

## **THE POWER OF MANY: AN ASSESSMENT OF MANAGING INTERNET GROUP PURCHASING**

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### **ABSTRACT**

This article introduces Internet group purchasing (IGP) as a novel e-commerce phenomenon. Drawing on collective cognition and other relevant theories, we investigate the management of IGP by analyzing the four stages of IGP: (1) information accumulation, (2) interaction, (3) examination, and (4) accommodation. Netnographic methods were employed to collect qualitative data from eleven online group purchasing websites selected from hundreds of possible study websites. Analysis of the four stages of IGP lends support to the group-level cognition theory and makes contributions to collective cognition theory, especially as how it can be applied to the e-commerce context. It also situates group purchasing within the phenomenon of social networking marketing and discusses the symbiosis between IGP and businesses goals. Findings can help e-commerce practitioners to better understand online consumers and the manner in which they organize Internet group purchasing using social media. The research also provides managerial implications and directions for future research.

Keywords: Internet group purchasing, social media, collective cognition theory, netnography and hermeneutics

### **1. Introduction**

As herd animals, human beings have always bonded together, first in tribes and later in cities. One of the characteristics of this bonding is group decisions and group pooling of resources. In marketing, organizational group buy and family or household purchases have been extensively researched as group decisions [Menon et al. 1995; Yang et al. 2010]. In particular, group purchasing, also called “group buy”, “team buy” or “collective purchase,” deals with group decisions by a group of individual consumers, sometimes who are even strangers [Economist 2006]. It occurs when consumers with similar goals and/or interests voluntarily combine their spending power to negotiate better prices from businesses. Reasons for consumers to group buy include splitting highly priced items, pooling money for birthday gifts, real estate, parties, buying a product in bulk to save money, raising money for a personal project from friends, collecting dues ahead of time and eliminating excuses and avoiding getting stuck covering costs when someone in the group does not pay.

With the boom of the Internet, consumers have begun to collaborate online to purchase in groups, a process which we call Internet Group Purchasing (IGP hereafter). First, the relevant and relative advantages of the Internet as a medium have boosted the purchase of consumer goods. Second, the rapid spread of social media has paved the way for IGP by providing the opportunity and tools to all consumers to easily express themselves and to inexpensively communicate with one another.

There are at least three reasons for studying the IGP phenomenon and its management. First, IGP is a product of the age of social media, a revolution that is transforming consumer purchases from individual buying to social buying. E-commerce has been coming of age for 20 years and has experienced two phases in its development [Brodie et al. 2007]. While the first phase was all about individual choices and better value for consumers, the second phase of Internet commerce is being redefined by the social media revolution of the last decade [Barwise & Meehan 2010; Edelman 2010]. Facebook, Twitter, MySpace, blogs, political group website, brand communities, and other social networking websites provide ample opportunity for consumers to communicate and share experiences, opinions, knowledge and attitudes towards products and services [Kozinets et al. 2010]. Indeed, we would argue that marketers can be more successful when leveraging social media and benefiting from free contributions of time and effort by consumers and non-consumers alike [Cook 2008]. Through the Internet, consumers seek products that are liked by other people in their social networks, provide reviews on products and services to help their fellow users in making decisions, share product use knowledge with new users, and express support for preferred brands. Not only do people share preferences, they also like to evaluate products with their friends and in the case of IGP even purchase products together.

Since potential Internet customers possess different amounts of information and use different criteria for making purchase decisions [Kim & Gupta 2009], the consumer decision process has dramatically changed, even over the relatively short period of time the Internet has been with us [Edelman 2010]. Online consumers have been observed to go through four distinct stages in making decision: the first stage is to select a brand, followed by a stage for evaluating the brand via seeking reviews from others; if they are convinced by the reviews and information, they will next go on to purchase the product or service; and in the fourth stage, if they are satisfied with the product or service, they will advocate for it and form a bond; they may even join the brand community.

With the advent of this new consumer decision process, it is very likely that Internet vendors should adopt different marketing strategies for creating initial sales and generating repeat sales. Unfortunately they are not knowledgeable about how to employ social media marketing methods to develop networked communication forums that govern the expression, transmission, and reception of a message [Dutta 2010]. One of our study goals, therefore, is to remedy this gap in knowledge.

Yet even as modes of group buying are mushrooming, there is very little academic literature on social buying. To our knowledge no academic paper so far has tried to understand how these groups form, how they are organized, how they are managed. None has examined the internal negotiations that go on within these groups.

This lack of research is ironic in that there are many reasons why consumers should be fascinated by social buying. In addition to the reasons articulated above, a second reason that favors it is that today's consumers are not fettered by traditional channels of distribution [Black et al. 2002; Harrington & Tjan 2008; Johnson 2007; Nunes & Cespedes 2003; Porter 2001]. Before the Internet, consumers typically relied on only one type of channel for goods; as a result, a company would identify a target segment of buyers and focus on the channel that could deliver them [Ghosh 1998; Nunes & Cespedes 2003].

Today, firms increasingly seek multiple channels including interactive and direct channels (e.g., direct mail, the Web, and physical stores) to reach customers [Balasubramanian et al. 2005; Johnson 2007; Rangaswamy & Van Bruggen 2005]. There is a strong justification for this because customers using multiple channels spend two to four times as much as customers using a single channel [Kumar & Venkatesan 2005]. As more channel options become available, consumers are learning to take advantage of how various channels serve their various needs, offer better prices, and provide faster services. These far more sophisticated consumers, clearly more sensitive to the value propositions of multiple channels and better equipped with information and technology, are better able to make informed and advantageous decisions [Lee et al. 2008; Nunes & Cespedes 2003]. For instance, many potential customers use the Internet channel to do research and choose the cheapest channel when it is time to buy.

This situation poses a challenge for a company's go-to-market strategy. Companies must adapt to the buyer behaviors; and design pathways across channels to help its customers get what they need at each stage of the buying process. IGP is one of the channels that Internet consumers could opt in to take advantage of superior values that may not be available from a regular channel. In short, knowledge of IGP can help companies design better services for potential customers.

The third and somewhat surprising reason for social buying is that the whole group buying phenomenon has emerged dynamically from parts of the world outside the West, and the phenomenon is experiencing a reverse migration to the West. This gives social buying a wide spread acceptance that few innovations enjoy. The basic push for group buying has come from China where it is better known as "Tuangou" [Farrar 2009, Zhang 2010]. Tuangou or group buying has really taken off in China, spreading through China like "wildfire" [Economist 2006, p. 59]. According to Zhang [2010], by September 2010, there was over 1,000 online group buy websites in China and sales had reached one billion Yuan (Chinese RMB, equal to USD\$ 15 million).

In recent years the group buying phenomenon has spread through the West also. For example, Groupon.com, an online vendor founded in 2008, has been phenomenally successful in promoting group buying in the US. Groupon and similar websites offer deals to its members if they promise to sign-up for certain deals being promoted in a particular city. The recent valuation of groupon.com has reached \$4.5 billion, suggesting that Internet group buying is here to stay. Although websites like groupon.com and woot.com are not identical to the original “Tuangou” as they are basically corporate-led initiatives while the original Tuangous are more grassroots, spurred by ordinary consumers coming together to purchase products, IGP has become a major consumer trend both in China and U.S. and will undoubtedly become a lucrative channel for e-commerce as time goes by. The market is quite sizeable and will continue to grow with an increasing number of people interested in group buying and more websites offering group-buy services.

In spite of this rapid growth, IGP is nearly completely unstudied in scholarly circles, there being no academic research on how to manage IGP. Limited knowledge from non academic commercial sources based on anecdotes and stories could mislead those who consider investment in IGP. Investors of this stripe seek more solid foundations for developing and managing IGP.

The present research intends to remedy this lack of scientific knowledge by offering the first in-depth study and analysis of the IGP phenomenon. Based on the collective cognition theory, our qualitative study provides a theoretical framing for IGP that can help both e-commerce theorists and practitioners better understand the phenomenon, develop effective management strategies, and create a competitive advantage in social media sites.

Within the framework of collective cognition theory, the research is specifically guided by five questions: 1) How is IGP formed in the Internet setting? 2) How do consumers search and evaluate the online information? 3) How do consumers interact with other consumers in their decision process? 4) How do consumers negotiate with the Internet seller? And 5) What impact does IGP have on marketing practice?

Through insights offered by qualitative analysis, we aim to accomplish three objectives. The first is to present a thick description of IGP [Lincoln & Guba 1985], operationalized as the tracking of eleven online group purchasing episodes from start to finish. The second objective is to apply collective cognition theory as a useful analytic framework for understanding online group purchasing behavior. The third objective is to address managerial and theoretical implications for e-commerce practitioners. Findings from this research contribute to the e-commerce literature by deepening our substantive knowledge about online group purchasing and helping e-commerce practitioners and academics alike understand the intricacies of the collective cognition process in online group buy.

The structure of the paper is as follows. We begin with a literature review of social media and networks and collective cognition theory, followed by a description of the methodology employed. We then discuss our findings in terms of four collective cognition IGP stages and their implications: (1) information accumulation, (2) group interaction, (3) information examination, and (4) accommodation. We conclude by discussing implications for e-commerce. Throughout the discussion, we compare the results of our research with extant literature concerning other relevant research (e.g., group decision-making process, virtual team performance, organizational buy, and e-commerce) such that the resulting discussion achieves a broader theoretical foundation for understanding the phenomenon.

## **2. Literature Review**

### **2.1. Social Media, Online Networks and Consumer Behavior**

In order to appreciate what IGP offers consumers, we need to first look more closely at the advantages offered by both the Internet and social media networks against traditional buying channels. It is obvious today that consumers are increasingly connected to one another through the Internet, one major means by which this is happening being with virtual communication tools called “social media”. Social media and connectivity via the Internet have also created a more effective communication forum between companies and customers [Moran & Gossieaux 2010], and today begin to have significant impacts on marketing, advertising, and many other corporate functions [Cook 2008; Kozinets et al. 2010].

One important impact of social media on consumer behavior is the formation of various virtual social networks. For instance, participants in Facebook, MySpace, Second Life, World of WarCraft, Flickr, and YouTube are social networks where many people may never meet and never intend to meet [Bédisle & Bodur 2010; Clemons 2009]. The desire for social interaction is driven by consumer concern for others and by their desire to enhance their own self-worth [Hennig-Thurau & Walsh 2003; Wang et al. 2007]. Also, reciprocity, the desire for status, and the need for fairness explain why Internet users want to be helpful to complete strangers, competing writing product reviews, and investing valuable time and effort setting up web sites [Moran & Gossieaux 2010]. Online communities and social-media tools are powerful tools for reaching potential customers via messages and enabling consumers to perform a variety of social activities within these virtual communities. For example, people can track blogs of their favorite

movie stars, companies, brands, writers, social activities, or politicians, and to show their support for other people, events, and causes. Generally, social networks are trusted because members share a common interests, experiences, values or needs [Cook 2008].

The popularity of social networks among online consumers likewise stimulated the birth of IGP, and Internet technology making it easy for online consumers to organize IGP and manage group decision. For instance, Forman et al. [2008] found that consumers are motivated to buy online because they can easily use the information provided by reviewers to supplement or replace product information when making purchase decisions. Virtual community norms also help to increase trust among members, which in turn leads to more reviewer disclosure of identity-descriptive information. The communal WOM not only increases or amplifies marketing messages, but also systematically affects consumer information processing [Casteleyn et al. 2009; Kozinets et al. 2010]. Online consumers today can employ even more effective social media communication strategies such as information evaluation, embracing, endorsement, and explanation, to reach their goals. As sophisticated consumers have more trust in virtual communities, this helps them overcome the fear for potential risk of online purchasing [Schlosser et al. 2006], which further promotes the growth of IGP.

IGP development has also benefited from the evolution of social networks because the growing popularity of social networks has dramatically increased demand for products and services and raised consumer purchase intentions [Calder et al. 2009; Hernández et al. 2010]. According to Hernández et al. [2010], more and more consumers buy groceries and other foodstuffs via the Internet, and thus sales volume has been growing for the past 5 years at greater than 25% per year compared with stagnant increase in the overall market for foodstuffs. According to the recent research by Outsell, spending on online advertising and marketing will surpass print for the first time in 2010 [Outsell 2010]. About \$119.6 billion will be spent on online and digital strategies, including search engine keywords and webinars, while about \$111.5 billion will be invested in print media advertisement. Also according to Cohen [2011], Facebook got 4.7 percent of the U.S. online ad market in 2010 (\$1.86 billion in global ad revenues), and that will grow 7.8 percent in 2011 (\$4.05 billion worldwide). It is estimated that by 2012, ad spending on Facebook is expected to reach \$5.74 billion, up 42 percent over 2011. Online advertisements have brought numerous products to the attention of online communities and attracted more potential and repeat consumers. Word of mouth spread by members of an online community plus traditional forms of promotion such as advertising can create many more customers in markets than ever before and help pull consumers to IGP.

In addition, e-commerce businesses have been learning how to use online communities for customer support, product development, knowledge management, and recruiting [Moran & Gossieaux 2010]. Online consumers are able to enjoy even more conveniences and benefits when businesses take advantage of social media and networks. The new consumer trend of social network has had transformative impact on business's marketing strategies, providing a vast number of new opportunities for marketers [Hemp 2006; Moran & Gossieaux 2010]. Indeed, with the increasing popularity of avatars (i.e., virtual personalities), companies adapt their selling approach to these consumers based on avatar characteristics, with an ultimate goal of converting them to online and real-world customers [Hemp 2006]. Marketers need to consider how their marketing departments must collaborate with different parts of their organization in order to capitalize on the rich new knowledge flows created by this increased interaction with customers, employees, and business partners. This set of potential benefits hints that the group buying phenomenon in the future could be even more beneficial to sellers than before.

The above discussion demonstrates that IGP benefits from various advancements of social media theory and social networking marketing practices in its development. However, the challenges presented to social networking marketers would seem to set rigid boundaries on IGP. The challenges come from both consumer side (external) and marketer side (internal).

The main challenge on the market side comes from managerial difficulties in setting up and maintaining successful online channels. For instance, Porter [2001] found that at the strategic level, there was a widely held view that the sale of products via the Internet is cannibalizing sales of these same products through traditional channels. Some companies have even avoided the Internet medium altogether due to the possible negative effects on traditional distributors of using the new Internet system of selling. Some fear that this new system of selling could adversely affect sales made through traditional distribution channels [Coughlan et al. 2001; Gilbert & Bacheldor 2000]. Some companies worry that the example of the Internet as a product distribution channel could increase consumers' power to negotiate, due to the greater ease and rapidity with which they can make comparisons between alternative suppliers [Alba et al. 1997; Brynjolfsson & Smith 2000]. Further, although consumer contribution to a Web site may significantly increase the overall information value of the Web site [Dellarocas 2005], an overload of information in the form of numerous reviews from numerous reviewers may confuse consumers and harm a firm's marketing efforts [Forman et al. 2008]. Companies to date have not been able to find an effective solution to this problem. We consider that IGP is facing the similar difficulties in nurturing profitable online communities.

The largest challenge in social networking marketing may come from the consumer side --- retention of interested online consumers [Pollach 2008; Wang et al. 2007]. Several factors that may affect the consumer online decision making process have been identified (e.g., [Dellarocas 2005; Forman et al. 2008; Kukar-Kinney & Close 2010; Zhang & Daugherty 2009]). For example, Wang et al. [2007] found that the social cues inherent in avatars could influence consumers' affect, customer shopping value perceptions, and the persuasiveness of online sales channels. They suggest that when investigating the effects of e-tailers' Web sites, research should take into consideration the potential influence of Web site socialness perceptions on customer responses because use of social cues may give consumers an enhanced sense of human connection and emotional bonds. Also, the quality of contributions, users' motivation to participate, and reader trust in the writer's competence may influence the effectiveness of e-WOM [Pollach 2008]. Pollach believes that since consumers are now more capable of acting in a social manner, sharing insights about products and finding out what other consumers are experiencing in their interactions with companies and products, marketers may find it very hard to provide richer and more useful exchanges to consumers in WOM web sites. Recent research (e.g., [Kozinets et al. 2010]) has found that the effectiveness of WOM communication is directly affected by its placement within narrative environments or types (e.g., personal blogs or political group website), by communication forum (i.e., blog, dinner parties, bars, schools, Twitter, or social networking Web sites), by communal norms that govern the expression, transmission, and by reception of a message and its meanings. Kozinets et al. [2010] also suggest that due to the prominent tension between commercial and communal norms, virtual communication strategies must be planned carefully, integrating many factors into a promotion model such as promotional characteristics of the campaign, the type of product or service, the product's brand equity and the objectives, terms, a hard-sell salesperson culture, and humorosity in the campaign. Accordingly, they suggest that both marketers and researchers understand WOM in a social networking marketing before leveraging WOM in an online context.

With regard to other effects of social media on purchasing, Hernández et al. [2010] found that past e-purchasing experience can induce customers to purchase more over the Internet, implying that companies should make efforts to make the first online purchase experience delightful and to adopt different strategies when selling to new e-customers or retaining their existing ones. IGP provides a similar and suitable context in which examples of consumers go through a series of group cognitive process in their decision making process; social media and IGP studies can help marketers better understand consumer behavior within the social media.

In sum, modern marketing is at a juncture where social media are meeting companies and dramatically affecting marketing strategy. Marketers can employ social media marketing methods to their own interests but they also face some challenges internally and externally (from the consumer side). Better understanding social media marketing, including IGP, is the first step to set up effective social-media touch points with the consumer, restructuring corporate functions such as customer service and product development. The following section overviews IGP history in the background of group purchasing phenomenon in marketing.

## 2.2. Group Purchasing and IGP

Group purchasing is an old concept and group purchasing organizations have existed for many years [Nollet & Beaulieu 2003]. For example, purchasing groups have been extensively used in the health care, education and government sectors as a means of challenging economies of scale and keeping costs low [Essig 2000; Nollet & Beaulieu 2003]. In particular the health care sector in the US has been a leader and pioneer in group purchasing [Stefan & Santiago 1989]. According to some estimates, about 70% of all purchases in the US health care sector are made through the use of purchasing groups [Muse & Associates 2000].

The first recorded online group purchasing may have occurred in 1998 when mercata.com and mobshop.com offered a new dynamic pricing model for group discounts [Kauffman & Wang 2001]. The key difference from what we are seeing now and what was offered by these companies in the past is that while consumers now coordinate efforts to get discounts, consumers then could only pool their purchase volume [Kauffman & Wang 2001]. These pioneering companies offered a graded dynamic pricing scale over an increasing purchase volume. Every time a purchase volume commitment was reached, the price dropped for everyone. This model was very similar to a model presently followed by companies like group.com, except that group.com does not have a graded price scale and, they only offer a single low price to all customers when a minimum threshold is reached. Also all these pricing models were corporation-led and the negotiation between the firm offering the product and the ultimate consumers was conducted over the firm website. The firms never revealed the true underpinnings of the negotiation nor margins to their members. In a sense these sites were the online equivalents of warehouse clubs.

The only academic study of online group buying was by Kauffman & Wang [2001]. They created an econometric model to study how people bid on such websites. They found three specific effects existing on such dynamic pricing websites and named the three effects: (1) the positive participation externality effect, (2) the expected price drop effect, (3) and the market ending effect.

What Kauffman & Wang [2001] did not study and what we cover in our research is the dynamics of these interactions, especially when there is no corporate entity driving the purchase negotiation. An IGP in our study is organized by a group of anonymous consumers communicating through social media such as an online “forum”; in this setting, consumers do not reveal their identity nor do they know other members’ true identity. At the beginning of the process, an invitation message is usually posted on electronic bulletin boards to recruit other people to join into a group purchase. The message provides relevant information on product, market price, payment, shipment, product use and manufacturer/seller along with the number of participants needed for a group discount. After the potential participants have formed a group, they approach the target seller and attempt to negotiate their best deal (e.g., ten to twenty percent discount). Unlike brand communities in which relationships between members are more enduring [McAlexander et al. 2002; Muniz & O’Quinn 2001], a typical IGP is almost always a one-off, transactional behavior and participants may not maintain relationships with other members after the purchase.

The major difference between offline and online group purchasing processes lies in the utilization of computer networks as the medium for group meetings, a decision which leads to significant changes in the ways groups meet and conduct their business [Kerr & Tindale 2005]. The most obvious change is the elimination of the need to be physically present at a store. The asynchronous nature of IGP means members do not have to go shopping at a specific time and to a specific store but are free to participate at their convenience. A second difference is the elimination of size as a factor. Gathering together a group for purchasing was once constrained by the resourcefulness of coordinating members’ schedules, the capacity of available meeting places, and the status of group members among other factors. As asynchronous computer-mediated purchasing behavior, IGP holds the potential for increased consumer’s opportunities for interaction and increased productivity since electronically-mediated groups can span time and distance [Curseu 2006; Lemus et al. 2004].

Despite the intense interest in such matters, little academic empirical evidence has been undertaken in this specific area to date, as we have noted above. There are few studies from the consumer perspective examining the behavior of consumers who have the opportunity to buy goods and services in IGP context. To develop a theoretical framing for studying the phenomenon, we explore theory bases in the following section.

### 2.3. Theory Base

Collective cognition theory can serve, we believe, as a conceptual framework for the eliciting and analyzing of shared knowledge taking places in the IGP process. The collective cognition approach as elaborated in collective cognition theory provides a rich theoretical lens as well as associated methods to investigate collective sense-making about IGP innovations. Moreover, it can be used in conjunction with other frameworks involving group interaction processes and organizing visions for IGP innovations.

Collective cognition theory postulates what happens during the group level cognitive process [Gibson 2001; Gibson & Earley 2007; Johnson 2009; Volkema & Gorman 1998]. The term “collective cognition” refers to the combination of individual perspectives and the structural characteristics of that combination [West 2007]. Collective cognition theory has been increasingly employed to investigate various group decision making process in business settings such as small group decision process (e.g., [Bonito 2004]), group efficacy (e.g., [Gibson & Earley 2007]), team performance (e.g., [DeChurch & Mesmer-Magnus 2010; West 2007]), organizational networks (e.g., [Ibarra et al. 2005]), organizational market orientations (e.g., [Tyler & Gnyawali 2009]), leader-subordinate cognitions (e.g., [Lord & Emrich 2001]), and collective self-esteem in social networking sites such as Facebook [Gangadharbatla 2008]. There has been a call for more in-depth research into the nature and impact of collective cognition (e.g., [Hodgkinson 2001]). Tyler & Gnyawali [2009], in particular, suggest that collective cognition or managerial understanding should be focused on the customer rather than the competitor as the most important factor for determining the success of a company.

While the IGP organizers and each group member will have individual perspectives and cognitions about their purchase task, it is a collective perspective or a collective knowledge structure at the team level that guides the direction of the task. Collective cognition in IGP is, therefore, an important domain to explore, and it is fundamentally different from individual cognition or from the aggregation of individual cognitions. This paper employs Gibson’s collective cognition theory as the primary theoretical framework and intends to make contributions to the theory by extending its application to Internet-based situations.

According to Gibson [2001] and Gibson & Earley [2007], collective cognitive processes consist of four phases: (1) accumulation, which refers to information gathering, filtering and storing by the group members; (2) interaction, which means that group members retrieve, exchange and structure the information for decision making; (3) examination, which deals with negotiating, interpreting and evaluation of information by the group members; and (4) accommodation, which involves integrating the group members’ perceptions, judgments and opinions, reaching the final decisions, and taking actions. Collective cognition theory postulates that these four stages occur in non-linear

time. Several factors (e.g., task uncertainty/certainty, leadership/role ambiguity, conflict/consensus, feedback/social comparison) may influence the transitions into later stages and ultimately affect group performance. For example, task uncertainty may require the group to go into the interaction stage after the information accumulation process is completed whereas task certainty may lead the group straight to the accommodation stage. Similarly, with a strong leadership, a group may move from the interaction stage to the examination stage quickly, but a group with role ambiguity may have to return back to information accumulation stage. A group with conflicts may move from the examination stage to the interaction stage, but a group with consensus may go directly to the accommodation stage (i.e., purchasing decision making).

Collective cognition theory helps in explaining IGP phenomenon for two reasons. First, IGP is a typical collective cognition process, involving information processing in groups. A variety of critical IGP decisions can illustrate properties of collective cognition. For instance, IGP involves a series of cognitive tasks including product evaluation, information search and sharing, brainstorming, internal and external group conflict resolution and negotiation, and problems solving. Cognitive variance among IGP participants always result in a variety of competing preferences within the same group and the collective level becomes especially important if new members enter group settings with varying viewpoints. In this situation, the collective perspective represents a bridge between individuals in a team and actions taken in respect of team decisions [West 2007].

Second, the emergence of the Internet has not only affected the way in which the marketing works but has also unquestionably had an impact on consumers' motivations, information search habits, and their buying (e.g., [Calder et al. 2009; Kim & Gupta 2009; Vézina & Militaru 2004]). The Internet offers so many choices of products, services and voluminous information that the multitude of choices has made it more difficult for customers to quickly find what they are looking for [Skageby 2009]. Consequently, collaboration in cognitive process becomes ever more important for online consumers (e.g., [Paul & Nazareth 2010; Vézina & Militaru 2004]).

The use of IGP greatly simplifies this process of search for information or of making comparisons between different offerings (e.g., [Chiou & Cheng, 2003; Pollack, 2008]). For example, Vézina & Militaru [2004] found that online consumers can employ "Collaborative Filtering (CF)", a programmed procedure that allows online consumers to utilize the expressed preferences of thousands of other people in order to find the product they desire, based on the level of similarity between tastes. In a word, CF is a collective cognition process that allows consumers to discover things within an information environment that they probably never would have discovered otherwise; it also allows them to purchase a given product or brand on the basis of the collective preferences of a large group of anonymous consumers. Similarly, research based on Facebook by Gangadharbatla [2008] found, consonant with the findings on information processing attributes, that online consumers are "intrinsically interested in analyzing and processing information" (p. 10) from social networking sites and "form attitudes through cognition". Paul & Nazareth [2010] revealed that while information processing of groups involves cognitive conflict, the use of a decision framing schema that incorporates group level information obtained from the work of prior groups can help reduce information overload so that the successive group can process complex information more effectively.

Based on prior research on online information processing, we believe that collective cognition theory has the ability to explain the complexity of information processing in collaboration technology that supports consumer behavior, and it can also provide a mechanism to overcome information overload. Further, the collective cognition framework can predict the collaboration patterns and outcomes of online consumer groups. With this in mind, we examine the IGP websites from the collective cognition perspective. We begin by investigating the dynamics of the collective cognition process of online group purchasing and studying how group dynamics affect purchasing decisions. Specifically, the present research focuses on the four stages of collective cognition process in IGP. The analysis unit is the group, made up of consumers on the web and not individuals or organizations, although both consumer-to-consumer and consumer-to-seller interactions will be taken into consideration when analyzing the data.

### 3. Method

Given the inductive nature of the research, we adopt a hermeneutic framework (interpretivism) for working with text on social networking websites. According to Klein & Myers [1999], interpretive research focuses on the complexity of human sense making as the situation emerges, attempts to understand phenomena through the meanings that people assign to them. This method has been used by both information systems and consumer researchers (e.g., [Fournier 1998; Klein & Myers 1999; Thompson 1997; Thompson et al. 1988]).

In our study, the interpretation of the IGP participants' messages on purchase tasks emerged through a circular interplay between a developing understanding of messages and on-going immersion in collective cognition literature relevant to the IGP phases. The methodological procedures allow for seeing the text from an interpretive perspective without predefining participants' experiences in terms of the interpretative framework [Klein & Myers 1999]. The resulting interpretation seeks to articulate a theoretical interplay between IGP practices and phenomenological



descriptions of the meanings that the IGP process assumes in the decision making of particular consumers. As this qualitative methodology allows greater flexibility and adaptability in the research project [Klein & Myers 1999], the method can offer valuable insights into how IGP participants make purchase decisions through the social media and why this is so.

### 3.1 Netnographic Technique

The specific netnographic technique we employed under the umbrella of hermeneutics is a novel Internet-based ethnographic approach created specifically to investigate consumer behavior of cultures and communities present on the Internet [Kozinets 2002, 2006]. Specifically, Kozinets [2002] defines netnography as a “written account resulting from fieldwork studying the cultures and communities that emerge from on-line, computer mediated, or Internet-based communications, where both the field work and the textual account are methodologically informed by the traditions and techniques of cultural anthropology” (p. 62). As suggested by Kozinets [2002], netnographic research requires an immersive combination of participation and observation.

Research shows that netnography is a useful tool to study “pure” cyber cultures and virtual communities, situations where a community is formed through computer-mediated communications (CMC) (e.g., [Cova & Pace 2006; Muniz & Schau 2007]). The technique has received wide acceptance in online consumer behavior research (e.g., [Cova & Pace 2006; Kozinets 2002, 2006; Langer & Beckman 2005]) and in teaching topics like marketing in online settings [O’Reilly 2007]. The netnographic approach is similar to qualitative techniques such as ethnography in that the researcher is intensely and personally involved in the phenomenon as well as observing it [Cova & Pace 2006]. It differs from ethnography in that the researcher can choose to stand in as a “lurker” and not intrude on the group purchasing process, as we did. In this sense, the technique gains the advantage of being an unobtrusive measurement form, as encouraged in more positivist research.

The netnographic technique is appropriate to answer our research questions because our extended observation of IGP websites revealed that the Internet is the only medium through which members of IGP interact [Muñiz & Schau 2007]. Our approach is congruent with Kozinets [2002] because we did have access to the websites of group purchasing websites and are able to interpret the textual nature of virtual communities. However, what we developed and deployed in this study is a non-participant netnographic technique which allow us to study the phenomenon without directly participating in member interactions [Cova & Pace 2006].

The difference between participant and non-participant netnography lies in the role of researcher in the data collection process. In participant netnography, the researcher joins a group purchase, posts her/his own messages and participates in the decision-making process; this could conceivably interfere with the interaction of the group and even the outcomes of the group purchasing. By contrast, in non-participant netnographic research the researcher observes the process so that the group interaction and decision-making process can take place naturally, without interference, a technique that increases the accountability of the research [Muñiz & Schau 2007]. Further, the characteristics of netnography suggest that non-participant method may be sufficient for data collection for the present group purchasing study [Cova & Pace 2006].

According to Kozinets [2002], a netnographic method is a radical departure from traditional ethnography because netnography requires researchers to observe and re-contextualize conversational acts while traditional ethnography requires one to observe people, their behaviors, and their conversational acts. Since it is much more difficult to discern the identities of participants in a virtual setting, researchers have to rely mainly on what the participants have said when gathering data. Thus, our non-participant approach is equally effective in studying online group purchasing because conversations occur through computer mediation, are publicly available, and are generated in written text form. Cova & Pace [2006] utilized non-participant methods to study Nutella: The Community by collecting data from the website contents including both photos and postings of members. Their results suggest that a non-participant approach can yield similar research outcomes to the participant approach.

We employed online observation as a data collection technique to gather digital messages in the form of emails and forum postings exchanged between participants. Attention was focused on the contents of the personal pages of IGP members. A maximum variation sampling method was used to capture a variety of themes and styles [Kozinets 2002; Schau & Gilly 2003]. We observed informant actual behaviors in the virtual environment and made extensive use of field notes (about 200 pages) observing our view of the transactions as they were taking place. The field notes were likewise consulted and used during the writing of this paper.

### 3.2 Online Field Site Selection

The research process first involved identification of suitable websites for collecting data. To maximize the research goals, we considered all Internet purchasing groups or group buys that had a common interest in a specific product or brand. Search engines such as Yahoo.com and Google.com were employed mainly to locate websites where group purchasing activities took place. Searches yielded hundreds of group purchasing websites. Three criteria were put in place to select the final websites. First, the website language had to be English. Second, the



website had to be open to the general public. Third, the website had to have clear and complete information about the purchasing process, with email messages being publicly available.

Thirty websites qualified according to these criteria, composed of 28 that succeeded and 2 that failed to negotiate a purchase. An additional nineteen websites were eliminated either because the products being purchased were in the same category, or websites were operated by the same owners. Subsequently, eleven websites that represented different categories of products/services and managed by different people were handpicked for further study (see Figure 1). The selected websites involve different products from nuts to computers, from electronics to services. The size of IGP varied from five to 50 people. We should note that the selected online group purchasing settings did not exhaust all IGP possibilities. All the websites were open to the public and made it very easy for the group leader as well as the entire group to perform tasks related to Internet group buying.

Website #	Product/service	Number of buyers or units	Media
Website 1	Nuts	27 buyers	Blog
Website 2	3D SpaceNavigator	10 buyers	Website
Website 3	LCD monitor	49 buyers	Website
Website 4	DAC + headphone amp	25 buyers	Blog
Website 5	Browser cam Subscription	25 buyers	Website
Website 6	Engine	5 buyers	Blog
Website 7	Wrist watch (failed)	15 buyers	Blog
Website 8	ScanGauge	15 buyers	Website
Website 9	Back Pack (failed)	8 buyers	Website
Website 10	Auto damper	25 units	Website
Website 11	Auto wheel	5 units	Website

Figure 1 Characteristics of IGP Websites (N=11)

### 3.3. Data Collection

Overall, our data collection continued over a period of six months and we spent over 500 hours observing groups being formed, negotiations being conducted and also groups being dissolved after the transaction had concluded. Our interest was in documenting how groups formed, communicated amongst themselves, and negotiated the deal between potential buyers and a seller. Thus we were exposed to the entire group purchasing process including information search and sharing, conflict management and resolution, negotiation, uncertainty/risk management, leadership skills of organizers, and post purchase evaluation. Towards this end, we compiled data necessary to address the research questions via several netnographic data collection techniques. We had repeated non-participant online observation of the web sites as well as the tracking of inter-participant exchanges in the IGP site's relevant sections. The raw data consisted of all the postings and public exchanges between group members, amounting to about 200 single spaced pages. We ensured the validity and quality of the data by incorporating member checks and independent audits as part of the data collection protocol [Lincoln & Guba 1985].

### 3.4. Data Analysis

To analyze the data we relied on both Wallendorf & Belk's [1989] ethnographic conventions and Muñiz & Schau's [2007] netnographic methods, the latter of which recommend moving continuously between web sites and field notes. Analytic techniques consisted of summary description, pattern coding, category formation and reformation, derivation and interpretation of themes. To start out, all web sites contents were categorized as part of the data collection. The analysis and interpretation of the collected data progressed in an iterative and interrelated manner among the selected websites until such a point where the authors had full confidence in their ability to interpret the overall phenomenon. In the iterative process, we worked through the data to identify recurring themes and motifs and thereby to produce a thick description of the IGP process. As our thinking progressed, we downloaded additional threads from the forums and looked for counterexamples to challenge our interpretations. We kept interpreting, searching for and collecting new data, rejecting, confirming, and refining our emerging interpretations until we were sure that the data could support the findings. In the end we felt confident that we could advance a reasonable interpretation of the IGP process.

Content analysis focused mainly on IGP processes, interactive/communication processes among group members, and negotiations between buyers and the seller. Member checks were also conducted. We shared our interpretations with academic colleagues and asked them to comment on our findings. These comments suggested

that our emerging views were on the right track toward emic validity. After much iteration, we believe we achieved sufficient interpretive convergence. The following section presents the findings that emerged from the data analysis. In the account of the principal findings, we provide evidence of verbatim quotes from the online postings along with site notes of the authors.

#### 4. Findings

##### 4.1.1. Stage 1: Information Accumulation: Perceiving, Filtering and Storing

Collective cognition theory suggests that a group decision is intertwined with information processing and the first step is to gather information, store the useful information, and edit out the useless information by members [Curşeu et al. 2008; Gibson 2001]. In the information processing stage, members spend much time pooling information, understanding the situation, and categorizing the useful or important information for task purposes. Members may even create jargon or labels to organize the information that will help members better understand and perform the task. Our data show that an IGP is a continuous process of information gathering and sharing and the online setting makes the free flowing of information among group members truly possible as members have equal opportunities to contribute information and access information contributed by other members. Our data also shows that IGP consumers are able to contribute information because many of them either have used the product before or are intelligent consumers even if they have not used it yet.

Moreover, most participants had conducted some research on the Internet or through other sources before they joined a group. Very often, these participants have been interested in the product for some time and were just waiting for the right price/opportunity to purchase it. Most IGP members were very active in sharing information with other members and made frequent comments on the importance of the shared information. In particular, the personal experiences offered by other members were considered to be more valuable and thus more persuasive than information facts gleaned from product websites. For example, when one member posted his/her experience with the product, this one act helped push many hesitating members to join the group:

I've just finished using the 24hour free trial and I have to say that this is an amazing service for web developers. My CSS was malfunctioning in quite a few browsers and I would have never even known. Sign up, this is an excellent service and you won't regret it!

Sometimes, group members may even publish unverified information obtained from other sources:

There was a rumor in one of the FPW threads that a price drop for these units might be occurring soon too, so to make a group buy worthwhile I think we'd want to be pushing for a pretty good price. :-)

Collective cognition theory suggests that if the accumulated information is highly ambiguous implying uncertainty about the group task, the group will next go through the interaction and examination stages. During these stages, the group verifies the assumptions and seeks new information to clarify ambiguities and uncertainties. If the accumulated information is clear and structured and the task routine, well structured, and clearly defined, the group is likely to go from the accumulation stage immediately to the accommodation stage [Gibson 2001]. Our data provides support for the above theoretical postulation in that group members showed themselves to be quite discouraged if the necessary information was missing, and they complained if they did not receive the information needed for the task. The most frequent complaint was lack of information from the group organizer. Whenever members felt that they were not given the latest information, they requested the group organizer to find it, and this kind of complaining was frequently echoed by other members of the group. In the following example, the member becomes very impatient because the needed information has not arrived as promised:

I'm a very patient person but this is taking FAR TOO LONG and I'm starting to wonder if we've been taken. Didn't you say that you were waiting for one final e-mail 4 days ago?

Another member echoes the complaint:

I won't push it by saying no news is good news :-), but at least we have been getting \_some\_ news. And all I can do now is crawl back into my cave and continue praying nobody contributed enough for XXX (the group leader --- by the authors) to buy himself an island in the South Pacific :-)

However, when the person accused more fully explained the situation, this misunderstanding was cleared up and things reverted back to normal. In response to the above comment, a pithy response by the organizer dampens the anxiety.

I'm still waiting on that email from Fundable.com with everyone's account information so everyone get's their full year of service. I've sent them at least 3 emails since Monday about this and still haven't heard

back. I've also mentioned this to Fundable. Maybe there's something they can do. Will continue to keep you posted. Arg, hate looking like the bad guy :(

One interesting finding here is that in many IGP websites, these “smarter” members are willing to teach others how to use the product they have just received. In the website of Hi-Tech products, the online thread becomes a workshop or seminar for the participants. For example, one member shared his knowledge with others as follows:

Currently I'm investigating whether I can extend the API's to support other programs with basic keyboard/mouse motions which would vastly expand the number of programs that can be used under Mac OS X (which I use most of the time). Things like Final Cut Express/Pro can be easily used to skip through footage and other motions jump tracks etc. At the moment until this is done the XXX has limited application support but what it does support it does support extremely well.

This type of knowledge dissemination helps participants to learn to use the product properly and reduce the uncertainty related to the product and purchase.

#### 4.2 Stage 2: Interaction: Information Retrieving, Exchanging and Structuring

##### 4.2.1 Interaction as Communication

Collective cognition theory proposes that group decision making relies on information transference among the members; therefore the members must be able to recall the information exchanged between them [Gibson 2001]. Groups as a whole may display very different cognitive characteristics because of the way group communication is organized [Curşeu et al. 2008; Hutchins 1991]. In fact, the theory suggests that the group decision is largely dependent on communication patterns in the group [Gibson 2001]. The computer-mediated literature finds that communication in most computer-mediated groups is through text and people tend to minimize the effects of the social cues more than in other forms of written communication [Lemus et al. 2004]. The only social cues typically available are names and e-mail/blog addresses of the originator(s). In most IGP groups, the communication is in the form of text plus visual cues (e.g., product pictures) that individuals may post about the product and its usage. Members can easily retrieve the messages previously sent, and restructure and compare information from different sources.

Prior group research indicates that when anonymity is maintained, group members appear to express their true opinions without fear of social disapproval [Nunamaker et al. 1987], and thus groups made up of strangers acquired more information than do non-strangers (i.e., married couples) [Rudd & Kohout 1983]. This is because a group made up of strangers discusses more unique information than a group made up of familiar members; it is also because the anonymity separates personalities from the issues and promotes more objective evaluation of information with increased criticalness [Nunamaker et al. 1991]. In addition, anonymity can neutralize the effects of an authority hierarchy on computer-mediated groups by preventing one group member from dominating the group discussion [Connolly et al. 1990]. As a result, groups working anonymously produce the greatest number of original solutions and overall comments than identified groups [Sosik 1997].

In IGP websites, anonymity allows participants to express their opinions, concerns and suggestions freely, which provides more equal opportunities for each member to participate in the decision making process. Further, anonymity makes it very difficult for the group to place more weight on some members' opinions because of their age, gender, or social status.

In many IGP websites, the interactive process in IGP is also open to the seller who can access the “forum” and view messages sent to the group by any members. This provides an opportunity for the seller to communicate with the group and exert influences on their attitudes or decisions.

##### 4.2.2 Task Uncertainty and Routines

According to collective cognition theory, task certainty/uncertainty in groups will have a large impact on the collective cognition process [Gibson 2001]. When the group is certain about the tasks (i.e., routine tasks), it will move directly to the accommodation stage. But when the group is facing task uncertainty, it will go through the interaction stage, encouraging more information searching and sharing. We found this to be true in the course of our research. In some of our websites, when group members had clear information and were certain about the task, they proceeded to immediately pay and place the order. By contrast, when the group members faced any uncertainty about the group purchasing such as product, the number of signed-up people, the price, the organizer's leadership, the amount of information shared, or the trustworthiness of the website, the situation would become complicated and the discussion would continue for some time. During the discussion, some participants would lose patience or interest in the purchase, and subsequently even withdraw from the purchase.

The e-commerce literature finds that online consumers face many uncertainties or risks that may not exist in offline settings [Forsythe et al. 2006; Hoffman et al. 1999; Noort et al. 2008]. Like many other web-based

businesses, IGP participants face the risk of scams and fraudulent group purchases. These scams, which can be costly for unsuspecting participants, include the compromising of personal information (bank accounts, credit cards, and so on). Purchasing involving international buyers presents even more task uncertainties to the individuals involved. Generally, an IGP involving domestic products exposes three special types of risk. The first type is associated with the group leader. If the group organizer collects money from other members to pay the seller, the members may be exposed to theft by the group organizer. Therefore, participants would avoid giving out their personal information in the group discussion and they will not join the group unless they trust the group they are in. This is aptly demonstrated in the example where this member requires that:

I'm interested, so long as we pay separately, get it delivered separately, and get a tax invoice with my name on it (for tax reasons).

However, IGP group organizers can also face the related risk of group members changing their mind on the purchase or refusing to pay after they have committed to purchase. As one group member wrote, "There are too many flakes you can't trust to pay up, change their mind after an order is placed, say they'll order one and then never hear from them again, etc." The following message likewise illustrates the above situation

Great idea but whoever does the ordering...cash up front is the only way to go or you could be left with serious debt in tens of thousands.

The group organizer was responding to a situation when a user posted the following message:

Wow those are great prices. I would love one, but I am not at that point where I "need" one yet.

The second type of risk is fraud associated with the seller or website. The anonymity of the Internet provides great opportunities for crooks and thieves. Our data shows that many interested consumers eventually do not participate or withdraw from groups simply because they do not trust online transactions and are prevented by the fear of cyber crimes. Risk-averse as they are, they find an IGP not "worth the discount, or the incredible amount of hassle and time."

The third type of risk is associated with the economic loss due to high prices charged by the seller. Many IGP consumers found the offered price unacceptable even after ten to twenty percent discount and they pressured others to pursue the lower price. For example, these consumer complaints:

No one is bitching. Some of us can afford it, some of us can't and some have different priorities. Nobody said the piece is not worth, just that we can't afford it.

In most websites, IGP members would try all means to save money. For example,

We are planning to ship by boat so as to save the shipping cost. We are also planning to ship to my home garage for temporary storage, to save some storage cost.

IGP members use various strategies to reduce uncertainties or risks relative to the group purchasing. The first and most frequently used strategy is searching for more information. More information on product, vendor, and the transaction can help reduce the uncertainty or perceived risk. Usually, participants would ask the group organizer, repeatedly at times, to provide more information about the product quality, brand image, country-of-origin, warranty policies, or to share more details of the transaction such as price, payment and delivery. Openness with information always reduces the perceived risk and greatly facilitates group formation and the purchasing process. Our findings provide support for the results of Rudd & Kohout [1983], i.e., that free flowing information sharing is positively related to the quality of group decisions.

The second strategy to reduce risk is adopting separate payment and shipment directly to each group member, thus avoiding the "middle man". Many consumers ask for individualized shipping and invoices. The last strategy employed by IGP consumers is withdrawing from the group. Withdrawal takes place when a participant finds the pricing too high, when s/he does not receive desired information in time to clarify his/her questions, when the participant does not think the process is fair, and when a participant believes that the ongoing group purchasing is getting out of control despite the fact that there is no way to change the situation. In most websites, participants choose to withdraw without notifying other members. But sometimes they do tell:

I'd love to own one, but I think I'm in the "too rich for my blood" category as well, even with the group buy. But I certainly wish you well on the new product, and if you ever do a sale, please include me in your mailing.

#### 4.3 Stage 3: Examination: Negotiating, Interpreting, and Evaluating

#### 4.3.1 Negotiation

In the examination phase, according to Gibson [2001], group members highlight certain items of information to draw attention to “faulty logic” and present arguments to support particular conclusions. We found many examples of this in IGP. For example, members will often forward a previous message to the group again and use the previous message to drive home their own request/ argument. In the following quote a participant wanted to pay separately. To do so s/he took advantage of a similar request made by another user Jack:

Jack writes...

I'm interested, so long as we pay separately, get it delivered separately, and get a tax invoice with my name on it (for tax reasons).

I am also interested, but would only do it if the above conditions are met :)

Successful IGP management cannot occur without successful conflict resolution and negotiation. Conflict occurs whenever groups pool individuals' contributions to reach consensus on a purchase project. In every IGP, there are concurrent internal and external negotiations. Within a group, members may negotiate with other members, in particular with the group leader, for various purposes. For example, some participants almost always disagree on the order timing. In fact, negotiation between participants may take quite a while. As one party suggests postponing the purchase, others want to buy at once.

Ben writes...

If you genuine[sic] think it is possible to do significantly better price-wise, then wait for the current group buy to end and start you own and negotiate with XXX all you want.

But other members disagree with Ben's suggestion:

But to tell people they have to wait because it's making things confusing and you don't want to wait any longer is...well my mother always told me if I had nothing nice to say, say nothing at all.

My concern is time too, as in if we go ahead how long it is going to take to get my grubby hands on one of these bad boys. That's kind of swaying my judgment and the possibility of getting it through work via salary sacrifice.

Negotiation with the seller is a major step in an IGP. In some websites, the group leader has already negotiated and reached a mutually-agreed-upon price with the seller before s/he starts to form a group. Take Website 6 for example, where the group organizer had negotiated with the seller about sharing a license for a web-based program among 25 participants. The normal cost of the program was \$500, but the group purchase would allow 25 people to pay \$25 each to share one license. The group organizer arranged for the purchase, negotiated the price with the seller, and then provided information to participants on how to access the software upon completion of the purchase. This purchase attracted users from all over the world (Canada, U.S.A., Denmark, etc.) to share a single license for an application.

But in many websites, the negotiation between the group and the seller goes hand in hand with the negotiation among the group members, or even while the group is forming, because the price determines whether the group continues to pursue the deal and whether people want to join the group. If the negotiation with the seller yields desirable results, more people will become interested and join the group; otherwise, some will withdraw but will continue to negotiate with the seller. For example,

Less than 10% off and I think I'd be better off waiting for the next round of XXX offers.

Since every member has his/her desired price when considering the participation in a group purchase, the negotiation may take many hours, even several days before any agreement can be reached. The following post shows when the negotiation gets stuck, group members will try to find more effective strategies:

Perhaps someone whose priority isn't getting one as soon as possible should be bargaining for us.

Our data show that at least half of the group-seller bargains end up with sellers conceding points. The “power of many” displays its vigor throughout the process of group buying. However, when the seller's concession comes easily, there are always participants who will push for deeper discounts.

They were pretty quick to drop nearly \$300 off R.R.P, though. Basically, I'm saying there's an absolute minimum price that this (or any other) rep can do them for in these quantities. The rep you're dealing with was very quick to offer \$1500, which leads me to believe that his/her absolute minimum would be somewhat lower (by a fairly significant amount).

#### 4.3.2 Leadership and Role Ambiguity

Like any group decision process, successful IGP management relies on effective leadership. Gibson [2001] stresses the role of leadership and group interaction in relation to the different stages. Leadership can play a prominent facilitating role in collective cognitive process in a group. Passing from the interaction to the examination stage is easier when there is an effective leader who guides and coordinates [Curseu et al. 2008; Gibson 2001]. The leadership of the group organizer is one of the most important factors in IGP websites. Typically the group leader is the person who organizes or coordinates the group activities, activities such as carrying out negotiations with the seller, collecting funds from participants, checking on shipping status, and communicating with the group about the transaction. Since an IGP is made up of complete strangers, this coordination effort can be tremendously challenging to the group organizer because of a lack of trust among group members who know nothing about others except the common goal of receiving a significant discount on making a large purchase. Throughout an IGP, social pressure has minimal effect on an individual's behavior. To keep a group of buyers following his/her plan, the group leader must have the ability to retain their interest, by communicating and updating the members on the progress of the possible deal in a timely manner. For example,

Thanks everyone so far for putting in your support - keep it coming! I'll give XXX a call tomorrow when their telephone sales is open, just to get an idea of what might be possible. Certainly anyone with contacts already at XXX, it would be great if you can see what you can extort :)

We need 30 more, we are 2/3 the way there, not bad for 1 night. Payment will be handled by XXX as far as I know, they take direct deposit, CC etc...

As of 8pm, Thursday evening with 1 day 5 hours remaining, we need 5 more signups. Let's go for it!! Thanks for all who chipped in, and once this goes through, I will set up all accounts within one day. You guys rock!

Sometimes, a group leader has to ask the seller to extend the deadline of the group purchase and if the seller is flexible, it helps the group organizer to find enough participants. For example,

I was going to pick up the slack if they couldn't extend the fundable, but they were nice enough to do so: "I extended your group for a few more days. I understand that it is a bit difficult to remake these groups up so I'm willing to add up to a week to get it all together. If you need any more time or have any other questions feel free to contact me again!"

If the seller is not flexible, an organizer may have to take more pledges in order to close the purchase. The following message is by the group leader in this situation:

If some boards are in my hands that haven't been paid for, they get held onto for a 30-day grace period for those who ordered them to contact with payment. I suspect there's money order in the snail mail for this too. After 30 days of no contact, they're offered to the members marked down for "Round 2". I think this is fair.

Group members often disagree. Group leaders have to read different opinions and know how to find useful information from different voices when making their judgments. Good group leaders know how to guide the group through the transition to the examination stage by obtaining and interpreting information and by effectively solving conflicts that may occur in the group at any stage. The following example shows that the organizer needs to act as peacemaker between disagreeing group members:

Woah folks, please don't pull out the turbo flame throwers! Let's stick to the subject, which is a group-buy, not a rock-throwing contest or a hunt for the BFG9000.

Most important, a good group leader can reduce role ambiguity in the group to facilitate the process of accumulation, interaction and examination stages [Gibson 2001]. Role ambiguity is the largest enemy of IGP management because role ambiguity often erodes the group identity resulting in regression to the accumulation stage. Role ambiguity occurs in groups that do not have a strong leader, or have a "laissez-faire" type of leadership [Curseu et al. 2008]. Our data from the two failed purchases illustrate that IGP with role ambiguity (e.g., absence of a group leader) can rarely succeed. Therefore, in IGP websites, group members avoid ambiguous roles. For example, this participant objects to the proposal of individual contact with the seller because that would cause role ambiguity plus some extra burden to everyone:

I totally disagree. If we each need to contact a single sales rep, then this involves some manual processing, say 3-5 minutes per person. Compare this to purchasing a product via XXX's Website - no people involved.

By contrast, a clear definition of roles in the group can help move the group quickly through the accommodation stage and close the deal. In this instance our data provides strong support for collective cognition theory. For instance, when the participants know each other's abilities, they will actively use a specific ability and trust specific information. In the successful IGP purchases, participants expected help from other group members, in particular from the group leader. When some IGP members were more experienced in online shopping and knowledgeable about the product, it was quite common for the rest of the group to enjoy a "free ride" throughout the purchase, an effect called social loafing in the group literature (e.g., [Kerr & Tindale 2004]).

For free riders, the decision-making process becomes very simple. If their expectation is met, they join; if it is not met, they either wait or withdraw. As soon as they decide to join and pay (through PayPal), the rest of the procedure is taken care of by others. For such free riders, a light or nonexistent decision-making burden is another benefit in addition to price discounts and deprivation of the benefit may strongly discourage a consumer from participation.

IGP leaders or people who provide the free ride receive the reward for their volunteerism as well. They know that their ability to personally get a good deal would not have been possible without the financial support of the free riders. Moreover, the complimentary remarks made by the group members and their appreciation seem to compensate leaders for their service. For example,

Great! I look forward to receiving it. I think this will be a great DIY project. Thanks for all of your trouble in organizing this.

I'd like to buy 4 pounds of almonds and 4 pounds of pecans. Thank you so much for your contributions in organizing this order. I am all set up to pay via check on PayPal.

#### 4.4 Stage 4: Accommodation

The accommodation stage involves integrating participants' opinions and preferences, and reaching the final decision, and making purchases [Gibson 2001]. The process involves the exchange of a multiplicity of views, mutual perspective-taking and concessions.

##### 4.4.1 Integration and Decision-making

The marketing literature on organizational buying discusses how the typical group purchasing is conducted by a group of employees who are from several departments of the organization and work together to make purchasing decisions for a particular product or service [Johnston & Bonoma 1981]. This group of employees is also called a "buying center" and the success of the group purchasing process depends on various factors such as the preference structures of individual members and the influence they have in the group (e.g., [Arora & Allenby 1999; Ronchetto et al. 1989]), product types and decision types [Jackson et al. 1985], buying-related interdepartmental conflict (e.g., [Barclay 1991]), reward or measurement systems [Anderson & Chambers 1985], and members' information control, decentralization, and formalization [Dawes et al. 1998].

The process is similar to IGP. Most importantly, the process of organizational buying is fundamentally a "people process" involving not only commitment and trust among organizational members [Moorman 1995] but also power, influence and politics, frequently the central social variables affecting the buying center (e.g., [Krapfel 1985]). In a buying center, ability to influence members is often the chief requirement for a successful industrial marketing effort [Krapfel 1985]. Some members have more power than others, and the influence of an individual's power varies with buying center size, time pressure, and the strength of accompanying influence attempts [Kohli 1989].

For an IGP project, the process is not only a "people process" but also a "virtual process" in which price advantage, timelines, safety, and convenience may be prioritized without any organizational commitment. IGP groups engage in those activities to wipe out differences and conflicts so as to reach consensus. Our website data show that groups that have reached a consensus and completed tasks successfully use strategies that combine individual members' preferences for a group product. For instance, groups generally aggregate and weight preferences so that disagreeing members are assured and are more willing to give in to the group consensus. The procedures and the outcome of this strategy are also in line with the findings of McGrath and his colleagues [1993, 1999, and 2000]. The leaders and active members usually structure how the group goes through the procedures of aggregating and weighting preferences, effectively facilitating the best choices among right options and determining the most satisfying or optimizing solutions among alternative preferences.



#### 4.4.2 Feedback and Social Comparison

Collective cognition theory proposes that following accommodation, a group is likely to either move towards accumulation of new information or to conduct a re-examination of previous information [Gibson 2001]. When a group acts and feedback is available about performance, this information is likely to generate a feedback loop. Gibson [2001] argues that whichever direction the group moves depends on the nature of feedback received from the outcomes. Positive feedback (subjective impressions about what has occurred or what may occur) is likely to encourage accumulation of additional information and repetition of the cognitive cycle for the next iteration while negative social comparison is likely to encourage internal re-examination. This is a critical issue because these collective interpretations are eventually stored in the group memory and can form the basis for future actions throughout the life of the group. Thus, performance feedback is related to both group affect and performance expectations.

On the other hand, social comparison may prevent a group or some members from joining a group purchasing unit. Social comparison refers to a process in which group members compare one situation or behavior to some other group by looking outward to “referent others” [Gibson 2001, p.130]. The outside referents serve as standards that guide re-examination. If people find large discrepancies between their group and other groups, they may begin to reexamine their actions. However, if they find few discrepancies, they may start a new round of collective cognition. In sum, social comparison may form the basis for a re-examination of the groups’ information stores and actions [Gibson 2001].

In an IGP, the group decision is definitely influenced by the feedback of performance outcomes and social comparison. When the feedback is positive, this may encourage accumulation of more information leading to a decision, but when the feedback is negative, it likely encourages re-examination. The success of an earlier effort to buy as a group and the feedback therefore is used as a starting point for the next group purchase. For example,

OK the first batch has arrived. Everyone who was on the first list should have an email from me (back to myself) detailing the costs. I’ll order another batch in since counting up the posts there’s another 9 so that’s enough for a batch of 10. Just need to get the first lot out to everyone and make sure everyone is happy.

Our data show that the social comparison often forms the basis for a re-examination of the group’s information database, and thus, can affect the success of an IGP. The following posts indicate that potential participants compare the deal with standards, which leads to withdrawals:

If the cost, delivered to my door, was 1200-1300 (optimistic I know), I would probably be in. More than that, and I wouldn’t be.

I’d love one. It’s designed properly to clear things. I’ve been waiting for pricing to decide whether to get this or pull the trigger on something else. XXX for \$400. If it was titanium, I’d be 100% on this. Not that I care about the weight difference.

None the less I agree 1450\$ is a bit greedy from XXX for a 150+ person sale but anyhow.

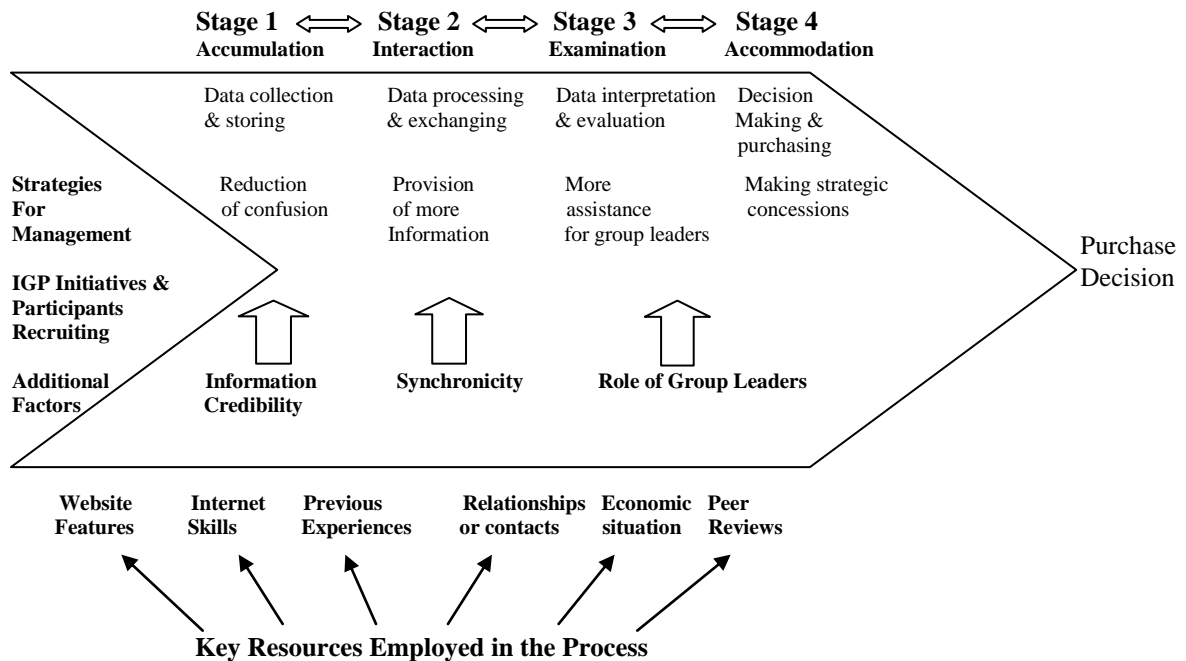
Just wait 3 months - seriously we’ve all lived without one before now... the cost to manufacture will drop a few % for dell, the demand will drop off at least 50% and they will be more likely to scrounge for sales.

## 5. Discussion: Summarizing the Findings

### 5.1 Model of Collective Cognition

Based on the above discussion of findings, a process model of IGP management was formulated as depicted in Figure 2. The approach was adopted from Montealegre [2002]. The following section describes the model from the collective cognition perspective.

In the first stage, the information accumulation stage of IGP involves a group of consumers who generate, share, perceive, and store information about the product, price, and the seller. IGP enables consumers to obtain information quickly from other consumers, resulting in more product knowledge and better product use. Perceptions of information have a profound impact on IGP as on other fields [McKinney & Yoos 2010; Vreeken 2002]. The way that information is understood in IGPs affects group communication and decision making process. This finding was also supported in previous literature. For example, in their studies of group behavior, McGrath and his colleagues [1993, 1999, 2000] developed a task circumflex indicating that the very first task of group members is to generate information before they move on to choose a correct or preferred solution, to negotiate conflicting views or interests, and to execute in competition with another or against some external criteria of performance. Consistent with this literature (e.g., [Curseu et al. 2008; Dennis 1996; Hinsz et al. 1997]), information processing in IGP groups is a complex process, susceptible to many biases and errors.



The management of IGP thus requires a seller firm to maintain constant information flows to assist consumers in generating alternatives as the discussion progresses as well as to help group members lead the progress toward a desirable decision. Thus, to assist group buyers, firms should make efforts to reduce confusion, entropy and uncertainty about the purchase. For instance, firms should provide all the available information for participants and make the information easy to understand so that the interested consumers will not get confused, or misled by selected information, and therefore will be less likely to be influenced by social factors such as group norms or cognitive factors such as the knowledge and skills of members. Selection bias and errors can lead to group inefficiency and discourage members. Due to such bias and errors, the group information accumulation process can continue, but not lead to the interaction stage.

In the second stage, IGP members will actively retrieve the information shared and stored in the first stage and utilize this information to either persuade other members to take actions or argue in favor of certain solutions. IGP can greatly reduce the uncertainties or risks associated with online purchasing. Many consumers change their attitudes towards a new product after joining an IGP and many consumers purchase a new product only as part of a group. Under a condition where no significant uncertainties or risks are involved, groups typically move on to the accommodation stage. However, if the group faces any task uncertainties or risks, the interaction process will continue until more information is collected and shared so that the perceived uncertainties or risks are removed or minimized. The management of IGP at this stage should avoid any uncertainties and minimize potential risks related to the purchase. For instance, firms should keep in touch with the group members (or at least with the organizer), be ready to answer any questions and provide any additional information that can help clear up any miscommunications or misunderstanding.

In the third stage of an IGP, participants most often try to achieve consensus by negotiating with other participants or the seller. Participants may disagree with one another or the group leader about various things such as price, methods of shipment, and the delivery time. Negotiation between participants can be intense if conflicts are resolved. When the negotiation fails, the group falls back to the interaction stage where new information is retrieved, transferred, exchanged and the negotiation restructured. If the interactions lead to consensus, the groups move on to the accommodation stage, where information is integrated and leads to decisions or actions, just as collective cognition theory predicts. Also, role ambiguity among the group almost always prolongs the examination stage, but strong leadership leads to the success of IGP because group members are more committed to the tasks.

Moreover, strong leadership can control the behavior of individual members more effectively by keeping communication lines short and hierarchies relatively flat, and in this way fend off the negative consequences of large size. Seller firms should pay special attention to the role of leadership in this stage. Firms can work closely with the

organizer to generate more original solutions, supportive feedback, and solution clarification, and via this mechanism attract more participants. If necessary, firms should offer better conditions such as deeper discounts or more favorable contracts to support the organizers in making faster decisions. In addition, firms should attempt to enhance social satisfaction with the purchase task by showing support under stress and offering enriched opportunities for learning through a wide range of social interactions.

During the last stage, IGP participants frequently work diligently to solve conflicts of interests, express preferences, and reach a consensus, utilizing different strategies to integrate opinions, reach the final decision and place the order. Positive feedback is always helpful in the group decision-making process whereas adverse social comparisons may prevent some participants from joining the group because of uncertainties or risks resulting from a negative social comparison. Firms should be cautious at this stage to avoid any negative communications with the group. It is also important to know when to make concessions and what concessions should be made. If firms do not show flexible attitudes, some members may withdraw from the group, resulting in the failure of the group buy. Firms should bear in mind that many IGP consumers would not buy a product unless they see fairly large differences between the regular price and the group price. Such price sensitive consumers do not buy the product due to peer pressure or compulsive motives, or situational factors (i.e., time, environment, or mood). Rather, they participate in a group purchase because they see the relative economic value of the group pooling.

Firms should also offer staggered pricing schedules based on the quantity of items purchased. By being open to negotiated prices, firms should allow customers to feel that they are in control of their purchases, and to feel as if they are receiving “the better end of the deal.”

Before concluding, we would like to note that reviewing of the literature on group behavior suggests that research using other theories seem to corroborate our findings and offers a springboard for future research. For example, activity theory has been used to study virtual communities (e.g., [Barab et al. 2004]), and human-computer interactions (e.g., [Nardi 1996]). According to this theory, an online community is an activity system made up of a subject (individuals or groups that act) and an object (that which is acted upon), as well as the components (tools, community, rules, and divisions of labor) that mediate the relations of subject and object. A socio-technical Interaction Network (STIN) is such a dynamic and transacting system reciprocally constituted through interactions with the other components within the system operated as a tool, as an object, as an outcome, or as a community [Barab et al. 2004]. The performance of this system is affected by the rules, norms, and conventions of the community. To design an effective STIN and to develop useful design interventions, the components of the activity system should not be treated as isolated but instead be examined within each component in terms of the overall transactional dynamics of the system. Their findings lent support and offered insights into IGP.

IGP can also be viewed as an activity system made up of most components of the activity system. Activity theory can explain the interplay of system components of IGP as an organic system. IGP involves particular functions of the interactions among subjects, tools, object, and outcome, which create tensions among the components (that is why IGP process is intertwined with negotiations and requires reaching equilibrium between components). In that understanding the tensions and their role in driving community life is critical for characterizing the dynamic nature of a system [Barab et al. 2004], management dealing with IGP should focus on interactions and tensions among the core components of activity systems (organizer vs. participants; buyer vs. seller; buyer vs. non-buyer).

We believe that no single theory or model is sufficient to tell the complete story of IGP management in an online community. Activity theory and collective cognition theory together may be able to provide a richer view of the formation and management of IGP processes. Although activity theory offers an excellent reification of the dynamics of a system, it also encourages the compartmentalization of transacting components [Barab et al. 2004]. By comparison, the collective cognition view encourages the consideration of the cycles of collective cognition, but it is weak in explaining the tensions between organizer and participants, seller and buyer, and buyer and non-buyer. Therefore, collective cognition theory has less utility as an explanatory lens in describing micro interactions within an IGP. Taken together, activity theory and collective cognition frameworks should be able to provide harmonizing perspectives for understanding the components of IGP activity as well as its interactions.

In addition, findings from prior research employing the theory of social cognitive theory provide support to our results. According to the theory, group achievements are the product not only of the shared intentions, knowledge, and skills of its members, but also of the interactive, coordinated, and synergistic dynamics of their transactions [Bandura 1999, 2000; Gibson 1999]. If people are to pool their resources and work together successfully, the members of a group have to perform their roles and coordinated activities with a high sense of efficacy [Fernandez-Ballesteros et al. 2000]. Perceived collective efficacy fosters group members’ motivational commitment to their missions, resilience to adversity, and performance accomplishments [Bandura 1999]. Gibson [1999] suggested that social cognitive theory can be used together with collective cognition theory in group-based studies. She found that

task characteristics such as task uncertainty and task interdependence can potentially moderate collective efficacy beliefs; groups high in efficacy may set out on a path that they believe will lead to effective performance, but the ambiguity of the task may prevent them from achieving effective performance. Similarly, groups low in efficacy might discover the path to good performance but might take the wrong path and end up nowhere.

### 5.2 Theoretical Contributions

Theoretically, this paper contributes to collective cognition theory by extending its application to the e-commerce arena. The results demonstrate that the theory is capable of explaining one kind of online consumer decision process. Our contributions to the theory are three-fold. First, in the context of social media where personal identity is unknown, the salience of information credibility to consumer decision making is significantly increased. This requires e-commerce practitioners to create some mechanisms to help consumers readily find out if the information is reliable. Second, due to the asynchronous nature of social media communication, information processing has a different impact on receivers, which results in the greater complexity of the collective cognition process. When applying the theory to the online setting, researchers should take time effects into consideration and examine positive or negative effects on expected results.

Finally, collective cognition theory does not specify the role of group leader in the decision making process. Our results suggest that a collective cognition process is always affected by the leadership of some members of the group. Some members are better able to provide more information or more valuable information than others; some members are more active in sharing information than others; and some have more control over information flow than others. The differences among the members are not dealt with in traditional collective cognition theory. When applying the theory to social media, researchers should also pay attention to member differences in information processing and integrate these differences into their models.

Apart from theoretical contribution to collective cognition theory, our research also provides theoretical implications for consumer research scholars. Traditionally, consumer research scholars know consumer profiles and can even pre-specify consumer characteristics when designing their research. However, consumer research in social media does not provide any clearly defined segments or exact consumer profiles, and so it is very difficult to predict consumer behavior. Furthermore, conventional variables such as product knowledge, leadership, role ambiguity, negotiation, uncertainty/routines, online skills and computer-aided communication factors begin to take on new meaning and seem to play more important roles than in the offline consumer research. Our results provide a series of examples or scenarios of how these factors can be studied, to the benefit of other consumer researchers.

In sum, our research suggests that collective cognition theory can be an effective tool in studying the complex processes of virtual group decision making, but some important and context specific variables should be integrated into the framework.

### 5.3 Managerial Implications

The Internet has changed the way people shop, whether alone or part of a group. IGP provides an interactive channel for business to reach more customers and make greater profits. IGP offers a new platform for real time consumer-to-firm and consumer-to-consumer interaction, enabling firms to obtain direct feedback about its products and services. Furthermore, consumer-generated messages can help the firm to understand consumer attitudes, product usage, unmet needs, and other matters. Most importantly, IGP provides an effective medium for a firm to build trust with its potential customers and build long-term relationships with valuable customers. As social media and networking marketing becomes more popular, consumers will continue to look for e-stores to make purchases where they find both products and website features reliable [Hertel et al. 2005; Weathers & Makienko 2006]. E-commerce practitioners can use the IGP format to its own advantage in many ways.

First, firms should integrate this new trend into their business models by providing an IGP option on their website and show users how to set up group buy sections. Firms should take advantage of volume purchasing in lowering marketing costs and speeding up new product adoption. To attract more consumers, firms should restructure their product management to work towards creating fine tuned product and website brands that acknowledges online consumer power and provides a space in the overall brand strategy.

To reduce the risk connected with this novel format, firms should provide effective countermeasures against fraud. For example, payment with cash, checks or money orders should be avoided, due to the difficulty of recouping losses. Consumers should be encouraged to use credit cards, PayPal or other more secure methods of payment, especially those that offer insurance against theft. Firms should also provide good after-sales services to reduce consumer returns and obtain complete customer satisfaction. In addition to lowering the per item cost and convenience, IGP can provide value-add by providing discounts on industry related publications, access to membership only packages, lowered credit card rates, and discounts on vacation packages.

Second, businesses should identify dedicated, specialized and trustworthy group leaders and work with them in close coordination so that the group can reach agreement and progress smoothly. A good group leader is able to

develop a group consensus within a short period of time, to increase team cohesiveness, and to lead the group purchase to success. A group leader is always a “core” member who does most of the group work while the rest of the participants enjoy a free ride, to some extent at least. Generally, the “core” members are the “smarter guys” who have either more knowledge about the product or more experience in online purchasing. The withdrawal of these members, especially those whose expertise is critical, often causes anxiety among other members. When they see “smart” members leaving, they lose confidence in the group or lose interest in the purchase and eventually withdraw too. To avoid failures, the seller needs strategies to keep and probably “train” such valuable core members.

Third, firms should use group purchasing principles to recommend new product or services offerings to current consumers. Firms can facilitate the adoption process by cross-selling new products to the groups finishing up their negotiations, perhaps by offering new forums on their website. Firms should advertise their new products on the IGP websites and supply consumers with the means to connect and communicate with other consumers of similar interests. This will not only promote new products and encourage IGP buyers, but also help the firm to retain customers in the long run.

Fourth, to make greater use of IGP, firms of similar products or services should band together to bargain with IGP consumers, a strategy that could greatly increase the bargaining power of each individual firm but reduce the time of consumer information search and improve purchase efficiency. Consequently, sellers with the best quality product and competitive price could increase their profitability. Finally, firms should track consumer interests and preferences, buying habits, product use, and experiences with products and services. Upon the completion of each purchase, the messages sent by group buyers should be saved and integrated into the company’s marketing information systems. The information should be used in tailoring products, setting a fair price, and producing additional revenue.

#### 5.4 Directions for Future Research

As the online group purchasing concept catches on, future research might investigate this phenomenon in several areas. First, since this research does not consider the influence of brand image on consumer choice, future research should study how to attract more group buyers by leveraging brand equity. Second, online group purchasing of this kind provides a new channel for e-tailers and marketing firms to acquire customers. It is not clear, though, whether this channel is in conflict with other channels and how that might affect the behavior of competing channels. Future research may want to examine the impact of online group buying through other outlets, including brick & mortar stores. Third, the success of an IGP depends on product offerings and effective communication between the seller and the consumer. Future work should study how to capture this market by making specific offerings to IGP participants or by packaging products in bundles that appeal to group purchasers. It should also explore the most effective means of IGP promotions. Fourth, as the popularity of IGP grows, e-commerce practitioners will want to know how the process can be made more streamlined through group purchase websites and what effective new technology or programs can be developed to serve IGP customers more successfully. Finally, the present qualitative research does not test the relationships between various constructs such as trust, quality, website features, purchase intentions, and customer satisfaction; hence future researchers may need to employ quantitative methods to investigate the robustness of various models.

Future researchers may want to explore other theories, such as activity theory and social cognitive theory (explored briefly above), to explain IGP. These theories found some support in our data. For instance, according to social combination theory proposed by Davis and his colleagues (see [Davis 1969 and 1973; Laughlin & Hollingshead 1995]), group interaction can be modeled as a mapping process from members’ preferences to a single collective decision. During these processes a group takes a distribution of member preferences and combines them into a collective group decision--- a single group response for a given type of task. This is especially so when the set of possible decision alternatives are pre-specified and the group must reach a consensus on one of those alternatives. Groups may also exaggerate or accentuate individuals’ preference through use of certain social decision schemes. In some IGP websites, we found that only the generation of a new alternative was frequently used. Future research may test social combination theory in the context of IGP.

#### 5.5 Conclusion

An IGP can be a tedious task requiring intensive work and considerable coordination in the social media setting. Our data shows that approximately one third of groups fail at different stages, indicating the complexity of the phenomena. It is important for researchers and marketers to better understand IGP since its process is firmly grounded in psychology and investigating the phenomenon may contribute to consumer psychology. Moreover, this study provides another research avenue for examining the direct influence of social media on consumer behavior via collective cognition theory. Such a direct influence is noteworthy and this study addresses the literature gap. We are optimistic that this new stream of research will continue to produce interesting and valuable findings for both scholars and practitioners.

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