A Typology of Online Group Buyers: Using Means-end Structures for Benefit Segmentation

Completed Research Paper

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Abstract

Given the enormous growth and significant impacts of group buying on Internet business marketplaces, this study aims to develop a typology of online group buyers based upon benefits pursued by them and develop the hierarchical decision making process model for different segments of consumers from a Means-end Chain (MEC) theory perspective. The laddering interview technique was used to interview 52 online group buying users and to capture their reasons behind the online shopping behavior, with grounded theory used to determine categories, which were then classified into attributes, consequences/benefits, and values/goals. Cluster analysis was conducted based on benefits level factors and three segments of consumers were identified: economic shoppers, balanced shoppers, and destination shoppers. Three decision making process model were developed and compared. Both similarities and differences were identified. This study has the potential to make significant contributions to both IS research and e-business regarding consumer online group buying decisions.

Keywords: Online group buying, segmentation, Means-end chain, consumer decision making

Introduction

Online group buying, one of many e-business models, is becoming a popular consumption pattern widely accepted across the world, especially in China. According to a report published by CNNIC (2013), the number of users of online group buying reached 141 million in 2013 in China, an increase of 68.9% compared to 2012, and accounting for 22.8% of the netzens while online shoppers accounted 48.9% of the netzens. The revenue of group buying in China reached 23.9 billion Yuan (equivalent to 3.9 billion US dollars) in the first half of 2013, which increased 63% compared to first half of 2012.

To meet the market demand, many e-business vendors joined in this new marketplace, resulting in intense market competition and leading to low profitability and survival rates for online group buying businesses despite increased sales. For instance, about 4670 Chinese owned small group buying sites went out of business by June, 2013 (China Electronic Commerce centre2013), accounting for 75% of the total number of group buying websites. Thus, finding ways to survive and compete in this fierce e-market place becomes the key for most e-vendors. Although it is well recognized that a good understanding of consumer needs, specifically, the benefits they seek is one of the most efficient ways to facilitate successful e-business (Delafrooz et al. 2009), different consumers have different needs to be fulfilled, especially in e-business context, where consumers can enjoy the various advantages bringing by the technology, such as various product/service selection and convenience (Ethier et al. 2006; Ganesh et al. 2010; Shang et al. 2005). This makes the benefit-based segmentation of online customers become necessary and valuable, which can help e-vendors determine profile of different groups of customers and serve them in a more customized way, improving both effectiveness and efficiency. However, given the newness of this e-business model, research examining customer segmentation in online group buying is scarce. In addition, most prior segmentation studies in e-business tend to segment consumers based on background variables, behavioral variables, online store attributes preferred or involvement level, which overlooked the true reasons underlying consumer behavior - the benefits consumer sought. Thus, this study is designed to fill the gap by segmenting online group buying customers based on their different shopping benefits sought.

In addition, for each segmented customer group, it is important to understand consumer decision making process. Specifically, we need to understand not only WHAT are the benefits consumers seek when shopping online, but also Why and How to obtain those benefits. In this regard, the Means-end Chain theory (MEC), developed by Gutman (1982), can provide a useful way to understand consumer decision making process. Generally speaking, MEC focused on obtaining insight into consumer buying behavior, by viewing consumers as goal-oriented decision makers, who choose to perform behaviors that seem most likely to lead to desired goals (Grunert et al. 1995; Reynolds et al. 2001). Specifically, MEC focuses on the cognitive linkages between the relative concrete attributes of products/services (the "means"), the more abstract consequences/benefits these attributes provide people, and the highly abstract personal values or goals (the "ends") these consequences/benefits help reinforce (Reynolds et al. 2001). A decision-making hierarchy can be generated to link means to ends via consequences/benefits consumers want to achieve. In this study, we extend the notion of the MEC theory to online group buying context by uncovering the online group buyers' decision making hierarchy, which can provide a guide for understanding why consumers select (or reject) a specific online group buying website and help direct actions taken to attract more consumers to shop online.

Specifically, this study attempts to understand typologies of online group buyers in terms of benefits emphasized by them underlying their online group buying behavior, and develop the hierarchical decision making process model for different segments of consumers. To achieve the goals, the following research questions were examined:

(1) Are there different groups of people based on benefits they sought through group buying behavior?

(2) What are the similarities and differences in decision-making hierarchy for different groups of consumers?

The rest of this paper is organized as follows. First, online group buying literature is reviewed, followed by the discussion about market segmentation and MEC theory. Then the research methodology is described, data analysis results and discussion are presented subsequently. Finally, the implications from both theoretical and practical perspectives are discussed.

Literature Review

Online Group Buying

Online group buying is an online retailing concept that seeks to offer cheap services or products through leveraging the buying power of individual consumer as a group. As a U.S. based online coupon seller, Groupon.com is a pioneer in doing online group buying business. Launched on November 2008, Groupon currently offers deals in 44 countries, while similar businesses witness a rapid growth across the world, particularly in China (Liu et al. 2013). Specifically, group buying websites seek to offer low-price local service or products to consumers after a minimal amount of shoppers signing up for the offer has been reached during a short period of selling time. Urged by its rapid growth and vast potentials, online group buying is regarded to be one of the most innovative online business models ((CNNIC) 2013). Due to its relative newness, interest in this novel e-business model is only in recent years, and research in this area is somewhat sparse. Generally, the earlier studies focus more on describing phenomenon of online group buying while later studies are more empirical in nature to examine online group buyer behavior.

Characteristics of Online Group Buying and Online Group Buyers

Earlier studies focus on describing the phenomenon of group buying online. For instance, Li et al. (2009) conducted a qualitative research to describe group buying phenomenon in China. They summarized the characteristics of the four types of group buying: consumers initiated, self-employed individuals initiated, group buying sites initiated, and media site initiated in terms of value, life-cycle, demand and brand of the products which are available, promotion media, information of the group buying activities, pricing, and discount. By comparing different modes of group buying, they confirmed the important role of group buying websites in the market channels. Tan and Tan (2010) conducted an exploratory study to compare online and offline group buying and found that online group buying was better than offline group buying in convenience, getting more product information and cheaper products. People who were young and optimistic with technology preferred online group buying. Their results confirmed findings in earlier studies that younger people and those optimistic with technology were more likely to use online group buying while those uncomfortable with technology and older people were likely to use offline one. Chen and Wu's (2010) study indicated that the dominant demographic groups in online group buying are females aged between 31 and 40, and the most frequently purchased items are food and daily necessity.

Factors influencing Customer Participation

Recognizing success of online group buying and the high enthusiasm of customers in this novel e-business market, a few empirical studies attempt to explore the factors that can impact consumer purchase intention or repurchase intention in online group buying context. These factors identified are related to four aspects: 1) economic related factors such as price, discount rate, price fairness; 2) social related factors such as peer referent, crowd effect; 3) technology related factors such as perceived usefulness, perceived ease of use; and 4) other factors such as convenience, product quality.

Among these factors, economic related factors are the most frequently investigated ones. Erdogmus and Cicek (2011) conducted a study to explore customers' motivations, behaviors, and perceptions of the online group buying system. Results indicated that price opportunity was the primary motive for participating in online group buying. Other motives mentioned were: exploration of new activities and places, seeking joy and variety, trial of non-routine activities, socializing, and need satisfaction in respective order. Using data mining approach, Liao et al. (2011) investigated online group buying intentions and found that the main reasons for consumers to attend group buying were good product quality and low price. Yang and Mao's (2014) results demonstrated that price and sales proneness, and trust in vendor can positively impact search and purchase intention while discount rate is not correlated with search intention or purchase intention.

From social perspective, Zhang et al. (2014) investigated how online social interactions influence consumers' online impulse purchase in the context of group buying websites. Their results show that online social interaction factors, including review quality, source credibility, and observational learning demonstrate important impacts on perceived usefulness and positive affect. Positive affect further influences urge to buy impulsively. Yeh et al.'s (2014) study identified the critical antecedents of

consumers' hedonic participation and value creation in the online group buying environment from social capital theory (SCT). They found that social interaction tie, trust, shared value, and platform capability can all influence hedonic participation and value creation in online group buying context. Tsai et al. (2011) found that a sense of virtual community and trust in the virtual community are determinants of online group buying intention. Shiau and Luo (2012) explored the factors affecting online group buying intention and satisfaction from social exchange theory perspective. They found that reciprocity, reputation, trust, vendor's creativity can influence satisfaction and which in turn affect intention to online group buying.

From technological perspective, Tsai et al. (2011) conducted a study to understand the motivations behind a customer's decisions to purchase through online group buying websites. They provided a research model to examine the impact of technology acceptance factors on online group buying and found that website quality, perceived ease of use, perceived usefulness are important determinants of online group buying intention. Liu et al. (2013) identified that website attributes such as product availability, visual appeal, and website ease of use were important factors that affected personality traits which finally led to impulse purchase in online group buying.

From the studies reviewed above, it is obvious that researchers have recognised the potential of online group buying model in the e-business market. Although studies have shifted from descriptively explaining online group buying phenomenon or consumer characteristics to empirically examine consumers' behaviour, the extant studies have provided quite limited understanding of consumers. Most of these studies examined consumer behaviour focused on economic perspective and social perspective. A few studies try to investigate the online group buyer behaviour from the technological perspective, however, quite limited technology related factors (e.g. perceived ease of use, and perceived usefulness from Technology Acceptance Model (TAM)) have been studied. In addition, these factors been examined are all adapted from other e-commerce context such as B2C or C2C and most of these studies use quantitative methods to test the relationships between motivation factors and purchase intention or repurchase intention. There is a lack of studies using qualitative approach to comprehensively explore the motivation factors in the new e-business context. Due to this limited understanding, there is a lack of guidelines and suggestions for e-marketers to design the group buying websites and develop appropriate strategies to attract potential online consumers and retain current online consumers. Thus, studies are needed to provide more comprehensive information about factors influencing consumers' online group buying behavior. In addition, though Chen and Wu's (2010) and Tan and Tan's (2010) studies have provided the dominant demographic information of online group buyers, the information is too general and difficult for e-marketers to utilise for making promotion strategies. Thus, more effective segmentation studies which provide specific online consumer information are needed.

Market Segmentation

Market segmentation refers to "heterogeneity in demand functions exists such that market demand can be disaggregated into segments with distinct demand functions" (Dickson et al. 1987, p.4). It has long been recognized as a central concept in both marketing literature and practice (Green et al. 1991), in particular e-market places (Jin et al. 2003; Rohm et al. 2004). The practice of segmentation makes the design of marketing strategy more effective because managers have the sense of directing resources at specific and identifiable groups of people rather than diverse collections of individuals (Foxall et al. 1994).

Despite its managerial importance, there is a lack of study on e-consumer segmentation in online group buying context. Research has indicated that the identification of consumer segments is one of the most important and necessary avenues of research needed in the field of e-business (Brengman et al. 2005). However, most segmentation studies in e-commerce context or traditional retail shopping context are based on background variables, behavioral variables, and motivation variables. Prior research has indicated that each individual segmentation variable has distinct characteristics and thus can be of advantages as well as disadvantage in terms of application (Sun 2007a). "Background variables" such as demographics are relatively objective and are easy to measure, however, it is widely acknowledged that a lack of homogeneity within members of a segment in terms of motivations, needs, and behavior patterns makes segmentation based on these variables appropriate to locating a target market, but fails to provide accurate information for strategic marketing planning (Hooley et al. 1993). "Behavioral variables" are often used for segmentation primarily because of the ease in obtaining this sort of data from secondary sources (Wedel et al. 2000), however, behavioral segmentation is most likely to suffer from a lack of

"causal" relations between the resultant behaviors and reasons. Thus, the segmentation based on behavioral variables can describe the differences in consumers but fails to explain them. The "motivation variables" based segmentation can effectively find homogenous group of consumers. However, most of the motivation variable based studies bear a few risks (Botschen et al. 1999):

1. Several motivations may not be relevant for the respondents, but due to the fact that all of them are presented he/she is forced to evaluate them all;
2. Respondents tend to rate any motivations sought relatively high on the corresponding rating scale even those which are not relevant;
3. Some important motives might be overlooked in the in-depth or focus-group interviews; or
4. Depending on the amount of items respondents tend to loose concentration.

In addition, Botschen et al. (1999) argued that most of motivation-based studies did not distinguish between benefits consumers sought and the corresponding attributes associated with the benefits. Both the benefits and attributes are used as motivations for segmentation, which seems problematic (Botschen et al. 1999). Thus, a few studies argued that using only the benefits to segment consumers can offer better prospects (Boecker et al. 2008; Botschen et al. 1999). According to Haley (1968), the benefits which people seek in consuming a given product/service are the basic reasons for the existence of "true" market segments. It classifies consumers more accurately and identifies potential market segments. Despite the significance of benefits based segmentation, few studies in e-business has used the benefits to segment online customers (Sun 2007b), thus, more studies are needed to fill this gap.

Theory of Means-end Chain

The means-end chain (MEC) theory was developed by Gutman (1982) to understand how product or service attributes facilitate consumer's achievement of values or goals. Specifically, this theory focuses on understanding the consumer decision-making process by connecting product attributes, consequences (benefits) of using a product, and personal goals or values achieved by use of that product (Reynolds et al. 1995). The common MEC framework consists of three elements, namely, attributes, consequences/benefits, and values/goals (Olson et al. 2001). Attributes represent the observable or perceived characteristics of a product or service. Consequences reflect the perceived benefits associated with specific attributes. Satisfactions of consequences lead to realization of personal values/goals. By uncovering the ways attributes, consequences, and values are linked in consumption decision-making, MEC can nevertheless shed light into consumer decision making process (Olson et al. 2001).

The MEC model is based on two fundamental assumptions about consumer behavior. Firstly, people do not buy products for the products' sake, but for the benefits that their consumption can provide. Thus, MEC emphasizes the benefits or outcomes of a decision – as experienced by the consumers. It explicitly assumes that these desirable experienced benefits are the most salient considerations in decision making. Secondly, consumers' goal-directed purchase behaviors are voluntary and conscious. These behaviors are guided by the search of positive consequences or the avoidance of the negative outcomes (Olson et al. 2001). Overall, the MEC approach assumes that consumers decide which product/service to buy based on the anticipated consequences (experienced outcomes, need satisfaction, goal or value achievement) associated with each considered alternatives. Thus, the most important factors in decision making are the anticipated consequences/benefits associated with various choice alternatives.

The MEC theory has been successfully adopted in Information Systems to explore various problems. For instance, Chiu (2005) used the MEC approach to eliciting user requirements for a system design and resulted in a better understanding of the user's perceptual orientation toward the web-based document management system under design. Kuisma et al. (2007) identified the reasons for consumer resistance to Internet banking based on MEC analysis. Jung and Kang (2010) applied MEC analysis to investigate user goals in social virtual worlds and developed a hierarchical system of interrelated goals. Guo et al. (2012) adopted the MEC theory to explain the interrelated and hierarchically organized motivations for students' technology use behavior in learning. Recently, Pai and Arnott (2013) applied MEC theory to understand the fundamental reasons behind social networking sites (SNSs) adoption behavior. As a powerful method to provide meaningful results and valuable insights, MEC theory will be adopted in this study to understand consumer decision making process in online group buying context. In addition, by adopting

MEC theory, it is possible to elaborate on the distinction between attributes and benefits sought and to determine the benefits which can be used for segmentation in this study. Moreover, MEC analysis facilitates consumer segmentation based on the benefits generated by each respondent instead of asking respondents to rate the benefits, which can overcome risks associated with motivation based segmentation as described in previous section.

Research Methodology

Sampling and Data Collection

The research subjects are people who have online group buying experience in China. To recruit the subjects for interviews, announcements were posted on the Public Discussion Forum of a few famous group buying website (www.dianping.com, www.bbs.tuan800.com). The voluntary participants located in Shanghai in China were contacted for the interviews. Previous studies using MECs and soft laddering interview techniques suggest that a pool of 50-60 participants can generate enough information required (Reynolds and Gutman, 2001) and most studies utilizing MEC and soft laddering use a sample size of less than 60 (Kuisma et al. 2007; Sun et al. 2009). Hence, in total about 58 consumers were interviewed and 52 of them are valid interviews been considered for analysis. In addition, it is found that the theoretical saturation occurred after 20 interview, as no new constructs had emerged after that. Thus, the sample size was considered appropriately for this qualitative research using MEC and soft laddering interview technique. Gender distribution was random but the total sample has resulted in 13 males and 39 females. Majority of people spent 1 to 5 hours surfing the group buying websites each week. 48.08% of people used online group buying for 1 to 2 years, 32.69% of them used it for 2 to 3 years. 36.54% of them spent 301 to 500 RMB (50 to 83 US dollars) on group buying each month. More than half of them (69.23%) purchased more than 10 times using online group buying in the most recent one year. With 38.46% of respondents aged between 25 and 30, and 30.77% of them aged between 19 and 24, we found that the respondents were relatively young. In terms of education, 1.92% of the sample had high school level education, 28.85% had some college, 61.54% of them had bachelor degree, and 7.64% had postgraduate or above degree. Finally, 32.69% of respondents' monthly income was between 3001 and 5000 RMB (500 to 830 US dollars), and 30.77% of them had salary between 5001 and 8000 RMB (830 to 1300 US dollars).

Data Collection Technique--Laddering Technique

Laddering was originally introduced by Hinkle (1965) in a clinical psychology. The laddering technique attempts to model individual's belief structure in a simple and systematic way (Veludo-de-Oliveria et al. 2006). It is a popular interview technique used to identify Means-end Chain. Specifically, it is designed to develop an understanding of how consumers translate product attributes into meaningful associations with respect to themselves (Gutman 1982). In other words, its purpose is to reveal people's decision making process for choosing a particular product, or service (Russell et al. 2004). The laddering technique allows researchers to dig below consumer's surface knowledge about the perceived product or service attributes and consequences/benefits to their underlying beliefs and values that motivate their behavior (Peter et al. 2005).

Laddering can take different forms, hard laddering or soft laddering. Hard laddering was proposed by Walker and Olson (1991), which is a pencil-and-paper based laddering technique using a structured questionnaire to collect MEC data. In a hard laddering questionnaire, the respondents first state their reasons for choosing certain product, service, store or behavior, and then indicate why the given reason is important for them. Soft laddering refers to an in-depth, one-to-one interviewing technique (Reynolds et al. 1988), where the natural flow of the respondent's dialogue is restricted as little as possible. Prior studies have found that although the hard laddering and soft laddering approaches can produce comparable results, soft laddering generates more means-end chains of increased abstraction level, and thus more appropriate to be employed in studies with few subjects and more exploratory research. In view of the exploratory nature of this study, the soft laddering technique was used. The interview consists of two steps: eliciting relevant attributes and getting the ladders (Reynolds et al. 1988).

Step 1: Eliciting relevant attributes

The laddering interview often starts with eliciting constructs. The constructs that are elicited are

attributes of product or service, which will be used as the bases for eliciting the respondents' self-relevant consequences and values (Zanoli et al. 2002). The elicitation procedure is rather important for the outcome of a laddering study, since it determines the relevance of the means-end chains to be extracted from subjects. A number of techniques have been developed: triad sorting, direct elicitation, free sorting, ranking, picking from an attribute list (Bech-Larsen et al. 1999; Breivik et al. 2003; Reynolds et al. 1988). In this study, ranking was utilized after testing different elicitation methods in a pilot study. During the interview process, respondents were asked to provide a list of group buying websites they have used, and to rank the websites according to their preferences based on websites attributes or products/services attributes offered by group buying websites. After the ranking, they were asked "why do you prefer the first website to the second website?", and "why do you prefer the second website to the third one?" Reasons for ranking of all the websites were obtained using this question. After this stage, a list of group buying website attributes which participants preferred was obtained.

Step 2: Getting the ladders

In this step, the consequences, values, and linkages among attributes, consequence, and values were established by using probing questions such as "why is this important to you?" First, the list of attributes pre-established in the elicitation stage was presented and the respondent was asked "why is that important to you?' The laddering process continued with repeated probes using this question, "why is that important to you?" after each response. The development of such procedure allows the consumer to naturally reveal his/her personal reasons, those motivating him/her to choose and that otherwise it would not be possible to bring back to the light from the memory. Typically the answer will lead from attributes to consequences/benefits and finally to personal values/goals of the respondent. The interviewer will stop probing when respondent keeps on rephrasing the same response or insists that he/she does not know the answer. All the attributes obtained in the first stage were used for probing. The development of such a procedure allows the consumer to naturally reveal the higher level reasons behind decision making process (Zanoli et al. 2002).

Data Analysis

To answer the two research questions, the data collected from interview was analyzed using four steps. First, content analysis is used to generate factors which influence consumer online group buying behavior, and classify them into attributes, consequences/benefits, and values/goals. Then, to answer the first research question, cluster analysis is used to segment consumers based on benefits obtained in the first step. To answer the second research question, another two steps were utilized: construction of an implication matrix; and construction of a Hierarchical Value Map (HVM) for each group based on implication matrix to indicate consumer decision making process.

Results

Benefits-based Segmentation Results

Content Analysis Results

Content analysis serves to reduce the raw data in order to facilitate interpretation. It consists of two steps: data reduction (coding) and categorization. Data reduction involves the consolidation of constructs with the same underlying ideas. In this step, sentences in each interview were coded and combined under constructs. Then the constructs that were expressions of the same underlying idea were combined. Relationships among constructs were also coded. As a result, 112 unique constructs were produced. After data reduction, categorization process was conducted to categorize the constructs into different dimensions. Based on the literature, the constructs were finally categorized into different dimensions. The categorization of constructs was discussed by two researchers until agreement was reached for all the dimensions. In total, 35 dimensions were obtained. The dimensions were further classified into attributes (12), consequences (17), and values/goals (6). Table 1 displays the 35 dimensions.

Table 1: Content Codes Summary
Attributes

| A1: Marketing communication | A2: Product price | A3: Relative advantage |
A4: Product assortment	A5: System quality	A6: Service quality
A7: Company profile	A8: Information quality	A9: Network externality
A10: Buyer experience	A11: Supplier profile	A12: Product quality
Consequences/Benefits		
C1: Socializing	C2: Information access	C3: Ease of navigation
C4: Cost saving	C5: Arousal	C6: Perceived value
C7: Convenience	C8: Choice optimization	C9: Trust
C10: Perceived usefulness	C11:Perceived risk	C12: Sensory stimulation
C13: Decision quality	C14: Online impulsivity	C15: Freedom
C16: Satisfaction	C17: Entertainment	
Values/Goals		
V1: Browsing intention	V2: Self-actualization	V3: Purchase intention
V4: Improving life quality	V5: Loyalty	V6: Social affiliation

Cluster Analysis Results

To develop a typology of consumers based on their preferred benefits (consequences) for choosing online group buying, cluster analysis was conducted. To perform the cluster analysis, a matrix of the 17 benefit dimensions (rows) and the 52 participants (columns) was created, in which the cells were populated by the total number of times each dimension was mentioned by each participant. Then the matrix was duplicated by substituting the counts with the relative percentage that a participant mentioned each dimension. A two-stage approach was conducted to do cluster analysis (Hair et al. 1998; Punj et al. 1983). Initial solutions, using the Ward's hierarchical method, with squared Euclidean distance as a measure of similarity, provided a preliminary indication of the total number of clusters. Following Phang et al. (2010), the K-means cluster method was applied to the 17 consequence/benefits factors percentage scores for each participant. It was found that the three cluster solution created the optimal discrimination between clusters. An analysis of variance (ANOVA) was performed to examine the inter-cluster differences in benefits dimensions. These three groups are significantly different in 9 benefits dimensions: choice optimization, convenience, cost saving, decision quality, information access, online impulsivity, perceived risk, trust, and satisfaction. The radar diagram (Figure 1) graphically shows the benefits consumer sought for using online group buying in these three clusters. Cluster 1 was named as economic shopper, cluster 2 was named as balanced shopper, and cluster 3 was named as destination shopper.

Cluster 1, the economic shopper is the biggest group, illustrating a sample size of 20 consumers and representing 38.46% of total respondents. This group of consumers scored significantly higher on cost saving, decision quality, information access, perceived risk, and satisfaction. They scored low on choice optimization and online impulsivity. Majority of them are students. More than half of them have used the online group buying for 1 to 2 years. Money they spent on online group buying was less compared to the other two groups. The female accounted the highest percentage compared with other two groups. Consumers in this group were younger than other two groups, 45% of them were at the age between 19 and 24. With a higher level of education (80% with bachelor degree), their income was relatively less than other two groups.

Cluster 2, balanced shopper, illustrates a sample size of 19 consumers, representing 36.54% of total respondents. This group of consumers scored significantly higher on convenience. They scored low on decision quality, information access, and perceived risk. In addition, this group used online group buying earlier than the other two groups of consumers. 52.63% of them had used it for 2-3 years. The money they spent on online group buying was more than group 1 but less than group 3 consumers. Males accounted larger proportion compared with other two groups. More than half (52.63%) of them were aged between 25 and 30. This group had the lowest education level, with only 21.05% had bachelor degree.

Cluster 3, destination shopper, illustrates a sample size of 13 consumers, representing 25% of total respondents. This group of consumers scored higher on choice optimization, whilst scored low on cost saving. This group of consumers spent the most money for online group buying among the three groups. Their frequency of purchasing was also higher than other two groups in the recent one year. Consumers in this groups were older compared to other two groups, with 15.38% of them were between 30 and 35, 23.08% of them were above 36. Consumers with higher level salary accounted more in this group.

Figure 1: Radar Diagram of Clusters
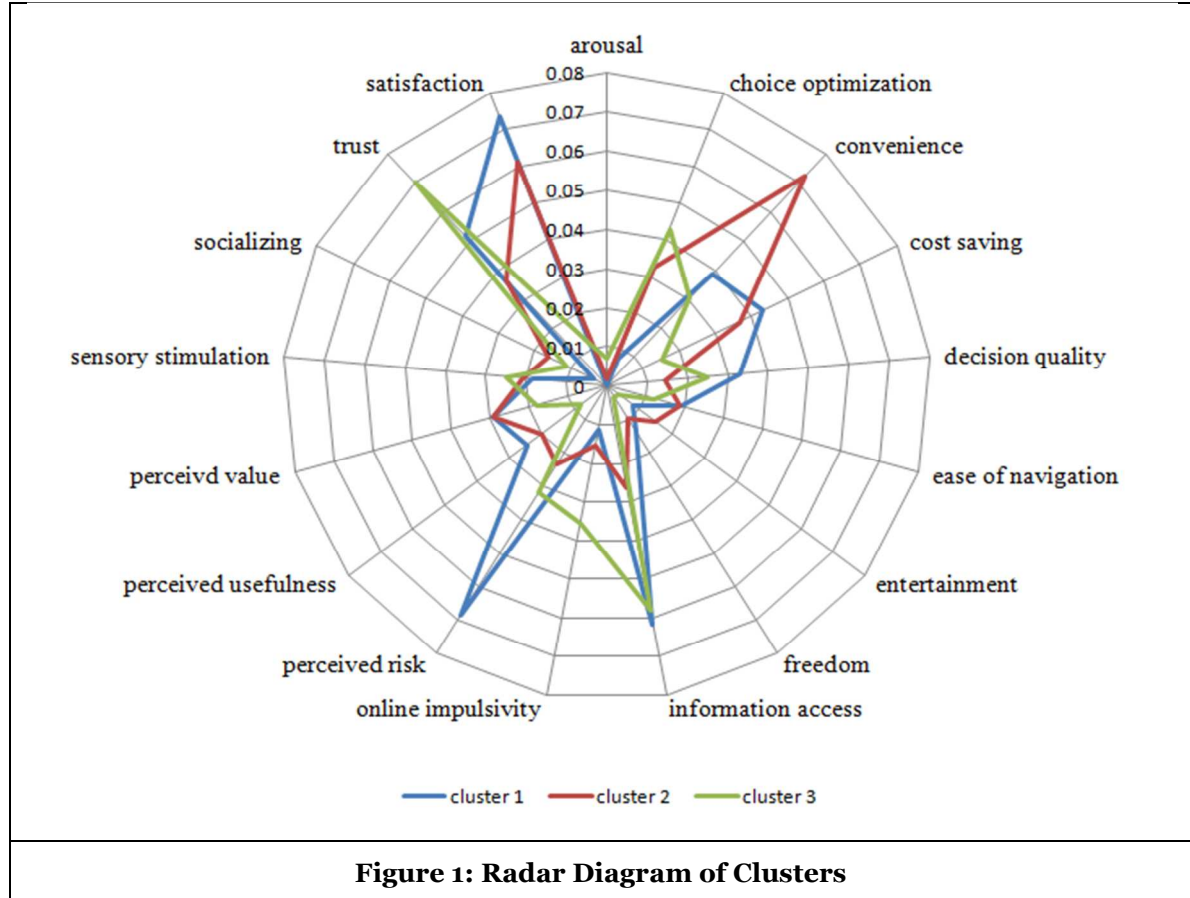
All three groups were very similar on many other respects, such as arousal, ease of navigation, entertainment, freedom, perceived usefulness, perceived value, sensory stimulation, and socializing. The most favorite products in all three groups are food. Most of consumers in all three groups purchased more than 10 times in recent one year and majority of them indicated that they would continue using online group buying websites in future.

Decision Making Hierarchy Results

To obtain the decision making hierarchy for three different clusters of consumers, three implication matrixes were developed first based on context analysis, then three HVMs were generated based on the three implication matrices respectively. Specific results are presented in the following sections.

Construction of Summary Implication Matrix (SIM)

The summary implication matrix (ISM) is used to summarize the connections between each attribute, consequence/benefit, and value/goal. It displays the number of times each element leads to other elements. It is a square matrix Z whose elements (Z_{ij}) reflect how often motive i leads to motive j, in which this is based on aggregation across respondents. Two kinds of linkages exist between elements. A direct linkage between two elements exists when one element is mentioned directly after another element in the same ladder, without any intermediary elements. An indirect linkage between two elements exists when the two elements are mentioned in the same ladder, but separated by one or more intermediary element.

Both direct and indirect linkages were considered in this study. As we have segmented the 52 respondents into 3 groups, three separate implication matrixes were developed (omitted due to space limit, table 2 below shows part of the implication matrix as an example). As shown in Table 2 below, the numbers in each cell represent the frequencies of the elements in the row heading leading to the elements in the column heading. The number of relations was presented through numbers in a fractional form, where the direct relations appear to the left of the decimal point and the indirect relations to the right. For example, the number 2.01 means that two people mentioned that information quality can lead to convenience and one people mentioned that information quality can lead to convenience indirectly through other element.

Table 2: Part of Implication Matrix				
	Convenience	Cost saving	Decision quality	Information access
Information quality	2.01		0.07	14
Product price		17		0.01

The SIM successfully transfers the qualitative data from interviews into quantitative data. By inspecting the SIM it is possible to obtain the information that which pair of motives have strong linkages, which element is more likely to be attribute or which element is more likely to be value/goal. However, as all linkages are summarized in the SIM, it is difficult to interpret the interrelationships among different elements directly from the SIM. Thus, a tree-like diagram, named as Hierarchical Value Map (HVM) is developed from the SIM to illustrate the relationships among motives.

Hierarchical Value Map for three Clusters

HVM visually illustrates the relationships between concepts by showing the links between the attributes, consequences, and values/goals. To construct a HVM from the implication matrix, one begins by considering adjacent relations, that is, if A→B and B→C and C→D, then a chain A-B-C-D is formed (Reynolds et al. 1988). A HVM is gradually built up by connecting all the chains by considering the linkages in the implication matrix. Usually, the HVM does not display all the elements and linkages in the implication matrix. The decision regarding what elements and links should be represented in a HVM is usually the result of a trade-off between retaining enough information from the interviews and producing a simple, clear and sufficient HVM (Costa et al. 2004). Thus, only the relation value above the cut-off level will be considered. A sensitivity analysis is conducted to decide the cut-off level value as shown in Table 3. As there are different numbers of people in each groups, different cut-off value needs to be determined to generate the HVMs

Table 3: Statistics for Determining a Cut-off Level of three Segments						
	Segment 1 (n=20)		Segment 2 (n=19)		Segment 3 (n=13)	
Cut-off	Active cells	Active linkages	Active cells	Active linkages	Active cells	Active linkages
1	131	336 (100%)	125	316 (100%)	98	187 (100%)
2	63(48.09%)	268 (79.76%)	62 (49.60%)	253 (80.06%)	36 (36.73%)	125 (66.84%)
3	33(25.19%)	208 (61.90%)	38 (30.40%)	205 (64.87%)	20 (20.41%)	93 (49.73%)
4	25(19.08%	184 (54.76%)	25 (20%)	166 (52.53%)	12 (12.24%)	69 (36.90%)

Considering proportion of active cells and amount of information present by applying different cut-off point in three segments, a cut-off value of 3 for segment 1 and 2, 2 for segment 2 were considered to be the most appropriate cut-off value according to Reynolds et al.'s (1988) suggestion that about two third of information need to be retained when deciding the cut-off level. For segment 1, 25.19% percent of the active cells can explain 61.9% of the information, for segment 2, 30.4% of the active cells can explain 64.87% of the information, and for segment 3, 36.73% of the active cells can explain 66.84% of the information.

Figures 2-4 depict the HVM for three groups of respondents respectively. The thickness of the arrows between elements on HVM is meant to reflect the percentage of respondents making the connection: the thicker the arrow, the higher the percentage. The frequency of the linkages is also marked in the connecting lines, with direct linkages appeared on the left of the decimal and indirect linkages on the right. It is important to note that an HVM does not depict "redundant" links which would occur when two elements are linked both directly and indirectly. In such a case, only the indirect link is depicted for sake of simplicity.

Figure 2: HVM of Group 1 (economic shoppers, n=20)
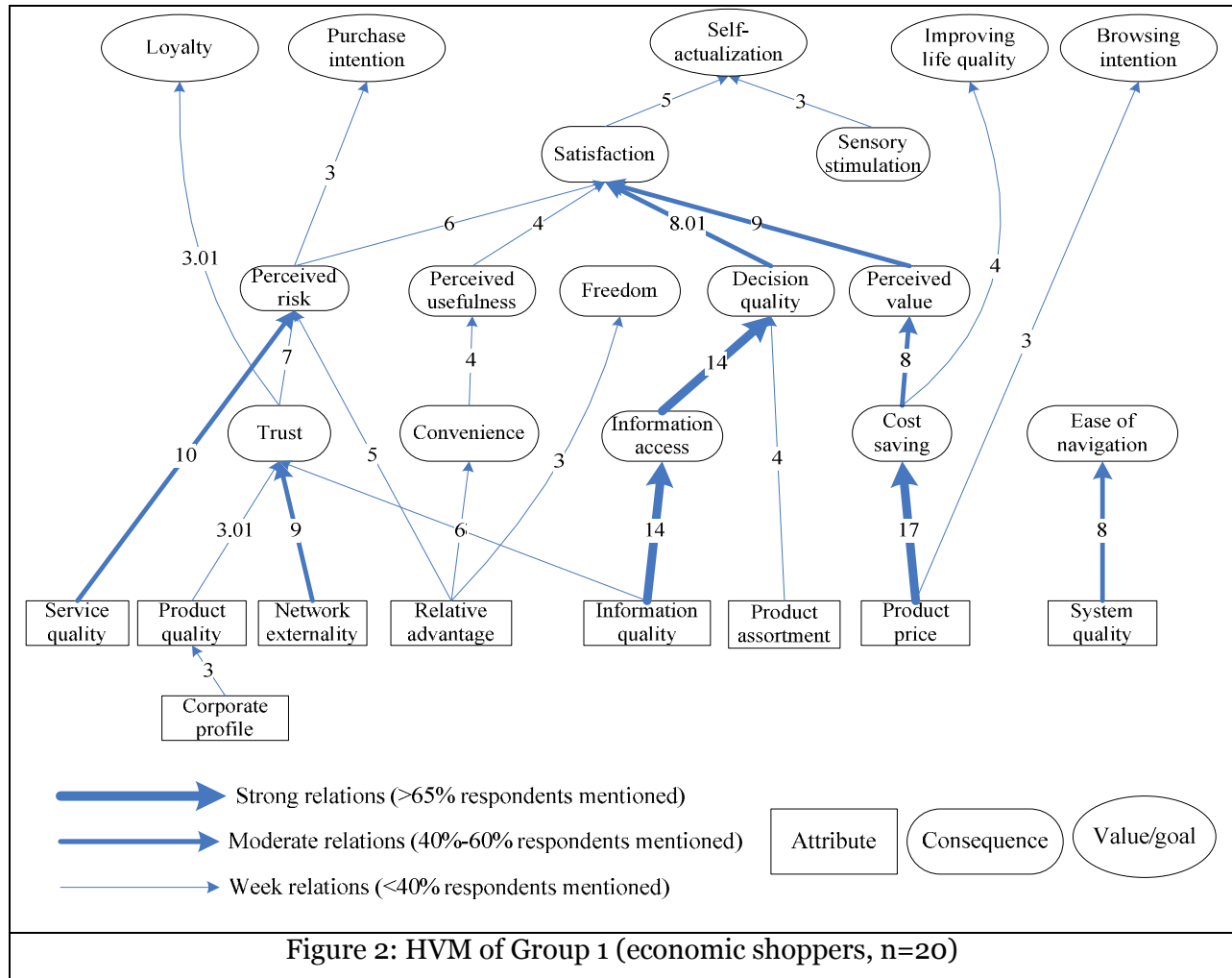
The HVM for "economic shoppers" is shown in Figure 2. As can be seen, the linkage between product price and cost saving was the strongest, with 17 out of 20 (85%) respondents mentioned this relationship. Cost saving further resulted in perceived value, satisfaction, and finally reached value of self-actualization, such as sense of accomplishment and sense of fulfillment. Information access and decision quality were the other two benefits respondents in this group emphasized as shown in the cluster analysis results. Information access means consumers' ability to obtain information from group buying websites such as the comments, pictures, price, supplier information, product information etc. Information quality is the only attribute that can contribute to information access. It refers to a consumer's general perceptions of the information content on the websites, covering currency, detail, accuracy, reliability, relevant, and completeness aspects of information in this study. Information access further resulted in decision quality, satisfaction and finally reached the same value of self-actualization. Perceived risk is also deemed as important for economic shoppers according to cluster analysis results, which can be achieved through

service quality, trust, and relative advantage directly and product quality, corporate profile, network externality, and information quality indirectly. Among these factors, service quality is the most important factor that can contribute to minimize perceived risk, mentioned by 10 out of 20 (50%) respondents. It refers to the extent to which websites facilitate efficient and effective buying process (Parasuraman et al. 2005). Perceived risk can further lead to satisfaction, value of self-actualization, and behavior of purchase intention. Satisfaction, which measures the consumers' overall evaluation of the product, service, and shopping process, was scored high in this group. As shown in HVM in figure 2, nearly all lower level benefits and attributes can result in satisfaction in this group.
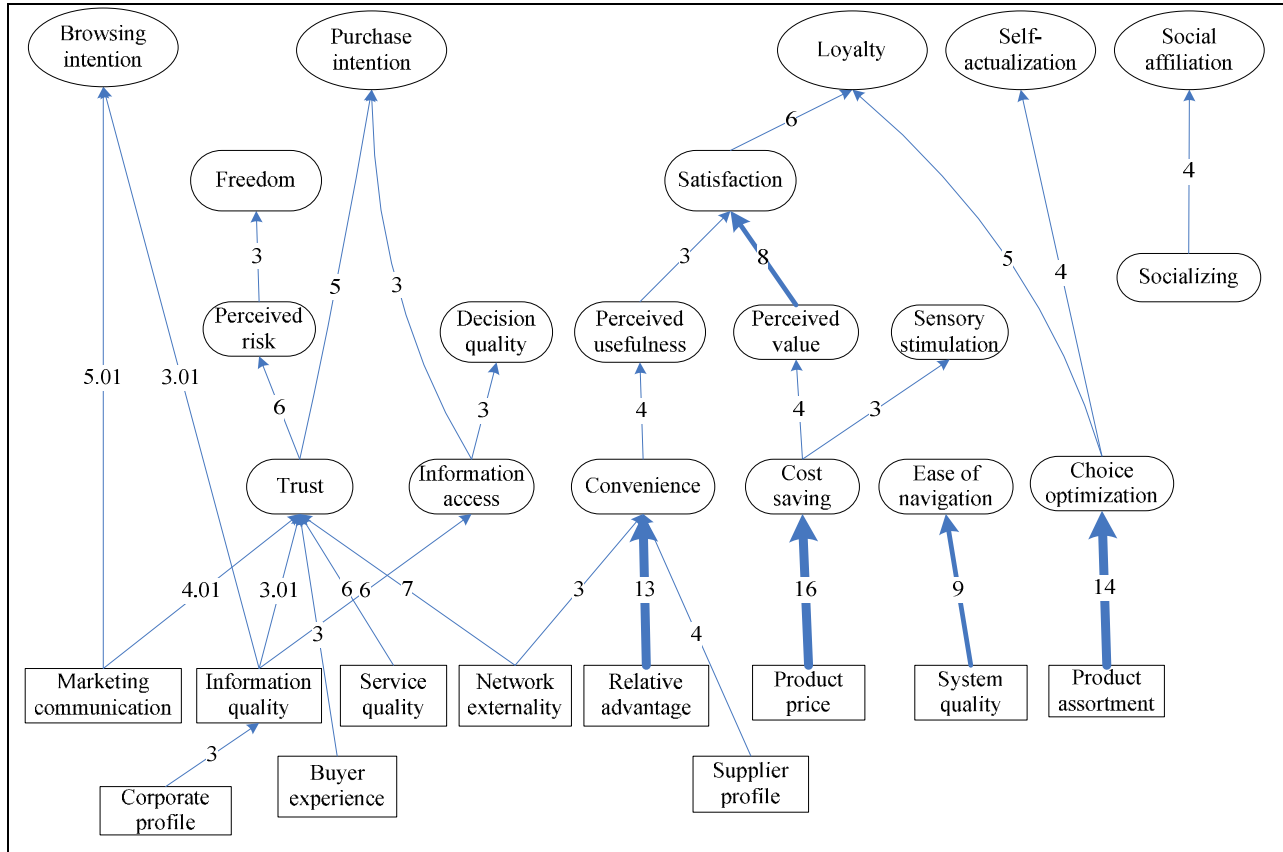

Figure 3: HVM for Group 2 (balanced shoppers, n=19)

The HVM for "balanced shoppers" is shown in Figure 3. The product price and cost saving linkage was the strongest with 16 out of 19 people mentioned. Choice optimization, described as the desire to search for the right product to fit one's demands (Westbrook et al. 1985), was important for balanced shoppers as well. As can be seen from HVM of Figure 3, product assortment was the only attribute that led to choice optimization, with 14 out of 19 (73.68%) people mentioned this relationship, indicating its importance in the HVM. Choice optimization further resulted in value of self-actualization and goal of loyalty. Convenience was scored as the highest in this cluster. Three attributes: network externality, relative advantage, and supplier profile can all lead to convenience, among which relative advantage was the most important one, with 13 out of 19 (68.42%) respondents mentioned this relationship. Relative advantage is the degree to which the online group buying provides an advantage over other shopping patterns, for instance, time restriction for transaction, flexibility in choosing seats online for movie ticket etc. Convenience can further lead to perceived usefulness, satisfaction, and finally result in loyalty behavior.

The HVM for "destination shoppers" is shown in Figure 4. The linkage between product assortment and choice optimization was the strongest, mentioned by 9 out of 13 people. Same as balanced shoppers, choice optimization was associated with attribute of product assortment and further went to value of self-actualization and goal of loyalty. Trust, which measures whether the owner of the group buying website is reliable, competent, and benevolent (Kim et al. 2008), was scored as the highest in this cluster. It is associated with 5 attributes: information quality, network externality, service quality, buyer experience,

and corporate profile. Among these five attributes, network externality and corporate profile were the most important with strong linkages (both with 53.85% respondents mentioned) with trust, followed by service quality (46.15% respondents mentioned). Network externality is composed of three parts: the impacts of friends, mass consumers, and complementary applications. Corporate profile is the description of the firm's history, resources, structure, performance, and reputation (Shareef et al. 2008). Trust further resulted in perceived risk and finally led to loyalty and purchase intention. Both marketing communication and information quality can lead to information access, which further resulted in decision quality. However, decision quality cannot result in higher level benefits or values/goals in this cluster due to low number of relationships mentioned by respondents which was below cut-off value.

Figure 4: HVM for Group 3 (destination shoppers, n=13)
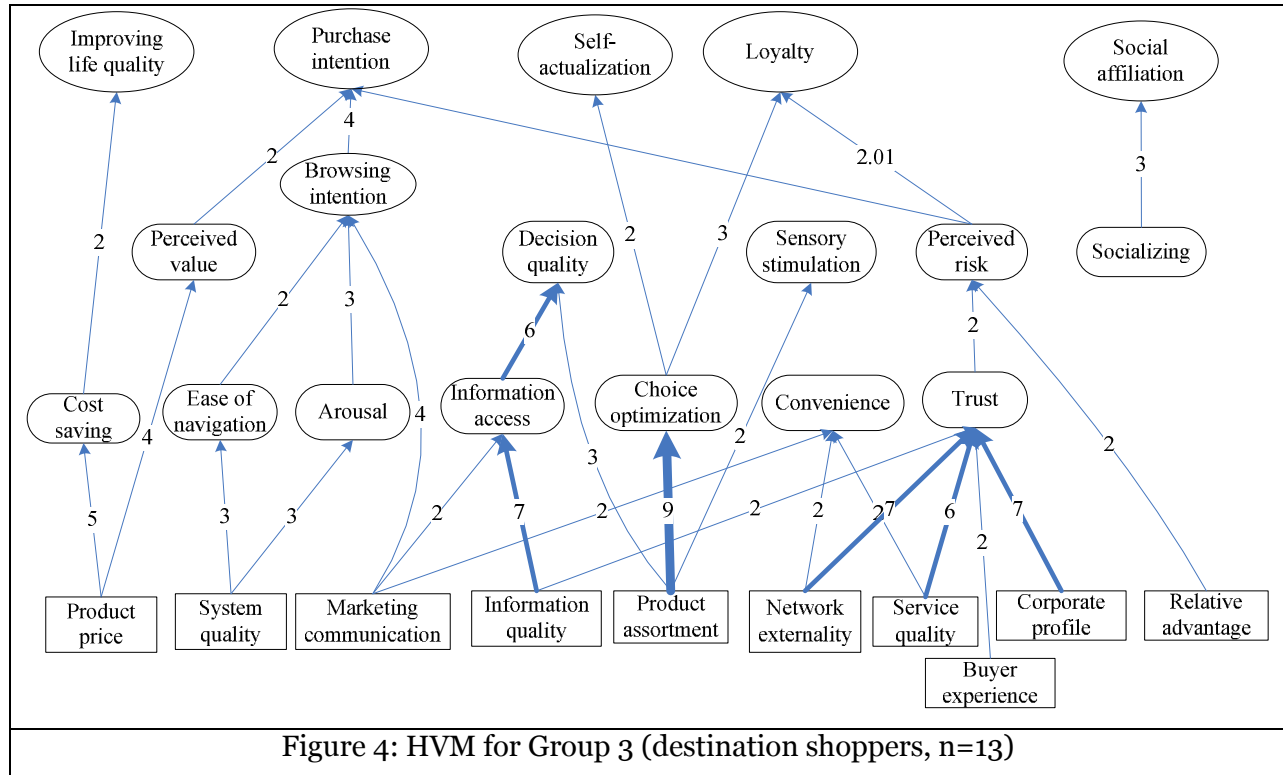
Discussion

This study yields two useful findings. First, this study found that online groups buyers are not the same in terms of benefits pursued when making online group buying decisions. Three groups of online group buyers, namely "economic shoppers", "balanced shoppers", and "destination shoppers", were identified based on benefits factors emphasized by them. Secondly, the decision making hierarchy for three groups of online group buyers were developed. The similarities and differences of the decision making hierarchy for three groups of consumers were identified.

Typology of Online Group Buyers based on Benefits Factors

Three distinct groups of online group buyers, labeled "economic shoppers", "balanced shoppers", and "destination shoppers", were identified in this study, in terms of different benefits pursued by them when making online group buying decisions.

The first findings was that online group buyers differ significantly in benefits of choice optimization, convenience, cost saving, decision quality, information access, online impulsivity, perceived risk, trust, and satisfaction. The frequency and percentage of benefits of cost saving, information access, perceived risk, and satisfaction ranked as the highest for "economic shoppers". The "economic shopper" is similar to bargain seeker defined in prior online shopping segmentation studies (Ganesh et al. 2010; Ganesh et al.

2007), which indicates that they are price-oriented shoppers who enjoy hunting for and finding bargains. These consumers are more proactive in searching for information online to compare the alternative and finding bargains. The benefit of convenience was ranked as the highest for "balanced shoppers". Cost saving and choice optimization were scored as medium for "balanced shoppers" among three groups and information access was scored as the lowest among three group. Rohm and Swaminathan (2004) found that in online shopping context "balanced shoppers" desire for convenience, care less about information seeking, and is moderately motivated by the desire to seek variety. Results in this study are in line with their findings. In addition, the results found that cost saving is also an important benefit emphasized by "balanced shoppers" in online group buying context, though not as important as for "economic shoppers". For "destination shoppers", choice optimization and trust are the most important and were scored as the highest among three groups. Ganesh et al. (2010) used rating of motivation dimensions and e-store attributes to segment online shoppers and find that "destination shopper" is motivated by merchandise variety and website attractiveness. Results of this study confirmed their findings. Furthermore, this study found that trust is an important factor "destination shoppers" consider when choosing among variety of products on group buying websites.

The second finding was that there were significant demographic differences among there groups of online group buyers. "Economic shoppers" is the biggest group while "destination shoppers" is the smallest group. The income of "economic shoppers" is the lowest, even the education level of them is the highest among three groups. This is due to the fact the nearly half of the respondents in this group are students. This also supports the results that cost saving and information access are important for "economic shoppers". "Balanced shoppers" has the lowest education level and most of them have used the online group buying for more than 2 years. Compared to other two groups, it seems that "balanced shoppers" are more experienced online group buyers, who also care more benefits offered by group buying websites. "Destination shoppers" were the oldest compared with other two groups, with the highest level of salary and spent most money on group buying among three groups. When Reynolds et al. (2002) compared the shopper typologies in traditional malls and factory outlet, they found that "destination shoppers" spent the most time and money of all shopper types. Results in this study confirmed their results in online group buying context.

Overall, though prior studies in e-business context and traditional offline shopping context has segmented customers based on different variables, few of them have classified customers based on benefits customers pursued. In addition, few of prior segmentation studies have compared the demographic difference among different groups of customers. This study is the first one trying to segment customers based on their preferred benefits obtained in interviews, which can overcome the shortcomings evident in segmentation studies based on other variables, such as behavior and motivations. The differences of demographic information for different groups of customers were also identified, which can be used as foundation for future studies and help group buying websites identify the target customers.

Contrasting of Decision Making Hierarchy for three Groups of Customers

The three HVMs as shown in Figures 2 - 4 illustrate the decision making hierarchy for three groups of online group buyers. A review of the three hierarchy models reveals both significant similarities and differences. In terms of similarity, there are two similarities of the three HVMs. Firstly, attributes, benefits, and values/goals present in three HVMs are similar. Secondly, relationships composed the HVM are also similar across three groups. For instance, Product Price is the only attribute which can lead to Cost Saving in three groups. Information Quality can lead to Information Access, which further lead to Decision Quality. Network Externality and Corporate Profile can result in Trust, which further lead to higher level benefit of Perceived Risk and goal of Purchase Intention. As these linkages existed in all three groups, it is evident that all online group buyers have at least paid attention to utilize the Product Price, Information Quality, Network Externality, and Corporate Profile to gratify their pursued benefits.

Table 4: Contrast of HVM for three clusters			
	Economic shoppers	Balanced shoppers	Destination shoppers
Chains			

Product price - cost saving - perceived value -satisfaction - self-actualization/loyalty	Strong relations (final value is self-actualization)	Strong relations but weaker than economic shopper group (final goal is loyalty)	Weak relations
Information quality - information access - decision quality - satisfaction - self-actualization	Strong relations	Weak relations without values/goals	Moderate relations without values/goals
Product assortment - choice optimization - loyalty and self-actualization	Without this chain	Strong relations	Strong relations
Network externality/information quality/corporate profile - trust -perceived risk - satisfaction -self-actualization/loyalty	Weak relations	Weak relations	Moderate relations
Relative advantage - convenience - perceived usefulness - satisfaction - loyalty/self-actualization	Weak relations	Strong relations	Weak relations without higher layer benefits and values/goals

The differences across three HVMs are summarized in Table 4 above. There are five major differences among three groups in terms of the motive hierarchy. Firstly, the linkage between Product Price and Self-actualization/Loyalty through Cost Saving, Perceived Value, and Satisfaction is strong in the hierarchy model for "economic shoppers" and "balanced shoppers", but not for "destination shoppers". However, unlike "economic shoppers", Cost Saving for "balanced shoppers" would finally result in goal of Loyalty behavior through Perceived Value and Satisfaction, instead of value of Self-actualization. Thus, it can be inferred that the "balanced shoppers" are more likely to conduct repeat purchasing behavior when their needs are satisfied while "economic shoppers" are more likely to enjoy the value that the Cost Saving can bring such as sense of accomplishment, sense of fulfillment, and enjoyment of life. Furthermore, It is found that the sample size composed of "economic shoppers" in this study is larger compared to "economic shoppers" found in other e-commerce context (Brown et al. 2003; Rohm et al. 2004). This finding suggested that Product Price and Cost Saving are the most vital motives for online group buyers, while in other e-commerce context and offline shopping context this aspect of motive dimension was deemed less important and emphasized by fewer consumers.

Secondly, chain of Information Quality - Information Access - Decision Quality - Satisfaction - Self-actualization was strong only in the hierarchy model for "economic shoppers". The finding suggests that most of previous studies failed to comprehensively examine consumer motivations in e-commerce environment, due to the fact that few studies have found "economic shoppers" are also motivated by information seeking related motivations - Information Access. As most of the segmentation studies use rating scale based on a list of priori-decided motivations to segment online consumers and ignored Information Access. Thus, using a qualitative approach to segment consumers based on factors generated by them can provide more comprehensive and accurate segments information. Moreover, the importance of information access for online group buyers in China is also relevant to the difference in operationalization of group buying websites in China compared to that in US. Specifically, the group buying websites involved more in the entire business process, including the price setting, logistics, after sales services, and advertisements while group buying websites in US is more like platforms for suppliers and customers to make transactions. Furthermore, group buying websites in China offer multiple deals per day and cover more categories of products while group buying websites in US are mainly focused on service products. Thus, online group buyers in China are more influenced by the information access capability of the group buying websites.

Thirdly, Product Assortment - Choice Optimization - Loyalty/Self-actualization chain existed in the hierarchy model for "balanced shoppers" and "destination shoppers", but not for "economic shoppers", due to the low frequency of Choice Optimization mentioned by "economic shoppers", which is below the

cut-off level. This finding demonstrated that "economic shoppers" do not care about the Choice Optimization, which is not consistent with findings in Ganesh et al.'s (2010) study in online shopping context, who found that "economic shoppers" score moderately high on product variety. However, as can be seen in the results, the Product Variety was present in the HVM for "economic shoppers" even with the absence of Choice Optimization. It was used to gratify the need of Decision Quality. This illustrates that the "economic shoppers" still utilize Product Variety to fulfill the need of better Decision Quality, other than the Choice Optimization. This takes a further step to illustrate the necessity to segment consumers based on benefits layer motives and explore relationships among these motivations, rather than on attributes layer or a list of motivation factors not differentiated for layers. Otherwise, as in this case, without considering the benefits layer motivations and the hierarchy structure of motive for online group buyers, researchers may misinterpret the information as "economic shoppers" emphasized Choice Optimization as well because they rate high or moderately on Product Variety.

Fourthly, the linkage between relative advantage and convenience is only strong in hierarchy model for balanced shoppers, which can further lead to perceived usefulness, satisfaction, and finally result in loyalty behavior. The "balanced shoppers" in this study is similar with "balanced shoppers" in Rohm and Swaminathan's (2004) study in online shopping context, who desire for Convenience, care less about 'Information Seeking', and is moderately motivated by the desire to seek Variety; share some characteristics with Brown et al.'s (2003) "convenience-oriented shoppers", who is distinguished by its high score on convenience, enjoyment, and price dimensions, and Ganesh et al.'s (2010) "basic shoppers", who are convenience and price oriented. However, the Choice Optimization was excluded in both of these studies. This again illustrates that incomprehensively using motivations to segment consumers may cause the problem of inaccurately describing profiles of each segments. Without understanding that Cost Saving, Convenience, and Choice Optimization are all important for "balanced shoppers", e-marketer cannot efficiently make an appropriate strategy to attract the "balanced shoppers". In addition, this study found that the unique feature of online group buying is an important attribute that can be used to develop convenience perception, which has not been touched in the literature.

Finally, although a few attributes can lead to trust in all three hierarchy models, most of the linkages between attributes and trust only show strong relations in the hierarchy model for destination shoppers, which is in line with the results that destination shoppers emphasize the trustworthiness of group buying websites. Specifically, trust is strongly associated with network externality, service quality, and corporate profile in the hierarchy model for destination shoppers and strongly associated only with network externality in hierarchy model for economic shoppers. The results indicate that many group buyers are impacted by the effects brought by other consumers, as more consumers participate in online group buying, they would be more likely to trust online group buying websites. Though network externality has been found to have impacts on perceived usefulness, enjoyment, and continued use intention in multiple contexts such as mobile communication, online game, social networking sites in prior research (Lin et al. 2011; Yang et al. 2010), little research has explored the impacts of network externality on trust. This study illustrated that network externality can help achieve consumer trust in online group buying context. Further research can also be conducted to explore whether network externality works in other contexts such as online shopping. In addition, destination shoppers also consider the background of the company and service quality of the website as a signal to develop trust towards group buying website, and finally achieve higher level benefits and goals.

Implications and Limitations

This study has implications both from theoretical and practical perspectives.

Theoretically, this study has two implications. Firstly, respond to Yang and Bao's (2014) and Tsai et al.'s (2011) call for segmentation studies to understand the market variability and diversity of the online group buyers. This study used a different method for market segmentation in online group buying context. Results offer the indication that MEC analysis can provide a powerful tool for "true" benefits segmentation in e-business context. Specifically, this approach provides an in-depth understanding of different groups of customers and overcomes the shortcomings of traditional segmentation studies which use all factors across different level to segment, or based exclusively on attributes, in which different groups of consumer may actually belong to the same group due to the fact that different attributes can lead to the same benefits. Furthermore, the MEC uses the qualitative approach to segment consumers,

other than based on quantitative methods using survey and rating scales to segment consumers. It provides evidence that this approach based on items generated by consumers could provide meaningful segmentation information that are more relevant to consumers by not compelling consumer to rate all items provided which may not relevant to the respondents. Thus, it more accurately segments consumers into the corresponding groups by capturing their respective true motivations. The findings provide valuable insights for future segmentation studies which aim to segment consumers based on motivations or store/website attributes.

Moreover, by using MEC analysis, three decision making hierarchies were developed for three groups of online group buyers respectively. That is, the attributes are linked to corresponding benefits and values/goals in each segment. Such direct and indirect linkages have been absent from previous typologies. This approach provides an in-depth understanding of the groups, and allows overcoming the boundaries of segmentation based exclusively on attributes in which the e-marketers must deduce the underlying higher-order benefits and values/goals from the attribute. The directed graph for each group supports these findings and depicts the needs fulfillment pathway of respondents. Furthermore, by comparing the hierarchy model of the three groups of online group buyers, it is not only possible to uncover how different groups of online group buyers differ in terms of using certain websites/products/service attributes to obtain benefits and further reach values/goals by inspecting what are present and absent from each HVM, but also possible to understand how the ladder pathways differ in terms of the strength of association and order of importance of elements existed in three HVMs. It provided more detailed information for different groups of online group buyers and facilitated an in-depth understanding of the true differences among groups of online group buyers, which is overlooked in prior e-business research. Overall, the resultant segmentation scheme has advantages over traditional approaches, in respect of both accuracy and action-ability. Researchers can try to apply this segmentation method in future segmentation research to generate more valuable insights.

Practically, as online group buying is new in the field of e-business, this study can help marketers understand consumers' needs so as to recognize the potential for the trend of development of changes according to consumer requirements to gain competitive advantage. By segmenting consumers into different clusters according to their preferred benefits, the results can help group buying websites to identify not only the demographic characteristic of different groups of customers, but also the different needs required by different groups of customers, which can assist them make appropriate strategies to tailor different segments of consumers based on their different needs. By using MEC and laddering technique to uncover the decision making process for each group of customers, the results can clearly articulate how consumers in different group utilize the group buying websites attributes or service characteristics to get the benefits to satisfy their needs and finally achieve the higher order personal values/goals. It can provide actionable information for group buying websites, for instance, in order to attract destination shoppers, group buying websites can cooperate with more suppliers to offer variety of products/brand to satisfy buyers' choice optimization needs or provide better service quality to increase consumer trust.

There are several limitations in this research. Firstly, the sample in this study only contains Chinese online group buyers. As online group buying is more popular in China and USA, thus a future comparative study between China and USA would shed more lights. Secondly, the study was not limited to a particular category of products. With no restriction of product category being examined, it could not explore subtleties motivations among product categories. However, the advantage of no restriction allows respondents to measure motivations across all product categories, which seemed to generate broader personal constructs. Additional studies can also employ this methodology to explore perceptions within product categories or to compare consumer motivations in buying different product categories via online group buying. Thirdly, the data analysis especially the content analysis is not fully discussed in this study as the focus of this paper is on customer segmentation and their different decision making paths. Thus, the specific details of the constructs are not fully covered. For instance, what aspects of convenience the balanced shoppers prefer.

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