructs are by no means identical. LMX emphasizes mutual support, liking, respect, trust and obligation based on the dyadic association between supervisors and their employees (Liden and Maslyn, 1998), whereas job satisfaction is a more general perception of the job that takes into account the job-related issues, like salary, promotion chance and job nature (Smith, 1969). Our research shows that, rather than a general feeling of satisfaction with the job, it is the specific association dimension concerning supervisors and employees that matters in enhancing service quality in service firms. Previous research has confirmed the importance of such work associations in OB and social psychology studies. LMX is the basic factor influencing work-related outcomes, such as job performance (Lam et al., 2007; Zhang et al., 2012), affective organizational commitment (Eisenberger et al., 2010), creativity (Martinaityte and Sacramento, 2013) and organizational citizenship behaviour (Wang et al., 2005). We have extended this body of literature on service OM by empirically showing that working associations, particularly the employees' work association with supervisor, support efforts towards attaining high-quality services in highly labour-intensive, high-contact service industries.

Our findings demonstrate that empowerment leads to LMX, but not to job satisfaction. Why would empowerment lead to better work relationships between employees and supervisors while not necessarily making the employees more satisfied? Again, we believe that job satisfaction is a general perception of the job that is influenced by a wider range of factors, such as salary, chance for promotion and job nature, which cannot be improved through empowerment. In addition, empowerment implies more informal job responsibilities on the part of frontline service employees and greater decision latitudes. This could entail confusion or job pressure in some frontline employees when they undertake the tasks associated with service encounters. On the other hand, as indicated by our results, empowerment and LMX are highly related. We believe that, under an empowered environment where customer-contact employees are motivated to work with more flexibility, freedom and discretion given by their supervisors, their potentials are better recognized and their suggestions for quality improvement are more valued by their supervisors. This results in higher-quality supervisor–employee associations. Moreover, an empowered environment places less work restrictions on frontline employees, thereby enhancing mutual trust, respect and understanding between supervisors and their employees.

Literature on LMX generally asserts that high-LMX employees are more willing and devoted to achieve high performance at work (Basu and Green, 1997; Janssen and Van Yperen, 2004). In line with this research and in view of the customer contact perspective (Chase, 1981), it appears reasonable to hypothesize that the contact times between customer-contact employees and the customers moderate the association among LMX and service quality. This would mean that with more contact time in

service encounters, customers can express their requests to employees more explicitly while employees can understand customer needs more exactly. However, this conjecture is not supported in our study. A plausible reason is the homogeneity with respect to the degree of employee–customer contact in their encounter. Our sampled companies were drawn from a high-contact service setting, rather than low-contact service one, which is out of the scope of the present study. For this situation, we surmise that the association of LMX to service quality would be affected among low-contact service firms.

The notion of service-profit chain suggests that employee job satisfaction is the underlying predictor of quality performance in service firms (Heskett et al., 1994). Following this line of thought and taking the customer contact perspective (Chase, 1981), it appears logical to put forward that the time of employee–customer contact has a moderating effect on the relation of job satisfaction to service quality. In service encounters with a long contact time, satisfied employees will have more time to transfer their positive emotions to the customers. Further, customers will have more time to resonate with the positive emotion conveyed. In such a scenario, customers would be prone to evaluate services more positively. Nevertheless, our study did not support this argument. There are two possible reasons. One reason is that the shops sampled were quite homogeneous and were operating with high contact times associated with employee–customer encounters. It is plausible that the relation between job satisfaction and service quality would be affected if low-contact service companies are also included in the investigation. However, we had not targeted this issue in our study. Another plausible reason lies in the insignificant linkage of job

satisfaction to service quality, as demonstrated by the statistical result of the hypothesised model. This indicates that satisfied employees may not necessarily offer higher quality services in the studied context. This may also imply that contextual factors, like contact time, does not exert a moderating effect on such insignificant relation.

A practical implication of our findings is that, as traditionally considered in service companies, in highly labour-intensive service firms, improvement in service quality may be necessarily influenced by employees' job satisfaction. Our results show that, in contrast to traditional wisdom, job satisfaction actually does not have an impact on the quality level of highly labour-intensive service operations provided that LMX has also been considered simultaneously (as in the case of our model). Our findings also reinforce the perception that the importance of LMX is universal, i.e., LMX is important irrespective of whether contact times during service delivery are high or low. This means that managers pursuing high-quality services in highly labour-intensive service firms need to understand that work associations, rather than job satisfaction per se, constitute a more important facilitating factor. In short, work associations between managers and customer-contact employees become much more important than hitherto appreciated in influencing the quality level of services in highly labour-intensive service firms. Rather than simply making the latter happier with their jobs, nurturing a close association between the supervisor and his/her frontline employees is likely to have a more persisting positive impact on improving service quality.

### 2.5.1 Limitations and future research

As with any research endeavour, there are some limitations to our work. The limitations however provide pointers for future researchers. One limitation is the potential conceptual overlap between job satisfaction and LMX. As mentioned earlier, the association between supervisors and employees is just a facet of the job. Nevertheless, our statistical analysis has shown that these two constructs are clearly distinguishable; job satisfaction is the general perception of a job while LMX is related to mutual trust and understanding between leaders and their followers. There may be some conceptual overlap, but that is so limited that it does not significantly affect the validity of our findings. Indeed, most constructs related to employee motivation share certain levels of conceptual similarity. Another limitation is that, because of the cross-sectional nature of our study, we have been unable to draw a firm conclusion about causation. Work associations between managers and employees need time to form and cultivate. In this regard, the effect of LMX on the quality performance of service operations is not likely to appear instantly. Similarly, employee satisfaction may not translate immediately into improved service performance. Future researchers will do well to consider a longitudinal research design to strengthen conclusions about the effects of LMX and job satisfaction on quality performance. Moreover, the focus of this research has been on highly labour-intensive, high-contact service sectors; we did not have comparable data from other types of service industries, such as professional services. Further research examining the relative impacts of LMX and job satisfaction in other service contexts should be useful. Lastly, we have examined just one moderating effect: that of employee–customer contact time in service encounters. Future researchers could explore other moderating effects that are particularly relevant

in the context of service encounters (e.g., contact frequency, service production complexity and service adaptability).

## **Chapter 3 Study Two: Customer participation in social media: Does it increase or decrease customer satisfaction?**

### 3.1 Literature review

#### 3.1.1 Customer satisfaction

As mentioned above, job satisfaction concerns a pleasurable or positive emotional state arising from employee's job or job experiences (Locke, 1976, p. 1300). Howard and Sheth (1969) stress the element of “appraisal” and “comparison” in the consumer context. Customer satisfaction is defined as a “summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer’s prior feelings about the consumption experience” (Oliver, 1981, p. 27). Customer satisfaction is predicated on the expectation-disconfirmation model (Oliver, 1981; Oh, 1999). Customers derive satisfaction when they perceive that their purchase experiences exceed pre-purchase expectation whereas customers face dissatisfaction, if the actual perception is inferior to their expectation.

Expectation and disconfirmation are the central elements to formulate customer satisfaction. In principle, customer expectation and perceived quality are identified as the main antecedents driving customer satisfaction (Fornell et al., 1996; Malshe and Agarwal, 2015). There is much literature suggesting that customer satisfaction is linked to customer expectation and perceived quality (Johnson et al., 1995; Rust et al., 1999; McKinney et al., 2002; Malshe and Agarwal, 2015). Therefore we can expect that customer satisfaction can be affected by influencing customer expectation and perceived quality.

Customer satisfaction is one of the most important critical successful factors for total quality management implementation and firm performance (Aquilani et al., 2017). Several researchers have examined how one can achieve customer satisfaction. From the perspective of organisational function, organisational climate has received continual attention in recent years. The role of service climate in determining customer outcomes has now started to dominate service literature (Johnson, 1996; Schneider et al., 1998; Dean, 2004). It has been found that a positive association between service climate and customer satisfaction becomes more intensive in a purer service context (Mayer et al., 2009). Similarly, there is a strong positive association between climate diversity and customer satisfaction (McKay et al., 2011). Initiative climate is also indicated to have an indirect effect on customer satisfaction (Raub and Liao, 2012). Also, employees' working behaviour and attitudes are the main antecedents leading to customer satisfaction (Deng, 2008; Yang et al., 2011). Owing to the "emotion contagion" mechanism, positive emotions of customer-contact employees usually please customers, leading to their customer satisfaction (Homburg and Stock, 2004; Brown and Lam, 2008; Yee et al., 2008; Netemeyer et al., 2010). As stated previously, the service profit chain (Heskett et al., 1994; Goldstein, 2003) is also linked with internal service quality and customer assessments of service experience, including customer satisfaction.

Extant research on the antecedents of customer satisfaction has focused mainly on factors associated with internal organisation such as organisational climate and employees' working attributes and behaviours. In addition, the related industries are generally limited to the service industry, e.g., retail and hospitality service sectors. Little attention has however been paid to the direct impact of external customer



behaviours on customer satisfaction. In this study, we examine how customer participation influences customer satisfaction in a general industry setting.

### 3.1.2 Customer participation

The role of customers in OM is now extending beyond end users. Customer feedback and opinions are becoming important for innovation and new product development (Poetz and Schreier, 2012; Bosch-Sijtsema and Bosch, 2015; Cui and Wu, 2016). Scholars in the OM are now stressing the need for collaboration between customers' efforts contributing to quality management (Flynn et al., 1994; Finch, 1999). From the company perspective, "customer participation" refers to a company inviting customers to participate in the decision making process by providing or sharing information and making suggestions (Chan et al., 2010). Alongside top management support, quality information, process management, product design, workforce management and supplier involvement, customer participation is now seen as an integral part of the overall concept of quality management (Flynn et al., 1994). To cope with the changing customer needs, customer participation is now supported by a collection approach by gathering customer's information. Operations managers now "listen" and "observe" customers and potential customers. Customer feedbacks and reactions could help operations managers mainly in two ways: 1) help them identify the neglected problem in the existing products and service, and 2) enable them to understand the ever-changing customer's expectations and desires for the new product and service development (Finch, 1999). Often, customer participation enhances the company's competitive advantage.

According to the resource dependence theory of customer participation (Carbonell et al., 2009; Hillman et al., 2009), customer desires and experiences can be regarded as external resources for companies for new product development and quality improvement. There is evidence that customer participation does contribute to the quality of final products and services. For example, customer's sharing information could help reduce the uncertainty created by new technology applications (Carbonell et al., 2009). Customer participation enables the company to understand customer requirements in a more accurate and comprehensive way, thus helping to avoid any unacceptable features for new product development (Alam, 2002). In the ever-changing product market, customer preferences provide direction for new technology development (Narver and Slater, 1990).

Apart from the economic contribution, customer participation also leads to psychological outcomes. Bendapudi and Leone (2003) found that customer satisfaction levels were affected by whether a customer is involved in the production process. Customers engaged in the organisation's work have been noted to generate attitudinal loyalty to the organisation (Auh et al., 2007). For instance, in the context of health care, customers with high levels of positivity and participation are usually inclined to perceive higher service quality and customer satisfaction (Gallan et al., 2013). When service failures occur, customer's active participation boosts their role clarification in service recovery, leading to related high levels of customer satisfaction (Dong et al., 2008).

In general, the above studies have focused on homogeneous groups of customers with similar preference and experiences. The participation process could be controlled by changing the number of participants, forms of participation and duration of the participation. The information and data provided by customers from these traditional channels could be traced back to and followed up by the companies. However, if the participation were to be expanded into the whole public without the limits on time, location and participants' volume, the resulting customer participation could be very different owing to increased diversity and uncertainty. An example of such expansion is increasing by the use of social media for enhancing customer participation. What would really happen then? For instance, would customer satisfaction increase or decrease? This paper seeks to answer this question.

### 3.1.3 Social media as a tool

In addition to listening to the customer's voice from the traditional channels, companies have begun to use social media to leverage their interactions with customers to better adapt to the developing information era. Social media, also referred to as consumer-generated media, has substantially changed the manner people, organisations, and businesses engage in information transmission and interactive communication (Ngai et al., 2015). Social media is defined as "a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of user generated content (UGC)" (Kaplan and Haenlein, 2010, p. 61). It could be used as an alternative channel for customers to provide information and make suggestions without the limitation of time and location. Related studies have indicated that social media is now being utilised as a tool by companies for facilitating a variety of organisational activities. For example, a social

media environment facilitates collaborative learning through an online community to build creativity (Greenhow et al., 2011). Positive relationships have also been identified between firms' social media initiatives, operational efficiency and firms' innovativeness (Lam et al., 2016). Moreover, social media is regarded as a favorable instrument for customer relationship management and brand communication (Mills and Plangger, 2015). For instance, Starbucks has indicated that social media is effective in customer knowledge management (Chua and Banerjee, 2013). Social media seems to create more opportunities for OM managers to facilitate their business operation.

On the other hand, the use of social media has also been noted to bring some risk for operations management. For example, the anonymous nature of social media makes it difficult to ensure the authenticity of the online information collected (Kaplan and Haenlein, 2010). Anyone can express an irrational or irresponsible opinion. Since a prerequisite for effective communication is mutual trust, conversations between customer and companies through social media weaken the interpersonal relationship so that the interpersonal trust is impaired (Constantinides et al., 2008). Scholars have argued that social media could generate reputation risks even when a small issue affecting companies' reputation (Aula, 2010). The dynamics of social networks can easily lead to online firestorms, thus putting the companies out of control (Pfeffer et al., 2014).

The constructs identified in the above literature review—customer satisfaction, customer participation and social media—have provided the research motivation for

this study: although customer participation in the traditional channels have produced positive outcomes, it could be quite different in the social media environment. The information transmitted via social media entails uncertain factors to operations managers. It can be anticipated that the diversified and uncertain information collected via social media might cause some companies to fail to properly understand customer needs and fulfill their expectations, and hence lead to some unsatisfied customers. Literature examining this issue has so far been sparse. This study seeks to fill this research gap.

### 3.2 Hypothesis development

As mentioned previously, competing hypotheses were discussed to address the impact of customer participation in social media on customer satisfaction. As for the positive hypothesis, customer participation increases customer satisfaction by improving perceived quality and satisfying customers' psychological needs. The social media environment facilitated the above mechanism. As for the negative hypothesis, according to the EDT theory, our study found that the features of social media might reduce perceived quality and amplify customers' increased expectation, leading to decreased customer satisfaction.

#### **Positive hypothesis**

Taking a resource-based view, customer participation contributes to customer satisfaction by improving the perceived quality of related products and services. In previous research, the role of customers was divided as "resource", "co-producer", "buyer", "user", and "product" (Lengnick-Hall, 1996). A large amount of literature

seems to regard customers as the external resources for new product development and service design (Nambisan, 2002; Lundkvist and Yakhlef, 2004; Mascarenhas et al., 2004; Edvardsson et al., 2011). Customer participation enables the transfer of customer inputs into the resource-integrating activities (Vargo et al., 2008). For example, customer's sharing information could help reduce the uncertainty created by new technology applications (Carbonell et al., 2009). Customer participation enables the company to understand customer requirements in a more accurate and complete manner, thus helping avoid any unacceptable features for new product development (Alam, 2002). In the ever-changing product market, customer preferences provide directions for new technology development (Narver and Slater, 1990). By cooperating with customers, a company can help itself adapt to a dynamic and unpredictable market. In other words, customer's active participation would guarantee the quality of the final product as the final products are in accordance with customers' requirements and experiences. In the view of agency theory, the customer would like to participate only when they perceive that their involvement is necessary to guarantee product or service quality (Mills, 1986; Nambisan, 2002; Lundkvist and Yakhlef, 2004). In principle, customers are monitoring the service provider's product quality (Larsson and Bowen, 1989; Nambisan, 2002; Chan et al., 2010). By doing this, customer participation facilitates the company to produce customer-oriented products. It also enables customers to monitor the production and service process that indeed elevates customer's perceptions of products and services.

From the psychological perspective, customer participation is positively related to customer satisfaction in three ways: sense of enjoyment, increased control and social needs fulfillment (Chan et al., 2010). Previous research has indicated that participation

can intrinsically be fun (Weiss, 2000) and enjoyable (Allender et al., 2006). Related literature has suggested that emotions such as fun, feelings and fantasies are derived from the consumption experiences (Holbrook and Hirschman, 1982). Participation has been identified as an indispensable component of experiential quality (Kao et al., 2008) which relates positively to satisfaction (Kao et al., 2008; Chen and Chen, 2010). Moreover, customer participation may lead to the experience of joyful feelings because customers are authorised to be the sense of control. In the service context, the greater the sense of control, the more will be the customers' perception of responsibility and satisfaction toward the service outcome (Fred Van Raaij and Pruyn, 1998). Several previous studies have found that consumer engagement could enhance empowerment (Brodie et al., 2013), which shifts more power to customers and makes them experience greater satisfaction (Trede and Higgs, 2003; Ramani and Kumar, 2008). Finally, participation can predict customer satisfaction from the perspective of social identity (Bagozzi and Dholakia, 2006). The participation activity might increase customer's perceptions of being valued and respected by the company and fulfill their social needs as approval, affiliation and esteem (Rhoades and Eisenberger, 2002; Chan et al., 2010).

As discussed above, customer participation is supposed to improve customer satisfaction through collaborations with customers to provide high quality products and service and fulfill customer's psychological needs during participation. In the context of social media, the link between customer participation and customer satisfaction gets strengthened. From the perspective of collaboration, without time and location limits, social media increases the richness and frequency of interactions between customer and companies (Rishika et al., 2013). Social media is suggested as

a cost-effective channel to connect with external customers for new product development (Piller et al., 2011; Bugshan, 2015). In terms of inner demands, social media has been used as a tool for customer relationship management (Mills and Plangger, 2015; Kumar et al., 2016). Previous research has indicated that, in an online community, the commonality among participants would generate positive brand evaluations (Naylor et al. 2012). To sum up, social media makes the traditional customer participation more flexible and will be able to manage customer-firm relationships that is facilitated by customer satisfaction. Therefore, the positive hypothesis is stated as follows:

H<sub>1a</sub>: Customer participation in social media is positively related to customer satisfaction.

### **Alternative hypothesis**

Based on the discussion of the previous hypothesis, customer participation through social media could elevate customer satisfaction because social media facilitates collaboration and relationship building with customers. However, the features of social media, such as access to all (Kaplan and Haenlein, 2010), the virtual communication approaches (Ngai et al., 2015) and virtual identity (Kietzmann et al., 2011), can also result in some potential issues. These issues may decrease customer satisfaction mainly in two aspects: decrease customer's perceived quality of product and service; amplify customer's increased expectation.

In the social media environment, three potential issues might affect customer's perceived quality of the final outcome: suitable participants' selection (Knudsen,



2007), communication barriers (Ngai et al., 2015) and information credibility (Kietzmann et al., 2011). First, the transparency of the Internet makes the social media accessible to all the audiences (Hart et al., 2000). As social media are able to reach the whole public, customer's demands are much more diversified than in a specified group of people. However, some scholars have argued that the average customer might be unable to express his/her needs and conceptualise ideas for the products (Knudsen, 2007). Since the capability and related knowledge of customers vary substantially, it is really a tough task for companies to identify the appropriate participants and solicit constructive suggestions. Second, some human qualities are not permitted on the social media which may lead to communication barriers. Communicated in the virtual world, any nonverbal cues such as facial expression, voice tone, sense of touch gets removed in the social media (Ngai et al., 2015). Customers are not able to smell or touch the real product and feel the attitude of the employees on the social media platforms (Steinman and Hawkins, 2010). Communication in social media merely relies on text messages typed through keywords which restrict the comprehensive understanding achievable between customers and the company. Thus, the company may fail to fully understand what customers really want. Third, in order to protect privacy, customers become inclined to use virtual identity or remain anonymous on social media platforms (Kietzmann et al., 2011). Without real identity, customers have the opportunities to post fake or exaggerated comments online (Kaplan and Haenlein, 2010). For example, unhappy customers or industry competitors are likely to input irrational and offensive content that is out of the company's control. When there are regular negative or adverse opinions appearing in the social media, it could exacerbate the transmission and expand the negative noise unduly. Further, social media has converted the customers into marketers (Nadaraja and Yazdanifard, 2013). The brand

image could be affected by the customer's online comments and feedbacks. As some previous studies have indicated, WOM communications are related to customer expectations (Zeithaml et al., 1993), and online opinions will certainly exert an impact on their perceptions and judgements. In summary, customer participation in social media might fail to meet customers' requirements and decrease the quality of products and service as perceived by them, thus decreasing customer satisfaction.

The use of social media is likely to help amplify customers' increased expectations caused by customer participation. Customer participation might decrease customer satisfaction because of the gap between customers' expectations and actual experience (Lengnick-Hall, 1996). If customers' actual experiences meet or exceed their own expectations, it generates customer satisfaction, whereas if customers' expectations go beyond their real experience, customers might feel dissatisfied (Parasuraman et al., 1985). Customer participation is supposed to raise customers' expectations because of customers' incremental knowledge about the products and service. Customer's active participation enables them to know more about the features and functions of related product or service. Knowledge about the restrictions and the facts about the product or the flow of system is likely to develop a more challenging customer expectations (Lengnick-Hall, 1996). Customer involvement has been found to change customer's knowledge and familiarity that influences their judgement (Goodman et al., 1995). In a social media environment, the increased expectation is likely to be elevated to the overall public which turn out to be more uncontrollable for some companies. The growing expectation is likely to result in decreased satisfaction because of the expectation-experience gap. That is, the actual product and service quality are difficult to be tailored for increasing customer expectation owing to two factors: technology

limitation and cost concern. As for technology limitations, it may require more advanced technologies to address the expected quality of products and service. However, the revolution in or enhancement of current technology may be difficult to achieve within the limited product life cycle. In terms of cost concerns, quality improvement might boost company's investment such as increased Research and Development (R&D) expense and capital expenditure (Wang, 2014). These incremental investments may outweigh the benefits brought in by improved products and service. In this case, the company would be reluctant to tailor the product quality to customers' expectation. Therefore, customer participation in social media might leave the public's expectation unsatisfied, thus leading to decreased customer satisfaction. Based on the above arguments, the negative hypothesis is stated as follows:

H<sub>1b</sub>: Customer participation in social media is negatively related to customer satisfaction.

### 3.3 Methodology

#### 3.3.1 Data collection

To answer the research questions of this study, secondary data from the Factiva, Standard and Poor's COMPUSTAT and ACSI are collected to test the competing hypotheses presented in the previous section. Therefore, the data collection procedure was divided into three stages. In the first stage, firms with customer satisfaction information were collected. According to ACSI (<http://www.theacsi.org/about-acsi>), the only national cross-industry measure of customer satisfaction in the US, companies with at least three-year consecutive data are recorded. In the second stage, firms with

financial information that would be used as control variables are selected. Once the company list has been identified from ACSI, it is required to identify the same companies in the COMPUSAT. Since in our case no unique company ID could be found in both, to merge these two databases, each company was verified manually through Google, Wikipedia and company websites to confirm that the company in the ACSI is the one listed in COMPUSTAT. After verification, the company code (e.g., GVKEY) was used to match up the company against the COMPUSTAT database. For some companies of ACSI, if they could be verified as a subsidiary of a parent company listed on COMPUSTAT, it was assigned the GVKEY to match with the COMPUSTAT-listed parent company (Bonsall et al., 2016). Financial data reflecting the characteristics of the company were downloaded from COMPUSTAT. These characteristics acted as control variables in the regression analysis to be described in the next section. Finally, news announcements from Factiva were read and collected for facilitating customer participation. The reasons for choosing Factiva as the media source rather than others, consisted of the following: Factiva contains news publications, and electronic wires and press releases from among the most comprehensive media datasets (Ahern and Sosyura, 2014). Since Factiva covers a wide range of various news articles, it is suitable for news search. Secondly, Factiva has been found to avoid possible selection bias caused by having a focus on the news announcements mainly from famous and public social media platforms (e.g. Facebook, Twitter, and Instagram). Factiva also includes related news announcements from small platforms (Lam et al., 2016).

To collect suitable and appropriate news announcements for this study, the research team conducted a pilot study prior to engaging in large scale data collection. First, we

randomly selected 31 companies from a range of industries as the representatives. According to the research question “customer participation through social media”, we used key words representing social media platforms such as “social network”, “online community”, “UGC” and “Web 2.0” and customer participation activities such as “idea” “suggestion” “solution” “engagement” and “participation” in combination with the particular company name. The initial news search provided some clues to our research team on how to select and identify the news across companies from different industries. Based on the search results, we read through every news announcement and modified the keywords appropriately. After several rounds of news research from and discussions with a panel of experts, our research team systematically developed a standard covering the entire dataset. The systematic standard was applied in all searching procedures. The main idea was to identify the announcements needed in seeing whether the company collaborates with their customers through social media platforms. As our study was focusing on the adoption of social media for supporting participation activities, news articles dwelling on the advantages of social media or appointment of the executives responsible for social media had to be excluded. Furthermore, the aim was to identify connections between the company and its customers through social media. Therefore, articles just indicating social media as a new feature or creative function for customers without any links with customers were eliminated. Several sample news reporting company adopt social media to conduct customer participation activities are displayed in the Appendix.

A starting sample of more than 14,000 articles, newswire releases, and other types of news were obtained from Factiva. Due to the huge number of news articles to be read and filtered, five student assistants were recruited to carry out the data collection work.

The student assistants were all undergraduate students in a Bachelor of Business Administration (B.B.A) programme. The student assistants were recruited after they had demonstrated their ability to understand the standard data collection procedure and their capacity for English reading. To ensure the consistency of news selection across the five student assistants, on-site training was provided to make sure that each student assistant understood the unified criteria for identifying the appropriate news items. A test was conducted to see whether they were able to confirm the same set of press out of the initial news search result for a specific company. The news articles collected from the student assistants were verified by the research team.

The whole data collection takes around three months including data collection from ACSI, COMPUSTAT and Factiva. The collection period spread from over 2007 to 2015 (nine years). This duration witnessed a huge increase in the usage of social media according to a report from Pew Research Center (Perrin, 2015). The longitudinal panel dataset was thus ready for the regression analysis which is to be described in the following section.

### 3.3.2 Sample

As already mentioned in the data collection section, the sampled firms were selected from ACSI, Standard and Poor's COMPUSTAT and Factiva. The final dataset was obtained after filtering and deleting some firms during the matching process. First, as the aim of this study was to assess the impact of firm-level customer production through social media on customer satisfaction, the sampled firms were selected by taking into account the availability of data on the customer satisfaction measure (Lam et al., 2016). The ACSI covers more than 300 companies in 43 industries within 10

economic sectors (<http://www.theacsi.org/about-acsi>). The history of ACSI can be dated back to 1994 (Fornell et al., 1996). However, some firms may have been delisted from the original list due to some reasons such as a merger and acquisition, the company becoming defunct or the industry getting aggregated. As the measure of customer satisfaction will use change in the ACSI score between year t-1 to year t+1, conservative three-year data are required for the analysis (year t-1, year t, year t+1). Thus, although our data collection covered the period 2007–2015, we needed to look at the ACSI data from the year 2006 (one year prior to 2007) to 2016 (one year after 2015). To ensure the practicality and usability of the data, companies with consecutive three-year ACSI record during the period from 2006 to 2016 were selected as the sampled firms. As a result, out of around 350 companies on the ACSI list, 195 firms had consecutive ACSI score within the period.

Secondly, besides the availability of customer satisfaction measures, another standard was to match the companies into COMPUSTAT database. As ACSI includes some private companies, federal and government agencies, companies listed in other countries that were not being traded on the American stock market and some firms that could not be found in COMPUSTAT. GV key ([www.crsp.com/products/documentation/crsp-link](http://www.crsp.com/products/documentation/crsp-link)) which is one COMPUSTAT's permanent identifier was used to match the companies from ACSI to COMPUSTAT. As financial data are used for identifying the control variables, the data collection period for COMPUSTAT remained the same, i.e., 2007~2015. Based on the 195 companies, 26 companies without GV key identifiers are excluded. Lastly, after two rounds sample filtering, there remained 169 companies to be searched in Factiva for

identifying the firms' customer participation activities through social media (Hanlon and Slemrod, 2009; Ahern and Sosyura, 2014).

Since the unit of analysis of this study was firm-year, the total sample size included 1521 observations (169 firms over the 9-year period). This resulted in a longitudinal panel data set covering the period 2007 –2015. Based on the classification of ACSI, the dataset represents 10 sectors across 34 industries. The effective samples will also be affected by missing data, for example, some financial data in COMPUSTAT and ACSI are missing because of company and industry reasons in specific years. Out of the 1521 firm-year investigations, 145 firm-years with missing data due to financial information or ACSI records were further excluded. The final dataset includes 1376 firm years. Figure 3-1 describes the data collection process and final dataset. Table 3-1 illustrates the distribution of the sample firms across industries. Table 3-2 summarizes information related to sample size.



Figure 3-1 Data collection process and final dataset

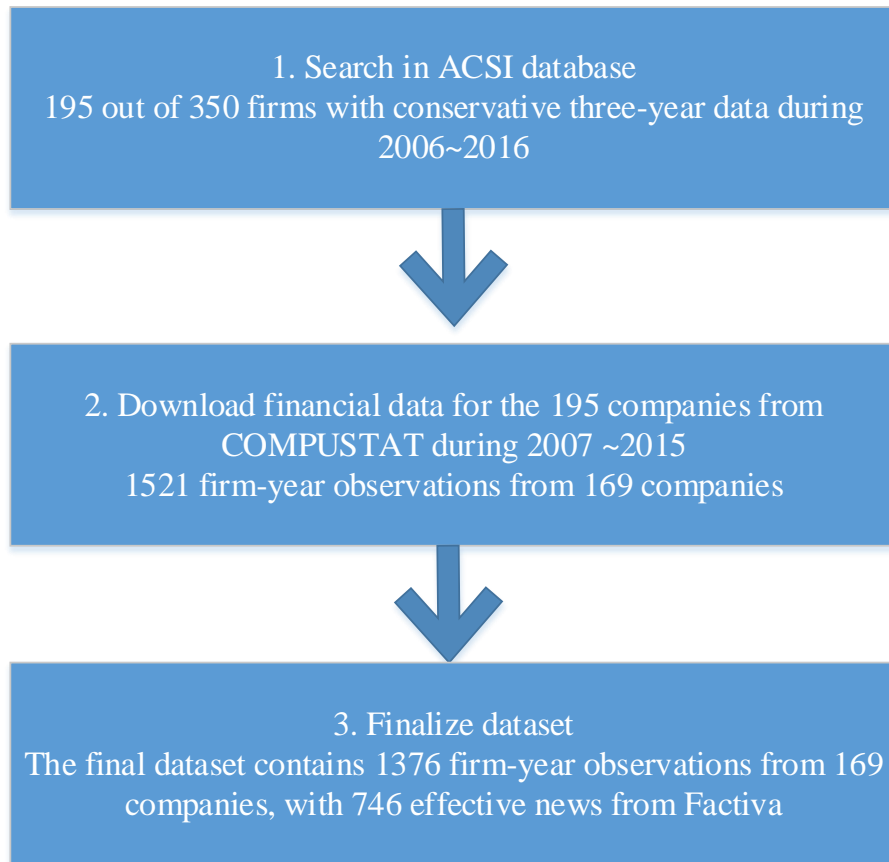


Table 3-1 Distribution of sample firms across industries and sectors

Sector*	Industry*	Firm No.	Percentage
Energy Utilities	Investor-owned Utilities	24	12.31%
	Cooperative Utilities	1	0.51%
	Municipal Utilities	3	1.54%
E-business	Internet News & Opinion	7	3.59%
	Internet Search Engines & Information	4	2.05%
E-commerce	Internet Investment Services	4	2.05%
	Internet Retail	5	2.56%
Telecommunications & Information	Computer Software	1	0.51%
	Fixed-Line Telephone Service	5	2.56%
	Subscription Television Service	8	4.10%
	Wireless Telephone service	4	2.05%
Transportation	Airlines	4	2.05%
	Consumer shipping	3	1.54%
Accommodation & Food service	Full-service Restaurants	4	2.05%
	Hotels	8	4.10%
	Limited-service Restaurants	10	5.13%
Retail Trade	Department & Discount Stores	9	4.62%
	Health & Personal Care stores	3	1.54%
	Specialty Retail Stores	9	4.62%
	Supermarkets	6	3.08%
Finance & Insurance	Banks	4	2.05%
	Health Insurance	4	2.05%
	Life Insurance	4	2.05%
	Property & Casualty Insurance	5	2.56%
Manufacturing and Durable Goods	Automobiles & Light Vehicles	18	9.23%
	Cellular Telephones	4	2.05%
	Household Appliances	3	1.54%
	Personal Computers	4	2.05%
Manufacturing and Nondurable Goods	Apparel	4	2.05%
	Athletic Shoes	2	1.03%
	Breweries	1	0.51%
	Food Manufacturing	12	6.15%
	Personal Care and Cleansing Products	5	2.56%
	Soft Drinks	3	1.54%
Total	34	195	

\*The classification of sector and industry is based on <http://www.theacsi.org/national-economic-indicator/national-sector-and-industry-results>

Table 3-2 Summary information on sample size

Item description	Number
Number of sample firms on ACSI	195
Number of sample firms on ACSI and COMPUSTAT	169
Sample periods of ACSI change from (t-1) to (t+1)	9 years (2007~2015)
Number of firm-years with ACSI change from (t-1) to (t+1)	1521 (169 firms × 9years)
Number of effective firm-years with ACSI score from (t-1) to (t+1)	1376 out of 1521
Sample time periods for independent variable (news announcements)	9 years (2007~2015)
Total number of news announcement from 2007~2015	791
Total number of news announcements in the effective firm-years	746 announcements in 1376 firm years
Average number of news per firm year in the effective firm-years	54.2%
Number of firm-years with at least one news in the effective firm-years	455 out of 1376 (33.1%)

### 3.3.3 Measures

The variables in this study are customer satisfaction, customer participation, and control variables. To rule out reverse causality, the dependent variable was lagged one year after the independent variable and control variables (Yiu et al., 2014; Wiengarten et al., 2017). That is, the independent and control variables were measured in the year  $t$  while the dependent variable was captured in year  $t+1$ . This section will discuss the development of measures in detail.

#### Customer Satisfaction

As mentioned above, the source of customer satisfaction was the American Customer Satisfaction Index. This index solicits customers' views on their entire service experience by sending out questionnaires via email. Potential respondents are asked more specific questions regarding their purchase, use of goods and service for the company or brand of goods. Each qualified response is recorded via an interview for

the specified company or brand. The ACSI association conducts more than 180,000 such interviews annually. The individual data are then aggregated to assess customer satisfaction at the firm level, thus yielding the customer satisfaction assessments of more than 300 major companies.

According to the aim of this study, this study assessed the customer satisfaction by using the change in the ACSI score between year  $t-1$  to year  $t+1$ . The reasons for using the ACSI score change were the following. First, since it was assumed that the news announcement was published in year  $t$ , we could suppose that there was no effect of the news announcement on the ACSI index in the year of  $t-1$ . However, if the news announcement was published in year  $t$ , the impact of news announcement must be detected no later than in the year of  $t+1$ . Therefore, it was considered reasonable to use the change in the ACSI score between year  $t-1$  and year  $t+1$  to control the previous performance of ACSI and examine the effect in year  $t+1$  if there were news announcements published in year  $t$ . Secondly, referring to the panel data, during the nine-year period, we measured the change between  $t-1$  to  $t+1$  and supposed that it can reflect the nature of consecutiveness and longitudinality of the dataset.

#### Customer participation activities

The customer participation activities were quantified as the number of news announcements related to customer participation searched in Factiva. There were several types of customer participation activities such as customers making comments or suggestions; customers voting for their favourite product and sharing their experiences through certain social media platforms. All the types of news

announcements were weighted equally while counting because the variety of customer participation had to be treated equally (Wiengarten et al., 2017). Some studies had used binary or dummy variables to capture the news announcement for measurement (Harris and Bromiley, 2007; Yiu et al., 2014). In our case, it was considered improper to rule out repeated announcements in the same year because the number of news articles reflected the firm's attempts and efforts to conduct customer participation activities (Lam et al., 2016).

#### Control variables

To eliminate potential confounding effects and thus ensure the rigorousness of the model, several control variables were included in the regression analysis (Mayer et al., 2009; Lo et al., 2014). First, larger firms were more likely to initiate more customer participation activities than smaller ones. However, social media capabilities might be more vital in small firms than in large firms as lack of financial resources in small firms (Braojos-Gomez et al., 2015). Firm size should therefore be considered as a control variable. Firm size was measured as the total assets of the firm following previous studies (Turban and Greening, 1997; Waddock and Graves, 1997). Second, firms with higher profitability could obtain more resources to invest in customer participation on social media platforms. Firm profitability could also affect the firm's effort, which meant that it should be included as a control variable. Firm profitability was measured by the firm's Return on Assets (ROA) because it is the most widely used variable in organisational research (Yeung et al., 2011). ROA is generated by sales revenue minus the cost of goods (COGS), selling, general and administration expenses (SGA) divided by the total assets. Since some previous studies had

demonstrated a negative relationship between firm age and innovativeness (Bell, 2005), it was speculated that older firms were more reluctant to apply social media platforms. Therefore, firm age was controlled to avoid the potential effects. To ensure data integrity and consistency, the “first date” for the specified company as indicated in COMPUSTAT acted as the proxy for firm age.

Further, advertising intensity was included as companies with higher advertising intensity were known to increase the exposure rate in social media platforms. Advertising intensity was specified by the firm’s annual advertising expenses over sales (Andras and Srinivasan, 2003). R&D intensity was also controlled because R&D oriented firms are more likely to invest more in collecting customers’ feedbacks and views on their product and service development. Following previous research (Andras and Srinivasan, 2003; Lam et al., 2016), R&D intensity was computed as firm’s annual R&D expense divided by sales. Finally, firms with previous history of assessing customer participation through social media might learn from the experience, thus affecting the frequency of such kind of activities in the future. To control for this possibility, each firm’s participation history was measured based on the accumulated number of news announcements about customer participation events of the past years. To correct all the control variables’ skewness, a natural logarithm conversion, was performed over the variables related to firm’s age and firm’s participation history. Year dummy (2007~2015) and industry dummy (one-digit SIC codes) variables were also included in our study to control for any unobservable time and industry-specific effects (Lam et al., 2016).

### 3.4 Data analysis and results

#### 3.4.1 Regression model

To verify the linear relationship between customer participation and customer satisfaction, the widely used ordinary least squares (OLS) method of regression (Hayes and Cai, 2007) was applied in this study. Referring to the measures depicted in the previous section, a regression model is constructed to test competing hypotheses as specified below.

Equation 3-1 Regression equation on customer satisfaction:

$$\Delta \text{ Customer Satisfaction }_{i(t+1)} = \beta_0 + \beta_1 \text{ Customer participation }_{it} + \beta_2 \text{ Firm Size }_{it} + \beta_3 \text{ Firm Profitability }_{it} + \beta_4 \text{ Firm Age }_{it} + \beta_5 \text{ Advertising intensity }_{it} + \beta_6 \text{ R\&D intensity }_{it} + \beta_7 \text{ Customer participation history }_{it} + \text{ Industry dummies} + \text{ Year dummies} + \varepsilon_{it}$$

In the above equation, the dependent variable represents the change in ACSI score for the specific company *i* in year *t*+1. The dependent variable was measured as ACSI score change from year (*t*-1) to year (*t*+1). The independent variable consisted of the number of customer participation news announcements published for the specific company *i* in year *t*. The control variables consisted of information on the firm's characteristics over year *t* of company *i*.

#### 3.4.2 Data analysis

To test the regression model, SPSS 24.0 was utilised while proceeding with the regression analysis. The descriptive statistics and correlation analysis results obtained before conducting the regression analysis are reported in Table 3-3. The descriptive

statistics indicate that the sampled firms are generally with large assets (mean value 119587.08 millions of dollars) and high ROA (mean value: 0.138). From the correlation test, advertising intensity appears to have a negative relationship with customer satisfaction significantly at 5% level. Customer participation history negatively correlates with customer satisfaction at 1% level. Customer participation appears to have a significant positive relationship with ROA, advertising intensity, R&D intensity and customer participation history at 1% level while have a negative relationship with firm age at 5% level.

Table 3-3 Descriptive statistics and Correlation test results

Variable	1.	2.	3.	4.	5.	6.	7.	8
1.Customer satisfaction	1	0.008	-0.009	-0.021	-0.057*	-0.042	-	-0.018
2.Assets		1	-0.275**	0.067**	-	-0.014	0.106**	-0.002
3.ROA			1	-	0.111**	0.051*	0.033	0.086**
4.Firm age <sup>a</sup>				1	0.081**	-	0.001	-0.059*
5.Advertising intensity					1	0.070**	0.126**	0.088**
6.R&D intensity						1	0.132**	0.239**
7.Customer participation history <sup>a</sup>							1	0.332**
8. Customer participation								1
Mean	-0.08	119587.08	0.138	3.429	0.022	0.013	0.633	0.446
Standard Deviation	3.133	301170.95	0.094	0.757	0.030	0.031	0.801	0.926

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

<sup>a</sup> The variable is transformed into natural logarithm

Hierarchical Multiple Regression was applied to test the regression model. The use of this analysis technique was considered reasonable in view of its explanatory power with respect to the control variables and the independent variable included in the



regression equation. Following the practice of much previous research (Mayer et al., 2009), all the control variables including the dummy variables were entered in the first step. The independent variable was entered in the second step. Table 3-4 shows the results of the regression analysis. The table shows that the control variables at year  $t$  could explain 17.7% of the variability of the ACSI change in year  $t+1$  at a significant level of  $p < 0.001$ . After entering the independent variable, the number of customer participation activities, the explanatory power of the model increased from 17.7% to 18.0% significantly ( $p < 0.05$ ). This indicates that the customer participation activities did have an effect on customer satisfaction.

$H_{1a}$  predicts that customer participation has a positive effect on customer satisfaction. However, the standardised coefficient of the independent variable was negative ( $\beta = -0.054$ ,  $p < 0.05$ ). Therefore,  $H_{1a}$  was rejected. The results revealed that the customer participation in social media had a negative impact on customer satisfaction.

Table 3-4 The impact of customer participation on customer satisfaction

Variables	Model 1		Model 2	
	Standardized coefficients	VIF	Standardized coefficients	VIF
Assets	0.011 (0.374)	1.470	0.013 (0.428)	1.471
ROA	0.029 (0.972)	1.489	0.033 (1.107)	1.496
Firm age <sup>a</sup>	0.014 (0.522)	1.219	0.014 (0.506)	1.219
Advertising intensity	-0.035 (-1.198)	1.387	-0.034 (-1.167)	1.387
R&D intensity	-0.041 (-1.231)	1.855	-0.036 (-1.067)	1.867
Customer participation history <sup>a</sup>	0.031 (1.007)	1.531	0.051 (1.585)	1.699
Customer participation			-0.054* (-1.995)*	1.225
Year dummy	Included		Included	
Industry dummy	Included		Included	
R <sup>2</sup>	0.177***		0.180***	
ΔR <sup>2</sup>	0.177***		0.002*	
F value	13.916***		13.494***	

Notes: 1. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

2. <sup>a</sup> The variable is transformed into natural logarithm.

3. *t* values are presented in the parentheses.

### 3.4.3 Further analysis on moderating effects

#### 3.4.3.1 Postulations regarding moderating effects

The results indicated that customer participation through social media is not necessarily good. This finding could be explained in two ways: reduced perceived quality of related products or services and amplified customer expectation gap. As in the arguments mentioned above, customer participation could elevate the position of customer expectations as customers' incremental knowledge to the related products or services. Customers expect companies to improve the quality of products and services by adopting their feedbacks and suggestions. In addition, social media, a marketing and communication tool for companies to connect and communicate with customers can increase companies' public exposure. That is, customer participation through social media could further raise the public's expectations.

On the other hand, the adoption of social media contains a potential risk as social media can be accessed by all and the speed and volume of instant diffusion is uncontrollable (Kaplan and Haenlein, 2010; Pfeffer et al., 2014). Based on the characteristic of "user-generated content", companies are usually unable to manage and control the content presented via social media (Aula, 2010). Once negative WOM gets diffused, the company's brand image and reputation could be destroyed in a very short time. An online firestorm is defined as the unexpected discharge of a large quantity of messages involving negative WOM and complaint behaviour against a person, company or community (Pfeffer et al., 2014). The public could get disappointed about the related companies, decreasing customer satisfaction accordingly. Therefore, customer participation through social media could amplify the

expectation gap. The use of social media could therefore pose challenges in managing public's expectations towards the company.

Customers are likely to develop their expectations about a certain company based on signaling information and reliable external communication (Lengnick-Hall, 1996). Such information helps them shape their own estimations of the company's capability. To be specific, the signaling and reliable external communication could refer to some non-experiential information such as advertising and WOM (Fornell et al., 1996). Based on this logic, we postulate that customers will tend to have higher expectations on large firms and firms with higher advertising intensity because these firms invest more in advertisements and are likely to draw higher public attention.

As for large firms, they were postulated to have higher capability to respond to customers' requests and satisfy their needs. Being in high profile status in the industry they acquire reputation (Dean et al., 1998). Because they are well known in general, they are likely to suffer more from online firestorms in social media. As for high advertising intensity firms, they invest more in building their firm image. Customers are more familiar with such firms. More advertised firms are more vulnerable to any negative publicity in the social media environment since they draw more public attention in practice. Therefore, firm size and firms' advertising intensity could be moderating the relationship between customer participation in social media and customer satisfaction. The impact of negative publicity would vary across different levels of firm size and advertising intensity. As for large firms and more advertised

firms, the attack by online firestorms on social media would be even worse as the public have high expectations of them.

Based on the above arguments, we came up with the following postulations:

Postulation 1: Firm size would moderate the negative relationship between customer participation in social media and customer satisfaction in such a way that the relationship would be significantly more negative when firm size is large than it is small.

Postulation 2: Advertising intensity would moderate the negative relationship between customer participation in social media and customer satisfaction in such a way that the relationship would be significantly more negative when advertising intensity is high than advertising intensity is low.

#### 3.4.3.2 Results concerning moderating effects

To test the moderation effects, we applied hierarchical regression analysis using SPSS 24.0 software. Before testing the postulations, we standardised the related variables prior to creating interaction terms. In line with previous practice (Mayer et al., 2009), we entered the control variables first and then the independent variable and the interaction terms. Table 3-5 displays the regression analysis results.

Table 3-5 The impact of customer participation on customer satisfaction with moderators

Variables	Model 1		Model 2		Model 3	
	Standardized coefficients	VIF	Standardized coefficients	VIF	Standardized coefficients	VIF
Assets	0.011 (0.374)	1.470	0.013 (0.428)	1.471	-0.006 (-0.187)	1.554
ROA	0.029 (0.972)	1.489	0.033 (1.107)	1.496	0.030 (0.998)	1.517
Firm age <sup>a</sup>	0.014 (0.522)	1.219	0.014 (0.506)	1.219	0.013 (0.494)	1.221
Advertising intensity	-0.035 (-1.198)	1.387	-0.034 (-1.167)	1.387	-0.032 (-1.085)	1.426
R&D intensity	-0.041 (-1.231)	1.855	-0.036 (-1.067)	1.867	-0.037 (-1.108)	1.869
Customer participation history	0.031 (1.007)	1.531	0.051 (1.585)	1.699	0.049 (1.525)	1.700
<sup>a</sup> Customer participation			-0.054* (-1.995)*	1.225	-0.049 <sup>+</sup> (-1.779) <sup>+</sup>	1.271

CP*Advertising intensity			-0.023 (-0.879)	1.147
CP*Assets			-0.069**(-2.619)**	1.144
Year dummy	Included	Included		Included
Industry dummy	Included	Included		Included
R <sup>2</sup>	0.177***	0.180***		0.184***
ΔR <sup>2</sup>	0.177***	0.002*		0.004*
F value	13.916***	13.494***		12.709***

Notes: 1. <sup>+</sup> $p < 0.1$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

2. <sup>a</sup> The variable is transformed into natural logarithm.

3. *t* values are presented in the parentheses.

According to the table listing the regression results, the explanatory power of the overall model has improved significantly from 18.0% to 18.4% at the significant level of 0.030 after entering the interaction terms. This indicated that there were significant moderating effects on the relationship between customer participation and customer satisfaction. Specifically, customer participation remained negatively related to customer satisfaction with  $\beta=-0.049$ ,  $p<0.1$ . The interaction between customer participation and firm size (measured in terms of assets) was significant with  $\beta=-0.069$ ,  $p<0.01$ . The results indicate that firm size significantly strengthens the association between customer participation and customer satisfaction. The larger the firm size, the more negative is the impact of customer participation through social media to customer satisfaction. However, the interaction between customer participation and advertising intensity was not significant with  $\beta=-0.023$ ,  $p>0.05$ . This suggests that the advertising intensity does not affect the relationship. Overall, for large firms, customer participation through social media could impact on customer satisfaction more negatively.

### 3.5 Discussion

This study has extended the current knowledge on how customer participation affects customer satisfaction. Although customer participation has gained positive evidence from the traditional informative approaches, this study has provided empirical evidence of a negative relationship between customer participation and customer satisfaction under the contemporary social media environment. Especially, the negative relationship between customer satisfaction and participation gets enhanced in large firms. The main findings could be explained by invoking several observations.



As for the negative relationship between customer participation and customer satisfaction:

Firstly, the decrease in customer satisfaction is due to the diversity brought in by both customer participation and social media environment. Referring to customer contact theory (Chase, 1981), OM scholars have advocated limiting customer contact time to achieve greater production efficiency by reducing the uncertainty caused by customer's individual differences (Chase, 1978; Chase, 1981). Also, the diverse customer interactions on social media makes social media more dynamic (Weller, 2015). The online comments made by the customers are in the form of UGC (Krumm et al., 2008). This content has been identified as an uncontrollable factor since customers' feedbacks are unpredictable (Constantinides et al., 2008). Therefore, customers' unlimited participation with the ever changing content on social media platform increases the difficulty faced by the company while sorting and extracting customer's desires.

Secondly, it is a challenging matter to fulfill the expectation-experience gap. External information and prior experience have been suggested to be affecting the customers' expectation levels (McKinney et al., 2002). The online WOM communication and the enhanced knowledge through participation could influence customers' expectations simultaneously (Lengnick-Hall, 1996). Customer expectation could be more dynamic and unlikely to have consensus. If the actual product quality or service delivery is unable to adapt to customer's dynamic expectation, customer satisfaction level would be decreased accordingly.

Thirdly, companies may be failing to balance the use of social media between customer participation and products promotion. Although companies utilise social media to ask for customer's suggestions and try to understand customer needs, the underlying aim might just be one form of companies' marketing strategy. In our study, companies launching customer participation activities on social media are likely to have it done for two purposes: one is to listen for customers' voices and opinions; the other is to stimulate product sales. A recent study has indicated that firms must balance the social media foci to avoid being regarded as opportunistic (Rapp et al., 2013). Customers could feel unhappy if they perceive that companies solicit their feelings or experience only for the purpose of product promotion.

For the moderating effect:

Fourthly, the customer participation on social media could generate risk associated with the changing expectations of customers (Aula, 2010), thus leading to customer disappointment or anger. Online negative feedbacks or comments affect a company's reputation and amplify the gap between the company's reputation and the reality. Customers are more likely to search for and accept negative words of mouth for reference (Richins and Bloch, 1991). Large firms would be more vulnerable to any negative publicity under social media context. The impact of online firestorms would be more serious in large firms. Large firms operate with more branches and are more famous in industry. The negative publicity attracted by large firms through social media will be spread more quickly and infinitely. Therefore, expect the gap between

customers' increased expectation and their quality. The impaired brand image or reputation could have a negative impact which is even worse for large firms.

## **Theoretical contribution and managerial implications**

### **Theoretical contribution**

The theoretical contribution of this study is related mainly to two aspects. Firstly, it is a piece of pioneering research into the study of the customer participation-customer satisfaction relationship in the social media context. Much of the existing literature studying the relationship between customer participation and customer satisfaction belongs to an actual organisational environment (Dong et al., 2008; Chan et al., 2010; Gallan et al., 2013). The focus of such studies has been on seeing how the tangible interactions between customers and representatives of organisations (e.g. service employees) affect customer satisfaction. However, very few studies have examined this relationship as it exists in a social media context, which is essentially a virtual environment with intangible interactions between customers, organisations and the whole public. The diversity and uncertainty arising from the contemporary social media environment makes it difficult to fulfill customers' desires and meet their expectations. Therefore, the first theoretical contribution relates to supplementing the current customer participation research in the context of social media. Secondly, this study has highlighted the impact of information diversity on the expectation level. This has extended EDT. Drawing on the extended EDT, this study has argued how information diversity affects the expectation level. If customers' diversified expectations are difficult to converge, it becomes challenging to fill the gap between expectation and real perception. This study has also suggested that signaling

information and external WOM communications could influence customer's judgement and perception towards a company. Social media derives new expectations and beliefs to companies which hide potential risk for companies to manage their public expectations.

### **Managerial implication**

The findings of this study have sounded an alarm to operations managers: social media is not always a panacea in business operations. This paper has identified several new managerial implications for companies adopting social media. Firstly, OM managers should choose the appropriate platform of social media and try to reach the suitable customers to conduct customer participation activities. They should be encouraged to invest more time and money to manage the data on social media: set up a proper technological infrastructure to filter and analyse the online input data and employ a group of employees to monitor the online comments, lead online discussions and answer questions. Secondly, companies need to strengthen their capability to adapt to customers' dynamic expectations on social media platforms: use advance technology and have unambiguous online communications with customers to achieve what they really care about. Thirdly, companies should balance social media foci between customer participation and product promotion. They should consistently improve product and service quality according to customer's suggestions. They should avoid making the customers feel that companies utilise social media to solicit their participation basically for some commercial purposes.

Companies should be cautious about the potential risk; especially in large firms. For example, several years ago, McDonald's invited their customers to share their positive experience about McDonald's on Twitter (Pfeffer et al., 2014). Initially, they received many positive stories online, however, the opinions from the customers changed from positive to negative soon. Customers began to share and spread negative and ridiculous stories about McDonald's online. The company had to withdraw the promotion campaign after they realised the event was going in the wrong direction. Large firms, like McDonald's have a relatively positive brand image in the public's mind. However, some little issue, for example, a minor complaint appearing on social media is not unlikely to develop into an online firestorm and cause public disappointment. As the basic function of social media is "sharing" (Kietzmann et al., 2011), social media are capable of converting a "little issue" into a "big thing" instantly. The negative impact gets enhanced in large firms because they are generally well-known and attract more public attention. Large firms should therefore pay more attention to the potential risks accompanying the use of social media. They are recommended to invest more on the social media management by closely monitoring the online comments, detecting any Internet malevolence and responding quickly to the customers' negative feedbacks. Alternatively, the impact of customer participation through social media on customer satisfaction could be less negative in small firms. This may be explained by the observation that the diversity generated by customer participation and social media environment is usually relatively limited. The influence of negative WOM issues for small firms are easier to manage and deal with. The potential risk of social media could affect customer satisfaction less negatively than for a large firm.

## **Limitations and future studies**

This study has several limitations for future studies:

Firstly, although several control variables have been considered in the regression analysis, the value of ACSI index might have been affected by some undiscovered factors. Future study exploring the influential variables and excluding the effect to the ACSI is recommended.

Secondly, the effectiveness of social media usage may depend on other contextual factors. The level of customer participation varies in different degrees. Also, customer participation could take on different forms in diverse social media platforms. Some moderators such as customer participation level, kinds of social media platforms may need to be considered in future studies.

Lastly, majority of users of social media are young adults while the respondents of ACSI index cover all ages of adults in America. According to a report from US (Perrin, 2015), nearly 90% of adults aged 18~29 and 77% of adults aged 30~49 had used social media in the year of 2015. It would be better to control the age of ACSI respondents in the similar age range.

## **Chapter 4 Conclusion**

### 4.1 Summary of the research

To achieve the competitive outcomes of firms in quality management such as service quality and customer satisfaction, the conventional approach in OM is not always effective. The involvement of human factors is likely to add variability and uncertainty in operations systems. To understand and deal with the variability and uncertainty, it is necessary to look at how human factors affect operational performance. Adopting behavioural approaches in OM research (Boudreau et al., 2003; Chase and Apte, 2007; Yang et al., 2016), this thesis examines two aspects of behavioural operations, which are employee attributes and customer participation. The thesis fills in the possible behavioural gaps under quality management as previous study advocates (Bendoly et al., 2006) and provided empirical knowledge for managers to make better decisions to design and improve operational systems and performance. According to a review paper of behavioural operations (Croson et al., 2013), this thesis extends contextual diversity in behavioural operations management. Although the service quality and customer satisfaction are both indicators of quality management, the thesis examined human behaviours from a relative micro level in small service firms to a broader social media environment.

Our results have indicated that the relationship between managers and frontline employees play an important role in achieving superior service quality. To address the key features arising from labour-intensive and high contact service sectors, i.e., uncertainty and complexity, LMX is more effective and direct in assessing the influence of job satisfaction on service quality. In an empowered environment,

employees are allowed to work with the flexibility to make discretionary decisions. They are likely to appreciate the favourable working environment and reciprocate by taking up extra-role workload for quality improvements. The high-quality LMX characterised by mutual trust, respect, liking and obligation (Liden and Maslyn, 1998) will be formulated and reinforced through the exchange process, which in turn facilitates service quality. However, although the service profit chain theory (Heskett et al., 1994) has proposed that job satisfaction is the employee-related factor driving the value-chain linking internal service quality and external value creation, the impact of job satisfaction may be limited compared with LMX under an empowered environment in high labour intensive and high contact service operations. Our study one has contributed to service literature by emphasising the significant role of dyadic relationship between supervisors and customer-contact employees.

Our results from study two have demonstrated that customer participation through social media is not necessarily good. The customer participation on social media could lower the perceived quality of products or services and increase customer expectation through the participation process. Due to the open participation and easy access of social media, anyone can express opinions on a social media platform. As the customer participants are less likely to be selected and their suggestions vary due to individual differences, it is challenging for companies to identify suitable informants for quality improvement. In addition, online communication does not enjoy human qualities such as facial expression, voice tone, and sense of touch, which could impede companies' understanding of what customers' "real wants" are. On the other hand, companies should launch customer participation activities on social media to enable customers to get more information and enrich their knowledge about related products and services.



Increased knowledge and external information drawn from online social media could raise customer expectation. Customers expect that companies absorb their feedbacks and suggestions to advance the quality of final products or services. However, in reality, most companies are unwilling to implement customers' ideas into actual products due to cost concern, for example, through increased R&D expense and capital expenditure. The resulting gap between customer expectation and the reality leads to decreased customer satisfaction. Further, the negative influence of customer participation in social media can get intensified for large firms which witness high expectations from the public. Large firms are assumed to be able to better respond to customers' requirements. Customers are therefore likely to be more disappointed with large firms if they fail to fulfil their expectations. Moreover, large firms are more vulnerable to negative online comments. The brand image of large firms gets easily affected by online firestorms—as is well known in industry.

The above research findings point to significant managerial implications for operations management. As for study one, even though constrained by the limited resources, OM managers could make use of their relationships with customer-contact employees to survive in the contemporary, highly competitive market. High quality relationship between service managers and employees motivates employees to engage in their work and expand their roles in service delivery. Employees' proactive and voluntary behaviours are able to advance service quality in dealing with any unpredictable customer demands. In the meanwhile, the beneficial relationship makes the service employees and their managers interdependent and cooperative, which facilitates service delivery. As for study two, although social media constitutes an alternative channel for customer participation, companies should be aware of the use

of social media. OM managers should invest more time and money to closely monitor and deal with online comments, especially the negative comments. OM managers should be cautious about any “little issue” that could expand into a “big thing” in a social media environment. Such an impact could be more serious for large firms. In addition, they are advised to choose the appropriate channel for reaching suitable customers to be their informants. Once social media is used to facilitating increased customer participation, the company will be easily exposed to the whole public. Therefore, companies should keep advancing the technology so they can continually promote their quality and meet public’s expectation.

Overall, this study has contributed to the understanding of human behaviour in operations management. Companies are throwing new light on how firms can improve their operational performance, this, they do through their understanding of employees’ attributes in labour intensive high contact service sectors and customer participation in the contemporary social media environment.

#### 4.2 Limitations and future research

Although this study contributes to current literature, it also identifies some useful directions for future study. First, most empirical studies adopt longitudinal design to investigate the cause-effect relationships proposed in their research models. However, the research design for our study one was cross-sectional, which might have limited the possibility of causal inference among constructs. For instance, there might have been a reverse causality between empowerment and LMX. Leaders in a high quality LMX relationship are likely to delegate authority to subordinates by providing job

autonomy to them. Therefore, a future longitudinal study is recommended to further investigating the proposed linkages noted in study one. Second, although the second study has collected longitudinal panel data, there may be a need to conduct an additional test to check the sensibility of the current OLS regression analysis. Generalised method of moments could be a suitable method for panel data analysis since it has been found to be an effective tool while dealing with the endogeneity issue (Lam et al., 2016; Wiengarten et al., 2017). Thus, a future study is called for to address the endogeneity issue and confirm the results. Third, contrary to the traditional wisdom, in study one, the linkage between empowerment and job satisfaction was not found to be effective. Some contextual factors are therefore needed to further explore this relationship. For example, employees' role stress might moderate the empowerment-job satisfaction link in such a way that the high role stress could weaken the relationship while low role stress could strengthen the relationship. It is interesting and worthwhile to conduct a future study aimed at seeking appropriate moderators in the relationship. Finally, except for the employee-related and customer-related factors explored in our study, other behavioural issues for quality and operational improvements such as employees' adaptability, self-efficiency and customers' learning behaviour through social media are among the subjects worthy of future research.

## Appendices

### Appendix A Questionnaires and their measurement properties for study one

#### (a) Shop-in-charge person questionnaire

Responses to the following questions range from 1=“Totally disagree” to 7=“Totally agree”.

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Empowerment [Cronbach's $\alpha=0.918$ , AVE=0.584, Construct reliability=0.918]	
EMPOW1	I allow service employee complete freedom in their work.
EMPOW2	I permit service employee to use their own judgment in solving problems.
EMPOW3	I encourage initiative in my service employees.
EMPOW4	I let employees do their work the way they think best.
EMPOW5	I assign tasks, then let service employee handle them.
EMPOW6	I turn service employee loose on a job and let them go to it.
EMPOW7	I allow service employees a high degree of initiative.
EMPOW8	I trust service employees to exercise good judgment.

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#### (b) Customer-contact employee questionnaire

Responses to the following questions range from 1=“Totally disagree” to 7=“Totally agree”.

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Leader-member exchange [Cronbach's $\alpha=0.925$ , $r_{wg}=0.920$ , ICC(1)=0.339, ICC(2)=0.607, AVE=0.699, Construct reliability=0.932]	
LMX1	My supervisor and I are suited to each other.
LMX2	My supervisor understands my job problems and needs.
LMX3	My supervisor recognizes my potential.
LMX4	My supervisor would be personally inclined to help me solve problems in my work.
LMX5	My supervisor considers my suggestions for change.

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LMX6 My working relationship with my supervisor is effective.

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Job satisfaction [Cronbach's  $\alpha=0.929$ ,  $r_{wg}=0.932$ ,  $ICC(1)=0.407$ ,  $ICC(2)=0.673$ ,  $AVE=0.727$ , Construct reliability= $0.930$ ]

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- Jobsat1 I am satisfied with the salary of this company.  
Jobsat2 I am satisfied with the promotion chance.  
Jobsat3 I am satisfied with the job nature.  
Jobsat4 I am satisfied with the relationship with my colleagues.  
Jobsat5 I am satisfied with the relationship with my supervisor.
- 

(c) Customer questionnaire

Responses to the following questions range from 1="Totally disagree" to 7="Totally agree".

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Service quality [Cronbach's  $\alpha=0.882$ ,  $r_{wg}=0.975$ ,  $ICC(1)=0.334$ ,  $ICC(2)=0.715$ ,  $AVE=0.616$ , Construct reliability= $0.888$ ]

---

- SQ1 The service employees are neat and appropriate.  
SQ2 The service employees keep my records accurately.  
SQ3 The service employees provide prompt services to me.  
SQ4 The service employees get adequate support to do my jobs well.  
SQ5 The service employees do not give personal care to me. (reverse)
- 

Responses to the following question by estimation.

---

Employee-customer contact time

---

The total time in the transaction you were just involved in this \_\_\_ hour(s)\_\_\_  
company (i.e., time spent on direct contact and communication minute(s)  
with the service employee):

---

## Appendix B News examples for study two

### A Customer Participation in Social Media Announcement Extracted from Factiva

(Company: AT&T)

#### **AT&T Enhances Online Gaming Experience at AT&T Games with New Social Networking Features**

662 words  
20 July 2010  
M2 Presswire  
MTPW  
English

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Dallas, Texas – **AT&T**\* today announced the launch of new **social networking** capabilities on **AT&T Games**, an online gaming community that lets you access hundreds of online games at [games.att.net](http://games.att.net).

At **AT&T Games**, you can now **share** or recommend your favorite online games through status updates on your **social networking** site; send free trial time for games as a gift to your friends; become fans of a game; earn achievements and display them on your **social networking** wall; challenge friends to a gaming duel; and see what your friends are playing.

"We know gamers want to blend their gaming and social media experiences, and these new capabilities really take the AT&T Games experience to the next level," said Tasos Kaiafas, director of gaming, AT&T. "AT&T Games users now have the ability to interact with their social network and favorite online games in many new and unique ways."

The new social networking features are available at AT&T Games through Blaze by Oberon Media, the innovative new game platform from the leader in multi-screen casual and social game solutions.

AT&T Games is the latest example of AT&T delivering compelling cross-platform content. AT&T has a unique set of integrated services and networks that make it easy for an audience of millions to enjoy and their favorite content whenever and wherever they choose.

\*AT&T products and services are provided or offered by subsidiaries and affiliates of AT&T Inc. under the AT&T brand and not by AT&T Inc.

#### About AT&T

AT&T Inc. (NYSE:T) is a premier communications holding company. Its subsidiaries and affiliates - AT&T operating companies - are the providers of AT&T services in the United States and around the world. With a powerful array of network resources that includes the nation's fastest 3G network, AT&T is a leading provider of wireless, Wi-Fi, high speed Internet and voice services. A leader in mobile broadband, AT&T also offers the best wireless coverage worldwide, offering the most wireless phones that work in the most countries. It also offers advanced TV services under the AT&T U-verse and AT&T |DIRECTV brands. The company's suite of IP-based business communications services is one of the most advanced in the world. In domestic markets, AT&T Advertising Solutions and AT&T Interactive are known for their leadership in local search and advertising. In 2010, AT&T again ranked among the 50 Most Admired Companies by FORTUNE magazine.

Additional information about AT&T Inc. and the products and services provided by AT&T subsidiaries and affiliates is available at <http://www.att.com>. This AT&T news release and other announcements are available at <http://www.att.com/newsroom> and as part of an RSS feed at [www.att.com/rss](http://www.att.com/rss). Or follow our news on Twitter at @ATTNews. Find us on Facebook at [www.Facebook.com/ATT](http://www.Facebook.com/ATT) to discover more about our consumer and wireless services or at [www.Facebook.com/ATTSmallBiz](http://www.Facebook.com/ATTSmallBiz) to discover more about our small business services.

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## A Customer Participation in Social Media Announcement Extracted from Factiva

(Company: McDonald's)

Canadian **social-media** push has halo effect for **McDonald's** in the U.S. Fast-food giant's hashtag campaign backfired in the States, but its video program north of the border has been well-received in both countries

MAUREEN MORRISON; MCMORRISON@ADAGE.COM

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4

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Arguably **McDonald's** biggest **social-media** success has come from the burger chain's Canadian division—but the one of the biggest beneficiaries has been the U.S., thanks to the borderless nature of the web.

**McDonald's**, which has over the past few months tapped **social media** to tell a story of transparency and food quality, has seen success and stumbles. But one of the biggest triumphs has come from **McDonald's** Canada, which has released a series of videos answering consumer questions about the food, from why a real-life burger looks different than the one in the ads to how to make the Big Mac's special sauce. The effort has drawn praise among marketing experts and generated millions of video **views**, landing it on Ad Age's Viral Video Chart.

That platform, "Our Food. Your Questions," is a website that allows customers to submit queries to **McDonald's** Canada, which answers some of them with videos. One was a behind-the-scenes look at a photo shoot for one of the chain's burgers; another featured **McDonald's** executive chef Dan Coudreaut in a cooking-show-style format showing viewers how to make a Big Mac and its special sauce at home.

"We knew from research that Canadian customers had questions," said Karin Campbell, senior manager of external communications at **McDonald's** Canada. "We certainly could see pervasive myths out there, so we decided to take on those myths head-on and just clarify some of the info by developing a platform."

Ms. Campbell said that **McDonald's** typically tries to respond on its website within two days, but in the cases of the videos, there's a longer response time. Seven videos have been created so far.

Despite the program's success, **McDonald's** USA hasn't released similar videos—perhaps because it doesn't need to.

Indeed, the photo-shoot video has attracted more than 6.9 million views on YouTube, the top viewing location was the U.S.; Canada didn't even register in the top three on the locations list.

"What's been interesting is the borderless [nature] of social media. ... The way that social media is, each area of the world [**McDonald's** is in] is able to launch something and other areas can benefit," said Heather Oldani, senior director-external communications for **McDonald's** USA.

The Big Mac video, meanwhile, had more than 1.9 million views on YouTube, and **McDonald's** had no paid media behind any of the videos.

Not all of **McDonald's** recent programs have gone as swimmingly. **McDonald's** USA ran into trouble in January after it rolled out Twitter campaign #McDStories, part of its Supplier Stories push featuring some of **McDonald's** secondary produce and beef suppliers. It encouraged Twitter users to use the hashtag to share positive stories about **McDonald's**, but instead some hijacked it to tell gross tales about the chain and its food.

So what made one campaign work and the other backfire?

MIDDLE-OF-THE-ROAD APPROACH

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## A Customer Participation in Social Media Announcement Extracted from Factiva

(Company: Marriott)

### Simply 'Fan'tastic -- Marriott Hotels & Resorts Hits One Million Facebook Fans

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25 April 2013

India Retail News

ATRITAL

English

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New Delhi, April 25 -- It took only eight months for one million Facebook fans to "like" Marriott Hotels & Resorts. To return the love, the company's flagship brand is launching a new #MyMarriottMillion Facebook contest offering a chance to win one million Marriott Rewards points. To enter fans submit a photo of their favorite travel experience on Facebook, Twitter, or Instagram with the hashtag #MyMarriottMillion and lobby for the most votes (Click to enter).

"Steamrolling past one million Facebook fans so quickly proves our strategy of putting social media front and center is working and continues to engage the next generation of travelers," said Michael Dail, VP, Global Brand Marketing, Marriott Hotels & Resorts. "Thank you to all our fans for liking us so often. We are committed to transforming and deepening Marriott's conversation with our guests in the social space."

#MyMarriottMillion contest offers a total of one million Marriott Rewards points given away to five lucky winners (200,000 points each). Four runners up will receive 200,000 Marriott Rewards points and a Marriott Hotels & Rewards goodie bag filled tech gadgets. The Grand Prize winner will receive, in addition to all of the above, a seven day, six night trip for two to the 2014 SXSW Festival in Austin, TX, including tickets to the festival and room nights at the Austin Marriott South.

Marriott Rewards points can be redeemed for free nights, room upgrades, and additional perks. For example, 200,000 points can be redeemed for a six night stay at any of 3,600+ hotels in over 70 countries. Redemption information can be found at [www.marriott.com/rewards/use-points.m/#/1](http://www.marriott.com/rewards/use-points.m/#/1). #MyMarriottMillion contest launches April 16, 2013 and ends on May 13, 2013. Click here for contest terms and conditions.

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