

Consequences of consumer regret with online shopping

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ABSTRACT

Negative online reviews can significantly hurt future sales. After impulsive decisions, consumers may feel regret and write negative online reviews. Two studies are conducted to understand the origin and consequences of negative reviews according to the review content and the responsibility for the mistake in the decision. The first study analyses the influence on the review creation of regret with the process and the outcome through structural equation modelling. For the second study, a 2×2 experimental design was conducted. This study analyses how different content in the review (regret with the process vs. regret with the outcome) and guilt of the error (the consumer vs. the seller) affects the perceived persuasiveness, usefulness and credibility of the information, and the intention to follow the advice. The results show that for generating negative reviews, it is the regret with the process coupled with the presence of regret with the outcome which ultimately leads to the intention to write negative reviews. However, the results of the second study show that reviews that criticize the outcome are more damaging than those that criticize the process. Furthermore, reviews that show regret in which the buyer is responsible affect readers more through the greater persuasion they generate.

1. Introduction

When a consumer is dissatisfied with their purchase, emotions such as anger, guilt, and regret may arise (Zeelenberg, 2018), which can cause them to express their perceptions and feelings to feel better about themselves. This can generate online comments that criticize a product or highlight its negative aspects due to the consumer's poor evaluation of it. These kinds of comments are very damaging for companies, as they have a high impact on future buyers and damage their image (Lappeman et al., 2018).

Electronic word of mouth (eWOM) are messages usually written by buyers of a product or service that highlight positive and/or negative aspects of that good (Cantalops and Salvi, 2014). Within this type of message, online reviews are information frequently used by potential consumers when purchasing a product. As a core part of eWOM, online reviews show great value on both the demand and supply side of the online market. Online reviews can complement information about products, services, and the shopping experience and are more likely to gain the trust of potential consumers than information provided by sellers (Duan et al., 2022). These types of reviews can be broadly differentiated between positive and negative reviews, thus affecting readers' perceptions and behaviour towards the product they are talking about in different ways (Akdin, 2021; Duan et al., 2022).

Focusing on negative reviews, when consumers feel that they have not made a good choice, writing an online review can improve their mood and well-being by conveying information that they feel may be useful for future buyers (Furrer et al., 2021; Rosario et al., 2020). Similarly, these negative online reviews also greatly affect the reader. Readers are interested in a product and seek to know the previous experience of other users to decide. These negative reviews can convey information about the product. However, they can also convey any information that the review's writer highlights (e.g., purchase situation) or their emotions (e.g., anger, regret) (Craciun and Moore, 2019; Lis and Fischer, 2020). Despite the research on online reviews, their current importance requires further research on aspects related to them, such as the process of detecting fake reviews (Salminen et al., 2022), or the role played by emotions in these reviews (Alzate et al., 2022; Pashchenko et al., 2022). Moreover, in this sense, recent research has pointed out the need to identify key drivers for individuals creating *negative eWOM* (n-eWOM) content from a cognitive perspective (Donthu et al., 2021).

The role of emotions in consumers' online review behaviour still needs to be explored (Liu et al., 2021). Recent studies have examined the effect of emotions in consumer reviews on brand image and positioning using sentiment analysis techniques, differentiating between positive and negative emotions (Alzate et al., 2022). Focusing on negative emotions, consumer regret has been treated as a consequence of impulse

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buying (Parsad et al., 2019). In addition, the consequences that consumer regret may have on the intention to generate a public comment or complaint have been explored comparing to other emotions, such as anger (Craciun and Moore, 2019; Ismagilova et al., 2020). However, attention has not been focused on the different types of regret that may exist in reviews. Furthermore, few studies have addressed consumer regret from a double perspective: process and outcome regret (Ditinjau et al., 2018). Table 1 shows a summary of related literature in online reviews.

Consequently, this research addresses the dual perspective on regret from a two-fold approach. Firstly, in the first study, we analyse the psychological mechanism of regret, which results in negative online reviews after making an impulse purchase, distinguishing between process regret and outcome regret. The second study analyses the same aspect from the reader's perspective. It examines how different reviews (about the purchase process or the outcome) influence perceptions of the information received and behavioural intentions, such as the intention to consider the information shown. In addition, it is analysed if different

types of guilt (consumer's or seller's) affect the reader's perceptions. These two studies allow for obtaining a broad perspective of the whole process: from the reasons that explain the creation of these online reviews to the impact of these kinds of reviews on the reader. This provides insight into which factors are most important to reduce the creation of this type of online review and identifies the most relevant online reviews that affect the reader.

Thus, this paper makes theoretical contributions to the eWOM and regret literature. The research provides insights into which type of regret most influences the intention to do negative online reviews after an impulse purchase. Furthermore, it also provides insight into whether the emergence of one process regret may increase the outcome regret. Analysing the same issue from the reader's perspective also contributes to the online reviews literature. It provides insights into how these comments can influence the reader, considering the different relevance they may have for the reader depending on the type of regret shown and the guilt responsibility.

Companies are increasingly aware of the impact of online reviews on

Table 1
Summary of literature related.

Study	Independent variables	Mediators/Moderators	Dependent	Results/contributions
Yin et al. (2014)	Emotions embedded in reviews (anxiety vs. anger)	Cognitive effort	Review helpfulness	Reviews containing anxiety are more helpful than those containing anger. The differential impact of anxiety and anger on review helpfulness is mediated by cognitive effort.
Filieri (2015)	Information quality	Source credibility, product rankings, consumer ratings, information diagnosticity	Information adoption	Information quality and product rankings are the main antecedents of information diagnosticity. The information quantity does not affect the information diagnosticity.
Filieri et al. (2018)	Two-sided reviews, source aspects (trustworthiness, expertise and homophily), e-retailer's recommendation, popularity	Helpfulness	Purchase intentions	Perceived expertise affects purchase intention. This relationship is partially mediated by the helpfulness. The homophily does not affect the helpfulness.
Craciun and Moore, 2019	Anger (use of emoticons, exclamation marks and emotional words), gender	Reviewer reputation	Reviewer credibility, review helpfulness	Anger content has a negative effect on reviewer credibility and review helpfulness. Moderating effect of reviewer gender and reputation on the credibility and helpfulness of emotional n-eWOM.
Filieri et al. (2019)	Extremely negative rating	Reviewer identity disclosure and expertise; review readability and review length	Review helpfulness	Extremely negative reviews have a positive effect on review helpfulness. This effect is stronger when the reviewer discloses his identity, is an expert; and the review is readable and long.
Ismagilova et al. (2020)	Discrete emotions (regret and frustration)	Price fairness expressed in online review, reviewer rationality	Review helpfulness	Regret and frustration positively and negatively influence perceptions of price fairness, respectively. Regret in an online review is more helpful than frustration. The relationship between emotions and helpfulness is mediated by price fairness and reviewer rationality in product reviews but not in service reviews.
Yeh et al. (2020)	Negative emotion	Desire for revenge, desire for recovery	n-eWOM	Negative emotion positively affects desire for revenge, desire for recovery and n-eWOM. Desire for revenge mediates the relationship between negative emotion and n-eWOM.
Filieri et al. (2021a)	Extremely negative rating	Review volume, hotel rating, hotel category, hotel chain, certificate of excellence	Review helpfulness	Extremely negative reviews are more helpful for higher category hotels with high hotel rating and awarded with a certificate of excellence.
Filieri et al. (2021b)	Study 1: Review valence. Study 2: negative environmentally framed review of environmental impact products	Study 1: Product type (environmental impact). Study 2: moral norms towards the environment	Review usefulness, product attitude and purchase intention	Product type only moderates the effect of review valence on review usefulness and purchase intention in positive reviews. Moral norms moderates the effect of negative reviews on review usefulness, product attitude and purchase intentions when moral norms are high.
Sameeni et al. (2022)	Brand betrayal	Post-purchase regret, mode of discovering betrayal, type of product (utilitarian vs hedonic)	Brand avoidance, vindictive n-eWOM, vindictive complaining	Brand betrayal positively impacts post-purchase regret for both utilitarian and hedonic products. Post-purchase regret affect brand avoidance, vindictive n-eWOM and vindictive complaining.
This study	Study 1: Impulse buying Study 2: Review content	Study 1: Process regret and outcome regret Study 2: Review persuasiveness, credibility, usefulness, guilt (internal vs. external)	Study 1: Negative online review creation Study 2: Intention to follow the advice	Different types of regret affect differently the creation of negative online reviews. Outcome regret generates intention to create negative online reviews. Reviews that show outcome regret affect readers to a greater extent (compared to reviews that show process regret). The effect of the type of regret on review persuasiveness is higher when the guilt is external (vs. internal).

business performance (Wakefield and Wakefield, 2018). This study provides insights for the adoption of proactive and reactive actions to manage online review communication by companies effectively. Actions to reduce consumer regret are identified, which has a twofold advantage. On the one hand, consumer well-being is improved, and on the other hand, negative comments against the product are reduced. However, these comments impact readers differently, so the urgency with which managers should handle them differs. This aspect will allow better management of negative online reviews, reducing the influence of these comments. Moreover, according to the results obtained, if the sellers are convinced that the product is good, they can carry out actions to encourage impulse buying without a significant risk of generating negative online reviews.

2. Theoretical background

2.1. Consumer regret

When individuals perceive their decision is unreasonable or inexplicable, they tend to feel responsible for making the poor decision (Van Dijk et al., 1999). Regret arises from individuals' cognitive efforts to consider the chosen option against the rejected options (Inman et al., 1997). Decision Justification Theory proposes that individuals can regret due to a) evaluation of the process and b) evaluation of the outcomes (Connolly and Zeelenberg, 2002). The quality of the decision process can engender regret. Individuals assess the quality of their decision process by examining the amount of information they gather (Janis and Mann, 1977). In the process regret, two aspects have been considered (Lee and Cotte, 2009). On the one hand, regret due to under-consideration occurs when consumers are sceptical about the heuristic processing that induced them to purchase, regardless of the purchase outcome. There are two ways in which individuals can regret due to under-consideration. First, individuals can regret if they feel they have failed to implement the decision process as they intended, resulting in an inconsistency between intention and behaviour (Zeelenberg and Pieters, 2007). Second, individuals can feel regret if they believe, in hindsight, that they lack the desired quality and/or quantity of information needed to make a good decision. On the other hand, when individuals regret over-consideration, regardless of the outcome, they regret that they have put too much time and effort into the buying process. In this paper, as we examine impulse purchases in which the consumer makes a decision quickly, without much thought or time, we focus on regret due to under-consideration when analysing process regret.

Concerning the outcome regret, it is feeling sorry for misfortunes, limitations, losses, shortcomings, or mistakes that involve a more or less painful judgment (Landman, 1993). In the same way, other authors later extended the definition by considering it as a negative, cognitively determined emotion that the individual experiences when realising or imagining that the present situation would have been better if he or she had acted differently (Zeelenberg and Pieters, 2007). Thus, in e-commerce, outcome regret may arise when the buyer believes (s)he has made the wrong decision, even if the decision appeared correct at the time it was made. In this research, outcome regret is conceptualised in line with Landman (1993), considering it as the feeling that is generated in the consumer when (s)he subsequently compares the outcome of his/her purchase and realises that the choice of an alternative could have had a better outcome than the one chosen.

2.2. Online reviews

The emergence of online platforms such as forums or websites made it possible for consumers to post comments online. This is how the eWOM emerged, which is conceptualised as "a positive or negative statement made by potential, current or former customers about a product or company, which is made available to a multitude of

individuals and institutions via the Internet" (Hennig-Thurau et al., 2004, p. 39).

A widespread type of eWOM in e-commerce shops is online reviews. These reviews have valence and can be positive or negative. Studies on positive reviews provide conflicting results. Some studies show that positive reviews affect consumer decision-making (Vermeulen and Seegers, 2009); however, other researchers conclude that positive reviews have little effect on strong brands (Ho-Dac et al., 2013). In this sense, it should be noted that people give more weight to negative evaluations than to positive ones (Casaló et al., 2015a). This is in line with prospect theory, as consumers are more willing to avoid losses than to make profits. However, other studies have also considered other theories to understand the reasons for writing negative comments. For example, social sharing of emotion theory and cognitive dissonance have been considered, as people seek to share their negative emotions and avoid psychological discomfort (Kim et al., 2016). Thus, negative online reviews have a great influence on senders, being able to change to a great extent the attitudes and behaviour of the message's receivers too. In addition, negative reviews often remain on sites for long periods, resulting in a lasting impact on the reputation of businesses (Hennig-Thurau et al., 2004).

The impact of perceived consumer value on positive and negative online reviews has been examined. Functional and altruistic value has been found to directly affect the creation of online reviews, while social value had no significant effect (Previte et al., 2019). Psychological concepts related to the proximity between the sender and receiver of the message have also been widely addressed. The more similarities there are between them, the greater the impact of the message. In this sense, perceived homophily has been analysed (Zhang et al., 2020). Despite this research, there is still limited knowledge about some psychological mechanisms that explain the online reviews performance (Park and Jeon, 2018).

3. Study 1

This study aims to explain which type of regret leads to the generation of negative online reviews. These types of reviews can be highly damaging. By understanding the factors that motivate the writing of negative reviews, managers will know what aspects they need to consider during the purchasing process to mitigate the generation of negative reviews.

3.1. Hypothesis development

Impulse buying was first described by Clover (1950). In this research we define the concept as the spontaneous (unplanned) and sudden purchase of a product that the buyer did not intend to buy; this is in line with Rook (1987) who conceptualised impulse buying as a process-outcome mechanism that occurs when a consumer experiences a sudden, often persistent, urge to buy something immediately. Impulse buying tends to occur without regard to the consequences that may be triggered, as it is more emotional than rational.

This irrationality in purchase behaviour may result in the emergence of regret in this type of purchase. On the one hand, as impulse buying is quick, spontaneous and unplanned, the consumer may regret how he/she made the purchase. To be more specific, the consumer may feel regret with the purchase process due to under-consideration. That is, the consumer may regret not having spent enough time searching for the information necessary for the purchase. Thus:

H1a. Impulse buying has a positive effect on process regret.

On the other hand, it should be highlighted that impulse buying is done without considering the consequences of the purchase. For this reason, these purchases may cause regret, anger or guilt (Wood, 1998). Impulse buying can enhance the consumer's mood at the time of purchase, as decisions are made according to how the consumer feels, acting

primarily on hedonic motivations. However, after the purchase it leads to regret, as the consumer realises that he/she did not really need the product or that it does not fit perfectly with what he/she needed. Thus:

H1b. Impulse buying has a positive effect on outcome regret.

Quick decision-making means that the consumer is not sufficiently well informed when making the purchase decision. In addition, the positive emotions associated with impulse buying also contribute to high expectations of the purchase that has just been made (Flavián-Blanco et al., 2011). This lack of knowledge about the product and the creation of too high expectations can result in regret. Thus:

H2. Process regret has a positive effect on outcome regret.

When individuals are aware that they have made mistakes in their actions, they experience negative feelings such as regret. However, at the same time, they also seek to reduce this regret to feel better about themselves (Zeelenberg and Pieters, 2007). To do so, consumers may change their beliefs, but they can also take actions to overcome the regrets they experience. In this sense, consumers can make negative comments about the product. This would allow them to find support from other people and release the possible anger they may experience. In addition, they can also take these actions with the aim of helping other future buyers, which will improve their mood. For these reasons, we propose that:

H3a. Process regret has a positive effect on negative online review creation.

If a consumer is disappointed with the product's performance, they are likely to evaluate the product negatively (Nam et al., 2020). The perception that he/she has been cheated will lead to a willingness to share his/her perceptions with others and to share his/her experience with the product by evaluating it negatively.

When individuals experience two conflicting ideas, they tend to use strategies to reduce this incongruence (Festinger, 1957). One of the best ways to reduce incongruence is to share the conflicting experience with others. Through messages that contradict the individual's initial thoughts about the product, the individual can alleviate the feeling of inconsistency. Moreover, the message's recipients can help reduce dissonance by supporting the individual, reducing the relevance of the purchase, and showing comprehension.

H3b. Outcome regret has a positive effect on negative online review creation.

Consequently, the research model proposed is shown in Fig. 1.

3.2. Methodology

3.2.1. Data collection

The data used to carry out the research was collected from real user shopping experiences on Amazon. The participants were selected

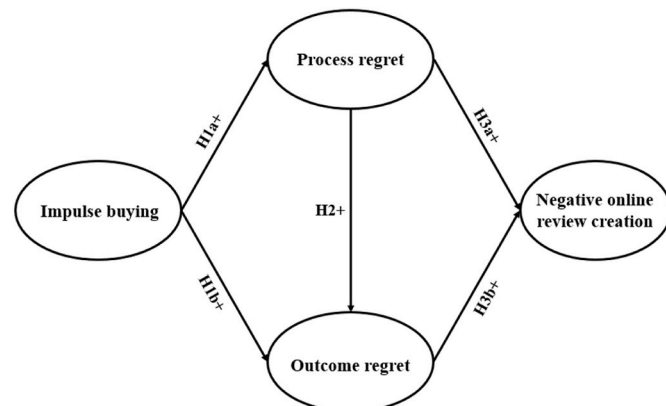


Fig. 1. Conceptual model.

through a market research company. To participate in the survey, they were required to have made a recent purchase on Amazon that they regretted. First, they filled out a questionnaire collecting information about the degree of impulse buying, process regret and outcome regret, and if they intended to do negative online reviews. The sample was composed of North American participants with a wide experience buying on Amazon (male = 44.83%). Concerning age, participants between 18 and 24 years old were 12.56%, between 25 and 34 (22.42%), 35–44 years old (30.94%), 45–54 years old (18.83%) and 55 years and over (15.25%). The sample is representative in terms of age and gender composition of the North American society that tends to use e-commerce (Finances Online., 2020). 231 questionnaires were collected. However, 8 participants did not fully complete the questionnaire. Therefore, 223 valid questionnaires were collected.

3.2.2. Measures

To ensure content validity, scales that had been validated in the prior literature were used and adapted to the context and formulated as 7-point Likert scales. Impulse buying was adapted from Rook (1987), process regret (Lee and Cotte, 2009), outcome regret (Bonifield and Cole, 2007), and negative online review creation (Grégoire et al., 2010). Appendix A shows the means, variables and standard deviations of the variables.

The scales were validated in two steps through confirmatory factor analysis (Fornell and Larcker, 1981). The confirmatory factor analysis corroborates the initial factor structure; all item loadings were above the recommended benchmark of 0.7 (Henseler et al., 2009), except one of the process regret scale, which was eliminated. Furthermore, composite reliabilities were higher than 0.65 (Bagozzi and Yi, 1988) and average variance extracted (AVE) values were also above the benchmark of 0.5 (Fornell and Larcker, 1981). Finally, discriminant validity was assessed by HTMT ratios, verifying that all values were lower than 0.90 (Henseler et al., 2015). Table 2 shows these values. Finally, we obtained good levels of model fit ($\chi^2 = 175.761$, 84 df, $p < 0.001$; NFI = 0.941; NNFI = 0.965; CFI = 0.972; and RMSEA = 0.062).

3.3. Common method variance bias test (CMB)

Because the data were collected using a single survey, the possible common bias method was considered. First, we followed procedural recommendations to minimise this concern through study design (Podsakoff et al., 2003). We ensured the confidentiality of participants, provided clear instructions and the items were carefully constructed to avoid ambiguity.

We also assessed possible common method variance statistically. To address this issue, Harman's single-factor test for the proposed model was conducted (Podsakoff and Organ, 1986). This test detects a common-method problem when a single unrotated factor solution from the exploratory factor analysis accounts for most of the covariance among the measures. The results showed that the first factor accounted for less than 50% of the variation in the data (34.18%). This indicates that the common-method variance does not pose a major threat in this study.

Table 2
Composite reliability, average variance extracted and discriminant validity.

VARIABLE	α	CR	AVE	HTMT VALUES		
				(1)	(2)	(3)
(1) IMPBUY	0.920	0.943	0.804			
(2) PROREG	0.944	0.964	0.861	0.359		
(3) OUTREG	0.876	0.915	0.730	0.109	0.384	
(4) NREVCRE	0.962	0.975	0.929	0.180	0.220	0.489

Notes: IMPBUY = Impulse buying; PROREG = Process regret; OUTREG = Outcome regret; NREVCRE = Negative online review creation. α = Cronbach's α ; CR = Composite reliability; AVE = Average variance extracted.

3.4. Measurement model

The relationships were tested with Structural Equation Modeling (SEM) using the EQS. Impulse buying has a positive effect on process regret ($\beta = 0.320$; $t = 4.481$; $p < 0.01$) but not on outcome regret ($\beta = -0.042$; $t = 0.536$; $p > 0.05$). In addition, process regret influences outcome regret ($\beta = 0.424$; $t = 5.379$; $p < 0.01$). However, process regret does not affect the negative online review creation ($\beta = 0.042$; $t = 0.611$; $p > 0.05$). On the other hand, outcome regret has a positive effect on negative online review creation ($\beta = 0.465$; $t = 6.059$; $p < 0.01$). These relationships partially explain the endogenous variables used in the model: process regret ($R^2 = 0.103$), outcome regret ($R^2 = 0.170$), and negative online review creation ($R^2 = 0.235$). The structural model shows good fit indexes ($\chi^2 = 192.153$, 84 df, BBNFI = 0.937; BRFI = 0.959; CFI = 0.967; RMSEA = 0.067). Fig. 2 shows these results.

4. Study 2

This study aims to understand the impact of the generation of reviews that convey regret to readers. As regret usually arises after an undesirable outcome, the study also analyses how the impact on the reader differs according to whether the guilt is attributed to the buyer himself or the seller.

4.1. Hypotheses development

Process regret and outcome regret can lead to doing negative online reviews (this study). Emotions can arouse feelings or moods in others, affecting how others process information (Liu et al., 2020). Similarly, the content of online reviews can affect the perceptions of information generated by the reader (Wang et al., 2021). Conveyed emotions such as anger have been shown to affect perceived helpfulness (Ismagilova et al., 2020). Therefore, conveying different types of regret may affect the reader's evaluation of the information received and its consequences.

Regarding perceptions of the information received, aspects such as persuasiveness, credibility or usefulness are important variables for the acceptance of such information (Teng et al., 2014). Information persuasiveness represents the general perceptions regarding the strength of persuasiveness embedded in an online review. The persuasiveness degree depends on the argument's valence and strength (Zhang et al., 2014). Perceived usefulness reflects the thought that the information received will help or enhance the performance of the decision (Casaló et al., 2015b). So, the review's usefulness is one of the key aspects when evaluating online reviews (Akdin, 2021). Review credibility is the extent to which the reader perceives other consumers' recommendations or reviews as believable, true, or factual (Levy and Gvili, 2015). Online reviews characteristics, information source and information receiver have been identified as the three main antecedents of review usefulness

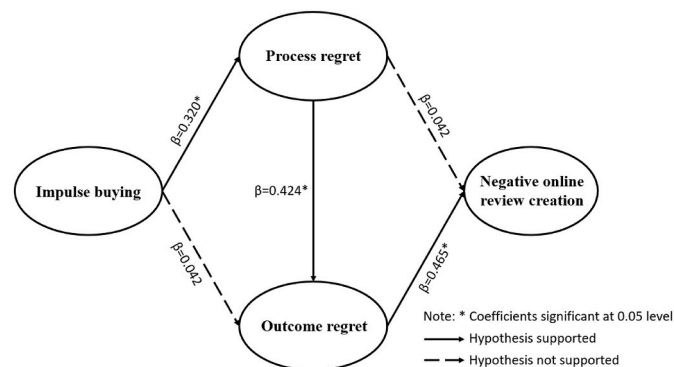


Fig. 2. Structural model results.

(Ismagilova et al., 2020; Miranda et al., 2021). So, in this study, we focus on the impact of aspects related to online review characteristics on usefulness (type of review content, persuasiveness and review credibility).

When potential buyers read reviews, they mainly want to know about product-related factors. In a product context, product attributes are more valued than any other information related to the usage situation (Amed et al., 2019). For this reason, information that deals with aspects related to product performance will be perceived as more persuasive, as it conveys more relevant information to the reader. In the same way, that information about product performance is more persuasive, and it may also be perceived as more useful. Given the limitations of e-commerce, consumers are interested in knowing aspects which are only possible to verify by testing the product. Information about the purchase process and which aspects of assessing depend on the intended use can be helpful. However, such information can also be obtained from other sources (e.g., forums and technical experts; Tsao and Hsieh, 2015). The information about the product's performance is more difficult to obtain and of enormous value to potential future buyers as it considerably reduces uncertainty and perceived risk about the purchase decision (Racherla and Friske, 2012). Moreover, unanalytical evaluations that do not talk about specific aspects of the product may be perceived as not credible, made by people who have not bought the product. Reviews that talk about concrete aspects of the product and are verifiable only through its use will be able to convey high credibility because objective information conveys more credibility than subjective information (Willemsen et al., 2011; Filieri, 2016).

H1a. An outcome review will generate a higher perceived persuasiveness in comparison with a process review.

H1b. An outcome review will generate higher perceived usefulness in comparison with a process review.

H1c. An outcome review will generate higher perceived credibility in comparison with a process review.

The perceived persuasiveness affects the reader's evaluation of that information (Wu, 2013). If a piece of information is perceived to be argumentative and deals with topics of interest to the reader, it will be useful information. When the information is persuasive includes details about aspects of the product or how it works (Hong et al., 2020). All these aspects can make this information more useful for the potential buyer.

H2. Perceived persuasiveness has a positive effect on perceived usefulness.

The information has to be considered credible for it to be useful (Filieri, 2015). Non-credible information provides the reader with little information. As a result, the reader disregards the arguments presented in the review as untruthful information (Filieri et al., 2018). On the other hand, credible information is more likely to be useful to the reader (Craciun and Moore, 2019). The information covered may be relevant, but at least it is credible information that the reader will consider when making the decision.

H3. Perceived credibility has a positive effect on perceived usefulness.

eWOM adoption has been conceptualised as a process in which consumers purposefully consider comments and opinions in their decision-making. So, the intention to follow the advice is closely related to the eWOM adoption (Ruiz-Mafe et al., 2020). After reading an online review, readers may choose to integrate the information into their decision-making process and buy or not buy a particular product. Accordingly, in this research, the intention to follow the advice is the extent to which the reader considers the review information in their decision-making. Intention to follow the advice is a key aspect of consumer behaviour because it sends a solid signal of how the consumer will behave in the future (Casaló et al., 2010).

Good argumentative quality creates a good impression on the reader.

This impression makes the message perceived as important and persuasive (Feng and Burlleson, 2008). High persuasive messages convey convincing and important arguments. Individuals form their behavioural intentions according to the expected productivity associated with that behaviour (Davis et al., 1989). When information is useful, it occurs because it conveys ideas, aspects, or advice that are relevant to a person and were unknown to him/her. Despite being previously unknown, this information is highly relevant and highly regarded in decision-making, as it is also considered useful information. More useful information is expected to help consumers make better choices. Assessments with higher credibility are often more persuasive than those with low or no credibility (Cheung et al., 2009). Non-credible information is not considered in decision-making. This information is useless because it lacks credibility and does not imply changes in the reader’s behaviour. However, credible information is considered. Credible reviews convey trust and confidence, which can lead to a high intention to follow the advice given. As these are convincing arguments, this information can influence the reader’s behaviour.

H4a. Perceived persuasiveness has a positive effect on the intention to follow the advice.

H4b. Perceived usefulness has a positive effect on the intention to follow the advice.

H4c. Perceived credibility has a positive effect on the intention to follow the advice.

Reviewers may feel satisfaction, stress, regret or guilt (Bradley et al., 2015). Previous recent research has examined how feelings of guilt may appear as a function of the purchase channel (Saintives, 2020). In work on online reviews, two types of guilt (internal or external) may play a role in perceptions of information received that conveys regret has not been examined (Kim et al., 2006). In this paper, a review that conveys internal guilt is understood as information showing that regret is a consequence of the buyer’s mistake. On the other hand, a review with external guilt is considered information that shows that the regret is the consequence of an action taken by the seller. Based on these conceptualisations, reviews that show the existence of internal guilt in the generated regret will have a greater effect on evaluating the information. When a review conveys regret, if it is also the buyer’s guilt, it can provide information with better arguments for future buyers. As the potential buyer may have the same mistake that the writer of the review has already made, this information will have a greater effect on him or her. Also, for the same reason, this internal guilt can have a greater effect on the usefulness of the information. The consumers receive information about an event that may also happen to them directly, without being dependent on other factors, such as the seller. Knowledge of mistakes of previous buyers with regrets makes this information even more useful than reviews that convey regrets but where the fault has not been the buyer’s own. Finally, reviews that convey regret and show that the

buyer was responsible may convey greater credibility. Sometimes, negative reviews can be written with the aim of damaging companies (Wu et al., 2020). Such reviews usually seek to reflect that the fault lies with the seller due to malpractice or misbehaviour. Therefore, it is proposed that a review with regret may be perceived as more credible when the fault lies with the buyer, compared to one that attributes blame to the seller. Fig. 3 shows the research model.

H5a. The effect of the type of regret on perceived persuasiveness will be higher when the guilt is internal, compared to when the guilt is external.

H5b. The effect of the type of regret on perceived usefulness will be higher when the guilt is internal, compared to when the guilt is external.

H5c. The effect of the type of regret on perceived credibility will be higher when the guilt is internal, compared to when the guilt is external.

4.2. Data collection

The data used to carry out the research was collected from an online experiment. The participants were recruited through a market research company and randomly assigned to 4 different conditions. These conditions differed in the review that was shown. It was possible to show a review that expressed regret about the product’s performance or a review that expressed regret about the purchase process. Within each type, they could also be assigned a review in which the source of the cause of regret was either external (the seller) or internal (the buyer). The reviews are shown in Appendix B. First, they were asked to imagine a purchase situation in which they thought of buying a Hoover because their previous one had failed. Later, they were shown the product and a review based on the scenario they were assigned. The sample was gender-balanced and was composed of North American participants who usually read online reviews when making a major purchase (female = 51.60%). 182 questionnaires were collected. After eliminating those participants who failed the attention check questions introduced, the sample was 177 participants (86 process review and 91 outcome review). In all the process reviews, in 42 was the external guilt and in 44 was the internal guilt. Within the outcome reviews, 39 was the external guilt and in 52 was the internal guilt. Thus, the sample exceeds the required sample for this type of experiment (Viglia and Dolnicar, 2020).

4.3. Measures

Scales that had been validated in the prior literature were used and adapted to the context and formulated as 7-point Likert scales. The source of these scales is shown in Appendix C. The scales were validated with the same process as study 1. Table 3 shows these values. Once these checks had been made, the mean value of the items for each variable was calculated to obtain the measures used to test the hypotheses.

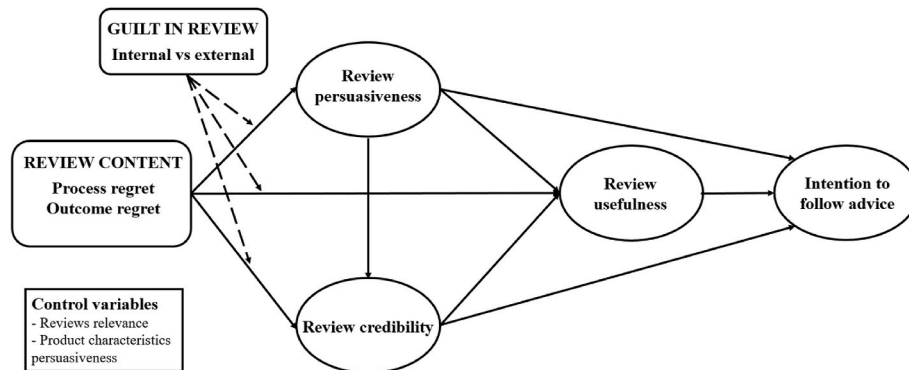


Fig. 3. Research model proposed.

Notes: Continuous lines: direct effects; Dotted lines: moderator effects.

Table 3
Composite reliability, average variance extracted and discriminant validity.

VARIABLE	α	CR	AVE	HTMT VALUES				
				(1)	(2)	(3)	(4)	(5)
(1) PERSUA	0.965	0.974	0.904					
(2) USEFUL	0.981	0.987	0.963	0.833				
(3) CREDIBILITY	0.942	0.956	0.815	0.715	0.786			
(4) ADVICE	0.920	0.961	0.926	0.763	0.883	0.788		
(5) REVREL	0.833	0.923	0.857	0.122	0.120	0.181	0.156	
(6) PRODREL	0.959	0.980	0.960	0.099	0.038	0.136	0.040	0.824

Notes: PERSUA = Review persuasiveness; USEFUL = Review usefulness; CREDIBILITY = Review credibility; ADVICE = Intention to follow the advice; REVREL = Reviews relevance; PRODREL = Product characteristics relevance.

α = Cronbach's alpha; CR = Composite reliability; AVE = Average variance extracted.

4.4. Analysis and results

Manipulation checks were conducted to verify that the participants properly perceived the scenario design. Questions were asked on a Likert scale from 1 to 7 points. Firstly, it was asked if this review shows a negative evaluation caused by the way in which the consumer made the purchase or the product performance, positioning each response option at one extreme (Process: M = 2.29, SD = 1.82; Outcome: M = 5.19, SD = 2.28; t-value = 9.364; p < 0.001). Similarly, the question was then asked about the guilt in the review, placing either the consumer or the seller at each extreme (Internal: M = 2.72, SD = 2.11; External: M = 5.22, SD = 2.28; t-value = 7.595; p < 0.001).

To test the hypotheses, a customised model with the Process macro was created. The relevance of reviews and product characteristics were

included as covariates. The results are shown in Table 4. Supporting the hypotheses, the review showing regret about product performance shows significantly higher persuasiveness and usefulness (H1a and H1c supported, respectively), but there is no impact on credibility (H1b not supported). Furthermore, these results reflect that the review persuasiveness affects the review usefulness (H2supported), and the review credibility positively affects its usefulness (H3 supported). Finally, the review persuasiveness has no effect on the intention to follow the advice (H4a not supported). However, review usefulness and review credibility affect the intention to follow the advice (H4b and H4c supported respectively).

Then, the interactions term was included to analyse the moderating effects proposed. It is observed that the effect of regret on review persuasiveness is higher when the guilt is internal, compared to when

Table 4
Results of the analysis of the mediation on intention to follow the advice.

DV: Review persuasiveness	D only				D + I			
	b	95% CI		p	b	95% CI		p
Constant	-1.277	-2.789	0.234	0.097	-0.329	-2.921	2.263	0.803
X1 (Process vs. outcome)	2.630	2.179	3.081	<0.001	1.340	0.021	2.659	0.047
X2 (Internal vs. external)					-0.349	-1.699	1.001	0.611
Interaction (review content x guilt)					0.921	0.065	1.777	0.035
Reviews relevance	-0.087	-0.408	0.235	0.596	-0.071	-0.371	0.229	0.639
Product characteristics relevance	0.232	-0.048	0.513	0.104	0.135	-0.130	0.400	0.317
Adj. R ²	0.439				0.517			
DV: Review credibility	b	95% CI		p	b	95% CI		p
Constant	0.671	-0.476	1.818	0.250	0.689	-1.407	2.785	0.517
X1 (Process vs. outcome)	0.834	0.383	1.285	<0.001	0.926	-0.153	2.004	0.092
X2 (Internal vs. external)					-0.038	-1.130	1.054	0.946
Interaction (review content x guilt)					-0.121	-0.822	0.580	0.734
Review persuasiveness	0.405	0.292	0.519	<0.001	0.433	0.311	0.555	<0.001
Reviews relevance	0.094	-0.149	0.336	0.446	0.093	-0.150	0.335	0.452
Product characteristics relevance	0.070	-0.143	0.283	0.517	0.081	-0.133	0.296	0.456
Adj. R ²	0.513				0.518			
DV: Review usefulness	b	95% CI		p	b	95% CI		p
Constant	-1.802	-2.793	-0.811	<0.001	-1.529	-3.342	0.283	0.098
X1 (Process vs. outcome)	1.609	1.206	2.012	<0.001	1.441	0.502	2.381	0.003
X2 (Internal vs. external)					-0.166	-1.110	0.777	0.728
Interaction (review content x guilt)					0.124	-0.482	0.730	0.687
Review persuasiveness	-0.404	0.294	0.515	<0.001	0.399	0.279	0.518	<0.001
Review credibility	0.401	0.272	0.531	<0.001	0.403	0.272	0.533	<0.001
Reviews relevance	0.108	-0.100	0.317	0.307	0.108	-0.102	0.318	0.313
Product characteristics relevance	-0.111	-0.294	0.073	0.236	-0.115	-0.301	0.071	0.222
Adj. R ²	0.808				0.809			
DV: Intention to follow the advice	b	95% CI		p	b	95% CI		p
Constant	0.072		-0.917		1.061		0.886	
Review persuasiveness	0.104		-0.031		0.238		0.130	
Review credibility	0.286		0.134		0.439		<0.001	
Review usefulness	0.522		0.384		0.660		<0.001	
Reviews relevance	0.199		-0.024		0.423		0.080	
Product characteristics relevance	-0.168		-0.363		0.028		0.092	
Adj. R ²	0.737							

Note: n = 177. Confidence interval calculated at 95% of significance; LLCI: lower limit confidence interval; ULCI: upper limit confidence interval.

the guilt is external (H5a supported). However, there are no significant differences in credibility and usefulness according to whether the guilt is internal or attributed to the seller (H5b and H5c not supported). When the review shows process regret, the mean value of persuasiveness is 1.97 and 2.55 for the review which shows external and internal guilt, respectively. In the case of the reviews that show outcome regret, the mean value of persuasiveness is 4.23 and 5.73 for the review which shows external and internal guilt respectively. Fig. 4 shows the interaction effect of guilt on the relationship between the type of regret in the review and the review persuasiveness.

Regarding the control variables, they do not affect perceptions of information (review persuasiveness, review usefulness and review credibility), but they influence the individual's behavioural intentions in a marginal way. The reviews relevance leads to a higher intention to follow the advice ($\beta = 0.199$; $p < 0.10$), and the relevance of the product characteristics leads to a lower intention to follow the advice shown in the review ($\beta = -0.168$; $p < 0.10$).

5. Discussion and conclusion

Impulse buying may be a strategy whereby companies may increase their level of sales, while it can also harm them by generating consumer regret. When consumers experience regret, they may take actions to reduce this feeling, such as the generation of negative online reviews. Regret with the outcome was found to be key in the generation of these reviews. In addition, from the reader's perspective, it has been found that reviews that convey a feeling of outcome regret are the most influential and have the greatest impact on behaviour. The analysis of regret from a dual perspective extends the existing knowledge of the consequences of reviews that convey emotions, more concretely regret, for both companies and the reader (Yin et al., 2014; Craciun and Moore, 2019; Ismagilova et al., 2020).

Online buyers are increasingly influenced by product reviews when purchasing (Filiari, 2015; Akdim, 2021). In addition to the lower sales this can induce, it also causes other problems related to the company's image. Negative online reviews can generate, among other things, lower loyalty and a poorer reputation. To deal with this problem, it is noted that consumer regret plays a significant role. However, outcome regret does not have the same effect as process regret. Both studies carried out show the significant importance of outcome regret. Outcome regret is the cause of harmful consumer behaviour towards the company. However, process regret is necessary to generate a greater willingness to write a negative review through outcome regret. Thus, if the outcome of the product is not good, the consumer is likely to write a negative review.

Concerning the relationships not supported in this study, it is found that impulse buying does not directly affect outcome regret. This may be because making an impulse purchase does not necessarily mean that the consumer was wrong in his or her decision. While it is true that previous

studies support this hypothesis (Parsad et al., 2019), it may be that outcome regret reflects the effect of other variables, like other types of regret that may arise during online shopping. Specifically, the consumers feel regret because they need to spend more time evaluating the available alternatives and know if that product is the one they need. In this sense, process regret does not induce negative consumer behaviour. The consumer may be aware that the purchase process was inappropriate, but these behaviours arise because of the product's performance. If the product's performance satisfies the consumer, the consumer will not complain.

From the reader's perspective, when consumers write negative online reviews and they show outcome regret, the information is perceived as more reliable and more useful, but not more persuasive. The review's usefulness is the central aspect that affects the reader's behaviour (Ismagilova et al., 2021). In this usefulness, reviews that deal with information about product-related aspects have a significant effect. This highlights the need to differentiate between different types of negative reviews to manage them properly (Donthu et al., 2021). Furthermore, analysing the attribution of guilt for the error in the review sheds light on a possible conflict between when it affects the reader the most. When readers see that the guilt is internal, they might not be so persuaded because they might think that it is something that happened to them and that it will not happen to me. Instead, when the guilt is external, being a fact the reader of the review cannot control that, it would have a greater effect on the persuasion and usefulness of the information. It is found that this is not the case; when the guilt is internal, it can persuade more, compared to when the guilt is external. This may be because it alerts the reader to avoid making the same mistake that a consumer has made before.

5.1. Theoretical contributions

The research presents several theoretical contributions. Firstly, it sheds light on the path that guides the consumer to do negative online reviews. Previous studies have analysed different antecedents that lead to eWOM generation (Liu et al., 2021; Yan et al., 2022). However, the first study of this paper contributes to the understanding of this aspect by explaining from the perspective of regret, and making a distinction between process and outcome regret. The real driver of all subsequent behaviours is regret with the consumer's purchase process. However, it is necessary that regret with the product's performance exists for complaint behaviours to occur. Therefore, at a theoretical level, process regret greatly impacts the generation of outcome regret (Zeelenberg and Pieters, 2007). Post-purchase regret has been observed to affect brand avoidance, vindictive n-eWOM and vindictive complaining (Sameeni et al., 2022). In this research, different types of regret are analysed, shedding light on which type of regret most affects both the generation of negative online reviews and readers. Reviews that convey outcome regret have a stronger influence on persuasiveness and usefulness than reviews that show process regret. Thus, it contributes to showing the different impacts that emotions (in this case regret) can have.

Second, the interaction effect that guilt may have on the relationships between reviews that show regret and the evaluation of review aspects is analysed (persuasiveness, credibility and usefulness). This allows concluding that guilt has a moderating effect on the relationship between the type of regret and the review persuasiveness, contributing to this field of research (Donthu et al., 2021; Ismagilova et al., 2021). Specifically, it is observed that when the review conveys regret with the outcome, if the guilt is also the buyer's responsibility, the effect on review persuasiveness is greater compared to when the guilt is the seller's responsibility. In this sense, it is also noted that the guilt of who originates the regret is important. If the consumers write negative reviews in which they are guilty, such reviews could be positive for the company if they are properly managed. These reviews would alert future buyers to the right way to purchase. Furthermore, they have high persuasiveness that through the higher credibility and usefulness it generates leads to a

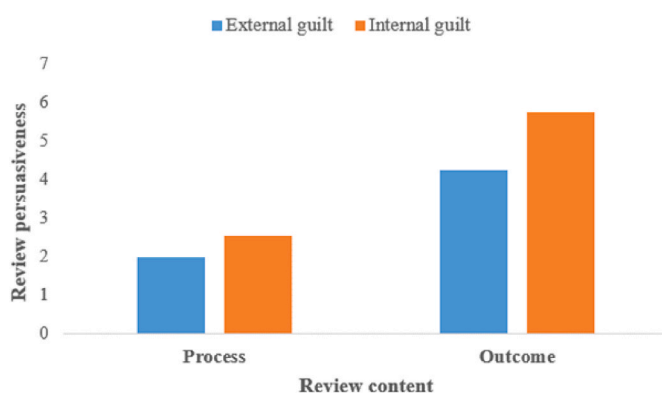


Fig. 4. Interaction effect review content x guilt on review persuasiveness.

higher intention to follow the advice. Therefore, even if the origin of the error does not belong to the company, these reviews should be addressed by eWOM managers to help future buyers and generate greater confidence and desire to purchase the product.

Thirdly, from a reader's perspective, it contributes to understanding how emotions affect the persuasiveness, credibility and usefulness of the review content. Negative emotions could affect credibility and usefulness depending on the reviewer's gender (Craciun and Moore, 2019). Focusing on a negative emotion, such as regret, the second study in this paper shows how outcome regret affects the reader to a greater extent than process regret. Furthermore, in the same way that it has been explored how reviews that show negative emotions (e.g., anxiety or anger) affect review helpfulness (Yin et al., 2014; Yan et al., 2022), this research shows how reviews that show other negative emotions such as regret can be helpful as well. Although the type of regret does not directly affect the review's credibility, it does through the greater persuasiveness that outcome reviews generate, resulting in higher review usefulness.

Finally, concerning impulse buying, contributions are made to improve consumer well-being when impulse buying occurs. It has been observed that regret with the outcome is the most important aspect affecting subsequent behaviour. To reduce the possibility of the emergence of this regret, actions can be taken to improve satisfaction with the purchase process carried out or to encourage impulse purchases only for those products in which there is a guarantee that the consumer will be satisfied.

5.2. Managerial contributions

The results highlight valuable business implications for business managers, especially those responsible for eWOM management, concretely online reviews. Impulse buying should be dealt with in a comprehensive perspective. It may improve the consumer's mood. In fact, impulse buying increases due to the entertainment provided by searching online for products or the mood enhancement caused by buying something according to how the consumer felt at that moment (Statista, 2022). However, it is also worth noting that impulse purchases could positively affect regret.

Offering a pleasant and comfortable shopping process can be very helpful in reducing process regret. In this sense, enhancing the web content by encouraging interactivity could improve the purchase process evaluation. For this purpose, using 3D pictures or implementing augmented reality on the web would be useful because it helps reinforce the purchase decision (Hilken et al., 2018; Barta et al., 2023). These aspects would reduce the regret consumers feel about the method they use to purchase. In addition, when a consumer completes purchases where little time has been spent on searching and product information, messages could be introduced to help the consumer make that decision more slowly. Investing more cognitive effort helps to justify failures and reduce post-purchase regret (Park and Hill, 2018).

Furthermore, creating false expectations about the product could increase sales in a short time. However, there would not be a great business profit because apart from the damage received by the proliferation of complaints about the product, many returns would be requested for that product (Wilkins et al., 2016). Therefore, the company should assume monetary and non-monetary costs. In the same way that attempts to create flow consciousness could reduce consumer regret, companies could consider other aspects to avoid this emotion (Barta et al., 2022). If the seller is convinced that the product is good, impulse buying may be encouraged. Nevertheless, if the product is not considered good, the fact that there has been an impulse buy will make the buyer assign responsibility to the seller. The consumers think the

seller has forced them to make a quick decision. In addition to the consumers' discomfort at the bad experience the product has generated, there will be an additional effect of anger at the fact that the consumer thinks the seller forced them to make a premeditated decision.

Apart from trying to manage consumer regret properly to improve their mood and individual well-being, it is also necessary to consider the type of negative online reviews that are generated. Online reviews that deal with product performance should be handled more quickly than any other. Within this type, it should be highlighted that those reviews in which the guilt does not affect the company are those to which special attention should be paid. These comments significantly affect the reader's perceptions, influencing future behaviour. As negative comments, these reviews could be very damaging to the company by reducing the desire to purchase the product.

6. Limitations and future research

This work has several limitations that are interesting for future research lines. The impact of consumer regret on the generation of online reviews has been examined. The study of this influence could be further explored in future research considering the characteristics of the individual that might affect how different types of regret affect these online reviews. Aspects such as consumer shopping orientation could be considered to understand their impact on process and outcome regret. Also, although this study has addressed 2 types of regret that consumers may feel after making a purchase, future studies could introduce into the mechanism other types of regret that may arise prior to purchase, such as anticipated regret. In this sense, in other contexts, it has been observed how it influences the motivation to perform specific behaviours (Verkijika, 2019).

This research has understood how negative reviews are generated through regret, but other consequences could be analysed. For example, knowledge about the influence of this mechanism on other outcomes, such as negative engagement or product returns could be explored. This would help to know whether the proper management of consumer regret can reduce other negative behaviours apart from creating negative online reviews. In addition, the first study focused on analysing the effect of two types of regret on online review creation. Future studies could explore the effect of other antecedents on negative online review creation.

Four types of reviews showing different types of regret have been analysed. Given recent research showing how emotions affect the usefulness of the information conveyed, more research is needed in this area. Future research could analyse the influence of reviews according to the product type. The influence of process regret may differ for a product or a service, in line with the effects identified in previous research according to the product type (Fileri et al., 2021b; Duan et al., 2022).

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Author disclosure statement

No authors have conflicts of interest to disclose.

Data availability

Data will be made available on request.

Appendix A. Means, variances and standard deviations variables study 1

VARIABLE	MEAN	VARIANCE	SD
(1) IMPBUY	3.38	2.54	1.59
(2) PROREG	4.96	2.52	1.59
(3) OUTREG	5.54	1.35	1.16
(4) NREVCRE	4.84	3.24	1.80

Notes: IMPBUY = Impulse buying; PROREG = Process regret; OUTREG = Outcome regret; NREVCRE = Negative online review creation. SD = Standard deviation.

Appendix B. Scenarios

Process regret review, internal guilt.

★ ★ ★ ★ ★

I would not recommend it

Charlie B.

This product has not fulfilled my expectations. Although it is true that I did not pay much attention to the product specifications, the truth is that I would not buy it again. I should have spent more time looking for information and not let myself be carried away by my first impulse.

Outcome regret review, internal guilt.

★ ★ ★ ★ ★

I would not recommend it

Charlie B.

This product has not fulfilled my expectations. Although it is true that the battery lasts 30 minutes, in my opinion the battery should be longer. I have a large house and I do not have time to vacuum completely with this Hoover. I should have bought one with a longer battery life.

Process regret review, external guilt.

★ ★ ★ ★ ★

I would not recommend it

Charlie B.

This product has not fulfilled my expectations. The seller recommend this product and gave me a limited time offer that I should not have accepted. The seller made a bad recommendation and because of the limited time offer I could not evaluate other options. I regret that I bought it.

Outcome regret review, external guilt.



I would not recommend it

Charlie B.

This product has not fulfilled my expectations. I do not have time to vacuum the whole house properly because the battery does not run as long as stated. The battery lasts 20 minutes and not 30 minutes as stated by the seller. I regret that I bought it.

Appendix C. Scale items

Impulse buying (Rook, 1987)

I bought a product based on how I felt at the moment
 I bought a product that I had never intended to buy
 "I see it, I buy it" describes my buying behaviour in that experience
 I bought the product spontaneously

Process regret (Lee and Cotte, 2009)

With more information, I feel that I could have made a better decision
 I feel that I did not put enough consideration into buying the product
 With more effort, I feel that I could have made a better decision
 I regret not putting enough thought into my decision

Outcome regret (Bonifield and Cole, 2007)

I should have chosen an alternative product
 I regretted buying this product
 After received this product, I felt bad about ordering it
 In retrospect, I felt that I could have made a better choice by choosing a different product

n-eWOM intention (Grégoire et al., 2010)

I would say negative things about the product
 I would not recommend it to someone seeking my advice
 I would discourage friends and relatives from buying it

Review persuasiveness (Zhang et al., 2014)

The arguments of the review are ...

convincing
 persuasive
 strong
 good

Review credibility (Ohanian, 1990)

This review seems to me:

honest
 reliable
 sincere
 trustworthy

Review useful (Ruiz-Mafé et al., 2020)

The information shown in the review:

was helpful for me
 was useful for me
 was informative for me
 helps me to decide about the product

Intention to follow advice (Casaló et al., 2010)

I would ...

feel comfortable behaving according to the advice I obtain in the review
 not hesitate to take into account the comments and suggestion of this review
 feel secure in following the suggestion made by this review
 rely on the recommendation made by this review
 consider the information provided by this review

Reviews relevance (Lis and Fischer, 2020)

Before making important purchase decisions, I read online reviews of other users
 Online reviews have an impact on my purchase decision

Product characteristics relevance (Lis and Fischer, 2020)

Before making important purchase decisions, I read the product characteristics
 Product characteristics have an impact on my purchase decision

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