| RESEARCH ARTICLE

The Role of Information Overload on Consumers' Online Shopping Behavior

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| ABSTRACT

In today's market, there exists a variety of products and brands for creating various items based on the needs and demands of customers. As technology advances, more companies are emerging, and it is evident that multiple businesses have developed products that are comparable to one another. To expose the products to the market and attract customers, each of these businesses adopts unique description techniques. This sometimes results in information overload. The study sought to investigate the role of information overload on consumers' online shopping behavior. Based on reviews of relevant theories and principles of the consumer decision-making process, questionnaires were used to gather data from 201 respondents. The findings revealed that as a textual description of product attributes increases, so do the perceptions of information overload, and customers become overwhelmed while trying to process the information. The findings indicated that information overload significantly causes consumers to experience stress, frustration, and perceived risk. Following the study findings, it recommended that managers realize that excessive information can potentially decrease consumers' ability to analyze attributes of products and to compare alternatives; hence, they should analyze the scope to which the amount of provided information can be processed by their target consumers without difficulty.

1. Introduction

In today's world, advances in human communication, networking, computing (computers, software, and services), and content (publishing, entertainment, and information providers) have combined to create an interactive multimedia and information highway (Tapscott 1996). It focuses on utilizing vast human capital resources, storing information in digital form, and converting physical objects to virtual. It puts pressure on all participants, including suppliers, customers, and rivals, to collaborate and integrate in order to survive. According to conventional thinking, retail options promote healthy competition among businesses and benefit customers. Consumers now have a variety of options and product qualities to consider when making a decision. As a result, they look for, analyze, acquire, and use things ranging from tangible commodities to intangible services.

Consumer decision-making has always been at the top of the priority list for marketing analysis. According to Ramanathan, Subramanian, Parrott, & Management (2017), there are various elements that influence customers' ability to make informed decisions. According to Reim, Sjödin, & Parida (2018), buyers always seek some essential aspects of the items that are often listed in the product description category while acquiring any products. The information in this product has both a positive and negative influence on customer purchase patterns. For some years now, marketers and researchers have been concerned with determining the ideal quantity of information that consumers can comprehend efficiently within a restricted cognitive capacity. The majority of

e-commerce businesses focus on providing more information to customers as a marketing strategy. However, this may bear behavioral and psychological costs (Misra, Stokols, & behavior 2012). Consumers get confused when they have a lot of alternatives to choose from (Tang et al. 2017). Consumers may have difficulties comprehending information regarding a product due to limited memory capacity and consideration time. The quality of decisions may suffer as a result of a lengthy decision-making process (Levi, Yates, Huk, & Katz 2018). People tend to use mental shortcuts to engage in heuristic behavior, resulting in skewed information interpretation Dziedzic & Allen (2018). This makes it consequential for e-commerce businesses to be cautious about how much information they provide to their customers, as they risk causing information overload (Soto-Acosta, Molina-Castillo, Lopez-Nicolas, & Colomo-Palacios 2014).

Information overload makes consumers' decision-making process more difficult, as well as causes unpleasant emotions such as stress and frustration (Walsh & Mitchell 2010). Consumers who have adequate knowledge about a desirable product become less reliant on external information sources (Barber & Odean 2008) and digest marketing materials more efficiently (Oh & Abraham 2016), reducing their risk of being overwhelmed by information overload. As a result, while researching information overload, the present study considers consumer product knowledge to be one of the most essential customer qualities. When consumers are inundated by information inputs from online or conventional stores, they may experience information overload (Misra et al. 2012). According to some writers, online customers are thought to be more in danger of being overloaded with product information than consumers who prefer face-to-face buying because of the high heterogeneity of e-commerce (Q. Li, Xing, Liu, and Chong 2017); (Schmitt, Debbelt, Schneider, & Society 2018). On the other hand, other studies believe that as consumers get more familiar with current technology and social media, they will have the necessary abilities to properly handle a vast amount of data (Simonson & Rosen 2014). The assumption is that when people go online to hunt for things, they are more likely to find just useful information. As a result, choosing and evaluating product qualities is easier nowadays than it was before the broad use of e-commerce. Consumers have the ability to make better quality judgments while buying on the internet, according to recent empirical evidence on the subject. Consumer online purchasing behavior and e-commerce adoption are yet conceptual domains that need to be explored further. This study relies on documented secondary data on information overload and the decision-making process, as well as questionnaires, to achieve the following objectives.

1. To Investigate the usefulness of information overload on consumers' online buying behavior.
2. To investigate the impact of information overload on consumers' online buying behavior.
3. To examine whether the perception of information overload affects consumers' levels of stress, frustration, confusion as well as perceived risk.
4. To analyze the perception of consumers and marketers regarding overloading information about the product

The study goes on to give an outline of the concept of information overload, consumer knowledge, and rational decision concept in the next section. The methodology follows next, and then the results and discussions. The study ends with a conclusion.

2. Literature Review
2.1 The Concept of Information Overload
Some writers argue that despite the availability of relevant information, incorrect purchasing decisions might still happen during the consumer decision-making process. Additionally, some opponents claim that because customers may experience information overload, having more information may make it more difficult for them to make decisions (Grether, Wilde, & Policy 1983). In this current era of technologically advanced product innovations, a number of product brands have a significant influence on consumers' online buying habits. Every product brand is attempting to manufacture something new or add distinctive elements in order to attract a variety of consumers. In these conditions, every brand aims to outperform the competition and win over customers. According to Rai, Chauhan, & Cheng (2020), every brand gives more information about the product's level in order to represent the product or advertise the item in the market. Information overload is associated with the idea that extraneous information may not be useful. This proves the idea that having more knowledge is not necessarily better. A surplus of descriptive details may lead to frustration, confusion, and illogical decision-making. It is suggested that the concept of information overload gained popularity, especially among politicians (Grether et al. 1983).

The most pertinent studies on information overload were done by J. Jacoby, Speller, & Berning (1974). According to these researchers, a lot of packaging information might result in poorer purchasing decisions. Additionally, the amplification of information overload has "dysfunctional repercussions in terms of the consumer's capacity to choose the brand that is best" (J. Jacoby et al. 1974). According to related research, consumers today spend a lot of time obtaining and analyzing information, especially with the growth of the internet. Thus, the tension that follows has an impact on how they make decisions. A significant issue for customers might miss out on crucial information because of the number of processed materials Letsholo & Pretorius (2016). People overlook part or all of the crucial information when they receive too much information and do not have enough time to fully examine it (Özkan, Tolon, & Studies 2015). Consumers may make poor decisions as a result of having to assess options

with incomplete information in this circumstance. Information overload might lead to a dysfunctional performance in the consumer's decision-making process.

2.2 Consumer Knowledge

Product knowledge is crucial when examining consumer behavior. Consumers' product knowledge is determined by their familiarity with and trust in the product (Lin and Zhen 2005). According to earlier studies, consumer knowledge may be classified into two distinct types: objective knowledge and subjective knowledge (Carlson, Vincent, Hardesty, & Bearden (2009). The information consumers truly know is objective, but there is also subjective (or perceived knowledge), which we believe to be true (Alba & Hutchinson (2000). Subjective knowledge is directly related to customers' certainty in their views, but objective knowledge depends on the validity of recall measures that are not susceptible to any self-presentation and feedback biases (Tsai & McGill 2011).

Consumer product knowledge has been the subject of several studies involving a wide range of product categories, and this fact indicates the significant influence that knowledge has on information processing and decision-making (Cowley & Mitchell 2003). The desire to make a more informed decision can be used to explain why customers want to comprehend the product description. As a result, customers are more confident in the caliber of their selection and therefore rate their overall experience as being more positive. Overall, the relationship between product information that customers may obtain and their behavioral reaction is thought to be strongly correlated with consumers' product expertise. Online businesses typically work to increase consumers' comprehension of their products, which is why they employ tactics meant to convey more detailed information. The depth of the information gathered determines the level of product understanding among consumers. However, the cognitive load hypothesis asserts that having too much knowledge might reduce its usefulness, causing frustration and stress as well as increasing the perceived risk of consumers (J. J. J. o. c. r. Jacoby 1984).

2.3 Rational Decision-Making Concept

The multi-step processes that aid in evaluating any particular product among the alternatives are known as rational decision-making. According to Nawaz, Abdurachman, Gautama, & Furinto (2020), consumers rationally choose the things that would increase their degree of enjoyment while staying within their means of subsistence.
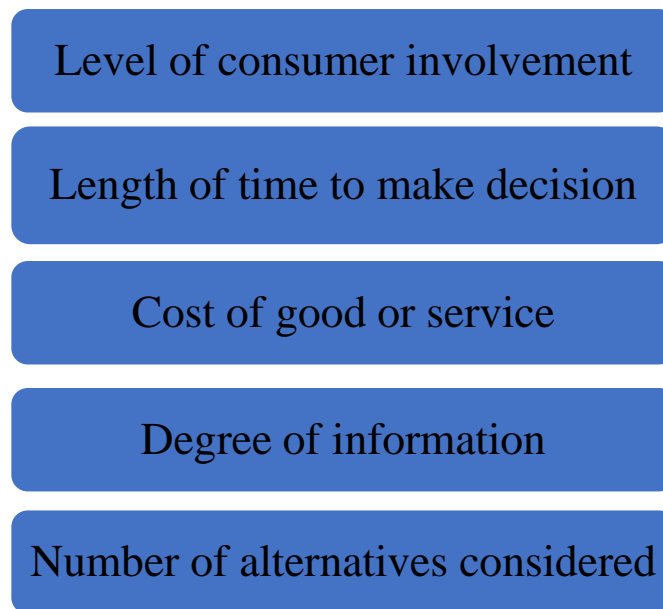
Figure 2- 1 Rational decision-making process of consumer (Source: Nawaz et al. (2020)

When making reasonable selections about what to buy, all the elements listed above in figure 2-1 are crucial. According to Hamlin (2017), the engagement of other customers in the purchase of a product or the amount of information available about it influences the decision-making process, particularly when it comes to purchasing trendy apparel. The aforementioned graph indicates that the degree of consumer engagement and decision-making, as well as the price of the items and the information available about them, all influence customers' rational decision-making.

2.4 Impact of Information Overload on Consumers Buying Nature

When purchasing any goods, consumer decisions are influenced by a variety of elements, including psychological, environmental, and social aspects. The customer becomes extremely picky when choosing products, and in this situation, knowledge plays a significant role. Djulbegovic, Elqayam, & Dale (2018) identified three circumstances that emphasize the consumer's propensity for making purchases. Among the most popular buying patterns among customers are impulsive buying, recurring purchases of any goods, and initial purchases. The recurrent purchase process by customers totally depends on individual behaviors, as stated by Nawaz et al. (2020). On the other side, impulsive shopping is driven by customers' unexpected or even spontaneous decisions. Information overload can be described as a scenario in which the amount of information being processed by decision-makers is greater than their ability to handle it. According to Nawaz et al. (2020), the cognitive section of the brain generates any given a choice, but the extra information obstructs the passage and causes many problems.

2.5 Choice versus Information

Given that the number of brands and qualities per brand were quantified by early information overload theorists J. Jacoby et al. (1974); Malhotra (1982), a differentiation between the terms "choice overload" and "information overload" is necessary. When there are too many options or products for customers to pick from, this is known as choice overload Buturak and Evren (2017); Iyengar, Lepper, & psychology (2000). Contrarily, information overload refers to circumstances in which the abundance of knowledge limits a person's ability to effectively use that information Bawden and Robinson (2020); Bawden & Robinson (2009). Chauhan, Thapar, & Kumar'Ranjan (2020) proposed an inverted U-curve model of information overload that is primarily based on fashion brands' ability to hold information and individual consumers' decision accuracy. According to them, the U-curve clearly shows that increasing the pressure reduces performance. The inverted U-curve indicates that information overload increases stress, which reduces consumers' ability to make decisions. As a result, as argued by Pham, Lingard, Wakefield, & Zhang (2017), the overall process has a negative impact on shopping behavior and reduces the selling process. In support, Gottwald & Braun (2019) argued that this reduces the quality of the description presentation, which has a direct impact on consumer purchasing behavior, as shown in figure 2.2 below.
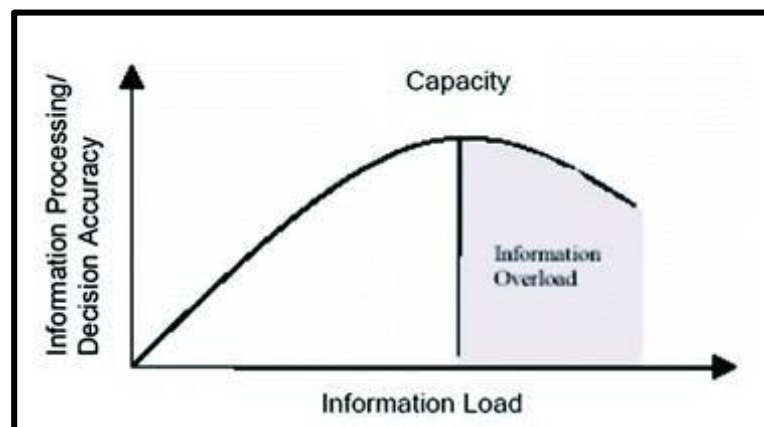

Figure 2- 2 U-curve on information overload (Source: Chauhan et al. (2020))

3. Research method
3.1 Research model and hypotheses
3.1.1 Information overload

According to studies by Messner & Wänke (2011), selecting and buying appropriate items might be a difficult procedure. Customers who do not already have a certain product in mind would most likely choose it after looking through the possibilities. Because several information signals must be taken into account and integrated at the same time in this situation, decision-makers may unintentionally be exposed to irrelevant information Meyvis & Janiszewski (2002). Increasing information load or assortment size suggests greater cognitive processing costs from a psychological perspective Chen, Shang, Kao, and Applications (2009); Reutskaja, Hogarth, & Marketing (2009). Consumers get overwhelmed and unable to digest all information when the cognitive limit is reached Grisé & Gallupe (1999). Given that each product attribute contributes a specific quantity of information, the following first hypothesis is put forth:

H1: The number of product attributes has a significant positive relationship with consumers' online shopping behavior.

3.1.2 Information Overload, Stress, and Consumers' Online Shopping Behavior

A condition known as consumption-related stress results from differences between intended and actual conditions associated with various stages of the consumer decision-making process Mick & Fournier (1998). The longer people are exposed to information overload, the more detrimental effects it has on people's physical and mental health Heylighen (2002). People get increasingly uncertain about their choices when there are more product qualities available Lee, Lee, & Marketing (2004). Consumers who are overwhelmed with information feel agitated, which has a detrimental impact on their ability to make decisions Soto-Acosta et al. (2014). This study makes the following hypotheses in light of prior research findings:

H2: Information overload has a significant positive relationship with consumers' perceptions of stress.
H3: Stress has a significant negative relationship with consumers' online shopping behavior.

3.1.3 Information Overload, Frustration, and Consumer's Online Shopping Behavior

Information becomes oppressive and impairs judgment when decisions demand cognitive resources beyond a person's processing capabilities Muller (1984). This idea is particularly pertinent to the retail sector since there exist a lot of frustrated customers who are frequently confused Walsh & Mitchell (2010). For instance, frustration may result in a range of affective and emotional responses, such as tension, grief, or even wrath Bierzynska et al. (2016a). Customers become frustrated when they believe there is too much information, which influences their decision-making Walsh & Mitchell (2010). The negative emotion brought on by irritation makes customers more unsure and discourages them from making a purchase Sun and Spears (2012); Walsh & Mitchell (2010). Taking into account the above debate, this study puts forth the following theories:

H4: Information overload has a significant positive relationship with consumers' perceptions of frustration.
H5: Frustration has a significant negative relationship with consumers' online shopping behavior.

3.1.4 Perceived Risk and Online Shopping Behavior

When buying new or unknown things, consumers may feel there is a risk involved Mitchell (1999). According to academic research, customers' concern about probable loss from acquiring a desirable product has been highlighted as a key subject that has been examined in the field of consumer online shopping behavior Masoud & Management (2013). The risk, according to traditional decision theory, reflects changes in the probability distribution and subjective factors Mitchell (1999). Consumer buying intentions are significantly influenced by perceived risk Ariffin, Mohan, & Goh (2018). Thus, the last two hypotheses are proposed as follows:

H6: Information overload has a significant positive relationship with the perceived risk associated with a purchase.
H7: Increased levels of perceived risk associated with a purchase have a significant negative relationship with consumers' online shopping behavior.

Based on the previously discussed literature, the relationships between research hypotheses visualized in Figure 2-3
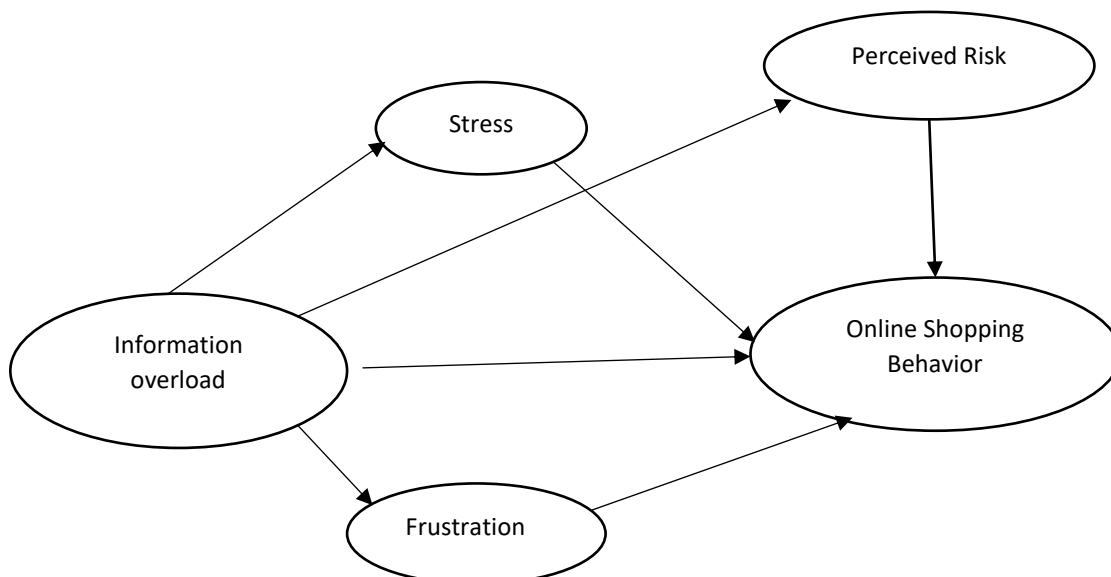

Figure 2- 3 Research Model (Source: Created by the researcher)

3.2 Methodology and Data Collection

The research methodology entailed compiling relevant data for the investigation. Secondary sources of information were acquired from specific papers and compiled databases to assess the materials and have a decent understanding of consumers' decision-making. The explanatory research design was employed based on the study's quantitative methodology. Data collection was done by employing surveys (Questionnaires) among students of the University of Education Winneba and residents in and around Winneba. A questionnaire with a 5-point Likert scale was used to collect information used in the study to quantify the qualitative data on a scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The study employed an SPSS tool to analyze the gathered data. The study further made use of both descriptive statistics and Pearson's correlations for all variables. This estimation was to ascertain the strength of the linear relationship between the controls (stress, frustration, and perceived risk), independent (information overload), and dependent variables (online shopping behavior). In addition, Microsoft Excel software was used to create charts and tables to present the study's findings as well as to convey a visual impression of relationships in order to clarify information hidden within the data.

4. Data Analysis, Results, and Discussion

The purpose of the study was to examine the role of information overload on consumers' online shopping behavior. In order to determine this relationship, this chapter presents a quantitative analysis that includes dispersion and descriptive statistics analysis. It also considers the relationship between the dependent and independent variables. This chapter also depicts a hypothesis test to determine the role of information overload on consumers' online shopping behavior.

4.1 Socio-demographic Characteristics of Respondents

The findings were presented in accordance with the research questions that guided the study. Background information about the respondents' characteristics, such as age, gender, occupation, and level of education, was sorted.

Table 4- 1 Socio-demographic Characteristic of Respondents (N=201)

Variable	Frequency (F)	Percent (%)
Gender		
Male	94	46.8
Female	107	53.2
Total	**201**	**100**
Age Group		
18 - 30 years	85	42.3
31– 50 years	101	50.2
51 years and above	15	7.5
Total	**201**	**100**
Occupation		
Student	70	34.8
Government Worker	75	37.3
Private Employee	36	17.9
Business Man	9	4.5
Others	11	5.5
Total	**201**	**100**
Education		
Basic	40	6
Secondary	35	44
Tertiary	5	50
Total	**201**	**100**
Favorite Online Shop		
Jumia	99	49.9
Kikuu	63	31.3
Deus.Com	18	9.0
Alibaba	21	10.4
Total	**201**	**100**
Frequency of Shopping Online		
Daily	12	6.0
Weekly	27	13.5
Monthly	75	37.3

Need Arise	87	43.3
Total	**201**	**100**
Average Time Online-Shopping		
Less than 30mins	77	38.3
30mins – 1hr	97	48.3
1hr – 2hrs	9	4.5
More than 2hrs	18	9.0
Total	**201**	**100**
Level Of Income		
Less Ghs2000	96	47.7
Ghs2,000 – Ghs5,000	90	44.8
Above Ghs5000	15	7.5
Total	**201**	**100**

Source: Field Data (2022)

From table 4-1, the result reveals that the majority of the participants were females (53.2%) as compared to the males (46.8%), which implies a high dominance of women over men in online shopping. Out of this, the majority of the participants were of age 31-50 years (50.2%), 42.3% of the participants were of age 18-30 years, while (7.5%) were aged 51 and above years. This signifies the majority of the participants were of the working population and had enough money to shop online. Concerning their occupation, the majority of the respondents (37.3%) were government workers, followed by students (34.8%), others occupations (5.5%), and then businessmen (4.5%). Out of this, 50.0% of had attained tertiary level, 44.0% had attained secondary level, whiles 6.0% had attained basic level. This implies the respondents were well-educated and understood the implications of the study.

The majority of the respondents liked shopping from Jumia (49.9%), followed by Kikuu (31.3%), Alibaba (10.4%), and then Deus.com (9.0%). This implies the majority of the population was glued to Jumia. The majority of the participants indicated they only shop when the needs arise (43.3%). 37.3% shop monthly, while 13.5% and 6.0% shop weekly and daily, respectively. Out of this, 48.3% shop for 30mins-1hr, 38.3% shop for less than 30mins, 9.0% shop for more than 2hrs and 4.5% shop for 1-2hrs. This implies the majority of the respondents do not spend a lot of time shopping online. The majority of the participants receive income less than Ghs2,000 (47.7%), while 44.8% and 7.5% receive income between Ghs2,000-5,000 and above Ghs5,000, respectively. This signifies the majority of the respondents were average-income workers/earners.

4.2 Descriptive analysis of Measurement variables
4.2.1.1 Influence of Information overload on Consumer Online Shopping Behavior
In this section, the respondents were asked to state their level of agreement on the extent to which information overload influences their online shopping behavior. The results are presented in Table 4-2 below.

Table 4- 2 Information overload on consumers' online shopping behavior

Statement	Mean	Std. Deviation
While reviewing products online, I felt that.........		
There was too much information on products attributes	3.09	1.467
It was difficult to acquire the information	3.06	1.453
I was burdened with processing the information	3.28	1.478

The findings in Table 4-2 reveal a majority of the respondents strongly agreed that 'I was burdened in processing the information' (M = 3.28) as an effect of overloaded information in online shopping ranking first. The respondents strongly agreed with the statement, 'There was too much information on product attributes' (M = 3.09) as an influence of information overload in online shopping ranking second. The respondents also agreed with the statement, 'It was difficult to acquire the information' (M = 3.06), ranking third.

The findings of the study of the respondents' claim that 'I was burdened in processing the information' agrees with several research findings Bawden & Robinson (2020; Chen et al. (2009; C.-Y. J. J. o. I. S. Li (2017; Misra, Roberts, & Rhodes (2020; Sharma (2020; Sicilia, Ruiz, & Applications (2010; Soto-Acosta et al. (2014). However, a number of studies have highlighted some benefits of information overload Baumeister, Clark, Kim, & Lau (2017; Ren, Huang, & Research (2018). Information overload aids in the comparative study of any products produced by various brands Sharma (2020). As stated by Ren et al. (2018), this would aid in the performance of the comparative study, which would assist consumers in selecting the item with proper knowledge. Thus, as indicated by Baumeister et al. (2017), this enables consumers to meet their needs and obtain the best products. However, as stated

by Sharma (2020), excessive information creates confusion and complexity in the minds of consumers and wastes time. As a result, most consumers avoid lengthy descriptions in favor of information that is simple, appealing, relevant, helpful, and, above all, balanced. Saad, Glass, Mandayam, & Poor (2016) also concluded that most consumers feel overwhelmed by excessive information and become easily confused. The frontal lobe of the human brain is affected by constant stimulation as a result of an excessive information load, according to scientific evidence. This, as stated by Pappas & services (2016), results in the suppression of blood flow and normal brain activity. As argued by Moser & Services (2016), many consumers are easily manipulated by emotionally driven reasoning, which frequently leads to poor decision-making during online shopping.

4.2.1.2 Influence of Stress on Consumers' online Shopping behavior

In this section, the respondents were asked to indicate their level of agreement on the extent to which stress from information overload influences their online shopping behavior. The results are presented in Table 4-3 below;

Table 4- 3 Perception of stress on consumers' online shopping behavior

Statement	Mean	Std. Deviation
While shopping online with lots of product attributes and descriptions, I felt………..		
…It was stressful	2.96	1.553
…I was nervous	3.03	1.324
…I was anxious	3.14	1.384

The findings in tables 4-3 reveal a majority of the respondents strongly agreed that "I was anxious" (M = 6.94) was an influence of information overload in online shopping ranking first. This was followed by a majority of the respondents strongly agreeing with "I was nervous" (M = 3.03) as an influence of overloaded information in online shopping ranking second. The respondents also agreed with the statement "It was stressful" (M = 2.96) as an effect of information overload in online shopping ranking third.

From the findings, it was realized that the majority of the respondents feel anxious while shopping online with lots of product attributes and descriptions. This is similar to Olevskyi's (2022) research findings on whether information overload increases consumers' perceptions of stress. According to the study's findings, consumers become stressed when they see a wine-tasting note or wine label with a large number of product attributes. The findings are in accordance with previous academic studies that reported that more information complicates decision-making and stresses consumers Drummond and Rule (2005); Mulder, de Poot, Verwij, Janssen, & Bijlsma (2006). Similarly, Olevskyi (2022) discovered a significant, direct, and positive relationship between stress and consumer purchase intentions in his study. Olevskyi (2022), on the other hand, argued that stress may increase respondents' purchase intention. This was explained using the concept of impulse buying, which occurs when consumers attempt to cope with stress in a difficult situation Anglin, Stuenkel, & Lepisto (1994). This is supported by a body of literature Hama (2001); Ozen, Engizek, & logistics (2014; Youn & Faber (2000), which indicates impulsive purchasing is an effective stress-relieving and mood-regulating mechanism for some consumers. Respondents who experienced stress while viewing product information were more motivated to purchase, contrary to popular belief Olevskyi (2022). His findings indicated that in certain situations, stress could be a useful ally for retailers in increasing consumers' purchase intention. While this may be true, it is unlikely to be an effective long-term strategy, as intentional stress provocation will most likely deter consumers rather than build a solid foundation for shopping.

4.2.1.3 Influence of Frustration on Consumer Online Shopping Behavior

In this section, the respondents were asked to indicate their level of agreement on the extent to which frustration from information overload influences their online shopping behavior. The results are presented in Table 4-4 below;

Table 4- 4 Perception of frustration on consumers' online shopping behavior

Statement	mean	Std. Deviation
While reviewing products to buy online with lots of attributes and descriptions……..		
…It was frustrating	3.00	1.625
…I was irritated	2.80	1.368
…I was annoyed	3.09	1.632

The findings in tables 4-4 reveal a majority of the respondents strongly agree that "I was annoyed" (M = 3.09) as an effect of information overload in online shopping ranking first. The respondents strongly agreed with the statement, "It was frustrating" (M = 3.00) as an influence of information overload in online shopping ranking second. The respondents also agreed with the statement, "I was irritated" (M = 2.80) as a consequence of information overload in online shopping ranking third.

The study's findings revealed that the majority of the respondents experienced frustration while reviewing products to buy online with lots of attributes and descriptions (information overload). This is in alignment with Olevskyi's (2022) research findings on the relationship between information overload and consumers' perceptions of frustration. The findings revealed that consumers are irritated when they see a wine-tasting note or a wine label with more product attributes. These findings are consistent with previous research, which found that consumers are frustrated while shopping because of the perceived difficulty of finding relevant information Román & Riquelme (2014), the overwhelming amount of information C.-Y. J. J. o. I. S. Li (2017), or the confusion caused by product information similarity Walsh & Mitchell (2010). As a result, Sun & Spears (2012) proposed that consumer frustration can lead to goal changes or complete product avoidance. It stands to reason that consumer shopping intentions may be reduced in certain retail conditions due to frustration caused by information overload.

4.2.1.4 Influence of Perceived Risk on Consumer Online Shopping Behavior

In this section, the respondents were asked to indicate their level of agreement on the extent to which perceived risks from information overload influences their online shopping behavior. The results are presented in Table 4-5 below;

Table 4- 5 Perceived risk on consumers' online shopping behavior

Statement	Mean	Std. Deviation
While reviewing products online with this lot of information, I feel that product........		
...product may not be good	2.87	1.557
...may not have a good quality	3.01	1.465
... If I share with others, they may not like it?	3.25	1.600

The findings in tables 4-5 reveal a majority of the respondents strongly agree that "If I share with others, they may not like it" (M = 3.25) as a risk of online shopping ranking first. The respondents strongly agreed with the statement, "May not have a good quality" (M = 3.01), as a risk of online shopping ranking second. The respondents also agreed with the statement, "product may not be good" (M = 2.87), as a risk of online shopping ranking third.

The findings of the study revealed that information overload increases the perceived risk associated with online shopping. This is consistent with the research findings of Olevskyi (2022), which revealed that respondents with higher perceptions of information overload have a higher perceived risk of purchase. This study's findings also support previous research, such as Flanagin, Metzger, Pure, Markov, & Hartsell (2014), who stated that increasing available information strengthens consumers' perceptions of risk in a variety of ways. A study conducted by Olevskyi (2022) to investigate the relationship between perceived risk and purchase intentions discovered a significant, direct, and negative relationship. According to the findings, higher perceptions of purchase risk reduce respondents' desire to purchase a product. This study's findings are consistent with previous research indicating that perceived risk plays a significant role in defining consumer purchase intentions Ariffin et al. (2018). Additionally, the findings of this study are consistent with the findings of Liu, Wei, & Applications (2003), who stated that a higher level of purchase risk reduces the likelihood that they will make a purchase.

4.2.1.5 Determinant of Consumer Online Shopping Behavior.

In this section, the respondents were asked to indicate their level of agreement on the extent to which the influences from information overload determine their online shopping decisions. The results are presented in Table 4-6 below;

Table 4- 6 Perceived consumer shopping behavior

Statement	Mean	Std. Deviation
While reviewing products online to purchase, my decision to buy is influenced by		
The information available	3.64	1.456
Perceive risk	3.27	1.143
Difficulty in identifying the differences among the products/services that I evaluated. Leading to confusion	3.11	1.293
How stressful I get reading through overloaded information	3.17	1.610

The findings in Table 4-6 reveal that majority of the respondents strongly agreed to "The information available" (M = 3.64) as a determinant of online buying behavior ranking first. This was followed by a majority of the respondents strongly agreeing with "Perceived risk" (M = 3.27) as a purchasing determinant ranking second. The respondents also agreed with the statements 'How stressful I get reading through overloaded information" (M = 3.17) and "difficulty to identify the differences among the products/services that I evaluated leading to confusion" (M = 3.11) as the determinants of online purchasing behavior ranking third and fourth respectively.

The information available was cited by a majority of the respondents as a factor influencing buying decisions. This is in consensus with Sharma's (2020) findings that information overload has a positive impact on consumers' rational decision-making processes. In his survey questions, 39% of consumers stated that knowing the details about any product is a fundamental right. As emphasized by Persson (2018), in the case of fashion products, consumers want to know what material was used or why this particular product is better than other products. According to Benselin, Ragsdell, & Science (2016), the rational decision-making process is a type of logical analysis, and consumers must be aware of the basic information. As a result, this has demonstrated the benefits of online product information. However, Sharma's (2020) research has expanded its perspective on information overloading issues and has successfully discovered that excess information has no pros and more cons in the customer decision-making process. In his survey, 75.6% of participants agreed that information influences purchasing behavior as well as decision-making. On the other hand, 78% of the participants stated that having too much information while shopping online makes purchasing difficult.

4.2.1 Reliability Analysis

Table 4- 7 Reliability of measurement scales

Variables	Cronbach's Alpha	Decision
Information Overload	.921	Reliable
Stress	.939	Reliable
Frustration	.943	Reliable
Perceived Risk	.938	Reliable
Online shopping Behavior	.804	Reliable

From the table, it was found that Frustration (Cronbach's Alpha =.943) was the most reliable, followed by Stress (Cronbach's Alpha= .939), followed by Perceived Risk (Cronbach's Alpha= .938) then Information Overload (Cronbach's Alpha =.921) while Consumer Online Shopping Behavior (Cronbach's Alpha = .804) was the least.

4.2.2 Correlation Analysis

Table 4- 8 Correlation analysis

	Variables	1	2	3	4	5
Information Overload	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	201				
Stress	Pearson Correlation	.935**	1			
	Sig. (2-tailed)	.000				
	N	201	201			
Frustration	Pearson Correlation	.900**	.948**	1		
	Sig. (2-tailed)	.000	.000			
	N	201	201	201		
Perceived Risk	Pearson Correlation	.881**	.944**	.947**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	201	201	201	201	
Consumers' Online Shopping Behavior	Pearson Correlation	.811**	.837**	.865**	.828**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	201	201	201	201	201

**. Correlation is significant at the 0.01 level (2-tailed).
Note: IO-Information Overload, S-Stress, F-Frustration, PR-Perceived Risk, COSB-Consumers Online Shopping Behavior

Source: Field Data (2022)

As shown in table 4-8, the dependent variables (information overload, stress, frustration, perceived risk) and independent variables (consumer online shopping behavior) demonstrated significant, strong positive correlations. The results showed the highest correlation was for F and S at 0.948 ($p < 0.01$), followed by PR and F at 0.947 ($p < 0.01$), and by PR and S at 0.944 ($p < 0.01$). The lowest correlation was between COSB and IO at 0.811 ($p < 0.01$). These derived computations indicate there were consistent responses between the variables. In addition, respondents' views on consumers' online shopping behavior appear to be more closely related to the dependent variables (information overload, stress, frustration, perceived risk).

4.2.3 Model Summary

Table 4- 9 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.868[a]	.754	.748	.55205

a. Dependent Variable: Consumer's Online Shopping Behavior
b. Predictors: (Constant), Perceived Risk, Information Overload, Frustration, Stress

Source: Field Data (2022)

From the findings, R was 0.868, R square was 0.754, and adjusted R squared was 0.748. An R square of 0.868 implies that 86.8% of the change in consumers' online shopping behavior is explained by the independent variables of the study. There are, however, other factors that influence changes in consumers' online shopping behavior that are not included in the model, which account for 13.2%. An R of 0.868, on the other hand, signifies a strong positive correlation between the variables of the study. The findings correspond to the previous research and align well with findings in other academic research on the topic of information overload. Bawden and Robinson (2020); Chen et al. (2009; Lee et al. (2004); C.-Y. J. J. o. I. S. Li (2017).

4.2.4 ANOVA

Table 4- 10 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	182.606	4	45.652	149.795	.000[b]
	Residual	59.733	196	.305		
	Total	242.340	200			

a. Dependent Variable: Consumers' Online Shopping Behavior
b. Predictors: (Constant), Perceived Risk, Information Overload, Frustration, Stress

Source: Field Data (2022)

From the ANOVA table above, the calculated value of F is 149.795, indicating that the overall regression model was statistically significant. The probability value of 0.000, which is less than a 5% level of significance, is an indication that the model is fit. According to Fidell, Tabachnick, Mestre, and Fidell (2013), a significant level of less than or equal to .05 are an indication that the model is fit for social science research. Therefore, it can be concluded that independent variables (information overload, Stress, Perceived Risk, and Frustration) can significantly influence consumers' online shopping behavior.

4.2.5 Regression Coefficients

Table 4- 11 Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.904	0.223		4.054	0.000
Information Overload	-0.754	0.236	-0.531	-3.195	0.000
Stress	0.864	0.302	0.606	2.323	0.000
Frustration	-0.684	0.116	0.445	-5.897	0.000
Perceived Risk	-0.616	0.217	-0.543	-2.839	0.001

Source: Field Data (2022)

The established model for the study was:
$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$
$Y = 1.904 + 0.754 X_1 + 0.864 X_2 - 0.684 X_3 + 0.616 X_4 + \varepsilon$
Where:
β_0 = Constant
$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficient regression
Y = Consumers' Online Shopping Behavior
X1 = Information Overload

X2 = Stress
X3 = Frustration
X4 = Perceived Risk
ε = Error Term

Table 4-11 indicates that there is a negative and significant relationship between Information Overload and consumers' online shopping behavior. The findings were supported by a regression coefficient of -0.754 and a p-Value of 0.000. A regression coefficient of -0.754 implies that a unit increase in Information Overload led to a 0.754 unit decrease in the level of consumers' online shopping behavior. Results also indicate that Stress positively and significantly influences consumers' online shopping behavior (Beta= 0.864, P=0.000). It implies that a unit change in Stress results in a 0.864 significant increase in consumers' online shopping behavior.

Further, results indicate that Frustration had a negative and significant relationship between Frustration and consumers' online shopping. Findings indicated that with a coefficient of -0.684 and p-Value of 0.000, which implies that a unit increase in frustration leads to a 0.684 decrease in consumers' online shopping behavior. Perceived Risk yielded a Beta = -0.616, P-Value=0.000, which implies that a unit increase in Perceived Risk led to a 0.616 decrease in consumers' online shopping behavior. These findings conform to Bierzynska et al. (2016b) and Sun & Spears (2012).

5. Summary of Findings, Conclusions, and Recommendations
5.1 Summary of findings
The findings of the study supported the information overload theory and previous empirical evidence that people indeed have limited cognitive resources for information processing. The current study's findings provided empirical evidence of the information overload resulting from an increasing number of product attributes.

The study found that as a textual description of product attributes increases, so do the perceptions of information overload. Respondents became overwhelmed while trying to process the information. Online shoppers become overwhelmed by presented information in product descriptors without the usual product filtering systems or specifically tailored recommendations. Furthermore, information overload significantly causes consumers to experience stress, frustration, and perceived risk. Regardless of the type of stimuli respondents saw, information overload increased their level of stress, frustration, and perceived risk when they felt overwhelmed by the information presented. When consumers reach their cognitive limit of processing information and perceive it as overwhelming, they experience negative emotions, which need to be avoided at any cost to create a pleasant shopping experience.

It was also found that information overload does not by itself positively and significantly affect respondents' online shopping behavior. However, stress and frustration caused by information overload did have a positive effect. Therefore, we suggest that information overload should not be viewed as an isolated event but as an emotional trigger that may eventually influence consumer online shopping behavior. Although there is a positive relationship between stress and consumer online shopping behavior, this connection needs further examination. There is a limit to a stress level that positively influences consumers' online shopping behavior. Surpassing this limit may lead to frustration, which may result in a decrease in consumers' shopping behavior. Lastly, the results also indicated that information overload increases with the increased perception of perceived risk, which in turn decreases consumers' online shopping behavior.

5.2 Conclusion
Most times, retail managers try to satisfy the needs of consumers by providing a lot of information for product descriptions without considering the potential negative impact of information overload. The study presents some unfavorable implications of information overload on consumers' subjective state (stress, frustration, and perceived risk) on consumers' online shopping behavior.

Largely, the findings of this study signify that more product attributes with textual descriptions lead to information overload. Hence, the results support the argument there is an optimal information range that consumers can efficiently process. The information volume does increase the occurrence of some specific cognitive reactions. For instance, information overload provokes stress, frustration, and perceived risk. If retailers, producers, or e-commerce platforms want to reach their target audiences to evaluate product descriptions effectively, they should be concerned about the amount and the type of provided information.
Apparently, this study found that stress induced by information overload may actually stimulate consumers' online shopping behavior. Further, retailers should keep in mind that consumers process information differently. There are numerous consumer characteristics influencing online shopping behavior. Although there is the belief that consumers need more information to make

a better choice, our study shows that consumers can be easily overwhelmed by it. Managers should realize that excessive information can potentially decrease consumers' ability to analyze the attributes of products and compare the alternatives.

In summary, the study recommends that managers analyze the scope to which the amount of provided information can be processed by their target consumers without difficulty.

5.3 Research Limitations and suggestion for further studies

First, data were from university students and residents around Winneba in Ghana. In this sense, the generalizability of this study's results is constrained to Ghanaian consumers only. Additionally, despite the robustness of the results, cultural differences associated with different regions may offer valuable insights into consumer behavior under information overload conditions.

This study recommends future research to test the proposed conceptual model on specific types of products. It is essential to investigate the effectiveness of the model in various experimental conditions. Lastly, our model focused on consumer behavior without stating any specific behavior resulting from information overload measured as stress, frustration, and perceived risk. However, consumers can have a wider spectrum of possible behavior reactions to complex situations in online shopping. Therefore, future research should consider testing possible consumer behavior related to information overload, such as purchase deferral or switching to other products.

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Appendix
Questionnaire

I'm a Master's student in the field of Business Management from the School of Economics and Management, Nanjing Tech University. I am carrying out a study on the role of information overload on consumers' online shopping behavior. I would be glad if you could help me answer the following questions. Thank you.

SECTION A: Profile of Respondent

Gender**:**   Male   ☐   Female   ☐

Age **:** 18-30 ☐   31-50 ☐   51 and above   ☐

Occupation: Student ☐   Government employee   ☐

       Private employee ☐   Businessman ☐   Other ☐

Education **:** Basic ☐   Secondary ☐   Tertiary   ☐

Which of the following is your favorite online shop?

 Jumia ☐   Kikuu ☐   Deus.com   ☐

Alibaba ☐   Kaymu ☐   Melcom Ghana   ☐

How often do you shop online?

Daily ☐   Weekly ☐   Monthly   ☐   when Need Arises   ☐

What is the average time that you spend on online shopping?

Less than 30 minutes ☐   30 min – 1 hr ☐   1 hr – 2 hr   ☐

          More than 2 hrs ☐

What's your level of income?

Less than Ghs 2000   ☐   Between Ghs 2000 and Ghs 5000 ☐   Above Ghs 5000 ☐

SECTION B: Determine The Influence Of Information Overload On Consumer Online Shopping Behaviour

Please indicate your level of agreement with the following statements on the extent to which information overload influences your online shopping behavior on a scale of 1 to 5 **where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree.**

Statement	1	2	3	4	5
While reviewing products online, I felt that……					
There was too much information on products attributes					
It was difficult to acquire the information					
I was burdened with processing the information					

SECTION C: Determine The Influence Of Stress On Consumer Online Shopping Behaviour

Please indicate your level of agreement with the following statements on the extent to which stress from information overload influences your online shopping behavior on a scale of 1 to 5 where **1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree.**

Statement	1	2	3	4	5
While shopping online with lots of product attributes and descriptions, I felt......					
...it was stressful					
...I was nervous					
...I was anxious					

SECTION D: Determine The Influence Of Frustration On Consumer Online Shopping Behaviour

Please indicate your level of agreement with the following statements on the extent to which frustration from information overload influences your online shopping behavior on a scale of 1 to 5 **where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree.**

Statement	1	2	3	4	5
While reviewing products, buy online with lots of attributes and descriptions........					
...it was frustrating					
...I was irritated					
...I was annoyed					

SECTION E: Determine The Influence Of Perceived Risk On Consumer Online Shopping Behaviour

Please indicate your level of agreement with the following statements on the extent to which perceived risks from information overload influence your online shopping behavior on a scale of 1 to 5 **where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree.**

Statement	1	2	3	4	5
While reviewing products online with this lot of information, I feel that product......					
...product may not be good					
...may not have a good quality					
... If I share with others, they may not like it?					

SECTION F: Determinant of Consumer Online Shopping Behaviour

Please indicate your level of agreement with the following statements on the extent to which the influences from information overload determine your online shopping decisions. On a scale of 1 to 5 **where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree.**

Statement	1	2	3	4	5
While reviewing products online to purchase, my decision to buy is influenced by........					
The information available					
Perceive risk					
Difficulty in identifying the differences among the products/services that I evaluated. Leading to confusion					
How stressful I get reading through overloaded information					