Social commerce and consumer search behavior: An eye-tracking study

Completed Research

Patrick Mikalef
Norwegian University of Science and Technology
patrick.mikalef@ntnu.no

Kshitij Sharma
Norwegian University of Science and Technology
kshitij.sharma@ntnu.no

Ilias O. Pappas
Norwegian University of Science and Technology
ilpappas@ntnu.no

Abstract

Following the increasing popularity of social commerce sites, this study investigates the information sources and forms that affect consumers in their decision-making process. Building on the theoretical underpinnings of uses and gratifications and dual-process theories, we distinguish between marketer and user generated content, and differentiate formats into informational and normative. Using an eye-tracking approach on a popular social commerce site with a sample of 23 participants, we find significant differences in the types and format of information consumed for selected versus eliminated products. Specifically, we looked at engagement, cognitive processing, and observation of consumers, since they reveal information about the mental and processing mechanisms during decision making. We find that consumers present a number of differences in terms of these measures among the different types of content, and with respect to selected versus eliminated products. We conclude the paper summarizing the findings and drawing theoretical and practical implications.

Keywords

Eye-tracking, social commerce, dual-process theory, user-generated content, online reviews

Introduction

The popularity of social media and social networks in the past few years has brought a new subset of e-commerce to the spotlight, social commerce. Social commerce presents certain unique differences from traditional e-commerce outlets, primarily by enabling social interactions and the creation and circulation of user generated content (Mikalef et al. 2013a). Not surprisingly, social media have attracted the interest of business executives and marketers with regard to their potential in generating a competitive edge (Zhou et al. 2013). A growing number of firms are now launching social commerce initiatives, sparked by several promising early outcomes (Stephen and Toubia 2010). Nevertheless, in contrast with conventional marketing portals in which marketers were in control of the information they provided to consumers, in social commerce settings a large proportion of this power has been transferred to the consumer (Mikalef et al. 2013b).

With the importance of user generated content becoming increasingly more important in the decision-making process of individuals, it has started to occupy the agendas of research accordingly (Cheung et al. 2009). As more consumers are confronted with making purchase-related decisions based on both marketer-generated content and user-generated content, the process by which they evaluate take into account each becomes incrementally complex (Cheong and Morrison 2008). This is because user generated content is developed from a very large number of unknown participants world-wide, and the...
presentation of such a vast amount of information makes decision making a complex and messy task (Mikalef et al. 2012). Adding to this, the format that this content is presented to potential consumers differs significantly, from extensive reviews, to aggregated information and summarized product ratings (Cheung et al. 2009). Such differences in format of information about the product is apparent for both user-generated content as well as marketer-generated content (Yadav et al. 2013). The differences in the format of presented product-related information evoke different forms of processing information, and are likely to be utilized at different stages of the decision-making process (Yadav et al. 2013).

Building on this gap, this study uses and gratifications and dual-process theory to understand what type of information users tend to rely on when faced with a purchase dilemma in social commerce settings. We employ an eye-tracking study on a popular social commerce site to identify the differences in information consumption between the products selected compared to those that are omitted. Specifically, we distinguish between two types of information (marketer-generated and user-generated), and two types of presenting this information (informational and normative) and define different areas of interest on social commerce sites based on these. We employ an eye-tracking approach, and through measures of engagement, cognitive processing, and observation find differences in the areas of interest between selected and eliminated products. From the underlying mental mechanisms that support these measures, we deduce several important implications for research and practice.

The rest of the paper is structured as follows. In section 2 we review the theoretical background which this study builds upon. In section 3, we present our research questions and the associated measures we use to examine them, while in section 4 the study design is described. Section 5 introduces the analysis and describes with results from the eye-tracking experiment. In closing, section 6 discusses the theoretical and practical implications that arise from the results.

**Theoretical Background**

Social commerce websites present a unique mixture of characteristics when compared to physical, or even conventional online stores. Unlike traditional online stores that feature content that is solely provided by the marketer or producer of the product, or else marketer-generated content (MGC) (Goh et al. 2013), social commerce sites present content that is generated by the consumers themselves, or else user-generated content (UGC) (Van Dijck 2009). The simultaneous presence of both types of context creates an interesting environment, since potential consumers need to navigate and make decisions on the basis of both types of information (Cheong and Morrison 2008). While traditionally marketers have been in position to control all product related information on commerce outlets, the affordances that are enabled by social commerce sites allow consumers to have a strong influence about products or services that are advertised, without being bound by standards of objectivity (Bruhn et al. 2012). It is widely noted that while UGC is important for consumers when forming their purchase-related decisions, negative content can have harmful consequences for building and sustaining a brands image to marketers, an issue which is compounded since consumers increasingly rely more heavily on UGC when making purchase decisions (Luo et al. 2013). While the importance of UGC has been in the spotlight of research attention in the emergence of social commerce, there are very few studies that address the issue of how consumers form decisions under the concurrent presence of both UGC and MGC. In addition, the different formats in which these types of information are presented to users are seldom examined (Trusov et al. 2009).

To examine these issues and the perceived value of each types of information, we build on the uses and gratification theory (UGT). Uses and gratification theory is concerned with how individuals use media and what aspects of these media fulfil their needs, thus, centering on the individual as the main unit of analysis (Ruggiero 2000). It has been applied extensively in online environments since it provides one of the most concrete perspectives to explain psychological and behavioral dimensions in mediated communication (Ko et al. 2005). The main aim of uses and gratifications theory is to develop an explanation towards the psychological needs that shape why people use media, and what stimuli engage them in performing certain media-based behaviors (Ko et al. 2005). One of the main premises on which uses and gratification theory builds on is that users are goal-oriented, consequently, when they are faced with a decision choice they select the appropriate media to gratify their goals or needs (Limayem and Cheung 2011). In the domain of social commerce studies, UGT has been one of the core theoretical perspectives in explaining the motives, beliefs, and values of consumers (Mikalef et al. 2013a; Tsai and Men 2017). Despite UGT been mostly applied on explaining the extent of use of certain affordances on
social commerce websites, there is still very little empirical research with regard to the consumption of information that originates from different types of sources.

Moreover, the format in which these information sources are examined is commonly into either UGC or MGC. Yet, most social commerce sites present both types of information in an array of different formats, which result in different ways of consuming it by customers when they are in the process of forming the purchase decisions. Dual-process theory has been a widely applied theory to explain how people are influenced by the different forms of information they are provided with (Cheung and Thadani 2012). Applied to the domain of online shopping, dual-process theory has been used to distinguish between two types of informational sources, normative factors and information factors (Filieri 2015). Informational factors are based on the content of user experiences or marketer descriptions and are associated with the quality of information and the perceived credibility of the source. Normative factors on the other hand reflect the impact of social aggregation mechanisms available on social commerce websites and are commonly represented a crowd opinion information such as overall product score and customer ratings. The overall product score is generally displayed by the number of stars or by an overall numeric score which represents the average rating provided by other customers. Dual-process theory posits that informational and normative factors work in parallel in shaping consumers opinions about products they see online, and when making purchase-related decisions (Cheung and Thadani 2012). In the present study, dual-process theory is applied as the theoretical grounding in explaining the extent to which these two types of information influence the purchase decisions of users of social commerce websites. As such, it provides an influence model based on both the consumers’ self-judgment of the information provided by marketers and consumers, and the normative power of aggregated information. Informational influence is derived from information obtained as evidence about reality, and therefore is present in the content, source, and visual cues relating to the product at hand, whether UGC or MGC. On the other hand, normative influence is apparent in aggregated evaluations of the opinions of others (Filieri 2015).

According to Yale’s model, source, message, and receiver are three important informational components in message evaluation. Product related information such as description, price, and technical characteristics are important elements of the message, while visual cues such as pictures of the product are also found to play a significant role in communication judgment in terms of MGC (Wells et al. 2011). Other studies have also noted that thumbnail images tend produce further stimuli to consumers, who engage in the activity of enlarging them to located more detailed visual information about the product and increase their enjoyment (Kim et al. 2007). Additionally, consumers are relying increasingly more on UGC to get more information about a product they are interested in, and examine in detail descriptions and evaluation about experiences of other consumers (Kim and Srivastava 2007). Reviews made by other consumers have been a topic of much attention in empirical studies, since their content, whether positive or negative, has been shown to have a significant influence on intentions to purchase (Zhang 2005). Apart from the importance of such informational components in decision making, consumers rely heavily on the opinions of masses, making normative factors such as average score or ratings of other consumers, an easily accessible resource on which they can anchor their decisions (Flanagin et al. 2014). Concluding, we consider the previously mentioned informational and normative factors as important determinants of consumers’ intention to make purchase-related decisions.

**Informational Factors**

In terms of information factors that are present on social commerce websites, these are typically of both types, UGC and MGC. Marketer-generated content usually presents some common features in terms of how information is presented and the content that is depicted to consumers. First, price is an important component when it comes down to any purchase decision, with consumers balancing the perceived value of product in relation to both characteristics of the products and in an effort to determine the ideal price/characteristic balance. The combination of price with brand recognition has been shown to mitigate perceptions of risk as well as influence consumers cognizance about product quality (Flanagin et al. 2014). In online settings such as those of social commerce sites, it is argued that the presence of additional informational factors related to the product can help consumers avoid risky purchases and facilitate the process of making decision about what product to buy (Chiu et al. 2014). According to the findings of Chiu et al. (2016), the availability of information in a multitude of formats can positively contribute to intentions of consumers to purchase online. This shows that consumers are inclined to go through many different types of information from which they receive a holistic overview of the product they are
interested in. Product-related information however may be presented in a number of different formats. A particularly important type is through images of the product itself. Pictures of the product have been found in prior empirical studies to evoke different levels of emotional imagery (Flores et al. 2014). Extending on this, Yoo and Kim (2014) find that the capacity to interact with visual cues, such as zooming into the product or enlarging a thumbnail, has a significant effect on consumers buying-related behavior. Therefore, we can conclude from these studies that the behavior of consumers is likely to differ depending on if or not they decide to purchase a product. Such differences in behavior can be observed also in terms of their interactions with the content they are presented with, as well as the information they consume when attempting to make a decision (Kim and Lennon 2008).

Despite marketer generated content been the traditional information that consumers rely on when evaluating the appropriateness of a product, user generated content has gradually taken over an increasingly important part of social commerce sites, and as an extension influences the decision-making process (Cheong and Morrison 2008). User generated content can range from negative reviews of the product or service, to highly positive, and has been a subject of much research over the past few years (Chevalier and Mayzlin 2006; Zhu and Zhang 2010). Nevertheless, empirical evidence has been mixed on how consumers factor both positive and negative reviews when trying to form a purchase-related decision on social commerce sites (Dhar and Chang 2009). Chevalier and Mayzlin (2006) found that products that had more positive user generated content also presented higher sales, although the effect of negative user generated content on sales was much stronger. Similar findings have been observed in other studies in which greater positive user generated content generated increased sales (Forman et al. 2008). On the other hand, negative product reviews are also beneficial for consumers when making purchase decision, since they most commonly serve as the basis on which they can detect and eliminate low quality or undesirable products (Lee et al. 2008).

**Normative Factors**

Although informational determinants, as discussed above, can in part explain how consumers assess and evaluate the product at hand, in many cases the presence of normative factors helps aid decision making (Liang and Turban 2011). In the area of social commerce, a number of different representation mechanisms are generated which aim at structuring the opinions and perceptions of past buyers. Product ratings are one such measure which calculates the mean score given to a specific product, by all past buyers. Typically, these scores are represented in a 5-level scale, either as a numerical value or in the form of a star rating system. In some cases, consumers also have access to the number, or percentage of consumers who rated the product on each score (i.e. how many gave it a score of 1 out of 5, 2 out of 5 etc.). Other popular means are by depicting the number of consumers who find a review helpful and informative, thus providing a form validity to certain high or low rated reviews. These forms of representing aggregated user attitudes and beliefs are some of the most influential when it comes to decision making (Forman et al. 2008). Previous research has shown that normative factors such as user-generated product ratings, influence consumers perceptions of product quality, which in turn impacts purchase decisions (Flanagin et al. 2014). In the area of online hotel bookings Ye et al. (2011, find that a 10% increase in traveler review ratings, have a significant impact on sales, by boosting online bookings by more than 5%. These findings highlight the importance of social influence mechanisms in the decision-making process of consumers on social commerce platforms (Flanagin and Metzger 2013).

**Research Questions**

This research follows an exploratory approach and attempts to examine how users interact with the different types and formats on information available on social commerce sites so to understand more about the decision-making process when faced with a choice to purchase a product. By employing an eye-tracking approach, we use several different measures that are associated with distinct cognitive mechanisms. These can reveal how users interact with content, and ultimately the parts they emphasize on in each stage of their decision-making process. We therefore distinguish between three types of processing which can be identified through an eye-tracking study, *engagement*, *cognitive processioning*, and *observation*.

Human eyes cannot travel faster than a biological upper limit of their velocity (Salvucci and Goldberg 2000). In order to move from a point on the stimulus to another the eyes have to accelerate and
decelerate. This suggests that at a certain time the eyes attain the highest velocity. Peak saccadic velocity is often denoted as the percent of the saccade length when the maximum velocity was reached (Duchowski 2007). This measure has been linked inversely with a user’s level of engagement (McGregor and Stern 1996). This indicates that the faster the eyes attain the maximum velocity (which will return a lower value in terms of percent of length of the saccade) the more the user is engaged. Therefore, engagement can be measured through peak saccadic velocity, with higher levels of the former being represented through lower levels of the later.

The pupil diameter is regarded as the proxy of the mental activity, or in other words, a measure of the depth of cognitive processing of individuals during a specific task (Kahneman et al. 1969). Lower pupil diameters are indicative of more load on working memory and faster calculations. The rate of change of these functions is related to task difficulty, and thus is a measure of deep cognitive processing. In relation to the dual-process theory, Kahneman et al. (1969) find that an increased pupil size is associated with high mental activity, an indication of enhanced cognitive function load (Croson et al. 2013). Since, pupil diameter can be sensitive to many external factors which are independent of experimental conditions (for example, age, sleep-conditions, use of substances like caffeine, nicotine, and medication). We normalized the pupil diameter with respect to the first five seconds of data to remove the effects of external variables.

Careful observation refers to the average period of time during which the gaze is relatively stable over a relatively longer period of time, measured in milliseconds. This measure is associated to the careful investigation of the stimulus. Just and Carpenter (1980) proposed an eye-mind hypothesis, stating that there is no substantial lag between what we fixate on and what we process, which has been widely supported by previous studies in different tasks, such as, in reading and scene perception (Engbert et al. 2005). Careful observation essentially denotes that the consumer is performing local processing on the information type and format, rather than global processing of the whole page to find relevant information for his purchase.

Building on the different types of information and the formats they are presented in we present the following research questions:

Are there differences in terms of engagement, cognitive processing, and observation of information found on social commerce websites when making purchase-related decisions?
How do these differ based on the type and format of the information presented to consumers?
What can we deduce from these differences based on the distinction between products consumers will select compared to those they eliminate?

Methodology

The past few decades have seen a rapid advancement in terms of technological and theoretical knowledge about neuroscience, neurocognitive and neuropsychological methodologies, particularly in relation to understanding how consumers engage in tasks and perform decision making activities. Specifically, eye-tracking has been an essential part of identifying interactions between humans and online interfaces, and is a well-suited method to identify how specific visual stimuli influence eye movements, which can then be utilized to discover consumer strategies and to understand the underlying cognitive processing (Luan et al. 2016; Mikalef et al. 2017c). As Jacob and Karn (2003) state, eye movement and pupil dilation can reveal human perceptual, emotional, and cognitive processes, helping to further predict and interpret human behavior.

Participants and Procedure

For the purpose of this study, 23 participants were recruited. All of them had been screened so that it was ensured they had normal or correct-to-normal vision. The sample was divided almost equally between males (13) and females (10) and the average age was 27.5 years (age std. dev. 7.15 years). All participants had average to high experience with shopping at Amazon, which was the chosen social commerce website for the purpose of this study. The participants were provided with three Amazon products (electronic fans with remote controls). The products were chosen to be gender neutral so that the gender bias could be eliminated. The simple experimental task was to select one of the fans after carefully examining the information given on each of the pages. On average, participants took 10-15 minutes to decide which
product they would prefer to buy. During this process, their gaze was recorded using three SMI eye-tracking glasses at 60 Hz and two Tobii eye-tracking glasses also at 60 Hz.

**Variables**

As the dependent variable of this study, we opted for choosing a binary variable representing the selection or not of a product. We therefore distinguish between two values, selected which are represented with 1, and eliminated which are represented with a value of 0. As part of the process variables, we calculated three different measures, as described in the previous section. These were engagement, cognitive processing, and observation. Engagement was measured by measuring peak saccadic velocity, with high engagement being represented through a low peak saccadic velocity. This measure was calculated within each of the pre-defined information types formats that were described in the theoretical background section. Cognitive processing was measured by examining dilation of pupil size. A low pupil size is indicative of deeper cognitive processing. Finally, observation was assessed as the mean period of time in which the gaze is stable. Careful observation is calculated as a result of high fixation duration mean, and low fixation duration variance.

**Areas of Interest**

The product page of Amazon was divided into eight different areas of interest as can be depicted in Figure 1 below. These include a) product details, b) product description, c) specification table, d) review summary, e) negative reviews, f) positive reviews, g) image, and h) zoomed image. From these a, b, c, g and h represent marketer-generated content, while d, e and f user-generated content. In addition, area d represents normative information since aggregate scores are shown on mean product value from past consumers, as well as proportion of users that have given each of the 5 scores.

![Figure 1 Areas-of-Interest (AOIs) defined for the analysis of the eye-tracking data](image)

**Results**

We conducted two-tailed t-tests to compare the above-mentioned variables across the products which were bought or eliminated. The test results, means and standard deviation for all the variables are presented in the tables below.

**Engagement**

The peak saccadic velocity during the moments the participants were looking at the image of the product and the zoomed image was lower for the bought product than that for the eliminated products.
Social commerce and consumer search behavior

relations found in previous eye-tracking studies show that the peak saccadic velocity could be used as a proxy for engagement patterns. Our observations depict that the engagement with the product image (and the zoomed version of it) is higher for the bought product than the eliminated products. This significant difference is magnified when consumers looked into the zoomed image, which denotes a stronger mental workload to extract useful information that can help them make a purchase decision.

<table>
<thead>
<tr>
<th>AOI</th>
<th>Selected Mean (Std. dev)</th>
<th>Eliminated Mean (Std. dev)</th>
<th>T-test statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Product details</td>
<td>17.54 (20.60)</td>
<td>17.93 (22.21)</td>
<td>-0.05</td>
<td>0.95</td>
</tr>
<tr>
<td>b) Product description</td>
<td>14.51 (26.75)</td>
<td>11.98 (21.60)</td>
<td>0.31</td>
<td>0.75</td>
</tr>
<tr>
<td>c) Specification table</td>
<td>7.00 (24.96)</td>
<td>12.62 (24.00)</td>
<td>-0.70</td>
<td>0.48</td>
</tr>
<tr>
<td>d) Review summary</td>
<td>29.69 (18.99)</td>
<td>26.05 (16.48)</td>
<td>0.03</td>
<td>0.53</td>
</tr>
<tr>
<td>e) Negative reviews</td>
<td>23.63 (11.43)</td>
<td>30.87 (15.22)</td>
<td>-1.65</td>
<td>0.11</td>
</tr>
<tr>
<td>f) Positive reviews</td>
<td>16.82 (21.06)</td>
<td>21.31 (18.75)</td>
<td>-0.87</td>
<td>0.38</td>
</tr>
<tr>
<td>g) Image</td>
<td>23.98 (10.53)</td>
<td>38.96 (20.84)</td>
<td>-2.79</td>
<td>0.009</td>
</tr>
<tr>
<td>h) Zoomed image</td>
<td>23.21 (9.31)</td>
<td>37.06 (20.10)</td>
<td>-2.72</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Table 1 Comparison of engagement (peak saccadic velocity %) for the selected and eliminated products.

Cognitive processing

The pupil diameter during the moments when the participants were looking at the reviews section of the page (review summary, negative and positive reviews) was lower for the bought products than that for the eliminated products. The pupil diameter has been shown to be directly related to the level of mental processing and the load on the working memory. In other words, the pupil diameter is related to the cognitive processing participants put across while they are observing a visual stimulus. Our results indicate that the participants were involved in a deeper cognitive processing of the reviews of the bought products than those of the eliminated products.

<table>
<thead>
<tr>
<th>AOI</th>
<th>Selected Mean (Std. dev)</th>
<th>Eliminated Mean (Std. dev)</th>
<th>T-test statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Product details</td>
<td>0.66 (0.78)</td>
<td>0.33 (0.87)</td>
<td>1.22</td>
<td>0.22</td>
</tr>
<tr>
<td>b) Product description</td>
<td>0.49 (0.80)</td>
<td>0.68 (0.51)</td>
<td>-0.88</td>
<td>0.38</td>
</tr>
<tr>
<td>c) Specification table</td>
<td>0.45 (0.68)</td>
<td>0.56 (0.44)</td>
<td>-0.59</td>
<td>0.55</td>
</tr>
<tr>
<td>d) Review summary</td>
<td>0.01 (0.78)</td>
<td>0.63 (0.60)</td>
<td>-2.71</td>
<td>0.01</td>
</tr>
<tr>
<td>e) Negative reviews</td>
<td>0.12 (0.76)</td>
<td>0.78 (0.50)</td>
<td>-3.13</td>
<td>0.003</td>
</tr>
<tr>
<td>f) Positive reviews</td>
<td>0.24 (0.34)</td>
<td>0.69 (0.34)</td>
<td>-2.70</td>
<td>0.01</td>
</tr>
<tr>
<td>g) Image</td>
<td>0.26 (0.58)</td>
<td>0.32 (0.67)</td>
<td>-0.32</td>
<td>0.74</td>
</tr>
<tr>
<td>h) Zoomed image</td>
<td>0.52 (0.63)</td>
<td>0.46 (0.58)</td>
<td>-0.33</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Table 2 Comparison of cognitive processing (pupil diameter change) selected and eliminated products.

Observation

The mean fixation duration during the moments when the participants were looking at the specification table and the reviews section of the page (review summary, negative and positive reviews) was lower for the bought products than that for the eliminated products. The fixation duration has been shown to be indicative of careful observation of the stimulus. Our results indicate that the participants observed more carefully the specification table and the reviews section of the bought products than those of the eliminated products.

<table>
<thead>
<tr>
<th>AOI</th>
<th>Selected Mean (Std. dev)</th>
<th>Eliminated Mean (Std. dev)</th>
<th>T-test statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Product details</td>
<td>168.15 (60.25)</td>
<td>183.18 (46.17)</td>
<td>-0.84</td>
<td>0.40</td>
</tr>
<tr>
<td>b) Product description</td>
<td>176.13 (68.07)</td>
<td>171.13 (46.97)</td>
<td>0.79</td>
<td>0.79</td>
</tr>
</tbody>
</table>

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Table 3 Comparison of observation for selected and eliminated products.

<table>
<thead>
<tr>
<th>c) Specification table</th>
<th>195.68 (51.27)</th>
<th>150.67 (47.55)</th>
<th>2.81</th>
<th>0.008</th>
</tr>
</thead>
<tbody>
<tr>
<td>d) Review summary</td>
<td>190.19 (51.61)</td>
<td>139.58 (41.97)</td>
<td>3.01</td>
<td>0.002</td>
</tr>
<tr>
<td>e) Negative reviews</td>
<td>187.40 (45.34)</td>
<td>138.63 (62.02)</td>
<td>2.76</td>
<td>0.009</td>
</tr>
<tr>
<td>f) Positive reviews</td>
<td>198.63 (48.95)</td>
<td>141.98 (34.87)</td>
<td>4.01</td>
<td>0.0002</td>
</tr>
<tr>
<td>g) Image</td>
<td>173.63 (46.46)</td>
<td>176.11 (56.96)</td>
<td>-0.14</td>
<td>0.88</td>
</tr>
<tr>
<td>h) Image</td>
<td>191.89 (55.02)</td>
<td>178.77 (64.07)</td>
<td>0.67</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Discussion

We presented the results from 23 participants deciding over three products to choose from in a popular social commerce setting. The participants were presented with both the MGC (title, price, image, details, product info. table) and UGC (positive and negative reviews). The information presented on the Amazon pages for the three products could also be divided in informative (MGC and UGC) and normative (review summary) factors. Through an eye-tracking approach we measured three different values, namely engagement, cognitive processing, and careful observation. The outcomes of our analysis present a number of interesting research and practical implications. From a research point of view, this study is one of the first to utilize an eye-tracking methodology to examine the differences in utilization of MGC and UGC during a purchase-related decision. Our findings pinpoint towards several differences based on the used measures which imply differentiations in cognitive processing and the series of events that lead to a decision. Specifically, high engagement in a product only differs when looking at images and zoomed images since for all other areas of interest they are found to have no significant difference. It is therefore important to understand the value that visual cues have when deciding on a product, and specifically being able to see details. In addition, cognitive processing and observation show complementary results. Specifically, they demonstrate that reviews are not considered equally for consumers, but rather, for the selected ones more cognitive load and careful observation is spent for all types of information, normative (review table) as well as informational (positive and negative reviews). These findings could imply that they are used as a verification tool to establish that the one they have selected is indeed the best option. Thus, confirming opinions through positive reviews and mitigating risk by carefully evaluating negative reviews can increase their belief that the product they have selected is indeed the best (Mikalef et al. 2017b). While past research using quantitative methods has confirmed the importance of review in forming purchase-related decisions, the physiological data that eye-tracking methods allow enable us to understand the mental processing that is associated with interactions to the content of social media (Mikalef et al. 2017a; Mikalef et al. 2016).

From a practical point of view these studies raise a number of implications for marketers of products. The first has to do with the affordances that are allowed in terms of visual cues. Our findings pinpoint that consumers engage much more with images of selected products than those that are omitted. While it is not known if this is done unconsciously when forming initial impressions, or after a decision has been made to confirm that decision, the significance of allowing for such interactions with the product are evident. Similarly, incorporating different forms of user generated content and providing incentives towards past consumers to give feedback is important, since reviews and product summary scores are used to build trust and confirm purchase decisions. The absence of such affordances may lead consumers to third party sites or other vendors. Despite the novelty of findings, there are certain limitations that characterize our study. First, we do not track the sequence of events that happen in respect to gaze activity. Further studies are needed to examine how the process of deciding unfolds, and the stages through which consumers go through when making a decision. Second, we do not control for different characteristics of products, such as price and complexity. It is highly probable that when these aspects are factored in the importance of some areas of interest may change relative to others. Finally, a mixed-methods study in which participants are then interviewed could yield important insight about the process they undergo when making a choice and the areas they focus their attention on in each stage.

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