ISSUES AND ADVANCES IN B2C RESEARCH

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Since the major dot com decline in 2001, there has been a quiet revolution in business to consumer (B2C) commerce that has online spending growing at record levels. According to a comScore report in January 2005, online spending in 2004 grew by 26 percent to a record level of more than $117 billion (see Table 1). With a surge in the increase of number of individuals with access to the Internet[1], the opportunity for B2C commerce is expected to continue to steadily grow. Recognizing this opportunity, not only are the etailers interested in attracting potential customers to their websites, but the traditional brick and mortar stores are also setting up virtual store fronts and competing in this space. For example, Wal-Mart has aggressively pursued a strategy to encourage online buying and now appears in a recent report as being in the top 50 Internet properties based on unique visitors released by comScore (see Table 2). This extraordinary growth in electronic commerce has also raised a myriad of questions of interest to both academic researchers and practitioners alike. In this issue of JECR, five papers [Apigian, Ragu-Nathan, Ragu-Nathan, & Kunnathur (ARRK), Shergill & Chen, Schaupp & Belanger, Yang & Padmanabhan, (YP) and Zhuang (ZH)] address three important questions:

- What characteristics of virtual store fronts influence consumer shopping experience?
- How do we evaluate the impact of techniques designed to induce consumer interest and increase satisfaction?
- What is the business value of Internet technologies for organizations?

Table 1: Online Consumer Spending

(Excludes Auctions and Large Corporate Purchases) (Source: comScore Media Metrix)			
	2003 (in billions)	2004 (in billions)	% Change 2004 vs. 2003
Holiday Season (Nov & Dec)			
Non-Travel (Retail)	$12.3	$15.8	29%
Travel	$6.0	$7.8	28%
Total	$18.3	$23.6	28%
Full Year			
Non-Travel (Retail)	$52.9	$66.5	26%
Travel	$40.4	$50.9	26%
Total	$93.2	$117.4	26%

Shergill and Chen (SC) and Schaupp and Belanger (SB) address the first question by studying factors that influence consumer satisfaction and consumer attitude toward online shopping. The SB study was conducted in the US while SC conducted their study using New Zealand (NZ) customers. Issues associated with online shopping have been explored by other researchers. For example, Koufaris [2002] used the technology acceptance model (TAM) to explain online consumer behavior. Torkzadeh and Dhillon [2002] developed and validated measures that influence success of electronic commerce. Agarwal and Venkatesh [2002] tested a heuristic evaluation procedure to assess web site usability. More recently, Chang et al. [2004] (CCL) and Monsuwe et al. [2004] surveyed the research advances in online shopping. The CCL study is especially pertinent to research appearing in this issue of

[1] According to comScore, there were over 152 million users in the US as of January 2004 (see Table 2)

JECR. Their study investigated antecedents to online shopping adoption. The first reference model, posited that intention or usage of online shopping is affected by three major factors: perceived characteristics of the web as a sale channel (the sub-factors are perceived risk, relative advantage, online shopping experience, service quality, and trust), website and product characteristics (the sub-factors are risk reduction measures, website features, and product characteristics), and consumer characteristics (the sub-factors are consumer shopping orientations, demographic variables, computer/Internet knowledge and usage, consumer innovation, and psychological variables).

Table 2: Internet Site Popularity based on Unique Visitors

Top 50 Properties, January 2004 (Source: comScore Media Metrix) **Total U.S. - Home, Work and University Locations, Unique Visitors in (000) (UV)**					
Rank	**Property**	**UV**	**Rank**	**Property**	**UV**
	Total Internet Users	***152,443***			
1	Yahoo! Sites	110,821	26	Ask Jeeves	15,597
2	MSN-Microsoft Sites	109,113	27	Weatherbug.com Property	15,311
3	Time Warner Network	107,977	28	SBC Communications	15,066
4	eBay	72,561	29	Cox Enterprises Inc.	14,740
5	Google Sites	60,463	30	Sony Online	14,712
6	Terra Lycos	48,335	31	Wal-Mart	14,631
7	About/Primedia	41,385	32	AT&T Properties	14,219
8	Amazon Sites	38,179	33	Gannett Sites	13,982
9	Viacom Online	26,494	34	Classmates.com Sites	13,917
10	Weather Channel, The	24,699	35	E.W. Scripps	13,633
11	Walt Disney Internet Group	24,109	36	AmericanGreetings	13,421
12	Excite Network	23,791	37	eUniverse Network	13,332
13	CNET Networks	23,207	38	iVillage.com	13,237
14	Verizon Communications Corp.	21,570	39	Adobe Sites	12,945
15	Real.com Network	21,473	40	United Online, Inc	12,882
16	Symantec	20,992	41	Dell	12,822
17	Tickle, Inc.	19,334	42	Travelocity	12,491
18	Gorilla Nation Media	18,128	43	Vivendi-Universal Sites	12,157
19	Monster Property	17,946	44	NFL Internet Group	11,658
20	Shopping.com Sites	17,295	45	MyFamily Network	11,570
21	InfoSpace Network	16,689	46	Trip Network Inc.	11,476
22	EA Online	16,647	47	Comcast Corporation	11,430
23	ORBITZ.COM	16,154	48	News Corp. Online	11,365
24	Expedia Travel	16,091	49	Womensforum Sites	11,214
25	CareerBuilder, Inc.	15,611	50	Hewlett Packard	11,068

It is useful to frame the SC and SB studies based on the model by CCL. SC found that website design, website reliability/fulfillment, website customer service, and website security/privacy are the dominant factors that influence customer perception of online purchasing. All the four factors were a part of the CCL model. Website design (variable under Website Features sub-factor) is found to have positive relationship with Intention/Usage of Online Shopping. In contrast to prior studies that reported no relationship between website reliability (variable under Service Quality sub-factor) and attitude toward online shopping (e.g., Vijayasarathy & Jones [2000]), SC report a positive relationship between them. In fact, the New Zealand buyers gave highest ratings for website reliability/fulfillment factor. Research on the influence of customer service on perceptions of online shopping has also yielded mixed results in prior studies [Burroughs & Sabherwal, 2001; Jarvenpaa & Todd, 1997; Mathwick et al. 2001] but SC document a positive relationship. Results of the impact of website security/privacy on perceptions of online buying are consistent with earlier studies; however, security/privacy emerges as being the least satisfying aspect for NZ buyers. In sum, the SC study provides empirical evidence emphasizing the importance of website reliability in influencing online shopping and strong support for the impact of customer service on online shopping. In addition, the study also examined online shoppers based on four categories: trial, occasional, frequent, and regular online buyers. Their analysis suggests that depending on the type of shopper, the factors are perceived differently, though the results are not very different from earlier studies.

The SB study in this issue of JECR investigates the effect of three factors Technology factors (security, usability and site design, and privacy), Shopping factors (convenience, trust and trustworthiness, and delivery), and Product factors (merchandising, product value, and product customization) on online customer satisfaction. Their study finds that for the US consumers the most important attributes influencing online satisfaction are privacy, merchandising, and convenience. All three attributes were found to have positive relationship with Intention/Usage of online shopping by CCL. In addition to confirming these findings, SB also rank-analyze the factors using conjoint analysis to answer the question: What is the relative importance of factors for online shoppers? Rank ordering of attributes indicates that privacy and protection of the customer information is the most important attribute for web site visitors. By understanding the relative importance of these factors, web merchandisers can dedicate more resources toward these and expect payoff in terms of higher online consumer satisfaction.

The third paper presents a scheme to evaluate online personalization systems (Yang & Padmanabhan) and addresses the broader question on evaluating techniques that enhance website effectiveness. Personalization is the use of information about a particular user to provide tailored (personalized) user experiences for that user [Alpert et al. 2003). There are many commercial products that can be used to personalize the experience for the online shopper [Fink & Kobsa 2000]. YP study argues that true experimentation to evaluate online personalization schemes is not possible due to the potential costs of disrupting production environments. The authors present a survey of existing evaluation methods for online personalization schemes and suggest an alternate knowledge-based approach.

This approach works as follows. The system tracks data regarding types of personalization schemes presented to the consumer and the subsequent behavior such as purchase, evaluation of the product, or no action. Based on this, knowledge based rules are formulated, for example, for higher levels of personalization clickthrough rate is higher or quantity of the product purchased is higher. The rules that are consistently successful in predicting the user behavior can then be used to improve personalization schemes. For example, if the rankings provided by the system significantly and consistently affect the likelihood of purchase, then the rankings personalization scheme should be promoted. This approach seems simplistic but the rules become quite complicated quickly because different users behave differently when exposed to the same personalization scheme. The evaluation of user data is also complex due to an absence of baseline metrics (such as experiment with no personalization scheme). Another problem is to devise rules that are internally consistent, for example, the "if condition" points to two possibilities, "the customer buys product X *or* the customer buys product Y", then evaluation of rules becomes difficult. This theoretical approach is an innovative approach to evaluating personalization schemes; however, empirical evaluation is required to assess the efficacy of this approach in the real world.

Issues for Future Research

Based on the three papers in this issue of JECR, we present a few thoughts on potential directions for future research.

- *Dynamic nature of influencing factors*: With rapid developments in technology, factors that are perceived as being important by online customers today may not be as critical in the future. As consumer concerns shift over time, it may partially explain mixed results for some of the factors investigated in earlier studies. For example, the security concerns have lessoned considerably over the years due to the improvements in technology. On the other hand, with an explosion in email-based advertising resulting in high search and vulnerability costs for the consumer, privacy concerns have taken on increased importance. For theory development and a more complete understanding of the dynamic nature of the relationships between the exogenous variables and online consumer experience, we encourage researchers to collect longitudinal panel data. Availability of such data will enable examination of relationships over time.
- *Moderating factors*: Prior researchers have suggested that the influence of various factors on online experience is moderated by product type (e.g., [Agarwal & Venkatesh, 2002]). There is little empirical evidence if such moderating influence exists in other relationships. This insight is critical as it reveals the generalizability or lack thereof of empirical work.
- *Personalization:* The basic assumption in this research area is that personalization schemes are in general helpful to the customer. However, Alpert et al. [2004] demonstrate that customers only like certain types of personalization schemes and their preferences vary according to the product. Collaborative filtering technique that suggests additional product recommendations at the time of purchase is liked by customers buying books and music but is disliked by customers buying computers and machinery. Personalization schemes and their relationships with product types, consumer characteristics, and demographic variables are largely unknown. Also, the customer preferences regarding longitudinal personalization schemes and customer privacy concerns may have a complex relationship. These issues present an opportunity for future research.

Two papers (ARRK & ZH) address the importance of e-commerce in the organizational context. The ARRK paper develops measures for use of the Internet for business purposes and its relationship with the performance of the organization in the areas of revenue expansion, relationship enhancement, cost reduction, and time reduction. The authors found that the organizations that strategically employ the Internet are more likely to achieve their business objectives. Results of the paper confirm the importance of type of technology use as an important factor in creating business value.

The ZH study treats e-business as an organizational innovation. This paper then assesses the link between firms who innovatively use e-business and their performance. The results indicate that innovative application of e-business results in increasing profit ratios and decreasing cost ratios. The common thread that runs through AARK and ZH paper is that e-business/commerce is not to be applied in isolation of the overall business strategy. The benefit is not in technology per se but in the alignment of IT and business strategy. This lesson, though obvious, has been neglected by managers time and again.

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