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ABSTRACT

Group purchasing sites have recently gained tremendous popularity on the Internet. Besides the collective buying model, the leading website, Groupon.com, also introduces a tipping point mechanism to the U.S. e-market. The current study creates a theoretical model that integrates the theory of mind with models from e-commerce research to further study the buyer's decision making influenced by a shopping group. We find that the buyer's satisfaction with price discounts, their expectation of quality, and group inference have significant positive effects on the buyer's purchase intention. The findings provide several constructive implications to practitioners as well.

Keywords

Group inference, groupon.com, tipping point mechanism, theory of mind

INTRODUCTION

Group purchasing sites achieved remarkable successes in recent years and continue to have a promising future. Groupon.com is considered a leader in the market. It is reported that over 50 million users have subscribed to the website as of January 2011 (Reuters, 2011). The website plans to operate local offices in 230 cities of 29 countries. Meanwhile, Groupon has made a great progress in financial performance. The annual revenues of Groupon are expected to reach $350 million in 2010 (Arrington, 2010). Besides the collective buying model, the tipping point mechanism that Groupon brought to the U.S. e-market plays a critical role in the website success. The incentive mechanism requires a minimum number of participants (referred as Mp) for each "deal", which is an equivalent term of products or services with price discounts. The transaction will only occur when the number of actual participants (referred as Ap) is greater than Mp, and all of the buyers have prepaid for their orders. If the purchasing group fails to reach the requirement in certain time period (usually 24 hours), all of the reservations will be cancelled. The information, such as Ap, Mp, and the time remaining to place valid orders, are all listed on the website. An interesting observation is that the ratio of Ap to Mp (referred as Ro) appears to have positive effect on a potential buyer's intention to buy before the tipping point is reached (Cohen, 2009; Steiner, 2010). The phenomenon raises two questions: Why can a potential buyer's purchase intention be influenced by the group's choice, even though the group is invisible and unknown? What is the buyer's decision making model on a group purchasing site that employs the tipping point mechanism?

We conducted an investigation from general buyer's perspective to answer the questions in the current research. This paper is organized in the following manner. We primarily have a discussion on group purchasing sites research and a person's decision making strategies. Subsequently, we introduce a new theoretical model to address the research questions. Methodology, data analyses, discussions, conclusions, and limitations will be presented in the last four sections.

LITERATURE REVIEW

Prior Research on Group Purchasing Sites

Group purchasing is defined as the purchase from a group of customers who have the lowest budgets and seek to get products or service at the cheapest price but in the best quality (Doucette, 1997). In the U.S. market, collective buying can usually be found in organizational health insurance purchase for employees or members (Nollet and Beaulieu, 2003). In October 1998, group purchasing model was adopted by Accomany.com, later renamed as Mobshop.com, to accumulate individual purchasing power, so that shopping groups could negotiate with sellers to get price discounts on the Internet (Kauffman et al., 2010). A number of similar websites emerged afterward, but most of them failed when the dot com bubble burst.

Having paid the price, practitioners and academics began to rethink the success factors of group purchasing sites. Prior studies identify that two factors, including the buyer's intrinsic needs (Nollet and Beaulieu, 2003) and the price discount (Anand and Aron, 2003), have significant positive effects on a person's intention to buy and actual orders. These arguments seem able to fully explain how buyers are motivated to place orders on group purchasing sites, but significantly ignored the influence of a shopping group on the buyer's decision, especially when the group buying auction and the tipping point mechanism are adopted by the websites.

In group buying auctions, prices decrease with the increasing total volume of orders from bidders (Anand and Aron, 2003). The ever-popular model has several limitations: (1) Start up inertia. The number of orders is usually very low in the beginning, since potential participants will wait until other consumers' orders come close to the quantity threshold or the lowest price (Kauffman et al, 2010; Lai and Zhuang, 2004). (2) Market ending effect. Most bidders prefer to place orders till the last minute when the number of orders grows exponentially (Kauffman and Wang, 2001). The complexity of the process constrained the buyer's acceptance of online group buying auctions, and the mechanism was gradually replaced by fixed-price group purchasing models.

The websites, such as Groupon, which adopt the tipping point mechanism, primarily confirm a deal with a seller, and only need to ensure a sufficient number of participants to prepay their orders at a fixed price, in order for every buyer to benefit. The tipping point mechanism simplifies the shopping procedures, and is fairly popular among "deal hunters". Interestingly, before placing orders, buyers do not only consider their own needs and price discounts, but also keep eyes on their peers' orders on the website. When a new buyer finds many others have placed orders before the tipping point is reached, he or she is likely to place order as well (Cohen, 2009; Steiner, 2010). The phenomenon is also found in offline group purchasing. Luo (2005) argues that, it occurs because a buyer attempts to make decisions in accordance with the norms and value criteria of the offline shopping group, which generally consists of family members or other social contacts. However, on the group purchasing sites, buyers are unknown and invisible to each other. Furthermore, no one from the prepaid group creates a value norm, or explicitly persuades a potential buyer to place orders as the offline purchasing group does. These differences suggest that we should study the influence of an online shopping group on an individual buyer's decisions from a new perspective.

Theory of Mind

According to psychological research (Brüne and Brüne-Cohrs, 2006; Premack and Woodruff, 1978), when people make decisions, three major strategies could be adopted, including (1) associationism, (2) empathy, and (3) theory of mind. Associationists believe that a successful solution comes from a person's analysis of similarity between old and new cases, thereby eliciting a solution. The research on empathy and theory of mind holds that people are not only decision makers, but also observers, who would look for solutions from others' decisions or behaviors. Using the strategy of empathy, observers need to put themselves in the place of the actor, who is currently dealing with a complex issue, and subjectively choose an alternative in keeping with what they would do, were they in the actor's predicament. Theory of mind holds that observers have the ability of imputing mental states to actors. Although observers are unable to accurately capture what an actor is thinking about a problem, they will assume that the actor has certain purposes or knowledge of the situation, and predict what the actor would do according to the assumed purposes or knowledge. Subsequently, observers will evaluate the results of the actor's possible solutions, and create a hypothesized solution for themselves (Premack and Woodruff, 1978).

Research in neuroscience has shown that theory of mind is a special neural activity in a particular area of a person's brain, when the person processes certain type of information, which is referred to as ToM (i.e., theory of mind) story (Happé et al., 1996). ToM stories are significantly different from self-perspective inducing stories in the following way: A ToM story has implicit meanings and requires an observer to infer the results by interpreting an actor's mental states according to specific scenarios. By contrast, a self-perspective inducing story explicitly shows its theme, so that an observer can create his or her own strong opinions toward the fact abstracted from the story (Vogeley et al., 2001). In e-marketplaces, although previous studies did not discern them from general online information, we can find a variety of applications of self-perspective inducing stories, such as numerical ratings of an online seller, and post-purchase comments regarding the products. Without extensive efforts to deduce the information senders' mental states, a potential buyer (i.e., observer) could create a strong self perspective toward the seller or the products by referring the feedbacks explicitly provided by the other online shoppers (i.e., actors). Information systems literature has also proposed multiple classic trust based theoretical models to explain how the self perspective influences an observer's intention and online behaviors (Ba and Pavlou, 2002; Kim et al., 2008; Pavlou et al., 2007).

Nevertheless, trust based theories are inapplicable to the current research, because of two reasons: (1) Objectively, the information (e.g., *Ro*) that a potential buyer obtains from the tipping point mechanism is a typical application of the ToM story, which does not explicitly show the other buyers' thoughts. It requires the new buyer to deduce other group purchasing

participants' knowledge about and intention regarding a deal. (2) Subjectively, it is the new buyer's own theory that assumes the deal is worthwhile, since no one in the group is able to guarantee the actual value and post-purchase outcomes of the deal in the pre-purchase stage. Based on the above discussion, we introduce a new theoretical model (see Figure 1).

THEORETICAL MODEL

Prepaid Order and Intention to Buy

In the U.S. e-market, the prepaid order is an emerging transaction model (Kolakowski, 2010). Since a buyer cannot immediately get products or services after payment, the orders must be supported by the buyer's strong behavioral intention (Mcnamara, 2010). In the current study, we define intention to buy as the degree to which a person is willing to join in the shopping group and order certain products or services from group purchasing sites. Several e-commerce studies have shown that a buyer's purchase intention has a significant positive effect on the possibility of the buyer's actual purchase (Kim et al., 2008). We assume that the relationship also exists on group purchasing sites. The following hypothesis will be tested:

H1: A person's intention to buy significantly increases the likelihood of prepaid orders.
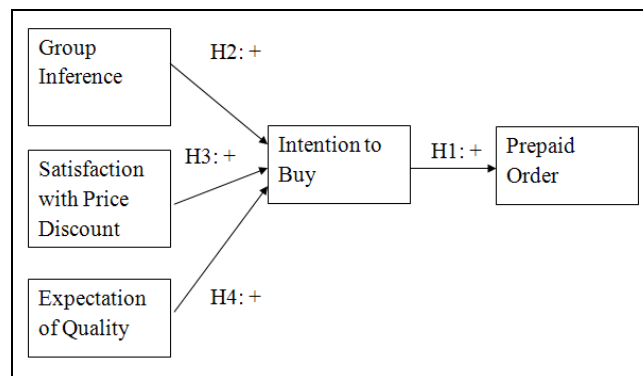

Figure 1: Research Model

Group Inference

Group inference is a new construct that we propose in order to study the buyer's particular decision making process influenced by the tipping point mechanism. In the current study, group inference is defined as the degree to which a person consents the group's choice, when the person adopts the information unconsciously and implicitly sent by other buyers in the pre-purchase stage as decision support information. Group inference differs from group reference which has been extensively discussed in e-commerce research (Ba and Pavlou, 2002; Lim et al., 2006) in the following ways.

(1) *Objective level*. In group reference, the information that a potential buyer processes is post-purchase feedbacks provided by other customers, who consciously use numerical ratings, texts, pictures or videos to express their opinions toward sellers and products (Pavlou and Dimoka, 2006; Ziegler and Lausen, 2004). A potential buyer can formulate beliefs about the transactions according to the explicit feedbacks and opinions without inducing the information providers' knowledge of a seller or products. In group inference, the information that a potential buyer processes is sent by other customers unconsciously in the pre-purchase stage. For instance, a high value of *Ro* is only a byproduct when a large number of buyers place orders to fulfill their own purposes.

(2) *Subjective level*. In group reference, a new buyer cannot only predict the possible future outcomes (e.g., good or bad product quality), but also can estimate a relatively objective probability of the results according to others' post-purchase feedbacks (Houser and Wooders, 2006). In group inference, when a group of collective buying participants are all in the pre-purchase stage, none of them could assure the post-purchase outcomes, and the probability of each possible result is generated by each buyer according to his or her own knowledge of the deal. At this point, a new buyer's subjective estimation of other buyers' knowledge is a critical factor of the new buyer's behavioral intention. When a new buyer consents other group buyers' favorable estimation of a deal, represented by a large value of *Ro*, the new buyer would give more favorable prediction for post-purchase outcomes, thereby having more intention to place orders as well. We introduce the following hypothesis:

H2: Group inference has a significant positive effect on a person's intention to buy.

Two Other Critical Factors

Besides a shopping group's influence, obtaining price discounts is a primary motive for buyers to place orders on group purchasing sites (Anand and Aron 2003; Kauffman and Wang, 2001). However, the effect of a price discount on the customer's purchase intention is considered difficult to measure, because (1) each person has a distinct price consciousness, and (2) an equal percentage of price discounts has a significantly different effect at different price level (Alford and Biswas, 2002). To eliminate the two side effects, we adopt the buyer's satisfaction with price discounts as a critical factor to show the influence of price discount on a buyer's intention to buy. The construct is defined as the extent to which a buyer measures the difference between the actual price discount and his or her expected price discount (Cao et al., 2004). The following hypothesis will be tested:

H3: A person's satisfaction with a price discount has a significant positive effect on the person's intention to buy.

Prior research has found that, price discount and the buyer's purchase intention do not always maintain a positive relationship (Kardes et al., 2004). In some cases, a large amount of price discount could be misunderstood by buyers as a implication of low qualities (Monroe, 1973). In an online shopping environment, the Internet disables the buyer's ability to physically diagnose the quality. Buyers construct the virtual quality completely according to their cognitive perceptions (Chen and Dubinsky, 2003). Thus, the buyer's subjective estimation of quality could strongly influence his or her intention to buy on a group purchasing site. In the current study, we define the buyer's expectation of quality as the degree to which a person believes that the quality of products or services with price discounts is likely to be the same as those without price discounts. The following hypothesis will be tested:

H4: A person's expectation of quality has a significant positive effect on the person's intention to buy.

METHODOLOGY

We used an online survey to collect data for hypothesis testing. A total of 237 students were recruited from a southwestern U.S. university. The subjects' background information is listed in Table 1.

Item	Category	Frequency	Percentage
Gender	Male	100	42.19%
	Female	137	57.81%
Age	18-24	85	35.86%
	25-30	105	44.30%
	31-36	17	7.17%
	37-42	21	8.86%
	Above 42	9	3.80%
Personal Annual Income	Less than $10,000	63	26.58%
	$10,000-$15,000	54	22.78%
	$15,000-$20,000	45	18.99%
	$20,000-$25,000	16	6.75%
	Above $25,000	59	24.89%
Current Education Level	Freshman	7	2.95%
	Sophomore	20	8.44%
	Junior	32	13.50%
	Senior	132	55.70%
	Graduate	46	19.41%

Table 1: Background Information of Subjects

To strengthen the subject's perception toward the tipping point mechanism, we showed an experimental website to the subjects before they started rating the questionnaires. On the website, a deal from a local upscale restaurant was displayed. Each subject was shown the original price, a price discount, and pictures of food from the restaurant. In addition, the subjects were informed that the minimum number of participants is three hundred ($Mp = 300$), so that everyone in the group could get the deal, and two hundred eighty ($Ap = 280$) customers had already paid money to reserve the deal. Each subject was required to take the survey accompanied with the experimental website. After the survey, subjects could choose either to place orders or to leave the website freely. The final action was recorded as well.

The questionnaire items used for data collection are listed in Table 2. Each item was rated on a Likert scale of 1 = Strongly Disagree to 5 = Strongly Agree.

Items	Factor Loading
Group Inference (New Items)	
I feel that a lot of other customers also want to buy this deal.	0.784
Since a large number of customers already bought this deal, it makes me feel confident that this is a good deal.	0.768
The buyers who already bought this deal have made a good choice.	0.662
Satisfaction with Price Discount (Adapted from Alford and Biswas, 2002)	
I am satisfied with the price discount.	0.858
It is worth buying the food from this restaurant with this discount.	0.831
My choice of this deal will be a wise one.	0.825
Expectation of Quality (Adapted from Cronin and Taylor, 1992)	
I expect to have a pleasant experience in the restaurant.	0.833
I expect that the restaurant will provide good service.	0.789
I expect that the food is in good quality.	0.781
Intention to Buy (Adapted from Kim et al., 2008)	
I am likely to buy the food with this deal.	0.844
I am interested in joining in the group purchase.	0.839
I am likely to recommend this deal to my friends.	0.826

Table 2: Questionnaire Items

The convenience sampling and the arbitrary combination of *Ap* and *Mp* could be two limitations of the current methodology. It will be further discussed in the last section of this paper.

DATA ANALYSES

In the current study, two data analysis methodologies were used, including Structural Equation Modeling (SEM) for testing the relationship between the buyer's purchase intention and its antecedent factors, and logistic regression for testing the relationship between intention to buy and actual order placements.

Construct	Mean	S. D.	α	AVE
INT	4.05	0.86	0.78	0.78
GIN	4.04	0.85	0.70	0.67
SPD	4.17	0.62	0.86	0.70
EXQ	4.15	0.46	0.78	0.70

Table 3: Descriptive Statistics

Structural Equation Modeling

Using PASW, we conducted a principal components analysis (PCA) to determine the extent to which the variables were discriminated from each other. The factor loading coefficients from the PCA analysis are listed in Table 2. Table 3 shows that

all values of Cronbach's α exceed 0.70, indicating sufficient internal consistency of measurements scales (Rivard and Huff, 1988).

The SEM procedure includes measurement model testing and structural model testing, which were both conducted in LISREL. The measurement model testing was conducted for the following four constructs: group inference (GIN), satisfaction with price discount (SPD), expectation of quality (EXQ), and intention to buy (INT). The model fit were assessed by the following criteria: goodness-fit-index (GFI) and normed fit index (NFI) greater than 0.90, adjusted goodness-fit-index (AGFI) greater than 0.80 (Gefen, 2000), comparative fit index (CFI) greater than 0.90, and root mean square of approximation (RMSEA) lower than 0.08 for a good fit and lower than 0.1 for acceptable fit (Byrne, 1998). The fit indices for measurement model are shown in Table 4. The results indicate that the model has a good fit.

| Model	χ^2	df	p-value	RMSEA	GFI	AGFI	NFI	CFI
Measurement	94.75	40	0.000	0.076	0.94	0.88	0.98	0.99
Structure	122.81	42	0.000	0.090	0.92	0.85	0.97	0.98

Table 4: Summary of Fit Indices for Measurement Model and Structural Model

Consequently, the convergent validity and discriminant validity of scales were tested. We assessed the convergent validity by verifying the significance of the t values associated with the parameter estimates (Fornell and Larcker, 1981). All of the t values were significant, indicating sufficient convergent validity of scales. As Table 5 shows, the average variance extracted (AVE) for each construct is greater than the square correlation between that construct and any other construct in the model, indicating that the scales have sufficient discriminant validity.

	INT	GIN	SPD	EXQ
INT	**0.78**			
GIN	0.88	**0.67**		
SPD	0.75	0.7	**0.7**	
EXQ	0.66	0.65	0.54	**0.7**

Table 5: Correlations of Latent Variables

We conducted a structural model testing to validate the hypotheses. The global fit measures indicate that the structural model has an acceptably good fit to the data (see Table 4). The modeling results are shown in Figure 2. H2 hypothesizes that group inference has a significant positive effect on a person's intention to buy. The estimated path coefficient was 0.36 at a significant level (t = 9.04, p < 0.05). Thus, H2 was supported. H3 hypothesizes that a person's satisfaction with price discounts has a significant positive effect on the person's intention to buy. The path coefficient was 0.09 at a significant level (t = 3.77, p < 0.05), indicating that H3 was supported. H4 hypothesizes that a person's expectation of quality has a significant positive effect on the person's intention to buy. The path coefficient was 0.03 at a significant level (t = 2.27, p < 0.05). H4 was supported as well.
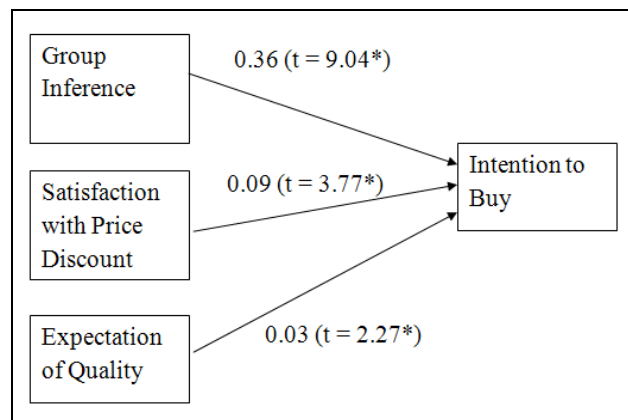
Figure 2: Structural Model

Logistic Regression Analysis

The nature of prepaid order indicates that it should be measured by a single dichotomous indicator, including either placing an order or not placing an order. A logistic regression is an appropriate methodology to analyze the relationship between the person's intention to buy and their actual orders. Table 6 shows the result of logistic regression analysis. The results indicate that a buyer's intention to buy can significantly increase the likelihood of the buyer's actual order. However, other factors have no significant effect. Thus, H1 was supported.

Actual Order	Mean of INT	S.D. of INT	N
No (0)	3.96	0.77	209
Yes (1)	4.67	0.49	28

Results of Logistic Regression

	Chi-square	d.f.	Significance
Model Coefficients	27.904	4	0.000

	-2 Log likelihood	R Square
Model Summary	144.26	0.215

Factor	B	S.E.	Wald	Significance
INT	1.86	0.62	9.10	0.003
EXQ	0.05	0.49	0.00	0.923
SPD	0.25	0.51	0.25	0.615
GIN	-0.18	0.43	0.17	0.679

Table 6: Summary of Statistics and Logistic Regression Results

DISCUSSIONS AND CONCLUSIONS

Prior research generalizes group reference and group inference as the overall group influence. In the current research, we further compared the difference between the two constructs. We suggest that group inference must occur in the pre-purchase stage and the information must be sent by other customers implicitly and unconsciously, so that the concept will not be confused with group reference. The influence of group inference on the buyer's decision making is not only found on group purchasing sites that use the tipping point mechanism, but also can be found in a wider scope of e-commerce and other business arena. One typical example is that a buyer would prepay for an upcoming IT product (e.g., Apple iPhone, iPad), when the buyer observes a large number of customers on the waiting list (Kolakowski, 2010; Mcnamara, 2010). The influence of group inference could also be found in the financial investment market. An interesting observation comes from the Chinese initial public offering (IPO) stock market. Although no investors could precisely predict the opening price of a new stock and none of them could assure that the investment would be profitable, when an individual investor perceives that the number of bids from other investors is immediately approximating to the total number of offers within a short time, the investor is inclined to bid for shares as well.

The influence of group inference on the buyer's intention to purchase also has valuable implications for the group purchase site managers when they develop marketing strategies. Although it appears difficult for the managers to control a potential buyer's interpretation of the group's choice, we suggest that increasing the number of website members in each local market is a feasible strategy. We find that some group purchase sites are expanding their target markets rapidly. However, the high speed expansion raises a question of whether or not the websites could distribute proportional resources to each market in order to attract buyers in local areas. If a group purchase site attempts to extend its service to every major city, yet it does not have sufficient resources to build the reputation in the local market and accumulate a large number of buyers, we would suggest that the group purchase site should only focus on certain selective local markets.

LIMITATIONS

In this research, we emphasize on the differentiation between group inference and the long established construct group reference. This study has the following limitations: (1) The research model is relatively simple and excludes several other

critical factors, such as perceived value, from the model. In a future study, we plan to integrate these factors with the current model, so that we can have a holistic view of the buyer's decision making process influenced by group inference. (2) The convenience sample limits the generalization of findings; (3) The combination of *Ap* and *Mp* is arbitrary. We plan to cooperate with Groupon.com and distribute surveys to deal buyers, so that we can test the model by using the data from a broader range of subjects.

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REFERENCES

1. Alford, B. L., and Biswas, A. (2002) The effects of discount level, price consciousness and sale proneness on consumers' price perception and behavioral intention, *Journal of Business Research*, 55, 775– 783.

2. Anand, K. S., and Aron, R. (2003) Group buying on the Web: A comparison of price-discovery mechanisms, *Management Science*, 49, 11, 1546-1562.

3. Arrington, M. (2010) The rest of the details on that monster groupon financing, http://techcrunch.com/2010/04/15/the-rest-of-the-details-on-that-monster-groupon-financing/

4. Ba, S., and Pavlou, P. A. (2002) Evidence of the effect of trust building technology in electronic marketing, MIS Quarterly, 26, 243-268.

5. Brüne, M., and Brüne-Cohrs, U. (2006) Theory of mind – Evolution, ontogeny, brain mechanisms and psychopathology, *Neuroscience and Biobehavioral Review*, 30, 437-455.

6. Byrnes, B. (1998) Structural equation modeling with Lisrel, Prelis, and Simplis, Psychology Press.

7. Cao, Y., Gruca, T. S., and Klemz, B. R. (2004) Internet pricing, price satisfaction, and customer satisfaction, *International Journal of Electronic Commerce*, 8, 2, 31-50.

8. Chen, Z., and Dubinsky, A. J. (2003) A conceptual model of perceived customer value in e-commerce: A preliminary investigation, *Psychology & Marketing*, 20, 4, 323-347.

9. Cohen, D. (2009) Virtual "tipping point" leverages group deals, http://www.reuters.com/article/idUSTRE5592K720090610

10. Cronin, Jr., J. J. and Taylor, S. A. (1994) SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality, *Journal of Marketing*, 58, 125-131.

11. Doucette, W. (1997) Influences on member commitment to group purchasing organization, *Journal of Business Research*, 40, 183-189.

12. Fornell, C., and Larcker, D. F. (1981) Evaluating structural equation models with unobservable variables and measurement error, Journal of Marketing Research, 28, 39-50.

13. Gefen, D. (2000) E-commerce: The role of familiarity and trust, Omega, 28, 725-737.

14. Happé, F., Ehlers, S., Fletcher, P., Frith, U., Johansson, M., Gillberg, C., Dolan, R., Frackowiak, R., and Frith, C. 'Theory of mind' in the brain: Evidence from a PET scan study of asperger syndrome", *NeuroReport*, 8, 197-201.

15. Houser, D., and Wooders, J. (2006) Reputation in auctions: Theory and evidence from eBay, *Journal of Economics & Management Strategy*, 15, 2, 353-369.

16. Nollet, J., and Beaulieu, M. (2003) The development of group purchasing: An empirical study in the healthcare sector. *Journal of Purchasing & Supply Management*, 9, 3-10.

17. Kardes, F. R., Cronley, M. L., Kellaris, J. J., and Posavac, S. S. (2004) The role of selective information processing in price-quality inference, *Journal of Consumer Research*, 31, 2, 368-374.

18. Kauffman, R. J., Lai, H., and Ho, C. -T. (2010) Incentive mechanisms, fairness and participation in online group-buying auctions, *Electronic Commerce Research and Application*, 9, 249-262.

19. Kauffman, R. J., and Wang, B. (2001) New buyers' arrival under dynamic pricing market microstructure: The case of group-buying discounts on the Internet," *Proceedings of the 34th Hawaii International Conference on Systems Sciences*, 2001.

20. Kim, D. J., Ferrin, D. L., and Rao, R. H. (2008) A trust-based consumer decision-making model in electronic Commerce: The role of trust, perceived risk, and their antecedents, *Decision Support Systems*, 44, 544-564.

21. Kolakowski, N. (2010) Samsung galaxy player, apple ipod contender, set for CES: Report http://www.eweek.com/c/a/Mobile-and-Wireless/Samsung-Galaxy-Player-Apple-iPod-Contender-Set-for-CES-Report-380779/

22. Lai, H. C., and Zhuang, Y. T. (2004) Comparing the performance of group-buying models with different incentive mechanisms. *Proceedings of the Third Workshop on e-Business*, December 2004,Washington, DC, USA, 1–12.

23. Lim, K. H., Sia, C. L., Lee M. K. O., and Benbasat, I. (2006) Do I trust you online, and if so, will I buy? An empirical study of two trust-building strategies, *Journal of Management Information Systems*, 23, 233-266.

24. Luo, X. (2005) How does shopping with others influence impulsive purchasing? *Journal of Consumer Psychology*, 15, 4, 288-294.

25. Mcnamara, M. (2010) By 2012, expect the online gaming industry to generate $20 billion http://www.businessreviewaustralia.com/tags/abi-research/2012-expect-online-gaming-industry-generate-20-billion

26. Monroe, K. B. (1973) Buyer's subjective perceptions of price, *Journal of Marketing Research*, 5, 70-80.

27. Premack, D., and Woodruff, G. (1978) Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences*, 4, 515-526.

28. Pavlou, P. A., and Dimoka, A. (2006) The nature and role of feedback text comments in online marketplaces: Implications for trust building, price premiums, and seller differentiation, *Information Systems Research*, 17, 4, 392-414.

29. Pavlou, P. A., Liang, H., and Xue, Y. (2007) Understanding and mitigating uncertainty in online exchange relationships: A principle-agent perspective, *MIS Quarterly*, 31, 1, 105-136.

30. Reuters (2011) Groupon CEO says sales surged 20-fold in 2010: report http://www.reuters.com/article/2011/02/25/us-groupon-idUSTRE71O6EW20110225

31. Rivard, S., and Huff, S. L. (1988) Factors of success for end-user computing, *Communication of the ACM*, 5, 552-561.

32. Steiner, C. (2010) The next web phenomenon. Forbes Asia, 6, 10, http://www.forbes.com/global/2010/0913/entrepreneurs-andrew-mason-groupon-bargains-web-sensation.html.

33. Vogeley, K., Bussfeld, P., Newen, A., Herrmann, S., Happé, F., Falkai, P., Maier, W., Shah, N. J., Fink, G. R., and Zilles, K. (2001) Mind reading: Neural mechanisms of theory of mind and self-perspective", *NeuroImage*, 14, 170-181.

34. Ziegler, C.-N., and Lausen, G. (2004) Analyzing correlation between trust and user similarity in online communities, *iTrust*, 251-265.