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CONSUMER DECISION MAKING ON THE WEB

Introduction

Recent empirical data on online shopping considers consumers that have the opportunity of making better quality decisions while shopping on the web. But if such potential is realized by most of the consumers is still an unauthorized question. Thus, the objective of this research is the understanding of how [1] certain features of electronic environments have a positive effect on the abilities of consumers to make better decisions, and [2] identifying information-processing strategies that would allow consumers to make better quality decisions while shopping on the web. A cross-disciplinary theoretical analysis based on constructs taken from economics (e.g., time costs), psychology (e.g., decision strategies) and computing (e.g., recommendation agents) is led to detect factors that potentially affect decision quality in electronic environments. This study is significant from a theoretical point of view as it explores an important aspect of online consumer decision making, namely, the influence of the electronic environment on the abilities of consumers. It is important from both a managerial and public policy viewpoint as the ability of shoppers to make better quality decisions while shopping online is directly connected to developing market efficiency and increasing consumer prosperity in electronic markets [1].

The core

According to Kotler and Armstrong (1999), companies must be focused on consumer. To succeed with purchasers companies must bring more to the customer relationship than just their standard product or service. They must create value with each and every customer interaction. In order to do this, they must understand the behavior of their customers. A company's success depends not only on how well each department performs its work, but also on how well the activities of various departments are co-coordinated [2]. This is a guiding principle of the value chain and can be achieved by placing more emphasis on a company's core business processes [3]. A company can gain a substantial competitive edge by mastering core business processes. Based on this new view, according to Kotler and Armstrong (2001), marketing is not only responsible for formulating the marketing mix, but also for designing and managing a superior value delivery system to reach target customer segments. Managing their own value chain and the entire value delivery system in a customer oriented way enables companies to create customer satisfaction [4].

The conventional wisdom is that online shopping has been a boon to consumers. The Internet has certainly made it easier for consumers to search for the best price when that is most important due to the profusion of merchants on the web. Likewise, the large product assortments offered by these merchants has also made it easier to find the best product fit (i.e., the match between consumer needs and product attributes) when that is most important. Recommendation agents offered by sellers and third-party shop bots enable consumers to quickly navigate through huge product assortments to find that elusive bargain or "dream" product (i.e., one they were not sure even existed). The ability to electronically screen (and rescreen) product choices enables consumers to focus on the primary benefit they seek while shopping online, be it paying a lower price or finding a product that best matches needs.

In a seminal article on the expected impact of the Internet on consumer information search behavior, Peterson and Merino (2003) cautioned that there was no assurance that the Internet would lead to better consumer decision making. In a recent comprehensive review of empirical research on consumer decision making in online environments, Darley, Blankson, and Luethge (2010) conclude that there is a paucity of research on the impact of online environments on decision making. According to a 2008 report on "Online Shopping" from Pew Internet and American Life Project (a leading nonprofit authority on Internet usage trends), almost 80% of shoppers say that the Internet is the best place to buy items that are hard to find. Yet, at the same time, almost 60% of shoppers also say that they get frustrated, confused, or overwhelmed while searching for product information. Based on the studies by Peterson and Merino (2003), Darley, Blankson, and Luethge (2010), and the 2008 Pew Internet report it appears that online choice settings certainly offer consumers the potential to make better quality decisions, but whether this potential is being realized is still an unresolved matter. Hence, the purpose of this research is to understand how [1] certain features of electronic environments have a favorable effect on the abilities of consumers to make better decisions, and [2] identify information-processing strategies that would enable consumers to make better quality decisions while shopping online [5]. A better quality decision may be defined along two dimensions, one relating to price and the other to product fit (i.e., the match between consumer

needs and product attributes). Consumers may seek the best price for a product, or the best product fit, or more commonly a price-product fit combination that represents how they trade-off price with product fit. The potential for making better quality decisions while shopping online can then be related to the ability of the consumer to select an optimal price-product combination more readily than when shopping in a traditional retail environment [3].

Previous research ondecision making in online settings has found that consumers are able to make better decisions with less search effort in online settings. The ability to control the flow of information via an interactive information display has also been found to be related to decision quality [6]. Worldwide e-commerce sales surpassed the $1 trillion mark for the first time in 2012, according to a New EMarketer estimate out today. The research firm estimates that B2C online sales grew 21.1% last year to $1.097 trillion. Leading the way was the US e-commerce industry, which grew 13.9% to an estimated sales total of $364.66 billion. EMarketer expects that to grow in 2013 to just above $409 billion. Despite that growth, the Asia-Pacific region is expected to grow even faster and take over the top spot in online sales in 2013 – with an estimated 33.4% of all e-commerce activity [7].

The rapid growth in Asia-Pacific sales is a result of several factors. Three Asia-Pacific markets-China, India and Indonesia-will see faster B2C ecommerce sales growth than all other markets worldwide this year, while Japan will continue to take a large share of global sales.

According to eMarketer, B2C ecommerce sales in the US will grow 12% to $384.80 billion in 2013-after growing 13.8% to $343.43 billion last year-as average B2C ecommerce sales per user reach $2,466 this year among those who buy goods online in the US [7].

The US will remain the single country with the largest share of worldwide B2C ecommerce spending, at 29.6% in 2013-down from 31.5% in 2012 despite relatively strong growth. This will continue throughout the forecast period, though China is closing the gap fast. In 2016, China will have 22.6% of the worldwide market, vs. 26.5% in the US (Fig. 1).

China also boasts the highest number of people who buy goods online in the world-nearly 220 million in 2012, according to eMarketer-a result of increasing internet penetration; a burgeoning middle class with growing trust in online shopping; government-driven campaigns to promote consumerism; as well as improved infrastructure, product selection and services offered by online sellers and retailers.

A cross-disciplinary theoretical analysis based on constructs drawn from economics (e.g., time costs), computing (e.g., recommendation agents), and psychology (e.g., decision strategies) is conducted to identify factors that potentially influence decision quality in electronic environments. The research is important from a theoretical standpoint because it examines an important aspect of online consumer decision making, namely, the impact of the electronic environment on the capabilities of consumers. It is important from both a managerial and public policy standpoint because the ability of shoppers to make better quality decisions while shopping online is directly related to improving market efficiency and enhancing consumer welfare in electronic markets (Table 1).

Time Costs

Time costs influence information search depending upon the opportunity cost of time. Higher time costs decrease search, while lower time costs lead to increased search. When time costs become too low, consumers engage in more exploratory search, potentially having an unfavorable effect on decision quality. Previous research has found that the influence of time costs on search in off-line settings is dominated by the physical search effort required in these settings [8]. In other words, time costs are not adequately considered by consumers in traditional retail settings. The physical
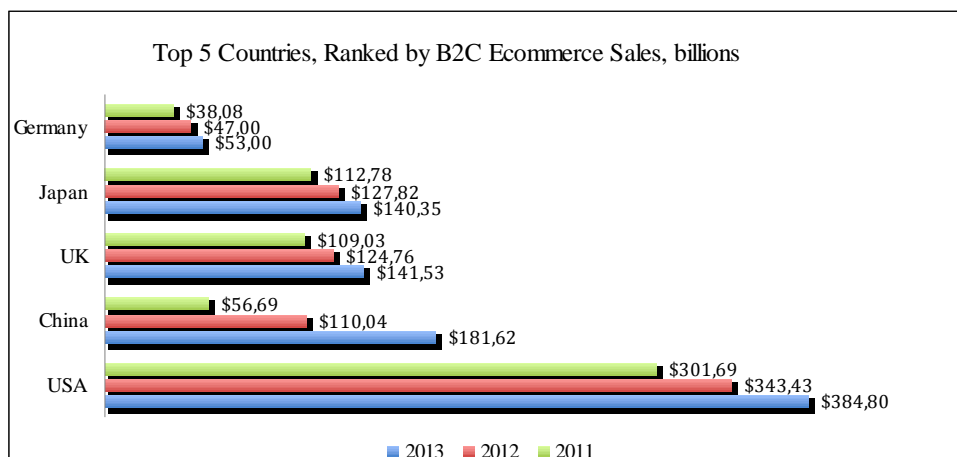

Fig. 1. Top 5 Countries, Ranked by B2C Ecommerce Sales, billions

Table 1

Digital Buyers WorldWide, by Country, 2011 – 2016, million

Digital Buyers WorldWide, by Country, 2011 – 2016 *millions*						
	2011	**2012**	**2013**	**2014**	**2015**	**2016**
Asia-Pacific	**334.8**	**391.1**	**457.6**	**523.1**	**591.7**	**653.5**
- China	178.4	219.8	270.9	322.1	374.9	423.4
- Japan	70.2	73.3	75.6	77.0	78.2	79.2
- India	14.5	19.2	24.6	30.0	36.2	41.8
- South Korea	22.2	23.3	24.4	25.4	26.3	26.9
- Other	49.4	55.5	62.2	68.6	75.9	82.3
Western Europe	**156.8**	**168.6**	**178.8**	**186.1**	**192.1**	**197.3**
- Germany	38.2	41.2	43.3	44.4	45.2	45.9
- UK	33.0	34.8	36.5	37.5	38.2	38.9
- France	24.5	26.5	28.1	29.2	29.8	30.4
- Spain	13.4	14.5	15.9	17.2	18.6	19.5
- Italy	10.5	11.7	13.0	14.2	15.4	16.6
- Other	37.2	39.8	42	43.6	44.9	46.1
North America	**156.7**	**164.2**	**171.3**	**178.8**	**185.8**	**192.6**
- US	143.4	149.8	156.1	163.6	168.7	175.0
- Canada	13.3	14.4	15.2	16.2	17.1	17.6
Eastern Europe	63.9	75.2	85.2	95.2	102.5	107.4
- Russia	19.6	23.1	26.2	29.3	31.4	32.7
- Other	44.3	52.1	59.0	65.9	71.1	74.7
Latin America	**50.3**	**63.6**	**73.9**	**82.5**	**90.6**	**97.5**
- Brazil	19.1	23.7	26.7	29.7	31.9	33.9
- Argentina	6.4	8.1	9.2	10.4	11.3	11.8
- Other	24.9	31.9	37.2	42.4	47.4	51.8
Middle East & Africa	**30.0**	**40.9**	**49.8**	**58.6**	**65.8**	**73.1**
Worldwide	**792.6**	**903.6**	**1,015.8**	**1,124.3**	**1,228.5**	**1,321.4**

effort required to conduct search is significantly lower in the electronic environment. Moreover, the typical online consumer is "time starved" and shops online to save time. Online consumers also exhibit search and evaluation patterns that are consistent with time constraints [9]. Hence, there is more importance placed on time costs in online settings. Further, the use of electronic sources of information can increase search effectiveness by decreasing the time needed to search and evaluate information. Time-related investments during search and evaluation can reduce future time costs due to the acquisition of skill capital [10].

Cognitive Costs

Cognitive costs relate to the cognitive effort expended during decision making. The cognitive cost model proposes that consumers maintain a focus on accuracy but also consider the cognitive costs associated with the attainment of that goal. Previous research findings show consumers limit processing in off-line settings, because of a greater emphasis on effort reduction than on accuracy improvement [11]. Cognitive costs are lower in electronic environments, because cognitive effort can be shifted to the recommendation agents that are typically available in these environments. Hence, the extent to which consumers focus on accuracy improvement in an on-line setting can potentially have a favorable influence on decision quality. The cognitive costs of search include the cost of acquiring information and the cost of processing information [12]. While the cost of processing information remains unchanged between off-line and online settings, the cost of acquiring information is reduced in online settings due to the availability of electronic decision aids. Electronic decision aids are helpful for performing routine processing tasks, such as sorting information on the alternatives.

Perceived Risk

Perceived risk influences search and evaluation due to the uncertainty associated with the choice alternatives. Previous research has found that search is determined by both absolute and relative levels of uncertainty associated with the choice alternatives, but with a greater emphasis on the latter [13]. The separation of product information from the physical product increases perceived risk in online settings. Further, consumers tend to focus more on absolute, rather than relative, levels of risk associated with the product alternatives in an electronic environment. Thus, consumers will need stronger signals (e.g., brand names, retailer reputation) to reduce risk. However, risk assessments may be counterbalanced by the convenience of purchasing online. Risk-taking consumers may reduce search as they trade off the convenience of purchasing online with the risk of so doing, while risk-averse consumers may increase search [14]. Further, consumers seek and accept online recommendations as a way to manage risk during online search and evaluation.

Product Knowledge

Consumers often rely on prior knowledge during search and evaluation due to information processing limitations. The stimulus-rich nature of online settings will cause memory-based influences on search and evaluation to diminish while enhancing the role of externally available information. Consumers use prior knowledge to initiate search with information on uncertain beliefs being acquired earlier [15]. The iterative nature of online search and evaluation may result in information on previously preferred alternatives being disconfirmed. Preference reconstruction can then be expected to be based on exposure to new alternatives and selection criteria. Consumers who are skillful at using the Internet to research products rely on it as an important source of information [16]. However, some consumers have a difficult time learning the search terminology (i.e., keywords) necessary for seeking out the product that best matches needs in an electronic environment. Thus, consumers need both "web expertise" (i.e., device knowledge) and product knowledge (i.e., domain knowledge) to make better decisions in an online setting. It is possible for web expertise to compensate for the lack of product knowledge, provided consumers use the former to develop the latter [17]. If consumers do not have the necessary level of product knowledge, they may focus on easy to use, but unimportant product attributes, which will adversely affect decision quality.

Screening Strategies

The more information consumers consider the more likely are they to make a better purchase decision [18]. Online merchants offer wide and deep product assortments so that consumers can find a product fit that best matches needs. But navigating through all the product choices available online can be time consuming. The desire to consider a wide variety of product options and be able to do so quickly has been labeled the "tyranny of choice" [19].Hence, the typical online store has a recommendation agent (i.e., an electronic decision aid) available for screening product alternatives. The ability of the consumer to calibrate a recommendation agent affects decision quality in online settings. It is easy to over-calibrate a recommendation agent by including even less important attributes during alternative evaluation (resulting in the "no matches found" message).

The manner in which a recommendation agent is used also influences decision quality in online settings. Recommendation agents can be used for information filtration (i.e., sorting alternatives on an attribute) or information integration (i.e., combining information on the alternatives using multiple attributes). The heuristics consumers in online settings are better suited for sorting alternatives rather than combining information on the alternatives. While information filtration screening strategies can help rapidly narrow the set of available alternatives, they are relatively rigid (i.e., inflexible) in

their application [20]. Alternatives that are otherwise attractive may be eliminated if they are dominated on the attributes used for screening. Hence, the use of recommendation agents for information filtration, relative to information integration, can potentially have an unfavorable influence on decision quality.

Trust

Trust and privacy concerns influence search and evaluation in online settings, because of the potential for misuse of personal information [21]. Consumers seem to be willing to trust the product recommendations offered by an electronic decision aid, but only when it sorts information on product alternatives. Electronic environments decision aids are less trustworthy when advice (e.g., expert opinions) is needed and the privacy of information is a concern. Privacy concerns lead some consumers to limit the use of electronic environments for seeking product information. Likewise, a lack of trust can cause some consumers to limit contact to only reputable Internet retailers [22].

Conclusions

The preceding theoretical analysis identifies effects that may be combined into a conceptual model of decision quality in online settings (see Fig. 2). The potential for consumers to make better quality decisions while shopping on the web

can be realized by encouraging consumers to benefit from the favorable influences on decision quality in web-based choice environments, while countering the unfavorable influences, as articulated through the propositions. The main prediction of the model is that decision quality is likely to improve when consumers focus both on cost reduction and benefit improvement, as compared to when the focus is only on cost reduction or benefit improvement. Why would consumers not focus on both cost reduction and benefit improvement all the time? It is because of the limited cognitive abilities of consumers. Consumers have to allocate available cognitive resources between these two options. They are more likely to direct these resources to cost reduction in off-line settings because the results of so doing are immediate, certain, and tangible as substantiated in numerous studies of off-line information search and product evaluation. In online settings, many of the resources that were previously directed to cost reduction now become available for benefit improvement, because of the availability of electronic decision aids such as shopbots and recommendation agents. Hence, there is a shift in the cost-benefit trade off from cost reduction toward benefit improvement. The contingency perspective adopted in the manuscript enables us to predict the effect of various factors on decision quality in online settings.
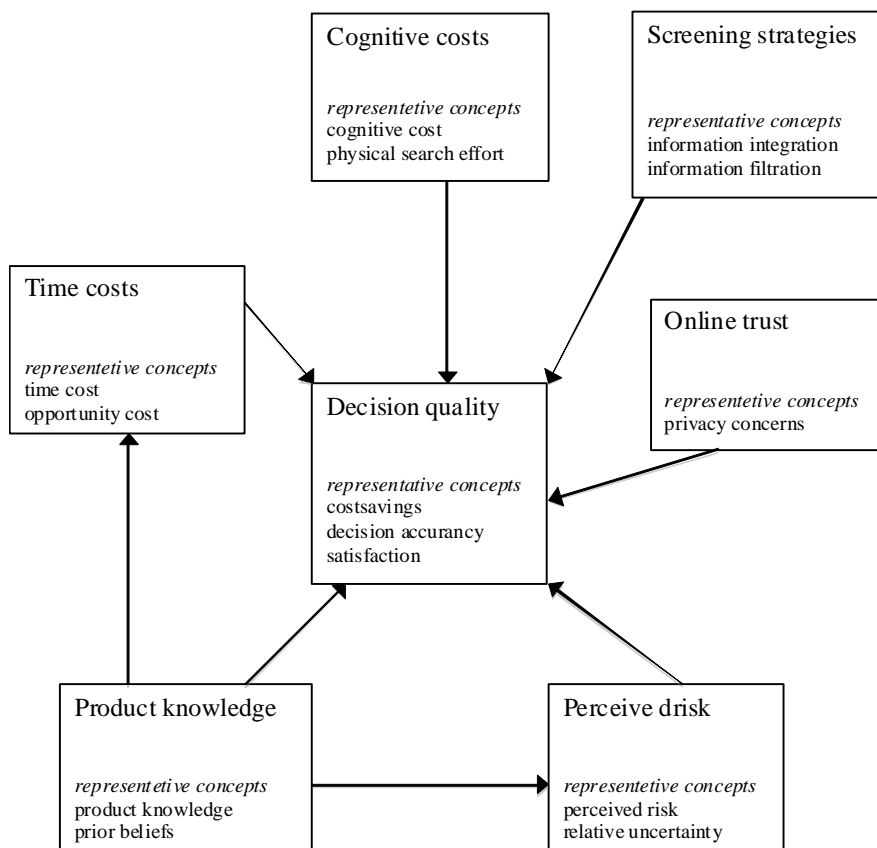
Fig. 2. A model of decision quality for an online information environment

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Кучерук Т. Г., Архипов М. В., Бурлаченко Г. О. Прийняття споживчих рішень в Інтернеті

У статті досліджено ключовий аспект прийняття рішень споживача онлайн, а саме вплив електронного середовища на здатність покупців. Основним завданням дослідження є розуміння того, як деякі функції електронних середовищ надають позитивний вплив на здатність споживачів приймати більш обґрунтовані рішення, а також визначення стратегій обробки інформації, які дозволять споживачам приймати більш зважені рішення при здійсненні покупок в Інтернеті.

Ключові слова: споживачі, прийняття рішень, інтернет, електронна комерція.

Кучерук Т. Г., Архипов Н. В., Бурлаченко А. А. Принятие потребительских решений в Интернете

В данной статье исследуется ключевой аспект принятия решений потребителя онлайн, а именно влияние электронной среды на способности покупателей. Основной задачей данного исследования является понимание того, как некоторые функции электронных сред оказывают положительное влияние на способность потребителей принимать более обоснованные решения, а также определение стратегий обработки информации, которые позволят потребителям принимать более взвешенные решения при совершении покупок в Интернете.

Ключевые слова: потребители, принятие решений, интернет, электронная коммерция.

Kucheruk T. G., Arkhypov M. V., Burlachenko G. O. Consumer Decision Making on the Web

This article investigates a key aspect of online consumer decision making – the impact of the electronic environment on the abilities of buyers. The main task of this research is to understand how certain features of electronic environments have a positive effect on the abilities of consumers to make better decisions, and identify information-processing strategies that would allow consumers to make better quality decisions while shopping on the web.

Key words: consumers, decision making, internet, ecommerce.