The Effects of Information Overload on Consumer Confusion: An Examination on User Generated Content*

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Abstract

The aim of this study is to determine the effects of information overload on consumer confusion in User-Generated Content (UGC) environments and to find whether consumers' final buying decisions are affected by the confusion. In this respect, consumer data gathered online was analyzed by means of Structural Equation Modeling (SEM) on the basis of the theoretical framework. In addition to model tests, a scale was developed to measure 'information overload' depending on UGC. The results revealed that depending on the quality of information created in UGC environments, consumers' perceptions of information overload and consequently their confused reactions are related. The most important dimension of the information overload was found to be the information processing capacity. The level of involvement, the level of internet self-efficacy, and the perceived usefulness of UGC were also related to the degree of information overload. Statistically meaningful relationships were found between perceived information overload and confusion, and this confusion had a negative effect on consumers' buying decisions, thus resulting in a decrease in purchasing.

Keywords: Web 2.0, user-generated content, Information Overload Theory, consumer confusion, Structural Equation Modeling.

Bilgi Yükünün Tüketici Kafa Karışıklığına Etkisi: İnternette Kullanıcıların Oluşturduğu İçerikler Üzerine Bir İnceleme

Özet

Bu çalışmada; tüketicilerin bilgi toplama ve değerlendirme süreçlerinde internette kullanıcıların oluşturduğu içerik (UGC) kullanımına bağlı olarak bilgi yükü algılayıp algılamadığını araştırmak ve bu durumun tüketicilerin değerlendirme sürecine etkilerini ortaya koymak amaçlanmıştır. Bu kapsamda, bir çevrimiçi anket uygulaması ile elde edilen veriler kullanılarak, söz konusu ilişkileri kapsayan teorik model, yapısal eşitlik

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* This study is derived from the dissertation of Erdem Özkan entitled "An Analysis of User-Generated Content on the Internet in the Context of the Information Overload and Consumer Confusion."

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modellemesi (YEM) ile test edilmiştir. Ayrıca, UGC ortamlarına özgü bir bilgi yükü ölçeği geliştirilmiştir. Araştırma sonucunda, UGC'ye bağlı olarak tüketicilerin bilgi yükü algıladığı ve kafa karışıklığı yaşadığı tespit edilmiştir. Bilgi yükünün oluşumunda en önemli alt boyutun kişinin bilgi işleme kapasitesi olduğu bulunmuştur. Diğer üç boyutun ise aynı düzeyde olmamakla birlikte, önemli derecede etkili olduğu görülmüştür. Ürüne yönelik ilgilenim seviyesi, internet kullanım düzeyi ve UGC'den algılanan faydanın da bilgi yükü algılamasında etkili olduğu görülmüştür. Tüketicilerin bilgi yükü algılaması ile kafa karışıklığı seviyesi arasında güçlü ilişkiler bulunmuş ve kafa karışıklığının da tüketicinin satın alma kararını olumsuz yönde etkilediği belirlenmiştir.

Anahtar Kelimeler: Web 2.0, kullanıcıların oluşturduğu içerik, Bilgi Yükü Teorisi, tüketici kafa karışıklığı, Yapısal Eşitlik Modellemesi

Despite not having a long history, Web 2.0 has become an important part of human life nowadays. Web 2.0 has made it possible for individuals to contribute and develop information in the online environment. For instance, social media sites such as Facebook, Twitter, My Space, Linkedin, Flickr, and YouTube designed with Web 2.0 are frequently used by individuals.

With the developments of Web 2.0, participative web and social media have emerged which have made it easier for users to develop online information (Aghaei et al., 2012:3; Bajt, 2011:56; Kaplan and Haenlein, 2010: 61; OECD, 2007:17). As such, users are able to communicate freely via online channels. Worldwide opinion-sharing activities have created a fruitful database that consumers can use for their decisions in buying

Especially when consumers have less knowledge of the product, personal resources tend to be used more. Consumers can be motivated by getting others' opinions. Also, for products having hedonic and symbolic meanings such as fashions, music or furniture, consumers prefer to benefit from personal resources because they fear that they may be criticized by others for buying or using these products (Hoyer and MacInnis, 2010:206). Considering that User-Generated Content (UGC) is a very important personal resource, it is valuable to examine a consumer's information search and evaluation process in UGC environments.

Despite its benefits, the information searching process via online channels could create some problems. One of the most outstanding problems is the huge amount of information that leads to the information overload created by the existence of the internet (Hawkins and Mothersbaugh, 2010:527).

The information processing capacity differs from one individual to another. Accordingly, the amount of information which is greater than the processing capacity leads to negative results in the decision-making functions of individuals. This is referred to as "Information Overload" (Eppler and Mengis, 2004:326; Malhotra, 1982:419; Schultze and Vandenbosch, 1998:129). Huge amounts of online information and the convenience of obtaining the information lead to the problem of information overload. That overload leads to confusion and delays in decision making, sometimes even to postponing the

act of buying (Mitchell and Papavassiliou, 1999:327; Schweizer, Kotouc and Wagner, 2006:185; Walsh and Mitchell, 2010:840).

From this point of view, the study aims to investigate the extent to which consumers perceive information overload in UGC environments in information gathering and evaluation processes relative to its effects on the final buying decision. Additionally, a scale-to-measure information overload dependent on UGC was developed. The effects of involvement level, perceived usefulness of UGC and internet self-efficacy on the formation of consumer confusion with information overload were also examined.

A structural equation model was built to investigate the relation of information overload and consumer confusion. Throughout the model, the antecedents and consequences of information overload were examined and the findings were interpreted with regard to UGC.

Ongoing developments of the internet and participatory web environments highlight the daily importance of UGC. Using this perspective, one can argue the importance of UGC. When the amount of information in UGC environments is rapidly increasing and there are rising areas in UGC as sources of product information, it is essential to evaluate the information gathering process relative to negative states such as information overload and consumer confusion.

The development of a new scale for measuring perceived information overload depending on UGC environments is held to be an important contribution to the literature. As such, the developed model on the antecedents and consequences of information overload in relation to consumer confusion is considered an essential source of knowledge for researchers as well as for marketing professionals.

Conceptual Framework

User-Generated Content (UGC)

User-generated content (UGC) refers to the information which is created, circulated, and used by participants in online sharing platforms, and which is used by the users and allows them to guide each other on various topics such as goods and services (Blackshaw and Nazzaro, 2006:2). UGC describes the media content created and produced by ordinary users rather than by paid professionals and is usually distributed on the internet (Daugherty, Eastin and Bright, 2008:16).

According to the OECD, UGC should fulfill three basic requirements (OECD 2007:18): First, it should be published on a publicly accessible web site or a social networking site that a selected group of people can access. Second, there should be a certain amount of creative effort, but it should be created without any professional attempt or act. When we evaluate these features, the first requirement is that the content created by means of an e-mail or instant messaging is not included in the scope of UGC. The second requirement is that shared copies of content, which already exist without any contributions, should not be included in the scope of UGC (such as publishing a copy of news from a newspaper on a personal blog without making any contributions

or any comments). As for the third requirement, all the content which has been created with a commercial aim should be kept outside the scope of UGC.

UGC gives the users many opportunities to project their creativity by combining the technologies and continuous improvements of the applications, with or without textual forms. UGC, with the support from the provided platforms, can be grouped as (1) text, (2) photo and picture, (3) music and sound, (4) video and film (OECD, 2007:34).

The internet makes it possible for the consumers to access any information in a previously unprecedented way. Consumers are using the internet to search for information about products more and more everyday. Search engines such as Google, Yandex and Bing help consumers access the convenient information contained on the millions of web pages.

The increasing use of the internet as an information source during the consumer's decision making process led UGC to be used as an information source. Today, UGC is one of the significant information sources (especially for user comments such as suggestions or complaints on certain products). This content is taken with increasing seriousness by consumers as they consider this content more trustable and accessible (Hawkins and Mothersbaugh, 2010:527; Mangold and Faulds, 2009:360).

While the internet offers significant benefits in the information search process, it also causes many problems for consumers as a consequence of its nature. The most outstanding problem it creates is the difficulty consumers encounter in eliminating unnecessary information on a hugely accessible information source. This situation is related to the concept of 'Information Overload' and the availability of a huge amount of information on the internet is known as one of the significant factors leading to the information overload. (Hawkins and Mothersbaugh, 2010:527).

Information Overload Theory

The information Overload Theory is based on the argument that consumers are limited in terms of the amount of information they can assimilate and process at a certain time. If the limits of consumers' information processing is exceeded, an overload will occur. This situation represents the basic entity of the information overload (Malhotra, Jain and Lagakos, 1982:27).

In the literature, the term 'information overload' has no generally accepted definition (Bawden and Robinson, 2009:182; Eppler and Mengis, 2012:523; Pijpers, 2010:22). While some authors define it as a mental condition experienced by the user and caused by not being able to process the information (Chen, Shang and Kao, 2009:50; Eppler and Mengis, 2012:523; Jacoby, Speller and Kohn, 1974:68; Jones, Ravid and Rafaeli, 2004:196; Meyer, 1998:202; Nelson, 1994:12; Schultze and Vandenbosch, 1998:131; Wilson, 2001:113), others define it as an increase in the volume of information (Aikat and Remund, 2012:112; Klausegger, Sinkovics and Zou, 2007:695; Krishen, Raschke and Kachroo, 2011:344; Schultze and Vandenbosch, 1998:129). However, in the literature review, it is seen that information overload is actually a situation perceived in

different ways by the users and it differs from person to person.

In this study, '*information overload'* is considered to be a mental negativity people encounter in the information search process while evaluating large amounts of information; it depends on the quality of the information, the available time and the available tasks.

Information overload is based on the assumption that users have limits in understanding and processing information at a given time (Malhotra, 1982:419). This situation is described as information processing capacity. *Information processing capacity* refers to the capabilities of dealing with mental processing such as finding, classifying and organizing the information in addition to making a final decision (Schultze and Vandenbosch, 1998:129). As a result, if the users are provided with an amount of information that is above their capacity of information processing, there will be an information overload and it could result in poor decision making and non-functional processes (Malhotra, 1982:419).

The Formation of Information Overload

Consumer-related, information-related and task-related causes (such as information gathering and evaluation) should be taken into account with regard to their effects on the formation of information overload.

Eppler and Mengis (2004:332) collected the causes of information overload in five groups: a) personal factors, b) information features, c) task and process parameters, d) organizational design and e) causes depending on the Information Technologies. Jackson and Farzaneh (2012:525), who developed the structure suggested by Eppler and Mengis (2004:332), separated the internet and the external factors contributing to the formation of information overload into certain units and categorized the causes as follows: (1) information quantity, (2) information characteristics, (3) information quality, (4) information processing capacity, (5) available time, (6) task and process parameters, and (7) personal factors.

In this study, the factors leading to information overload are examined as (1) the amount of information that the person has in the period of searching and examining the information, (2) the quality and the feature of the information concerned, (3) the person's capacity for processing information, (4) and the available time for collecting and examining the information.

Information overload has both objective and subjective dimensions. Objective or factual information overload can vary independently depending on the individuals involved in the process. Subjective information overload is the situation which is perceived by the individual (Klausegger, Sinkovics and Zou, 2007:695). People differ from each other in terms of their information processing capacity. As a result, it is expected that the perception differs among individuals, thus the perception and the level of the information overload will vary relatively as well.

It is possible that as a consequence of the cognitive capacities of an individual, a certain type of information which can be complicated for one person might not be complicated for the next (Jackson and Farzaneh, 2012:527). For example, one person

can review three product options in just a minute while someone else can review only one product a minute.

The literature survey suggests the internet as one of the largest contributors to the formation of information overload, while other studies indicate that the internet only intensifies the problem of information overload and that problem had existed even before the internet emerged (Edmunds and Morris, 2000:20)

Consequences of Information Overload

In related studies, it has been found that nowadays, especially with the development of the internet, consumers spend a lot of time on information gathering and evaluation. Thus the resultant stress affects their decision-making process. Accordingly, another major concern faced by the consumers is missing an important piece of information due to the volume of processed material (Edmunds and Morris, 2000:19).

When people experience an excessive amount of information, and do not have enough time to evaluate all of it, they miss some or all of the critical pieces (Schultze and Vandenbosch, 1998:130-131). This situation could lead consumers to evaluate the alternatives with insufficient information and to affect the quality of the decision. In the event that the consumer's decision making process is complicated, the information overload could result in dysfunctional performance. In particular, complicated tasks lead to confusion and they limit a person's capacity for processing, responding and perceiving the information (Gao et al., 2012:773).

Consumer Confusion

Evaluating the studies on consumer confusion, it can be seen that the definitions of the consumer confusion vary as widely as in information overload. Walsh and Mitchell (2010:840) describe the consumer confusion as a disturbed/inappropriate state of mind that begins during the pre-purchase process and affects the information processing and decision making negatively, thus causing consumers to make sub-standard choices. Turnbull, Leek and Ying (2000:145) describe the consumer confusion as a consumer failure to create a correct interpretation of various aspects of goods and/or services during information processing. Schweizer, Kotouc and Wagner (2006:185) define the consumer confusion as an emotional state which makes it harder for consumers to select and process stimuli as a result of a temporary act of surpassing the consumers' individual capacity and ambient stimulus threshold.

In this study, taking the definitions mentioned above as bases, consumer confusion is described *as negative cognitive and mental processes experienced by consumers while processing the information obtained and evaluating the alternatives which complicate the decision making process.*

The number of products, the increasing amount of information about each product, the reduction in the differences among products, the complexity of information sources, and consumers' exposure to information overload could cause the consumer confusion, feelings of stress/disappointment and poor decisions (Mitchell and Papavassiliou, 1999:319; Walsh and Mitchell, 2010:843).

Some authors claim that almost every consumer decision is dominated by a state of confusion (Walsh and Mitchell, 2010:838). Huffman and Kahn (1998:493) claim

that confusion is linked to the state of perceiving it rather than a 'real' confusion, and some consumers may experience the state of confusion even if the number of the real stimuli are low. Similarly, Walsh, Hennig-Thurau and Mitchell (2007:704) classify the concept of confusion as an existing consumer feature. As a result, confusion causes the misunderstanding or misinterpretation of the market by the consumer who wants to find the optimal solution for himself/herself with the results not displaying the expected performance during the consumers' decision making process.

UGC increases every day relative to the diversification of participatory web environments and the increase in the numbers of their users. Depending on the involvement level of the consumer, the potential amount of UGC they may encounter might be more than what they can process. This situation might cause the consumer confusion. In particular, the content such as "comments/criticism" made by internet users might cause situations that contradict each other or which are vague, depending on the diverse expertise levels. This might cause confusion for customers using these sources while searching for information.

It is less probable that the consumers who are confused during the decision making process will make rational purchase decisions, select the products that give the best quality, or make a profit and enjoy the shopping experience. Consumers who are confused may encounter negative results such as postponing/abandoning the purchase, purchasing the wrong products, experiencing cognitive contradiction or shopping fatigue, deciding without thinking, being disappointed, reducing their trust or loyalty, and misusing the product (Mitchell and Papavassiliou 1999:322; Mitchel, Walsh and Yamin 2005:147; Walsh and Mitchel, 2010:839).

Many authors studying consumer confusion state that there is a relationship between the confusion and the information overload; thus the information overload causes the confusion (Mitchell, Walsh and Yamin 2005:148; Walsh, Hennig-Thurau and Mitchell, 2007:704). In this study, it is predicted that consumers have a limited cognitive skills/information processing capacity. Therefore, after the number of stimuli pass a certain threshold, they will be affected by information overload. As a consequence, the consumers will be confused.

> $\boldsymbol{H_{1a}}$**:** *The perceived information overload in UGC environments increases the level of consumer confusion.*

Purchasing Avoidance

A consumer who is confused or inclined to be confused will consciously or unconsciously resort to ways to reduce confusion to prevent the negative situations he/she may experience. Consumers who are aware of the confusion can perceive greater risks during the process of decision making. Therefore, confusion reduction strategies along with risk reduction strategies come into play (Drummond and Rule, 2005:58, Leek and Kun, 2006:185; Matzler and Waiguny, 2005:308).

Mitchell and Papavassiliou (1999:327) propose a series of general confusion reduction strategies for consumers battling the confusion: (1) doing nothing, (2) postponing/

abandoning the purchase, (3) sharing/delegating the purchase (family or friends), (4) clarifying the buying goals, (5) seeking additional information, (6) narrowing down the set of alternatives.

In this study, purchasing avoidance is addressed as a negative evaluation about a planned purchase decision after the consumers search for information, analyze the information acquired and process the product. These may result in the delay, cancellation or stress during the decision. The higher the level of confusion the more likely will be the abandonment of the purchasing.

> ***H_{1b}:*** *The perceived information overload in UGC environments increases purchasing avoidance.*

> ***H_{1c}:*** *Higher levels of consumer confusion depending on information created in UGC environments increase purchasing avoidance.*

The Level of Involvement

The involvement level represents the interest in and the connection a consumer experiences with the product in the search of information. Information search processes and consequently purchase intentions and/or avoidance vary, depending on the involvement level of the consumer. Involvement level is especially important in the process of information search in UGC environments.

According to the studies on this subject, UGC is more important in the high-involvement decision process than the low-involvement decision process (Wang and Rodgers, 2011:219).

There is a lower chance of confusion due to the information overload in low-involvement buying decisions due to the fact that there is less information searching behavior and information processing. In this situation, it is less likely for a consumer to examine vague/contradictory product information that is received from vague stimuli. In the context of high-involvement, the consumer will attempt to choose by adopting decision styles that require the most evaluation. The decision styles developed in such situations may help avoid confusion to a certain degree. However, in this situation, the information needs to be accessible and understandable, and the consumer needs to have sufficient processing skills to analyze the information. If these conditions exist, it is possible to achieve a confusion reduction to a certain degree. If one of these two conditions does not exist, it will be more likely for consumers to become confused because they will increase their efforts to evaluate products in the decision making process (Mitchel, Walsh and Yamin, 2005:147).

> ***H_{1d}:*** *Higher levels of the product involvement increase the perceived information overload in UGC environments.*

> ***H_{1e}:*** *Higher levels of the product involvement increase the consumer confusion depending on information created in UGC environments.*

The Perceived Usefulness of UGC

The "Technology Acceptance Model (TAM)" was developed by Davis (1989) to clarify acceptance and usage of the technology by users. TAM was seen to be valid for different information systems like e-mails, cellular phones, internet, e-trade, and databases (Lee, Kara and Larsen, 2003:753).

According to TAM, there are two variables -- perceived usefulness and perceived ease-of-use that come to the front on the basis of an individual's acceptance and usage of a system. Perceived usefulness represents the belief that the usage of a system will increase the work performance. Perceived ease-of-use relates to the belief that usage of a system does not require too much effort (Davis, 1989: 321).

Since the basis of UGC lies in the internet and information systems, it is possible to approach TAM from the UGC angle. Starting from here, "perceived usefulness of UGC" represents the perception of benefit from UGC which the consumers have. The positivity and the amount of the usefulness of UGC the consumer perceives will allow the information to be perceived as of a higher quality. This situation is predicted to affect the information overload and confusion levels.

> ***H_{1f}:*** *Higher levels of consumers' perceived usefulness of UGC decrease the perceived information overload.*
>
> ***H_{1g}:*** *Higher levels of consumers' perceived usefulness of UGC decrease consumer confusion.*

The Level of Internet Self-Efficacy

The level of internet self-efficacy represents the consumer's perception of how efficient they use the internet during the information search process. The information one encounters may increase depending on the higher usage levels of the internet.

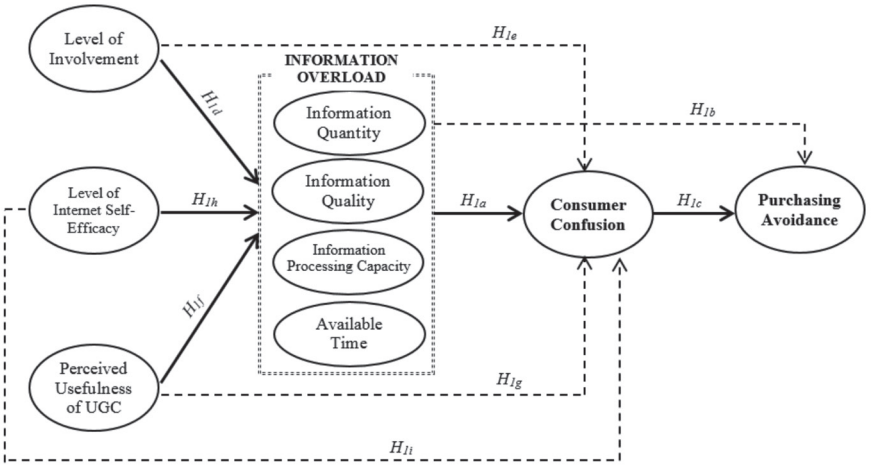
When the amount of information processed increases, the effort spent by the decision maker to process it will also increase. When the amount of information input exceeds the consumer's information processing levels, depending on the processing of product information, the consumers will be overloaded by information and it will be hard for them to decide on a product or even to make a decision (Chen, Shang and Kao, 2009:50). From that point, it is predicted that depending on the level of internet self-efficacy, one's perceived information overload and level of confusion will change.

> ***H_{1h}:*** *Higher levels of internet self-efficacy decrease the perceived information overload in UGC environments.*
>
> ***H_{1i}:*** *Higher levels of internet self-efficacy decrease consumer confusion depending on the information created in UGC environments.*

As a result of the literature reviewed, the proposed structural model of the relationship between the information overload and the consumer confusion is given in Figure 1. In the next section, this model will be analyzed and in the final section a structural model will be tested.

Figure 1

The Proposed Structural Model of the Relationship between Information Overload and Consumer Confusion



Methodology

The main aims of this study are to determine the effects of information overload on consumer confusion in UGC environments and to find out whether consumers' final buying decisions are affected by this state of confusion.

In this respect, a structural model that analyzes the dimensions of the information overload and consumer confusion was tested.

Additionally, the effects of the information overload and confusion on buying decisions was also investigated and tested in the model. The involvement level of consumers, the perceived usefulness of UGC, the level of internet self-efficacy and their effects on the information overload as well as the level of confusion were investigated in the Structural Equation Modeling (SEM).

Method and Sample

A new scale was developed to measure the variable of the information overload. A sufficiency of previous studies provided the basis for the scale development (Chen, Pedersen and Murphy, 2012:106; Chen, Shang and Kao, 2009:57; Karr-Wisniewski and Lu, 2010:1071). Items from these studies were revised in order to represent UGC and dimensions of information overload explained earlier, namely as information quantity, information quality, information processing capacity and available time.

A five-point interval scale (1- strongly disagree, 5- strongly agree) with 31 items that covers the concept of information overload was constructed and tested with a sample of 47 respondents. Participants' feedback and analyses shed light on some issues that led to the revision of some of the items and the removal of others. Because of this, a revised five-point interval scale with 22 items was tested on a sample of 68 respon-

dents. As a result of the exploratory factor analysis, an "information overload scale" was based on four sub-dimensions, namely "information quantity, information quality, information processing capacity and available time." After a final version of the scale was established, it was used in the data gathering process.

The consumer confusion was measured with the scale of Walsh, Hennig-Thurau and Mitchell (2007:710) which consists of nine items on a five-point interval scale (1- strongly disagree, 5- strongly agree). Items were revised to be representative of UGC. Validity and reliability of the scale were tested through two separate studies and the scale was revised.

Purchasing avoidance was measured with five items on a five-point interval scale (1- strongly disagree, 5- strongly agree), which was developed by Mitchell and Papavassiliou (1997:172) and Walsh, Hennig-Thurau and Mitchell (2007:710). The level of involvement was measured with ten items on the semantic differential scale of Zaichkowsky (1994:70). The level of the internet self-efficacy was measured with six items on a five-point interval scale (1- strongly disagree, 5- strongly agree) used by Flynn and Goldsmith (1999:59) and Huffman and Kahn (1998:510). The perceived usefulness of UGC was measured with six items on a five-point interval scale (1- strongly disagree, 5- strongly agree), previously used by Gruen, Osmonbekov and Czaplewski (2006:453).

The population consisted of individuals living in Turkey who were older than 18 and who had searched for information with the intention of buying in the last six months. Only the buying intentions were included in the sample. That is, individuals who searched for information with the intention of buying but did not make buying decisions are also included in the analyses.

Data was collected through online questionnaires from 507 respondents. After the evaluation of the responses, some questionnaires were eliminated due to biased and/or missing data. Thus, 466 responses were included in the analysis.

Data gathering was done through online questionnaires. The necessity of using the internet led us to gather the data with the online survey method (Malhotra, 2010:219). Survey was reached through a link that was sent to respondents. The link was distributed among internet sites such as Twitter, Facebook, and Linkedin. On Twitter and Facebook especially, individuals who had a high number of followers were asked to share the link with their followers/friends. The survey link was also shared through other online platforms. The link was repeatedly used during certain time periods due to updates in the internet.

The socio-demographic characteristics of the respondents are summarized in Table 1.

Table 1
Socio-demographic Characteristics of Respondents

Gender	**Freq.**	**%**
Male	277	59,4%
Female	189	40,6%
Total	**466**	

Age	**Freq.**	**%**
18-21	40	8,6%
22-25	115	24,7%
26-29	122	26,2%
30-33	86	18,5%
34-37	35	7,5%
38-41	31	6,7%
42 and above	37	7,9%
Total	**466**	

Occupation	**Freq.**	**%**
Civil servant	100	21,5%
Private sector employee	195	41,8%
Independent business / tradesman	26	5,6%
Student	120	25,7%
Not working / unemployed	25	5,4%
Total	**466**	

Daily Internet Usage	**Freq.**	**%**
Less than 1 hour	13	2,8%
1 - 3 hours	129	27,7%
3 - 5 hours	128	27,5%
5 - 7 hours	69	14,8%
More than 7 hours	127	27,3%
Total	**466**	

Education Level	**Freq.**	**%**
High school and below	62	13,3%
Associate degree	15	3,2%
Undergraduate	209	44,8%
Graduate	180	38,6%
Total	**466**	

Marital Status	**Freq.**	**%**
Single	310	66,5%
Married	156	33,5%
Total	**466**	

Monthly Income	**Freq.**	**%**
750 TL and less	94	20,2%
751 TL-1.500 TL	64	13,7%
1.501 TL-2.250 TL	69	14,8%
2.251 TL-3.000 TL	91	19,5%
3.001 TL-3.750 TL	46	9,9%
3.751 TL-4.500 TL	38	8,2%
4.501 TL and above	64	13,7%
Total	**466**	

Most of the respondents are male (59,4%); their ages fall mostly between 22-29 (50,9%). The majority were working in private sector (41,8%); most of them have bachelor's and master's degrees. and their salaries are distributed in a balanced manner. The majority of the respondents use the internet at least one hour a day (97,2%).

The respondents answered the survey items based on a specific product group they chose. For this purpose, several product groups were picked for both the tangible and the intangible product groups chosen. The frequencies of the product choice of respondents are presented in Table 2.

Table 2
Product Type Choices of Respondents

Product Type	Freq.	%	Product Type	Freq.	%
Cell phone	98	21%	Automobile / Motorcycle	33	7,1%
Computer / Tablet	89	19,1%	Holiday / Hotel Reservation	31	6,7%
Clothing / Textiles	29	6,2%	Real Estate (Sale / Rent)	17	3,6%
Music-Movies-Books-Games	28	6%	Education / Courses / Tutorials	10	2,1%
Home Appliances	23	4,9%	Events (concerts, cinema, etc.)	8	1,7%
TV, Audio and Video Systems	20	4,3%	Health Services / Doctors	6	1,3%
House Decoration / Furniture	18	3,9%	Communication Services (Internet, telephone, etc.)	5	1,1%
Photo / Camera	16	3,4%	Financial Services	3	0,6%
Cosmetics / Personal Care	11	2,4%	Food Products	3	0,6%
Watch / Eyeglasses	7	1,5%	Consulting Services	1	0,2%
Others	10	2,1%	*Total*	**466**	

When respondents' product choices are examined, cellphones and computer/tablet are seen at the top of the information search.

Analysis and Results

Before testing the structural model, the construct reliability and validity of the scales were checked. For the reliability analysis, Cronbach's Alpha coefficient was used as the most preferred method for checking internal consistency in the scales (Malhotra, 2010:318-319; Hair et al, 2010:125). Cronbach's Alpha coefficient varies from zero to 1. The variables of 0.60 and higher values of alpha are more acceptable (Malhotra, 2010:319), indicating the reliability of the scale. Accordingly, the results of the reliability analysis, after the removal of recommended variables, all scales were found to be highly reliable.

For the information overload scale, factor loadings of 0.60 and higher were considered as acceptable because the scale is newly developed and structural equation modeling is supposed to be used for further analysis. For this purpose, the factor loadings less than 0.60 were removed from the analysis. This extraction process was carried out in stages, primarily starting from the factor which has the lowest loading. Items removed from the scale are as follows:

- *My evaluation process has taken too much time because I have to examine much UGC.*
- *Most of UGC I examined was incoherent.*
- *Most of UGC I examined was ambiguous*
- *It was hard for me to determine product alternatives based on UGC I examined.*
- *UGC I examined seemed to be increasing in time.*

As a result of the exploratory factor analysis, the information overload scale with 17 indicators in 4 sub-factors was obtained eventually. The total explained variance was found to be acceptable at 59.43%. (*Total explained variance was 55.33% for information overload scale with 22 items*). These factor structures were supposed to be used in structural analysis after testing with a confirmatory factor analysis. (see Appendix 1)

An exploratory factor analysis was also used in testing for construct validity of the scales measuring *consumer confusion, purchasing avoidance, level of involvement, level of internet self-efficacy* and *perceived usefulness.* As a result, each scale was found to be a single-dimensioned scale with high values of explained variances. (see Appendix 2)

Measurement Model

In the creation and testing of the measurement model, the scales are taken as a whole. Instead of testing each scale separately, in order to observe the correlations between latent variables and to get the goodness of fit of the model as a whole, this method is preferred. The resulting four sub-factors obtained from the exploratory factor analysis for the information overload scale are included in the measurement model as separate latent variables, and their relations with other latent variables in the structural model were examined. In addition, theoretical structures of consumer confusion, purchasing avoidance, level of involvement, level of internet self-efficacy and perceived usefulness were included in the measurement model as separate latent variables.

The scales were used in the measurement model after checking for their validity. According to Kline (2010:116), there are some issues that need attention to verify a measurement model with confirmatory factor analysis. These are:

- All indicators specified in measuring a common factor need to have relatively high standardized factor loadings on that factor (e.g., >0 .70);
- Estimated correlations between the factors should not be excessively high (e.g., < 0.90 in absolute value).

For the evaluation of the measurement model and the final structural model, the most used goodness of fit statistics in the literature, χ^2/df, RMSEA, NFI and CFI, were used. Acceptable ranges for these statistics are as follows (Hooper et. al.; 2008:58; Kline, 2010:199-210):

- χ^2/df (Good fit <= 3, Acceptable fit <=4-5),
- RMSEA (Good fit <= 0.05, Acceptable fit <0.08),
- NFI (Good fit >0.95, Acceptable fit >0.90),
- CFI (Good fit >0.95, Acceptable fit >0.90).

Table 3

Factor Loadings, t-values and Explained Variances

Variable	Item	Standardized Loadings	t-value	R2	Construct Reliability
Information Quantity					***0,72***
	B1	0,75	16,18	0,56	
	B2	0,78	16,97	0,61	
	B3	0,67	14,35	0,45	
Available Time					***0,96***
	B4	0,96	18,09	0,92	
	B5	0,84	16,22	0,70	
Information Quality					***0,71***
	B6	0,70	16,50	0,49	
	B7	0,74	17,83	0,55	
	B8	0,77	18,55	0,59	
	B9	0,74	17,86	0,56	
	B10	0,69	16,24	0,48	
Information Processing Capacity					***0,94***
	BKP1	0,89	23,99	0,79	
	BKP2	0,85	22,16	0,72	
	BKP3	0,89	24,08	0,79	
Confusion					***0,95***
	KP1	0,91	25,29	0,83	
	KP2	0,94	26,53	0,88	
	KP3	0,81	21,06	0,66	
Purchasing Avoidance					***0,83***
	N1	0,83	21,18	0,69	
	N2	0,87	22,56	0,75	
	N3	0,76	18,47	0,57	
	N4	0,72	17,29	0,52	
Level of Involvement					***0,96***
	IDP1	0,92	15,67	0,85	
	IDP2	0,88	15,26	0,78	
Level of Internet Self-Efficacy					***0,95***
	INP1	0,88	23,86	0,78	
	INP2	0,93	26,01	0,87	
	INP3	0,88	23,75	0,78	
Perceived Usefulness					***0,86***
	FP1	0,86	21,84	0,74	
	FP2	0,81	19,90	0,65	
	FP3	0,78	18,90	0,60	

When the measurement model is analyzed, the scales having 6-8 indicators in one dimension are supposed to affect the goodness of fit measures adversely. Thus it is recommended that a technique called items parceling be used with at least two parcels explaining the latent variable (Hall, Snell and Foust, 1999; Matsunaga, 2008). Parceling means getting the total score or the average of two or more indicators to use in analyzing the structural model. In this study, parcels are formed based on their total item correlations in the reliability analysis. The score reliability of parcels should not differ widely from each other. Accordingly, a 7-item information processing capacity latent variable was divided into three parcels (BKP1: *B12, B15;* BKP2*: B13, B14*; BKP3: *B11, B16, B17*), a 9-item consumer confusion latent variable was divided into three parcels (KP1: *K1, K3, K8*; KP2*: K2, K7, K9*; KP3: *K4, K5, K6*), an 8-item involvement level latent variable was divided into two parcels (IDP1: *ID1, ID2, ID5, ID8*; IDP2: *ID3, ID4, ID6, ID7*), a 6-item internet self-efficacy latent variable was divided into three parcels (INP1: *IN1, IN4*; INP2: *IN2, IN6*; INP3: *IN3, IN5*) and a 6-item perceived usefulness latent variable was separated into three parcels (FP1: *F1, F3*; FP2: *F2, F4*; FP3: *F5, F6*).

Following these adjustments, the measurement model was tested using LISREL software. The results obtained for each latent variable and for indicators of latent variables are summarized in the Table 3.

When t-values are examined, the relationships between observed and latent variables become significant at $\alpha = 0.05$, standardized factor loadings for latent variables each are at high level, and similarly the rates of explained variances are within acceptable limits.

Table 4

AVE Values, Means and Correlations Matrix

Variable	**AVE**	**Mean**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Information Quantity	0,54	3,58	*1.00*							
Available Time	0,81	2,61	0.02	*1.00*						
Information Quality	0,53	2,61	-0.04	0.17	*1.00*					
Information Processing Capacity	0,77	2,44	0.01	0.16	0.75	*1.00*				
Confusion	0,79	2,80	0.02	0.21	0.60	0.74	*1.00*			
Purchasing Avoidance	0,64	2,88	-0.07	0.13	0.42	0.55	0.71	*1.00*		
Level of Involvement	0,81	3,84	0.19	-0.11	-0.16	-0.18	-0.21	-0.17	*1.00*	
Level of Internet Self-Efficacy	0,80	4,18	0.26	-0.25	-0.19	-0.30	-0.22	-0.11	0.18	*1.00*
Perceived Usefulness of UGC	0,67	3,87	0.37	-0.31	-0.30	-0.28	-0.15	-0.05	0.17	0.65

It can be seen from the correlations matrix that the latent variables are not highly correlated (>0.85). Also AVE values are above the acceptable level (>0.50). Within the framework of this assessment, the inner structure of the measurement model proves suitable and no changes are required (Kline, 2010:112).

The goodness of fit statistics calculated on the measurement model are as follows: (χ^2/df (314): 2.34, RMSEA: 0.054, NFI: 0.96, CFI: 0.98). When evaluating the model fit index, a good level of compliance was seen in this respect, and the measurement model was considered appropriate. According to modifications provided by LISREL software, no adjustments were needed in the model, and the structural model was formed.

Structural Model

The causal relations between latent variables and their impact levels were analyzed using path analysis. As a result of the structural analysis, the directions of the structural relationships between latent variables, standardized path coefficients, and t- values required examination. These values are included in the table below.

Table 5

The Results of the Analysis on Structural Relationships

Structural Relationships	**Standardized Loading**	**t-value**
Information Quantity → Confusion	0,00	**0,00**
Available Time → Confusion	0,13	3,18
Information Quality → Confusion	0,19	4,48
Information Processing Capacity → Confusion	0,66	15,82
Information Quantity → Purchasing Avoidance	-0,08	**-1,72**
Available Time → Purchasing Avoidance	-0,02	**-0,44**
Information Quality → Purchasing Avoidance	-0,04	**-0,90**
Information Processing Capacity → Purchasing Avoidance	0,07	**1,21**
Confusion → Purchasing Avoidance	0,65	10,74
Level of Involvement → Information Quantity	0,12	2,25
Level of Involvement → Available Time	-0,05	**-0,93**
Level of Involvement → Information Quality	-0,13	-2,46
Level of Involvement → Information Processing Capacity	-0,13	-2,55
Level of Involvement → Confusion	-0,09	-2,18
Level of Internet Self-Efficacy → Information Quantity	0,12	**0,39**
Level of Internet Self-Efficacy → Available Time	-0,08	**-1,12**
Level of Internet Self-Efficacy → Information Quality	0,02	**0,34**
Level of Internet Self-Efficacy → Information Processing Capacity	-0,17	-2,50
Level of Internet Self-Efficacy → Confusion	-0,05	**-1,01**
Perceived Usefulness → Information Quantity	0,32	4,15
Perceived Usefulness → Available Time	-0,26	-3,61
Perceived Usefulness → Information Quality	-0,31	-4,20
Perceived Usefulness → Information Processing Capacity	-0,17	-2,44
Perceived Usefulness → Confusion	0,17	2,79

When the structural relations are examined, irrespective of whether they are statistically significant or not at $\alpha = 0.05$ level, the effects of information quantity on consumer confusion and purchasing avoidance are observed, along with the effect of available time on purchasing avoidance. However, the effect of information quality on purchasing avoidance, the effect of information processing capacity on purchasing avoidance, the effect of involvement level on available time, the effect of internet self-efficacy on the information quantity, the effect of internet self-efficacy on available time, the effects of internet self-efficacy on information quality and consumer confusion have not been found to be statistically significant. The related paths were subtracted from the structural model accordingly starting from the smallest of t-values and path coefficients.

Considering structural relationships in the final model, after removal of the aforesaid paths, all relationships are seen to be statistically significant. Fit indices calculated on the structural model are as follows: (χ^2/df (352): 2.74, RMSEA: 0.061, NFI: 0.94, CFI: 0.96). According to these values, the structural models can be considered as having acceptable fit measures. When the modifications offered by LISREL are examined, no modifications were needed that have a theoretical support and make a significant contribution to the fit measures. As a result, structural equations presented by the structural model, along with the variances explained in it, can be seen in the table below.

Table 6

The Structural Equations Obtained from the Final Structural Model and Explained Variances

Structural Equations	**Explained Variables**	**R2**
Information Quantity	Level of Involvement (0,12) Perceived Usefulness (0,34)	0,14
Available Time	Perceived Usefulness (-0,32)	0,10
Information Quality	Level of Involvement (-0,13) Perceived Usefulness (-0,29)	0,11
Information Processing Capacity	Level of Involvement (-0,12) Perceived Usefulness (-0,16) Level of Internet Self-Efficacy (-0,18)	0,13
Confusion	Available Time (0,13) Information Quality (0,18) Information Processing Capacity (0,67) Level of Involvement (-0,09) Perceived Usefulness (0,13)	0,52
Purchasing Avoidance	Confusion (0,68)	0,47

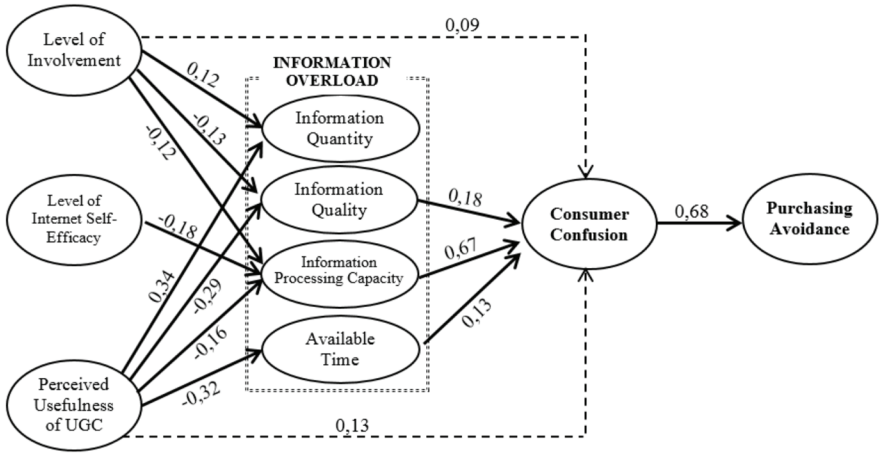
In structural equation modeling, the magnitude of relationships/effect levels are needed to be interpreted using path coefficients which show the degree of the relationships between the latent variables. In interpretating the magnitude of standardized direct effects, Kline (2010:185) gives these critical values: an absolute standardized direct effect of < 0.10 may be considered a smaller effect; values around 0.30 a medium effect and

values of >0.50 a larger effect. The structural relationships obtained from the model were evaluated with structural equations and interpreted in the conclusion part of this study.

The resulting structural model is can be seen in the Figure 2.

Figure 2

Structural Equation Model of Information Overload and Consumer Confusion



Discussion and Conclusions

In this context, depending on the literature, a theoretical model was developed and the model was tested with the structural equation modeling, which is a multivariate statistical analysis method.

The information processing capacity has been identified as the most important of all the information overload dimensions. These are defined as 'information quantity, information quality, information processing capacity and available time.' The information quantity and the information quality are observed as relatively less important dimensions; however they can still explain the information overload to a great extent. Available time is observed to be relatively less important than the other three dimensions.

According to the results related to the information overload, the difficulties experienced in the memory while processing and evaluating the information are more significant than the four dimensions creating the information overload and the perception of an excessive amount of UGC. Consumers have difficulty in processing the information due to encountering a lot of information and to the quality of that information. The more difficulties consumers have, the more they will experience the information overload.

Within the framework of structural model, instead of evaluating the overall effects of the information overload, the extent to which each dimension of the information overload affects the level of information overload was demonstrated.

The information quantity, namely the amount of UGC, was found insignificant in the confusion a consumer can have about the information of the products he/she obtains.

The information processing capacity is an important dimension in the level of confusion. The information processing capacity significantly affects the confusion a consumer experiences while evaluating a product. The quality of UGC and the available time for obtaining and evaluating this content affected the level of confusion only slightly

The low level of the information processing capacity will result in consumer confusion, which depends on consumers being inefficient in evaluating UGC, and will increase the level of confusion to a great extent. This situation derives from consumers being unable to decide on which information they should use to evaluate the identified products.

Apart from their relation with confusion, the sub-dimensions of the information overload do not have a direct impact on purchasing avoidance; in fact, they have an indirect effect on it with the help of the confusion. The confusion which consumers experience while evaluating the products affects their decision in purchasing to a significant degree. The high level of confusion makes consumers less certain about their decisions and leads them to thinking of postponing or abandoning that decision. Consumers who are highly involved in the product that they search and evaluate, can cope with a higher amount of UGC. In addition to this, UGC is perceived as of high quality in case of highly-involved consumers.

The high level of internet self-efficacy and consumers being able to use the internet effectively decrease the perception of the information overload in processing the information. In addition, as the level of perceived usefulness of UGC increases, the consumers' intentional encounters with UGC increase. However when perceived usefulness is high, perceived quality of UGC increases, as consumers feel more comfortable in processing this content and feel that they have more time available. On the other hand, the confusion the consumers experience during the process of product evaluation could increase slightly depending on the high level of perceived usefulness.

The results of the study show that while perceiving the information overload, the problems in the process of information gathering are more significant than the excessive amount of information or its low quality. This accords with the accepted views in the literature.

Limitations and Suggestions for Future Research

Some limitations were found during the research. The most important of these was that the structural model setting out the relations of the information overload and confusion was developed in accordance with the UGC. Therefore, it may not be possible for the consumer to generalize the proposed model for resources other than UGC.

For data gathering, a process of searching and evaluating information about the groups of products was aimed at a certain involvement level that was not easy to access. During the process of data collection, product groups were decided and the consumers were asked to make personal choices among those groups of products. The participations of consumers searching for or evaluating information which were outside of those product groups or the consumers having low-involvement were excluded.

For further studies, it is recommended that the scale for information overload used in different kinds of studies be developed and that its validity be verified.

In this study, the roles of consumers on the web and user types were not taken into consideration. It is recommended that research findings could be used in the studies including different types of users in terms of creating content.

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APPENDIX

Appendix 1: Information Overload Scales

Factor 1: Information Processing Capacity	
B11	It was hard to understand the user generated content that I viewed.
B12	It was hard to internalize the user generated content that I viewed.
B13	It was sometimes hard to concentrate on the user-generated content that I viewed.
B14	I was anxious while assessing the user-generated content that I viewed.
B15	I felt overwhelmed while assessing the user-generated content that I viewed.
B16	I felt losing my control while assessing the user-generated content that I viewed.
B17	It was hard to understand the user-generated content that I viewed.
Factor 2: Information Quality	
B6	I had doubts about most of the user-generated content that I viewed.
B7	Most of the user-generated content that I viewed was confusing.
B8	Most of the user-generated content that I viewed was meaningless to me.
B9	Most of the user-generated content that I viewed did not include sufficient information about the type of product/service I researched.
B10	Most of the user-generated content that I viewed did not help me searching forinformation about the type of product/service.
Factor 3: Information Quantity	
B1	While doing research, I came across a lot of user-generated content.
B2	I came across large amounts of user-generated content about the type of products / services I researched.
B3	Amount of user-generated content that I examined to get information on the particular product/ service was too high.
Factor 4: Available Time	
B4	I had enough time to research the user-generated content. (*)
B5	I had enough time to view the user-generated content that I encountered. (*)

(Principal Axis Factoring, Promax Rotation, Total percentage of variance explained: 59,431)*
** Reverse coded before the analysis*

Appendix 2: Other Scales

Consumer Confusion Scale	
K1	Because most of the products / services that I evaluated were so similar, it was difficult to distinguish among them.
K2	It was difficult to identify the differences among the products/services that I evaluated.
K3	I wasn't sure about which one of the product/services that I viewed would meet my needs.
K4	My evaluation process was very complicated because of the excess amount of the user-generated content.
K5	There were so many products/services I evaluated that I sometimes felt confusion.
K6	Because there were too many products / services that I evaluated, it was very difficult to compare them with each other.
K7	User-generated content was so vague that I couldn't understand if I could really benefit from the product / service.
K8	I was not sure which features of them were more important to me while evaluating the product/ services.
K9	I was not sure about what features of the product/services that viewed I should focus on.
The Purchasing Avoidance Scale	
N1	Making a positive/negative decision related to buying was more difficult than I had expected.
N2	I have difficulty in coming to a positive / negative decision related to buying.
N3	I had to delay a process of buying that I had planned.
N4	I thought about postponing my decision of buying for a while.
N5	I thought of abandoning my purchase decision. (**)
The Level of Involvement Scale	
ID1	Important / Unimportant (*)
ID2	Relevant / Irrelevant (*)
ID3	Exciting / Unexciting (*)
ID4	Means nothing / Means a lot to me
ID5	Appealing / Unappealing (*)
ID6	Fascinating / Mundane (*)
ID7	Involving / Not involving (*)
ID8	Not Needed / Needed
ID9	Interesting / Boring (**)
ID10	Worthless / Valuable (***)
The Level of Internet Self-Efficacy Scale	
IN1	I can easily access the information that I'm looking for on the internet
IN2	I think I'm capable of using the internet.
IN3	I know how to reach the information that I need on the internet.
IN4	I know where to find the information that I need on the internet.
IN5	I think I'm better at using the internet more than most people.
IN6	I think I'm competent to access the information on the internet.
Perceived Usefulness Scale	
F1	It gives the opportunity of obtaining detailed information about Products / Services.
F2	It is more reliable than other sources of information.
F3	It is an important source of information for me.
F4	It facilitates my process of making decision.
F5	The opinions of other users on the internet help me decide.
F6	Before I purchase a product on the internet, I always search for other users' opinions.

* *Reverse coded before analysis*
** *Excluded after reliability analysis.*
*** *Excluded after exploratory factor analysis.*