

Sensation seeking and e-shoppers

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Abstract The concept of sensation seeking has been extensively researched. However, a few studies have been carried out on the relationship between sensation seeking and e-commerce. More specifically, it studied the purchase of leisure products, which usually have a higher frequency of purchase on the Internet. With this in mind, the Brief Sensation Seeking Scale (BSSS) created by Hoyle et al. (*Pers. Individ. Differ.* 32:401–414, 2002) is used, which adapts items from the SSS-V (Zuckerman et al., *J. Consult. Clin. Psychol.* 46:139–149, 1978). The results, based on a sample of 393 participants, explain that significant differences exist between e-shoppers and non-e-shoppers of leisure products with respect to the subscale of thrill and adventure seeking. Also, it is observed that there are significant differences between shoppers and non-shoppers only with women.

Keywords Sensation seeking · Internet · E-commerce · E-shopper

1 Introduction

The use of the Internet has extended worldwide although electronic business dealings are still in a relatively slow stage of growth. In the absence of any fixed rules, online sales significantly differ according to the category of the product, which is partly explained by the greater popularity of products which require no physical delivery, which can be standardized or to which a great number of references are made. In general, the best-selling products on the Internet are related to travel, leisure, books,

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music and computing. Gillen and Lall [21] observed that tourist products take first place according to the amount spent, while those products related to books, music, clothes, computing programs and computer games have a higher frequency of purchase.

According to the latest definition of sensation seeking by Zuckerman [50], it is: “a trait defined by the seeking of varied, novel and complex experiences, and the willingness to take physical, social, legal and financial risks for the sake of such experience”. The term sensation seeking was coined to describe the trait that includes a variety of risk-taking and sensation seeking behaviors and the expressed intolerance of boredom [36]. As described by Brakto and Butkovic [9], since the construction of the first Sensation Seeking Scale (SSS) in the early 1960s, the concept of sensation seeking has been extensively researched. Galloway and Lopez [18] indicate that sensation seeking has been found to be positively correlated with: risk-taking behaviour, tendency to disclose personal thoughts and feelings, dislike of structured and formal situations, adventure travel, tendency to avoid repetition, linking of intense experiences, proneness to boredom under restrained and repetitive situations, and tendency towards disinhibition.

An abundance of literature exists on sensation seeking and problem behavior [30]. However, sensation seeking is not only related to antisocial or norm-breaking behaviour. As pointed out by Michel et al. [34], while sensation seeking is a normal personality trait, it is also linked to psychopathic phenomena. Roth [40] indicates that sensation seeking is considered to be a predisposition to a variety of different behavioral ends. Along these lines, Arnett [3] created a new sensation seeking scale (AISS) which encompassed this wider point of view, although Ferrando and Chico [17] suggested that both instruments were essentially measuring the same dimension. However, studies on sensation seeking and normal behaviour are more limited. For example, sensation seeking is related to leisure [6, 41, 46, 49, 50], consumer behavior [27, 44], and travel behavior [20, 36].

As Barnett [6] noted, a wealth of research has demonstrated direct relationships between sensation seeking and aspects of leisure experiences. For example, those who rate highly in sensation seeking participate in more adventurous, novel, and intense activities, prefer a greater variety of activities, are more susceptible to boredom, are more eager to seek unusual experiences in their leisure, and even have different television viewing preferences. Zuckerman [46, 49, 50] related many types of leisure activities (e.g., high-risk activities, sexual activities, gambling, travel, sports participation, parachuting, canoeing, climbing, white-water rafting, art, and music) to his sensation seeking concept, and pointed towards their frequency and intensity as validating evidence for the sensation seeking construct. Armstrong et al. [2] concluded that a very high sensation seeker would probably not bother with the Internet and take up a far more exciting pastime such as sky diving or mountain climbing. Conversely, low sensation seekers would probably find the vast array of services of the Internet too stimulating.

Holbrook and Hirschman [29] point out that all individual differences are important in the determination of the behavior of the consumer's choice. They suggested that an individual's personality can make up a more suitable element of prediction than socio-demographic factors when dealing with products based on experiences,

such as those related with leisure and travel. With this in mind, this work is centred on the sensation seeking personality trait of those individuals who buy leisure products on the Internet. Despite the importance of information technology in recent years, few studies have been carried out on the relationship between sensation seeking and the use of information technology [14, 33]. Moreover, the existing literature provides little insight into differences between online shoppers and non-shoppers [1], and even less insight into identifying psychological variables of these groups.

2 Sensation seeking and consumer behavior

As pointed out by Michel et al. [34], the first theories of Zuckerman are based on the concept of *Optimal Stimulation Level*, where the people who seek sensations tend to reach a high level of stimulation. Hartman and Rawson [28] suggested that Zuckerman et al., in 1964, developed the Sensation Seeking Scale in order to operationally define optimal stimulation. The theory of sensation seeking has the attraction of common sense. It is easy to accept the idea that people differ in their needs for excitement and risk, and for change and adventure. Studies indicate that sensation seeking varies according to distinct socio-demographic variables. In this way, for example, significant differences are found depending on age [25, 49], gender [51] and race [42, 50]. Nevertheless, no noticeable differences were encountered with respect to educational level.

It can appear that the sensation seekers try to obtain only those experiences of high intensity. They are also more likely to participate in unusual experiences, such as meditation. Once the initial excitation has disappeared, these types of activities tend to be abandoned. Although these discoveries seem paradoxical because they involve the removal of stimulation, it is demonstrated that sensation seeking does not imply only the desire to obtain external stimulation, but rather that it consists of the tendency to practise novel and uncommon experiences. However, the majority of examples of sensation seeking are related to obtaining stimuli [11].

On the other hand, behavior which implies risks is linked to sensation seeking. As shown by Chico and Vázquez [12], people who score highly in this scale are usually those who tend to involve themselves in new, intense and risky activities: activities which convey physical or social danger. One clear example is given by those professionals such as parachute regiment soldiers, fire-fighters, riot police, and racing drivers, who score more highly than those in other professions [49]. Other findings differentiate between the types of people who take risks. Those who are identified as antisocial risk-takers, such as adventurers (for example, mountain climbers), demonstrate a higher score in sensation seeking than those identified pro-social risk-takers, such as fire-fighters and the police. The motivation of the pro-social group is related to different factors than those of emotion and adventure seeking [32].

Sensation seeking also correlates with other personality factors. The work carried out is linked to this construct, above all, with the three principal characteristics given by Eysenck: extraversion, neuroticism and psychoticism. Eysenck himself [15] considered that sensation seeking forms part of the trait of extraversion, whereas Eysenck and Zuckerman [16] affirmed that sensation seeking is a trait which falls between the

E (Extraversion) and P (Psychoticism) dimensions of Eysenck's model. However, other authors indicate that, although relationships with extraversion are found, they maintain stronger and more consistent relationships with the trait of psychoticism [25, 51]. All these studies note the absence of relationships with the factor of neuroticism.

In short, the personality of individuals with high scores in sensation seeking corresponds to a high degree of autonomy, expresses their emotions openly, are non-conformist, takes risks, acts independently from social conventions and from the needs and attitudes of others and organises their lives in order to maximize the opportunities of self-fulfillment. Zuckerman [48] considers it probable that those who actively participate in sensation seeking work well under conditions which include an excess of stimulation, although antisocial behaviour can also be produced in less demanding situations. People who take little part in sensation seeking adapt better to the majority of everyday situations, whereas they can be thrown off balance when these situations become more intense.

Sensation seeking is also related to cognitive processes [4], physiological responses [43, 47], genetic factors [15, 49] and to environmental factors [46].

Sensation seeking is considered within the discipline of marketing as a concept related to the exploratory tendencies of the consumers. As mentioned by Raju [38], these tendencies are normally structured into three categories: behavior motivated by curiosity, the search for variety and the assumption of risk. As pointed out by Steenkamp and Baumgartner [44], psychologists studied exploratory tendencies in great depth and found that, in general, people with high levels of optimum stimulation carried out exploratory behavior to a greater extent than those with low levels of stimulation. This therefore suggests that the optimum level of stimulation can be a noteworthy determinant factor of behavior for the consumer with a strongly exploratory character. Grande [23] stated that consumers seek variety as a break from routine and that it is a process which varies in intensity according to the exploratory tendency of each individual. This variety seeking continues until the consumers reach the level of sensation or enjoyment in the process that suits their own characteristics. As pointed out by Steenkamp and Baumgartner [44], most research deals with the optimum levels of stimulation in relation to exploratory behavior, but it is also necessary to consider the concept of the real level of stimulation. For that very reason, the scale of sensation seeking is used in order to measure this real level, though still in a limited way.

3 Objective and methodology

3.1 Objective and sample

The objective of this study is to analyze the relationship between the psychological characteristic of sensation seeking and the purchase of leisure products on the Internet. The existence of any significant difference between Internet shoppers versus non-shoppers on the Internet is studied.

A non-random sample of 393 participants made up of students from the University of Seville was obtained for this study. These participants were undergraduate business

administration students and they were Internet users. The age range of the sample was 18–24 years. The gender split was 248 females and 145 males. There are 66 e-shoppers of products related to leisure on the Internet (16.79% of the sample), of whom 37 are women and 29 men. Furthermore, 14.92% of the women who use the Internet are online shoppers, whereas 20% of the men who use the Internet are online shoppers. The types of products bought in relation to leisure are principally entrance tickets, books and music.

3.2 Instrument

The Brief Sensation Seeking Scale (BSSS) is used. This scale was created by Hoyle et al. [30] by adapting items from the SSS-V [51]. The BSSS is a viable measure of sensation seeking for adolescents and young adults and each of the four primary dimensions of sensation seeking is represented by two items [30]. As pointed out by Eachus [13], the BSSS is a new scale and its psychometric properties should be confirmed by other studies. Responses are indicated on a seven-point scale labelled “strongly disagree”, “disagree”, “slightly disagree”, “neither disagree nor agree”, “slightly agree”, “agree”, and “strongly agree”. The sensation seeking scale is composed of four dimensions: (1) experience seeking (ES), which represents the seeking of experience through the mind and senses, manifested as travel and a non-conforming lifestyle; (2) boredom susceptibility (BS), representing an aversion to repetition and routine, and restlessness when things are not changing; (3) thrill and adventure seeking (TAS), expressed as a desire to engage in sports or other activities involving speed or danger; and (4) disinhibition (Dis), which represents the desire to be socially and sexually uninhibited (see [46]). Reliability alpha coefficients were 0.7448 for ES, 0.7027 for BS, 0.7003 for TAS, 0.7557 for Dis, and 0.7521 for ST.

3.3 Data analytic techniques

In order to avoid the effect of the response levels of equal orientation, whether it be high or low, the score of each subscale, and hence that of the total, is reduced to three options: high sensation seeking (score 4.50 to 7), indifferent (score 3.50 to 4.49), and low sensation seeking (score 1 to 3.49). As stated by Hair et al. [26], two statistical contrasts exist for the proving of the significance of the model. First, the Chi-squared contrast for the change in the value of the $-2LL$ from the base model is comparable to the F global contrast of the multiple regression. In our model, this reduction is statistically significant to a level of 0.000. Furthermore, the overall-fit measure of Hosmer and Lemeshow sets out a statistical contrast which indicates that there is no significant statistical difference between the observed and predicted classifications. These two measures, in combination, lend support to the acceptance that it is a significant logistic regression model and is adequate for use in a test.

4 Results

In Table 1 a comparison is made between the items and descriptive statistics for the data gathered in this survey and those for the original BSSS study [30], and for

Table 1 Items and descriptive statistics for the BSSS compared with present study

Item	Present study M (SD)	Hoyle et al. [30] M (SD)	Eachus [13] M (SD)
Experience seeking (ES)			
1. I would like to explore strange places	4.75 (0.99)	3.98 (0.97)	4.07 (0.97)
2. I would like to take off on a trip with no pre-planned routes or timetables	4.62 (1.44)	3.94 (1.19)	3.47 (1.29)
Sub scale total	4.69 (1.03)	3.96 (n/a)	3.77 (1.78)
Boredom susceptibility (BS)			
3. I get restless when I spend too much time at home	3.67 (1.87)	4.18 (1.00)	3.33 (1.25)
4. I prefer friends who are excitingly unpredictable	3.39 (1.98)	3.59 (0.99)	3.14 (1.03)
Sub scale total	3.53 (1.73)	3.89 (n/a)	3.24 (1.73)
Thrill and adventure seeking (TAS)			
5. I like to do frightening things	3.87 (0.99)	3.47 (1.16)	2.63 (3.47)
6. I would like to try bungee jumping	3.92 (1.41)	3.71 (1.45)	2.57 (1.55)
Sub scale total	3.90 (1.03)	3.59 (n/a)	2.60 (2.50)
Disinhibition (Dis)			
7. I like wild parties	3.37 (1.87)	3.83 (1.15)	2.38 (1.31)
8. I would love to have new and exciting experiences, even if they are illegal	2.81 (1.98)	3.17 (1.30)	2.50 (1.26)
Sub scale total	3.09 (1.73)	3.50 (n/a)	2.44 (2.17)
Scale total (ST)	3.80 (0.68)	3.74 (0.71)	3.01 (0.59)

the study of Eachus [13]. The data of our sample is adjusted in order to be able to compare this sample with the studies carried out on the BSSS. With this in mind, the mean scores of the seven reply options are transformed into the mean values that would correspond if only five reply options had been used. Logically, the value of the standard deviation remains unchanged.

The three samples compared represent three distinct cultures, but they also deal with three distinct populations as regards ages. The study by Hoyle et al. [30] is focused on adolescents (13 to 17 years old) and the study by Eachus [13] is carried out over the general population (with a mean of 36 years of age), whilst this study is made using young adults. As pointed out by Michel et al. [34], studies show the importance of age as a factor in sensation seeking: sensation seeking increases from adolescence to adulthood [52] and then decreases as a person gets older [5, 8, 19, 25, 50–52]. However, the size of experience seeking increases steadily until the sensation seeker is 39 years old, above all in women [5]. Their results are closely approximated by these studies. Hence, the scores of the most mature adults are less in all the sub-

Table 2 Items and descriptive statistics for the BSSS in e-shoppers and non-e-shoppers

Item	Non-e-shoppers		E-shoppers	
	Female	Male	Female	Male
	M (SD)	M (SD)	M (SD)	M (SD)
Experience seeking (ES)				
1.	6.64 (0.75)	6.68 (0.58)	6.69 (0.66)	6.62 (0.56)
2.	6.44 (0.93)	6.44 (0.97)	6.69 (0.52)	6.46 (1.12)
Sub scale total	6.54 (0.75)	6.56 (0.68)	6.69 (0.54)	6.54 (0.76)
Boredom susceptibility (BS)				
3.	5.13 (1.59)	5.21 (1.64)	5.22 (1.65)	4.88 (1.28)
4.	4.75 (1.34)	4.72 (1.27)	4.86 (1.44)	4.58 (1.47)
Sub scale total	4.94 (1.29)	4.97 (1.24)	5.04 (1.40)	4.73 (1.27)
Thrill and adventure seeking (TAS)				
5.	5.29 (0.88)	5.28 (0.96)	6.03 (1.12)	6.04 (1.13)
6.	5.25 (1.38)	5.39 (1.41)	6.47 (1.07)	6.23 (1.09)
Sub scale total	5.27 (0.96)	5.33 (1.02)	6.25 (0.85)	6.13 (0.96)
Disinhibition (Dis)				
7.	4.37 (1.90)	5.11 (1.71)	4.94 (1.87)	5.46 (1.74)
8.	3.70 (2.01)	4.23 (1.88)	3.94 (1.99)	4.50 (1.84)
Sub scale total	4.03 (1.76)	4.67 (1.59)	4.44 (1.75)	4.98 (1.54)
Scale total (ST)	5.20 (0.68)	5.38 (0.68)	5.61 (0.64)	5.60 (0.52)

scales and therefore in the total scale (3.01). Furthermore, scores of the total scale are slightly higher for adolescents (3.74) than for young adults (3.80), although the former only offer a higher score in the subscales of disinhibition and boredom susceptibility. In present study, the highest scores are obtained in experience seeking, followed by thrill and adventure seeking, boredom susceptibility and, finally, by disinhibition.

Table 2 shows sensation seeking of the Internet shoppers and Internet non-shoppers, classified by gender. In the first place, it can be appreciated that the e-shoppers score more highly in the total scale of sensation seeking (e-shoppers female 5.61, versus non-e-shoppers female 5.20, and e-shoppers male 5.60, versus non-e-shoppers male 5.38), and this holds true in all the subscales in comparison to Internet non-shoppers, with the exception of the subscales of experience seeking and boredom susceptibility in the cases of men. It can be appreciated that women have lower scores in the group of Internet non-shoppers and they have higher scores in the group of those who shop on the Internet (in the total scale and three subscales, with exception of Dis). However, men tend to present higher scores than women in previous studies [10, 18, 28, 31, 34, 39, 51, 52].

Table 3 Shoppers Internet users versus non-shoppers Internet

Variables in the equation						
Variable	B	SE	Wald	df	Sig	Exp(B)
ES	5.4056	16.3207	0.1097	1	0.7405	222.6433
BS	-0.0647	0.2042	0.1006	1	0.7512	0.9373
TAS	1.1675	0.5326	4.8050	1	0.0284	3.2139
Dis	0.1064	0.1619	0.4325	1	0.5108	1.1123
Constant	-24.6236	49.0347	0.2522	1	0.6156	

B = Regression coefficient; SE = Standard error; Wald = Wald statistic; df = degrees of freedom; Sign = Wald significance level; Exp(B) = exponential form of B

Table 4 Shoppers Internet users versus non-shoppers Internet: gender differences

Males	ES	BS	TAS	Dis	ST
Chi-Square	0.78463	0.00935	1.71486	0.01869	0.96198
Df	1	1	1	1	1
Asymp. Sig.	0.37572	0.92295	0.19035	0.89125	0.32668
Females	ES	BS	TAS	Dis	ST
Chi-Square	0.78055	0.35476	6.35780	2.41278	3.28033
Df	1	1	1	1	1
Asymp. Sig.	0.37697	0.55142	0.01168	0.12034	0.07011

In Table 3 the results are shown of the logistic regression applied to the whole sample. As this table shows, the model explains that significant differences exist between e-shoppers and non-e-shoppers of leisure products with respect to the thrill and adventure seeking (TAS) subscale, at a significance level of 5%. However, there are no significant differences with respect to experience seeking (ES), boredom susceptibility (BS) or to disinhibition (Dis).

Another logistic regression has been carried out in the same way for the total scale and it has been demonstrated that significant differences exist between users and non-users of the Internet with respect to the total scale of sensation seeking, at a significance level of 1%. Here, the model also presents a good fit (the Hosmer and Lemeshow test is 0.4378).

The gender differences were examined using the non-parametric Kruskal Wallis test and were found to be statistically significant in TAS for women ($\text{Chi}^2 = 6.35780$, $\text{df} = 1$, $P < 0.05$). Table 4 presents these data.

5 Discussion

It has been demonstrated in the literature that sensation seeking is part of both normal and pathological behavior patterns [34]. Sensation seeking is a personality trait which

has been studied mainly from the perspective of behavior problems. This study, however, focuses on the carrying out of a socially acceptable activity, such as the use of the Internet. In general, the use of the Internet supposes no risk for people, but provides an opportunity to make new discoveries. Furthermore, it is a more efficient means of information and communication, as well as providing a different way of shopping. Few studies have made the connection between sensation seeking and the use of information technology.

As pointed out by Michel et al. [34], sensation seeking scores for adults differ according to gender and age. Individuals score points in the sensation seeking scale and subscales which are very similar to those obtained in earlier studies with respect to age and gender. If the three samples of Hoyle et al. [30], Eachus [13] and of the present study are compared, it can be observed that the scores decrease with age and that men score more highly than women. The subscale of experience seeking obtains the highest scores (both e-shoppers and Internet non-shoppers score very highly), followed by thrill and adventure seeking, boredom susceptibility and disinhibition. In general, it can be appreciated that women have lower scores of Internet non-shoppers but they have higher scores in the group of e-shoppers. However, previous studies demonstrated that men tend to present higher scores than women.

In the comparison between e-shoppers and non-e-shoppers, significant differences can be appreciated in the subscale of thrill and adventure seeking (TAS), which expresses the desire to engage in risky, impulsive and adventurous activities that offer unique sensations to the individual. In particular, the influence of TAS has a certain predominance in earlier studies related to leisure [8, 22, 24, 35, 37]. As suggested by Hartman and Rawson [28], the TAS subscale is the most socially acceptable, less antisocial type of sensation seeking. Along the lines of Joireman et al. [31], the link between TAS and involvement in shopping online suggests that it offers an opportunity to meet the needs of an extreme sensation seeker via less risky and perhaps more cognitively beneficial routes. Although the present results leave open the question of exactly which elements of the use of Internet specifically attract those who score highly on TAS.

When the differences according to gender are studied, women score more highly than men in sensation seeking with respect to their purchasing behavior on the Internet. These scores are higher in the subscales of BE and BS, are the same in the TAS subscale and are lower in the Dis subscale. Similar results were obtained by Blenner [7], who indicates that female thrill seekers younger than 30 had mean scores higher than male thrill seekers on all SSS subscales except Dis. In general, this can indicate that the activity of shopping on the Internet involves greater stimulation for women. These results are very relevant given that the majority of earlier studies indicate the superiority of the scores for men (for example, [5, 25]). Furthermore, it is observed that there are significant differences between shoppers and non-shoppers only with women. In particular, women maintain significant differences between e-shoppers and non-e-shoppers in the total scale of sensation seeking, and especially in the TAS subscale. Hence, only women are influenced by the personality trait of sensation seeking in relation to purchasing on the Internet.

The results demonstrate that some differences with respect to gender exist, contrary to the conclusions of Hoyle et al. [30] and Eachus [13]. It is supposed that

purchasing leisure product on the Internet indicates behavior influenced by a situation of stimulation for women, but not for men. However, the sample reflects that there is a lower percentage of women who purchase via the Internet (14.92%) than in the case for men (20%). This fact can be contrasted with other populations and also with other means of purchasing to that of shopping on the Internet.

Sensation seeking provides a natural basis for segmentation in the market. Wang et al. [45] suggested that an understanding of unobservable cognitive and psychological attributes of potential buyers would help online sellers find their target customers more effectively. As described by Hanna and Wagle [27], extreme sensation-seekers may respond favourably to products, activities, or services that provide more novelty, risk, and excitement. Moreover, marketers can use sensation seeking as a promotional variable. Companies and public administrations interested in a greater expansion of the use of the Internet should carry out publicity campaigns which stimulate a variety of novel experiences that offer feelings of emotion and adventure, given that it is precisely the subscale of thrill and adventure seeking (TAS). This obtains a very much reduced score among the non-users of the Internet. It also offers a sophisticated way of combating tedium. In this way, thrill and adventure seeking (TAS) which encourages the purchase of products on the Internet should be stimulated. The use of personality traits might also benefit future studies through research into whether consumers' preferences for products are related to sensation seeking or to other traits, such as technology anxiety or technology self-efficiency. As pointed out by Galloway and Lopez [18], it is obvious that sensation seeking is not the only personality construct that might be useful in regard to the present and related topics.

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