

PLEASURE IN THE USE OF NEW TECHNOLOGIES. THE CASE OF E-BOOK READERS.

ABSTRACT

Purpose –We analyse the adoption process of e-book readers and examine how the perception about the advantages of this technology and its incompatibility with consumer values determine the pleasure felt and its effective use. We also propose that consumer involvement with ICTs moderates these effects.

Design/methodology/approach –Hierarchical moderated regression analysis is used to test the proposed model with survey data from a sample of e-book reader owners.

Findings –Appraisal of the device's reading features and the possibility for free downloading increases the pleasure found with its use and the extent to which it is actually used, whereas attachment to paper books decreases the emotional feeling, some of these effects being moderated by the individual's involvement with new ICTs. Pleasure mediates the influence of perceived advantages and attachment to the older technology on the use of the e-book reader device.

Practical implications –Two challenges to practitioners are suggested: to overcome the rejection of users less eager to experience pleasure and to use the e-reader, and to find the product's objective or sensory characteristics that provide pleasure and promote long-lasting use.

Originality/value –The study extends previous studies on e-book readers by emphasizing the need to go beyond adoption intention. It analyses effective use as a crucial measure of the true adoption of this technology and incorporates the perspective offered by the appraisal theory of emotion, which explains the key role of pleasure in this process.

Keywords. Pleasure, new technologies, use, involvement, e-book readers.

Paper type. Research paper

1. INTRODUCTION

Literature on innovation adoption has focused on analysing the main drivers of adoption considering both the characteristics of the innovation and of potential adopters. However, even if potential consumers have purchased a new product, true adoption depends on the effective use of such a product. An innovation will prove successful when it is actually accepted and used regularly by consumers. Even if purchasing a new product indicates initial acceptance and is the first step towards success, long-term viability depends on effective owner use. Recent literature points toward research in the use of a new technology in order to understand the post-purchase process and the reasons explaining why certain consumers stop using the technology whereas others continue to use it (Shih and Venkatesh, 2004; Kim and Malhotra, 2005; Wood and Moreau, 2006; Liao *et al.*, 2009).

This problem of post-purchase adoption is illustrated in the interesting case of a technology that Lai and Chang (2011) term as “dedicated e-book readers” (hereafter, e-book readers or just e-readers). While many individuals might have purchased this kind of devices driven by its appealing attributes, this technology will not be able to fully replace paper books if owners do not use it or very seldom use it. Moreover, the actual use of these devices is managerially meaningful not only for e-book reader manufacturers and vendors, but also for content providers (publishers), since both whom have a vested interest in the evolution of the book industry.

In the context of this technology, the current study aims to identify which factors account for actual usage of e-book readers. Specifically, we propose a model in which use is explained by the emotion felt with the usage experience. The pleasure experienced by adopters when using it is a key mediating variable that affects how the perception concerning its relative advantages and attachment to the old technology (i.e., paper

books) result in use. Consumer involvement with ICTs is also posited to moderate these effects.

The current work contributes to the literature on technology adoption in several ways. First, this work analyses the current behaviour of those who have purchased the device, that is, their effective use of the e-reader as a replacement for paper books. Compared to research addressing initial adoption, relatively few studies have examined post-adoption behaviour (Huang and Hsieh, 2012).

Second, based on the Stimulus-Organism-Response (S-O-R) framework (Mehrabian and Russell, 1974) and the appraisal theory of emotions, we propose that pleasure is the main driver of use. Reading is a source of pleasure and the e-reader acts as a means to enhance or diminish the pleasure derived from reading. Therefore, adopters of e-book readers will use the device as long as it offers at least the same pleasure as a book in the conventional paper format. While previous research has extended the application of Davis' (1989) Technology Acceptance Model (TAM) and Rogers' (1995) Innovation Diffusion Theory (IDT) to explain the intention to adopt e-readers, we explain the effective use in terms of Stimuli-Emotions-Response. We maintain that the stimuli provided by the technology (attributes) should be a source of a positive emotion (pleasure) when using the technology in order to impact on regular use of the e-reader. At the same time, attachment to paper books is a source of a negative emotion (displeasure), which undermines use.

Finally, we introduce consumer involvement with new ICTs as a moderating factor that influences appraisals of the technology on pleasure. It could be expected that for individuals more involved with new ICTs the advantages of e-book readers would be more evident and relevant and would feel less attached to paper books than those less keen on ICTs. Yet, the latter argument is questionable, since involvement with new ICTs

is a general characteristic that is independent of attitudes towards reading and e-book readers, so an individual might love new technologies and feel very attached to paper books. Thus, our hypotheses and findings confirm that involvement with new ICTs strengthens the positive effect on pleasure of the free downloading of e-books, one of the main advantages of e-readers, and it also makes the negative effect on the pleasure of the attachment to paper books more intense.

2. THEORETICAL AND CONCEPTUAL BACKGROUND

2.1. Literature review on the adoption of e-books and e-book readers

Although we specifically study the adoption of e-book readers, we have conducted an exhaustive review of the literature on e-reader (the device) as well as e-book (the content) adoption given the obvious relationship. The extant literature on this issue has focused on adoption intention and has neglected to study the effective and regular use of these technologies. Few works provide clues about subsequent stages in adoption. Some (Shin, 2011; Jin, 2014; Chen, 2015) have studied the continuance intention to read e-books or to use e-book readers to reflect consumer loyalty and repurchase behaviour after initial adoption. To the best of our knowledge, the only study into the actual use of e-readers is the one by Huang and Hsieh (2012), who contend that consumers' perceptions about the innovation characteristics affect their acceptance behaviour, both directly and indirectly via their perception of switching costs.

Most of the empirical research has studied the determinants of adoption and diffusion from models that extend the application of TAM (Read *et al.*, 2011; Shin, 2011; Lai and Chang, 2011; Lee 2013; Aharony, 2014; Jin, 2014; Williams *et al.*, 2014) or IDT (Jung *et al.*, 2011; Huang and Hsieh, 2012; Waheed *et al.*, 2015) to explain the adoption of e-books or e-readers. In these models, adoption of the technology has mostly been

conditioned by cognitive or rational motives (e.g., perceived ease-of-use and usefulness, convenience, compatibility or media richness), with few works (Antón *et al.*, 2013; Ferreira *et al.*, 2014; Torres *et al.*, 2014; Chen, 2015) considering the role of more emotional motives (enjoyment, playfulness, entertainment or pleasure).

Despite introducing emotional elements as determinants of adoption intention, the extant literature holds that adoption is conditioned by attitude towards the technology (Jung *et al.*, 2011; Read *et al.*, 2011; Shin, 2011; Lee, 2013; Jin, 2014; Waheed *et al.*, 2015). These works overlook the fact that readers seek pleasure. Lovers of reading enjoy this activity because of the intellectual and even the physical pleasure of, for instance, sitting in a comfortable chair reading a paper book. In this sense, Bagozzi *et al.* (1999) state that the effective use of a new technology is related to its capability to provide emotions which are similar or even superior to those provided by the technology currently used. As a consequence, even if attitude explains intention, adopters of e-readers will use the device as long as it provides a reading experience which is at least as pleasant as reading in the conventional paper format.

2.2. Pleasure, SOR framework and appraisal approach

In this research, we focus on pleasure as the main component of the emotion felt while using an e-reader device. Pleasure is one of the dimensions of the pleasure-arousal-dominance (PAD) model (Russell and Mehrabian, 1977; Russell and Pratt, 1980), and has been defined as an emotional or affective state (Mehrabian, 1996), a broad level of enjoyment or gratification (De Wulf *et al.*, 2006; Vieira, 2013), or the degree to which a person feels good, joyful, happy or satisfied with a situation (Wu *et al.*, 2008). It reflects the positive-negative valence of emotion and ranges from unpleasant (e.g., unhappy) to pleasant (e.g., happy). Prior literature on e-reader adoption has considered emotions

measured in terms of enjoyment (Antón *et al.*, 2013) or playfulness (Torres *et al.*, 2014). Only Ferreira *et al.* (2004) explicitly consider pleasure to examine how affective assessments influence adoption intention.

A distinction can be drawn between general and situation-specific pleasure in the use of e-readers. General pleasure would be that which a user perceives when interacting with the e-book reader device, no matter what the user is reading, while situation-specific pleasure would be that which a user enjoys when reading a specific e-book. In the current work, we will focus on the general pleasure provided by the device.

Research on emotions comes from a range of disciplines, resulting in different theories and perspectives. In marketing literature, numerous researchers have adopted the Stimulus-Organism-Response (S-O-R) framework (Mehrabian and Russell, 1974) to explain the development and the consequences of emotions. The S-O-R framework proposes that when individuals encounter a stimulus (Stimulus), they develop cognitive and emotional states (Organism), which in turn determine behavioural responses of approach or avoidance (Response). The notion of stimuli embraces object stimuli and social psychological stimuli (Slama and Tashchian, 1987).

The S-O-R framework has been applied to the technology product use setting (Lee *et al.*, 2011). In such a context, stimuli consist of a user's perceptions of different product characteristics such as design, performance, or communication surrounding purchase and consumption. Stimuli then contribute to the consumer decision process regarding the technology product. Lee *et al.* (2011) propose that attributes of high-technology products (stimuli) trigger consumers' internal states (pleasure and arousal of affective state), leading to avoidance–approach behaviours (response).

Within this general framework, the appraisal approach focuses on how idiosyncratic appraisals are associated with specific negative or positive emotions and direct human

behaviour (De Steno *et al.*, 2000). This theory, supported by the S-O-R framework, suggests that appraisal precedes and determines an individual's emotional response, which in turn predicts the coping response (Lazarus, 1991). The appraisal approach posits that emotions result from the comparison of an actual state with a desired state (Bagozzi *et al.*, 1999).

Appraisal theorists define emotions as mental states of readiness that arise from individual assessment of situations (appraisal), which are relevant for individual goal achievement (Roseman, 1991). In addition, emotions trigger action tendencies, that is, coping strategies. In the context of new technology adoption, appraisal would refer to consumer evaluation of the innovation based on an assessment of the innovation and the usage experience.

Many appraisal components have been suggested by the various proponents of emotion models. Primary appraisal addresses goal relevance and goal congruence (Lazarus, 1991). Goal relevance or goal significance is not unlike the very similar concept of personal involvement. It means that an event (the product, the use of the product, the situation, etc.) is a relevant goal for the individual. The more relevant a situation, the more intense the emotion it provokes (Nyer, 1997). Goal congruence or pleasantness indicates the extent to which an event or an outcome is congruent with an individual's wants or desires (Nyer, 1997). These appraisals determine whether negative emotions (harm) or positive emotions (benefits) are generated.

Based on the theoretical framework provided by the appraisal theory of emotions, we therefore propose that the emotion (pleasure) experienced with a new technology, such as e-book readers, depends on the individual's appraisal of the situation and that the emotion triggers action tendencies, in this case, regular use of the device. Consumers' appraisal of the innovation leads to their emotional reactions, which explain the degree of use. We in

fact examine two appraisals of pleasure and adoption: goal congruence (the relative advantage and the compatibility of the technology) and goal relevance (the individual's involvement with new ICTs). Consistent with innovation diffusion theory, we analyse the role of perceived relative advantage and compatibility as drivers of emotion and actual use, and involvement with new ICTs as a variable that moderates the former relationships.

3. HYPOTHESES

3.1. Main effect: from pleasure to effective use

As stated above, the appraisal theory of emotion suggests that emotions drive actions. Researchers have demonstrated that emotions trigger varying consumer behaviour such as positive/negative word of mouth, complaints, satisfaction, dissatisfaction or loyalty (Nyer, 1997; Stephens and Gwinner, 1998; Gelbrich, 2011).

Consistent with the appraisal theory of emotion, we assume that positive emotions are associated to pleasant usage experiences and move individuals towards the object that provokes these emotions. In our context, the pleasure felt with the use of the e-book reader will provoke greater use thereof. Contrastingly, unpleasant usage experiences are associated to negative emotions and lead to avoidance of the reference object (i.e., lower use of the e-book reader) (Henning *et al.*, 2012).

Previous studies highlight a relationship between the pleasure felt during the consumer experience and the satisfaction obtained (Mano and Oliver, 1993, Walsh *et al.*, 2011), and the effect of emotions on behavioural or purchase intentions (Jang and Namkung, 2009; Mazaheri *et al.*, 2012; Wu and Holsapple, 2014). In the case of high-tech products, Lee *et al.* (2011) find that pleasure has a direct effect on the use of such products and Turel *et al.*

(2010) conclude that the value of hedonic digital artefacts (which include enjoyment or escapism) is related to the intention to use them. On this basis, we propose:

H1. *The greater the pleasure felt with the use of the e-book reader device, the greater its use.*

3.2. The affective process: the drivers of pleasure

As explained before, in the relation between environmental stimuli and emotions, the appraisal theory of emotions proposes that consumption emotions are the response to the appraisals which consumers perceive. These appraisals are evaluative judgments or evaluations of something of relevance to the individual.

One crucial appraisal in the formation of emotions is goal congruence (Lazarus, 1991). In the case of new technologies, goal congruence is an affective judgment that can be based on the perceived benefits or the relative advantage of the new technology as well as on its compatibility with the individual's values and experiences. Literature on innovation diffusion has demonstrated that relative advantage and compatibility are the main determinants of innovation adoption, both in terms of intention and in terms of actual behaviour (Arts *et al.*, 2011; Lai and Chang, 2011). In a study into consumer attitudes towards book digitization, Chen and Granitz (2012) also find that these characteristics are relevant in e-book reader adoption. From the appraisal theory of emotions, Choi *et al.* (2011) confirm that perceived usefulness and perceived ease of use generate an emotional response in the users of innovations into organizations.

Therefore, in the case of e-book readers, we propose that emotion is positively determined by the perceived relative advantage of the new technology (book storage, online navigation and downloading, etc.) and negatively by the incompatibility with the

consumer's values (Ram, 1989), that is, her/his attachment to the technology currently used (i.e., paper books).

Relative advantage is defined as the degree to which an innovation is perceived as superior to the product category or categories to be replaced. In the context of e-book readers, this advantage depends on reading features, multifunctional features, and the possibility for free book downloading, aspects which may be considered advantageous compared to conventional paper books. As regards reading features, users of e-book readers can access and read books more cheaply, store a large number of books in the device, which can be used anywhere and for many hours without the need to recharge the battery, reading as if on paper, but with the possibility of adjusting font type and size, as well as making and saving notes, etc. Many e-book readers also offer multifunctional features such as music, photos or picture applications or Internet navigation. In addition, the use of digital content brings the possibility of obtaining free (even illegal) e-books. In fact, the increasing popularity of tablet PCs and e-book readers has led to a huge increase in illegal digital e-book downloads, and the growth in both the volume and value of these illegal downloads remains considerable (GfK, 2016). Having the device available and using it is the starting point for free downloading. Individuals who are willing to use the device frequently (i.e., to use it for most or a large part of their reading) will perceive that using it proves more profitable if they engage in free (legal or illegal) downloading. Consequently, the individuals' appraisal of these benefits derived from the use of e-readers (reading benefits, additional functions or free downloads) will increase the pleasure experienced when using the device.

H2. *The greater the perceived relative advantage (reading features –H2a–, multifunctional features –H2b–, and free downloading –H2c–) of the e-book reader device, the greater the pleasure felt.*

Compatibility refers to the degree to which the innovation is compatible with the values, past experience and needs of potential adopters. In the context of e-book reading devices, readers who are particularly attached to traditional paper books may perceive these devices as incompatible with their values and habits (Read *et al.*, 2011). Some readers criticize this technology because of its inability to convey the same feelings and pleasure as paper books. As a result, when individuals feel that e-book readers are incompatible with their values (i.e., when they are attached to paper books) they will tend to consider the use of these devices as unpleasant and will develop negative emotions of frustration, boredom or unhappiness.

H3. *The greater the attachment to paper books, the lower the pleasure felt with the e-book reader*

3.3. *The cognitive process: the drivers of use*

Although the appraisal theory of emotions does not contemplate the direct effect of appraisals (stimuli) on coping strategies (behaviours), environmental psychology studies demonstrate that certain stimuli and environment and product characteristics can have a positive influence on behaviours (Donovan and Rossiter, 1982). In marketing literature, there are studies (Jang and Namkung, 2009; Walsh *et al.* 2011) supporting the notion that the relation between product features and consumer behaviour is partially mediated by emotions; in other words, product features also directly determine future behaviour. In the specific context of e-book readers, Read *et al.* (2011), Jung *et al.*,(2011), and Lai and Chang (2011) find that e-reader features (perceived usefulness, relative advantage, convenience, media richness, and compatibility) can have a direct influence on the intention to use them.

Consequently, we propose that individuals' cognitive appraisal of the benefits derived from the use of e-book readers will lead to an increased level of effective use of this kind of device. Similarly, following this reasoning, that is, the direct effect of appraisals on consumer behaviour, and in line with the findings by Waheed *et al.* (2015) regarding the negative influence of emotional attachment to paper books on intention to use the e-book reader, we maintain that consumers' perceived incompatibility with this device will spark a rational tendency to use it less frequently and to keep reading in paper format. Thus,

H4. *The greater the perceived relative advantage (reading features –H3a–, multifunctional features –H3b–, and free downloading –H3c–) of the e-book reader device, the greater its use.*

H5. *The greater the attachment to paper books, the lower the use of the e-book reader device.*

3.4. The moderating role of involvement with ICTs.

In addition to goal congruence, another primary appraisal in the formation of emotions is goal relevance (Lazarus, 1991). Goal relevance is comparable to the individuals' involvement towards a situation. In the current work, we analyse involvement with ICTs as a goal relevance appraisal; in other words, individuals who consider that ICTs are relevant and important in their lives will be prone to experience more extreme emotions than those who are not involved with them. Specifically, we introduce involvement with ICTs as a moderating variable. The effect of the emotion drivers is conjectured to depend on individuals' involvement with new ICTs.

Involvement with ICTs is a general characteristic, independent of the specific product analysed (e-book readers), that can strengthen the effect of other appraisals. The more relevant new ICTs are for the individual, the more intense the emotions caused by goal

congruence (Nyer, 1997). Individuals who are highly involved with new technologies will be more sensitive and will feel greater emotion with the relative advantages of e-book readers and compatibility with the device. They will be more enthusiastic about the characteristics related to reading, the multifunctionality of the device or the possibility of accessing free content. Similarly, they will be more affected by the nostalgia or emotional attachment to paper books. Therefore,

H6. *The greater the involvement with new ICTs, the greater the positive effect of the perception of relative advantages (reading features, multifunctional features, and free downloading) of the e-book reader device on the pleasure felt (H6a) and its use (H6b).*

H7. *The greater the involvement with new ICTs, the greater the negative effect of attachment to paper books on the pleasure felt (H7a) and the use of the e-book reader device (H7b).*

The proposed hypotheses are shown in Figure 1.

Figure 1 near here

4. METHOD

4.1. Data collection and sample

The model is tested on a sample from Spain. An online survey was devised in order to collect data. The survey was delivered through online social networks and forums. The questionnaire was introduced in social network groups and websites related to reading, bookshops, and e-books, as well as in online forums related to new technologies, thus enabling us to gather data from respondents with varied profiles. Respondents had to copy a password to answer the questionnaire in order to avoid repeated or fraudulent responses. In the introduction to the questionnaire, it was explained that the aim of the research was

to explore consumer use of e-book readers for reading. The final sample consists of 144 users.

4.2. Construct measurement

Measurement instruments are summarized in Table 1. All the items were measured using 5-point Likert or semantic differential scales. Effective use of the e-book reader was measured as the percentage of books the individual reads on the device (1: 0-20%, 2: 21-40%; 3: 41-60%; 4: 61-80%; 5: 81-100%) and the frequency of use (from hardly ever to very often). Pleasure was measured with the scale proposed by Russell and Mehrabian (1977). As reading features, we considered the storage of books, convenience of use, provision of a reading experience similar to paper books, the lower price of e-books, the possibility of making notes on the text and long battery life. As multifunctional characteristics, we considered multimedia features, Internet and wireless connection. Free downloading was measured with a single item in which respondents had to indicate how often they downloaded electronic books free through P2P sites. Attachment to paper books was measured with three items reflecting a distrust of e-books and the claim of a special pleasure linked to reading paper books. Finally, involvement with new ICTs was operationalized through a four-item scale reflecting the extent to which individuals enjoy ICTs and consider themselves to be innovators in the use thereof (Donthu and Gilliland, 1996).

Table 1 near here

Prior to hypothesis testing, we performed confirmatory factor analysis (CFA) using AMOS which provided a reasonable fit to the data and showed that the reflective scales included in the study (i.e., pleasure, attachment to paper books and involvement with new

ICTs) are unidimensional, reliable and valid. We also checked that multicollinearity is not an issue with our formative multi-item constructs (i.e., use, reading features and multifunctional features). Constructs were operationalized by averaging the corresponding indicators.

4.3. Analysis

The research hypotheses were tested using moderated hierarchical regression analysis. This technique allows multiple equations with correlated criteria to be estimated and the explanatory power of the proposed predictors to be examined by sequentially introducing blocks of independent variables.

Three models were estimated for the pleasure dependent variable and four models of e-book reader use were estimated. In Model 1, the linear effects on pleasure of reading features, multifunctional features, free downloading, and attachment to paper books are estimated. In Model 2, we introduce the direct effect of involvement with new ICTs. The interaction terms of involvement with new ICTs with the relative advantage and attachment variables are included in Model 3 to test the proposed moderating effect. We follow a similar procedure when considering the use of the e-book reader device as the dependent variable, but with an additional step. Thus, in Model 4, use is regressed on reading features, multifunctional features, free downloading, and attachment to paper books. In Model 5, we introduce pleasure as a predictor to examine the mediating effect of this variable. Finally, the main effect of involvement with new ICTs and its interactions with the five considered predictors of use are examined in Models 6 and 7, respectively.

Table 2 near here

5. RESULTS AND DISCUSSION

5.1. Empirical findings

The results of the hierarchical regression analysis for pleasure and use can be seen in Table 2. The empirical findings support hypothesis H1, that is, pleasure is strongly related to the use of the e-book reader device ($\beta=.409$, $p<.001$). H2a and H2c are also supported, given the positive and significant effects on pleasure of reading features ($\beta=.472$, $p<.001$) and the possibility for free downloading ($\beta=.200$, $p<.01$). H2b is, however, rejected ($\beta=-.038$, n.s.). From Model 4, we observe a positive total effect on use of a good appraisal of reading features ($\beta=.263$, $p<.001$) and free downloading ($\beta=.242$, $p<.001$), although use is negatively related to the appraisal of multifunctional features ($\beta=-.152$, $p<.05$). Therefore, H4a and H4c are supported, and H4b is rejected.

It is interesting to note that, when pleasure is incorporated into the model of use (Model 5), the effects of reading features and free downloading are substantially reduced (for reading features, the standardized coefficient drops from .263 to .070, not significant, and for free downloading from .242 to .160, still significant). As can be seen in Table 3, we find a highly significant indirect effect via pleasure, which accounts for most of the total effect of reading features on use (the direct effect is not significant). For free downloading, both the direct and indirect effects on use emerge as statistically significant. Regarding the effects of incompatibility of the new technology, we find that attachment to paper books has a negative and significant effect on pleasure (Model 1: $\beta=-.285$, $p<.001$) and on use of the e-book reader device (Model 4: $\beta=-.391$, $p<.001$). Therefore, H3 and H5 are supported. The results for Model 5 show that the direct negative effect on use of attachment to paper books diminishes ($\beta=-.275$, $p<.001$) when pleasure is in the equation.

Table 3 near here

As for the moderating effect of involvement with new ICTs, we find partial support for H6a (see Model 3 of pleasure), but not for H6b (no significant interactions are found in Model 7 of use). The effect of free downloading on pleasure is greater when individuals are highly involved with new ICTs, as seen in the positive and significant interaction term ($\beta=.140$, $p<.01$). The interaction terms reading features*involvement and multifunctionality*involvement are not significant. Regarding incompatibility, as predicted in H7a, we observe a significant negative attachment*involvement interaction ($\beta=-.167$, $p<.01$), which means that the negative effect of attachment to paper books on pleasure is reinforced by involvement. Finally, the interaction effect on use is not significant, which leads us to reject H7b.

5.2. Discussion

Our findings demonstrate that use is determined by the pleasure individuals feel when they use this kind of devices for reading. The real use of e-book readers is related to their ability to provide a pleasant experience, similar to the gratifying experience afforded by paper books and enhanced by other advantages of this technology. The pleasure felt when using this technology is influenced by the perception of the e-reader's relative advantage compared to paper books and the compatibility with the individual's beliefs, said influences being shaped by the consumer's involvement with new ICTs. Pleasure is obtained when the device offers interesting comfortable and convenient reading features and the possibility of free e-book downloading, although pleasure diminishes when individuals deem that the e-reader is incompatible with their values because they are highly attached to paper books.

The convenient reading features have a positive effect on the use of the device through the pleasure experienced (pleasure fully mediates this effect), whereas the possibility of

free downloading impacts on the level of use of the device both directly and indirectly (pleasure partially mediates the positive effect on use of free downloading). The relationship between attachment to paper books and use of the e-reader is also partially mediated by pleasure, but the significant direct and indirect effects of attachment on use are, as hypothesized, negative. Read *et al.* (2011) also conclude that the emotional attachment to printed books is a negative antecedent of the attitude towards e-readers, but find that, although significant, this effect is small. We find the negative effect of attachment on the effective use of the e-reader is strong and offsets to a large extent the positive effects of the perceived benefits of this technology. It seems that reading in the traditional format is a difficult to change habit and those users who are more attached to paper books resist the change even though they have an e-book reader device.

It is worth noting that, contrary to our expectations, the appraisal of multifunctional features on e-readers does not generate greater pleasure and even reduces its use. Even though multifunctionality of an e-reader is favourably appraised by many respondents, this perception does not translate into a greater use of this device for reading, although it might be used for navigation or other purposes. Furthermore, since multifunctional features can be found in other devices such as smartphones and tablets, which likely perform better in this matter, the detrimental effect on the level of e-reader use we observe in our study should not come as a surprise.

Lee (2013) and Ferreira *et al.* (2014) indicate that individuals' innovativeness and predisposition to adopt technology products has a positive effect on the benefits perceived in the e-reader. We extend these findings by providing evidence about the moderating role of individuals' technological involvement, which reinforces the positive effect of free downloading on the pleasure of using this device. In contrast, reading features are a source of pleasure regardless of the user's high or low involvement with new ICTs. The

data also show an interesting moderating effect of this variable on the relationship between incompatibility and pleasure. When users are highly involved with new ICTs, the attachment to paper books sparks a greater rejection (less pleasure) of e-readers. When individuals feel that e-books cannot replace the pleasure of reading a paper book, they will refuse to derive any kind of pleasure in these devices, particularly when they have more experience and knowledge of other more versatile ICTs (e.g., tablets or smartphones) which are likely to provide them with greater pleasure.

5.3. Theoretical and managerial implications

Our work extends the literature in a number of ways. First, we highlight that the true indicator of adoption of a technological device such as an e-book reader is the level of use. In this context, in which the e-reader competes with other technologies for reading, (mainly paper books, but also with other devices such as tablets or smartphones), merely owning an e-reader does not imply it will be used and that paper books will be given up. In this line, findings show that the determinants of the intention to adopt e-readers do not exactly match with the factors that explain actual use. For instance, the attachment to paper books negatively affects the intention to adopt e-readers, although this negative effect is found to be rather small (Read *et al.*, 2011) or mainly a moderating effect (Waheed *et al.*, 2015). In contrast, attachment has a sizeable negative effect on the real use of e-readers, such that it virtually overrides the positive effect of the perceived relative advantages.

Second, our study suggests that pleasure triggers the use of e-readers. While previous works have concluded that the main determinant of the intention to use this technology is attitude (Jung *et al.*, 2011; Read *et al.*, 2011; Lee, 2013; Jin, 2014; Waheed *et al.*, 2015), we place the emphasis on the pleasure derived from using it. E-readers will be used only

if the perceived advantages (mainly the reading features and the possibility of free downloading) make the individual enjoy a pleasant experience when using the e-reader.

Third, while previous works stress the positive effect of innovativeness and involvement with technologies on the intention to adopt these devices (Jung *et al.*, 2011; Lee, 2013; Ferreira *et al.*, 2014), our findings contradict the suggestion that individuals who are highly-involved with new ICTs will change their reading habits and adopt e-readers more readily than less technologically-oriented individuals. Indeed, even though they have an e-reader, fans of technology in our sample do not use it very much when they are attached to paper books. Data show that involvement with new ICTs increases the positive effect on the pleasure of free downloading, although we also observe that the pleasure experienced by lovers of paper books when using an e-reader is less among those who are highly-involved with new ICTs than among those less keen on technologies.

We consider these findings to have important managerial implications. Actual usage and frequency of use provide insights into technology acceptance. In fact, actual usage of e-book readers is an effective predictor of consumer satisfaction and loyalty (Shih and Venkatesh, 2004; Huang and Hsieh, 2012). If e-book readers prove to be as pleasant as paper books, they will be more and more widely used and their success will be guaranteed. According to our empirical results, e-reader designers and marketing managers should not place much emphasis on the extra highlights (multifunctional characteristics), but on the essential features that add value during the act of reading and facilitate this act is undoubtedly pleasant. Therefore, not only easy access to stored e-books and usability, but also experiential features and sensory attributes that enhance the reading experience should be a priority when designing new e-readers (Chen and Granitz, 2012; Brakus *et al.*, 2014; Brasel and Gips, 2014).

The degree of pleasantness also depends on the individuals. Attachment to paper books is cause for rejection, a rejection which needs to be overcome, not only with a good design of the device that guarantees a superior reading experience, but also with adequate communication that helps users to understand and perceive the advantages of e-readers and feel the pleasure of reading on this device (Chen and Granitz, 2012; Talke and Snelders, 2013). Individuals who love paper books and have knowledge and experience in ICTs are a difficult target to conquer. In this line, Zhang and Kudva (2014) suggest that a change in reading patterns and habits overall is not merely an indication of a preference for printed books over e-books. Both printed books and e-books have unique attributes and may serve distinct functions to meet heterogeneous reading needs, which may vary due to individual situational factors. Therefore, in order to convince individuals who have refused to use their e-reader, it might prove necessary to show them the e-reader as an alternative for specific reading situations and not as a full-blown replacement for paper books.

Furthermore, rejection and lack of use of e-readers may be to some extent due to the poor quality of contents (in terms of look, layout, readability, etc.). Publishing industry has been criticized for being more concerned with protecting revenues and capitalizing on low cost strategies. Instead of embracing the possibilities that the digital environment and the technical evolution of e-readers offer to provide a more engaging reading experience, many publishers just recreate printed books as e-books and even neglect a proper e-book editing, proofreading and production (Martin, 2014). Correcting these mistakes would help to convince the most sceptics about the virtues of e-books and e-readers.

Managerial implications can be extended to the success of other new technologies that involve adopting both content (devices) and content (e.g. music, movies, applications). Even if these technologies might be cognitively evaluated and rationally purchased for a

functional purpose, all of them have an important (even dominant) hedonic component in consumption which is affectively evaluated in terms of pleasure. Several recent innovations (online stores, smartphones, tablets, e-book readers or even brand-new *wearables* such as smart-watches or smart-glasses) go beyond their functional role, with individuals also seeking the hedonic experiences they provide. In this context, a technology's ability to elicit positive consumer emotions (in this case pleasure) will be a key element to explain the success of this technology. Therefore, the great challenge facing designers is to find the product's objective or sensory characteristics (aesthetics, design, or interaction) that provide pleasure and that maintain this feeling over time without quick reaching saturation point.

5.4. Limitations and further research

To conclude this work, we point to certain issues concerning limitations and further research.

Our work, as previous research into emotions, fails to measure the multiple aspects of pleasure and the richness of the concept. Since pleasure is measured retrospectively as a past experience, we are unable to capture the array of emotions, the wellbeing, or the happiness of individuals when they use the device. It would also be appropriate to measure situation-specific pleasure, that is, pleasure related to the content of e-books and the effect on e-book purchasing (Ozturk *et al.*, 2006). In this sense, an interesting point is the relevance of newness in pleasure. Individuals can be interested in e-readers just because they represent new goods, but also, or even mainly because, they afford access to new materials or enable new experiences. It would be interesting to study in depth the concept of newness in these products and answer questions such as: for how long are these devices perceived as new? what are their unique and novel attributes? Are

consumers changing use and practices with e-book during the consumption cycle? In addition, further research should analyse the saturation moment. Some technologies are born to stay, but, in some cases, the initial pleasure experienced by the new technology and the positive acceptance can turn into a nostalgia for the old technology and slower than expected adoption.

Finally, we focus on pleasure determinants related to the product and the individual's involvement with new ICTs, but have failed to consider other aspects such as individuals' expectations or the process of flow (Alba and Williams, 2013). Future research should introduce previous emotions caused by expectations, since these expectations can be influenced by manufacturers and vendors.

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