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Article

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Consumer characteristics and their effect on accepting online shopping, in the context of different product types

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Abstract

Online shopping is among the most popular activities of the internet, yet the reasons why consumers buy online are still unclear. Although it is implied that consumer acceptance of online shopping is affected by different products not many studies have adopted this view. This study attempts to examine consumers' attitude when making online purchases in the context of different product types. A theoretical framework is proposed based on the determinants of consumer behaviour and user acceptance of online shopping, as well as online product classification. The factors that were selected to be tested are Personal Innovativeness of Information Technology (PIIT), Self-efficacy, Perceived security, Privacy, Product involvement and how they affect consumer attitude towards online shopping. Correlation analysis, at first, to determine the relationships among the variables and regression analysis afterwards to verify the extent of the variable interaction were used to test the hypotheses. Based on the aforementioned analyses, results were drawn and compared to the results found by Lian and Lin (2008) in a similar study. It has been found that PIIT, perceived security and product involvement have an effect on the attitude towards online shopping, yet the results vary among the different product types.

Keywords: personal innovativeness of information technology (PIIT), self – efficacy, perceived security, privacy concerns, product involvement

1 INTRODUCTION

The development of the internet has increased the number of online shopping activities (Hill and Beatty, 2011). The internet has been adopted as an important shopping medium with an increasing amount of online sales every year (Kim and Forsythe, 2010). Still, many internet users avoid purchasing online due to privacy and security concerns (Lian and Lin, 2008) deriving by their hesitation to send personal information through the internet (Roca, García and de la Vega, 2009). In spite of this, online shopping is continuing to grow as online enterprises become more sophisticated (Lian and Lin, 2008), which results in the dramatic change of how consumers buy products and services (Hill and Beatty, 2011). Wu (2003) mentions that approximately half the internet users have bought a product or service through the internet and according to Li and Zhang (2002) online shopping is the third most popular internet activity. The most recent global report shows that global online retail sales grew by 14.5% in 2009 to reach \$348.6 billion, which yet only accounts for 2.5% of the total global retail sales. By 2014 global online retail sales are expected to reach \$778.6 billion, increasing at a 22.2% (IMAP retail report).

The USA, online retail sales of 2009 increased by 2.1% over 2008, reaching a total of \$145 billion dollars, and from 2002 to 2009 retail e-sales increased on average annual growth rate of 18.1% (U.S. Census Bureau, 2011). In the European Union of the 27 members, 37% of the internet users have made an online purchase in 2009, a 5% increase over the previous year. In the United Kingdom, Denmark, the Netherlands, Norway and Sweden more than 60% of the internet users have made an online purchase, whereas the equivalent number in Greece, Lithuania, Bulgaria and Romania is less than 10% (Eurostat, 2009). As it can be inferred from the above, the magnitude of online shopping adoption varies between the developed and developing countries (Çelik, 2011). Understanding the opportunities this new market has to offer is crucial for any business that wants to participate in it and be competitive. Moreover, online consumer attitude is an issue that concerns many researchers (Cheung *et al.*, 2003; Wu, 2003; Liao and Shi, 2009; Darley, Blankson and Luethge, 2010). An essential question in this area is, which are the factors that determine consumers' decision to make a purchase from a certain electronic shop (Lowengart and Tractinsky, 2001). Finding the characteristics of possible buyers can help enterprises to accurately find potential target markets.

Furthermore, Peterson, Balasubramanian and Bronnenberg (1997) support the view that due to the special features of the internet its suitability to market products and services depends on the features of the products and services being marketed. Also, Liang and Huang (1998) showed that different products types affect consumers' acceptance of online shopping. Cho *et al.* (2003) supported that the purchasing behaviour of customers in online markets depends on what product or service they have in mind. Moreover, Korgaonkar, Silverblatt and Girard (2006) and Hassanein and Head (2006) found that the type of the product which is being sold online is responsible for the variations of customers' buying online performance. Additionally, Girard, Korgaonkar and Silverblatt (2003) in their study found that the variations that had been observed in shopping orientation and demographics were based on the type of product purchased on the internet. Although many studies have shown that consumer characteristics are important when it comes to online shopping, the majority of those ignore the effect of different product types. Wanting to overcome this limitation, the purpose of the present study is to examine how different product types affect consumer attitude.

In the first section a review of the literature is made, involving determinants of consumer characteristics, factors that determine the consumer acceptance of online shopping, product classifications and previous studies. Then, the research model and hypotheses are presented followed by the methodology that was used to conduct the research. The empirical analysis, which includes the results of the research and discussions, is presented afterwards based on the results.

2 THEORETICAL BACKGROUND

The internet is developing rapidly and while its popularity is growing, more and more users become familiar with it and adopt it as a medium to search for information and shop online (Frag *et al.*, 2007; Pan, Chaipooirutana and Combs, 2010; Hill and Beatty, 2011). This section summarises the determinants that construct the consumer behaviour, the factors that determine the user acceptance of online shopping and a brief review of previously conducted researches concerning the aforementioned.

Determinants of consumer behaviour

Consumer behaviour is affected by four categories of factors: cultural factors, social factors, personal factors and psychological factors.

The first category of cultural factors, includes terms such as culture, subculture and social class (Armstrong and Kotler, 2003; Peter and Donnelly, 2001, Wu, 2003). The term culture is complex and involves the knowledge, beliefs, arts, laws, ethics, customs and many other abilities and habits that are obtained by an individual just by being part of the society (Hawkins, Best and Coney, 1995). Every culture consists of smaller

sub-cultures which contain a more specific identity to their members. There are four categories of sub-cultures: nationalities, religion groups, tribes and geographical locations (Kotler, 1991; Armstrong and Kotler, 2003). Social classes are relatively homogenous and continuous subdivisions of a society, which are arranged hierarchically and whose members have common values, interests and behaviour (Kotler, 1991).

The second category refers to social factors and includes reference groups, family, social roles and social status (Armstrong and Kotler, 2003; Wu, 2003). Reference groups involve all those groups that have a direct (personal) or indirect influence on the attitude or behaviour of an individual (Kotler, 1991; Armstrong and Kotler, 2003). Family is considered the most significant social factor and has been widely examined (Armstrong and Kotler, 2003). There are two types of families the orientation family which consists of the parents and the family that someone creates for oneself (Kotler, 1991). The position of an individual in a group can be defined in terms of social role and social status (Armstrong and Kotler, 2003). The term role contains the actions that a person has to take in relation to the people that surround him / her. Every role is connected to a status which shows the corresponding respect of the society (Kotler, 1991).

The third category, the personal factors, include: age and life circle stage, occupation, economic situation, lifestyle, personality and self-concept (Armstrong and Kotler, 2003; Wu, 2003). People change their preferences in products or services according to their age. Moreover, their purchases are formed throughout their life circle stages which are the phases the families go through while they develop and mature over time (Kotler and Armstrong, 1996). A person's occupation is another factor that influences one's buying behaviour. People of different occupations have different needs and thus purchase different products and services (Kotler, 1991; Kotler and Armstrong, 1996; Armstrong and Kotler, 2003). Many purchasing habits depend on the economic situation of an individual (Adcock *et al*, 1995). The economic data of an individual involve one's income, savings, disposable capital, borrowing capability and attitude towards consumption regarding savings (Kotler, 1991; Armstrong and Kotler, 2003). Lifestyle is considered to be all the habits one has which are expressed through one's actions, interests, beliefs and small luxuries one indulges oneself with (Adcock *et al*, 1995). Personality regards the psychological characteristics of a person that drive him to reasonable and stable reactions towards one's environment. Last, the presumed image a person has of oneself is complex. It consists of the way a person perceives oneself, the way one wants to be and the way others consider him / her. According to the overall image someone has of oneself, he / she forms his / her behaviour (Kotler, 1991; Kotler and Armstrong, 1996; Armstrong and Kotler, 2003).

The fourth category consists of psychological factors like motivation, perception, learning, beliefs and attitudes (Armstrong and Kotler, 2003; Wu, 2003; Saprikis, Chouliara and Vlachopoulou, 2010). Motivation is an internal and complex process which influences people's behaviour and is caused by particular motives such as hunger, thirst, recognition and devotion. Consumers act and react based on their perceptions. The way a motivated person acts is influenced by his / her perception of the given situation. The largest part of human behaviour is learnt. It is said that a person's learning is produced through the interaction of motives, stimuli and reactions (Kotler, 1991; Kotler and Armstrong, 1996; Armstrong and Kotler, 2003). Through acting and learning people form beliefs and attitudes that affect their purchasing behaviour. Beliefs are the descriptive way a person thinks of something and are based on knowledge, opinion or faith and may involve sentimental charges, while attitude regards the continuous evaluation, the emotions and the tendencies of a person towards an object or idea (Kotler, 1991; Kotler and Armstrong, 1996; Armstrong and Kotler, 2003).

Factors which determine user acceptance of online shopping

Previous studies have defined four main factors of user acceptance of online shopping: consumer characteristics, personal perceived values, website design and product. They are presented in Table 1.

Consumer characteristics involve personality traits like the knowledge of the internet and the social environment (Li and Zhang, 2002), self-efficacy which refers to one's belief of his /her ability and means to successfully complete a certain action (Perea y Monsuwé, Dellaert and de Ruyter, 2004), demographic profile which contains variables like age, gender, education and income (Dholakia and Uusitalo, 2002), and last acceptance of new IT applications which refers to the user's attitude towards the adoption of IT (Al-Gahtani and King, 1999).

Table 1: Factors which determine user acceptance of online shopping

Factor	Variables	References
Consumer characteristics	personality traits	Li and Zhang, 2002; O’Cass and Fenech, 2003; Hand <i>et al.</i> , 2009; San Martín Gutiérrez, Camarero Izquierdo and San José Cabezudo, 2010
	self-efficacy	Bandura, 1997; Eastin, 2002; Li and Zhang, 2002; Perea y Monsuwé, Dellaert and de Ruyter, 2004; Lu and Hsiao 2007; Hand <i>et al.</i> , 2009; Hernández, Jiménez and Martín, 2009; Chen <i>et al.</i> , 2010; Hernández, Jiménez and Martín, 2010; Hill and Beatty, 2011; Hernández, Jiménez and Martín, 2011
	demographic profiles	Koufaris, 2002; Park and Jun, 2003; Dholakia and Uusitalo, 2002; Perea y Monsuwé, Dellaert and de Ruyter, 2004; San Martín Gutiérrez, Camarero Izquierdo and San José Cabezudo, 2010; Hernández, Jiménez and Martín, 2011
	acceptance of new IT applications	Citrin <i>et al.</i> , 2000; Childers <i>et al.</i> , 2001; O’Cass and Fenech, 2003; Bhattacharjee, Perols, & Sanford, 2008; Kettinger, Park and Smith, 2009; Hernández, Jiménez and Martín, 2009; Roca, García and de la Vega, 2009; Close and Kukar – Kinney, 2010; Chen <i>et al.</i> , 2010; Hernández, Jiménez and Martín, 2010; San Martín Gutiérrez, Camarero Izquierdo and San José Cabezudo, 2010
Personal perceived values	perceived danger	Senecal 2000; Ratchford, Talukdar and Lee, 2001; Han, Ocker and Fjermestad, 2001; Li and Zhang, 2002; Gupta, Su and Walter, 2004; Pedersen and Nysveen, 2005; Mathews and Healy, 2007; Lee, Kim and Fiore, 2010; San Martín Gutiérrez, Camarero Izquierdo and San José Cabezudo, 2010; Kim and Forsythe, 2010; Kiang <i>et al.</i> , 2011
	perceived convenience	Wolfenbarger and Gilly, 2001; Eastin, 2002; Lim and Dubinsky, 2004; Wang <i>et al.</i> , 2005; Hernández, Jiménez and Martín, 2009; San Martín <i>et al.</i> , 2009
	perceived web site quality	Gefen and Straub, 2000; Wolfenbarger and Gilly, 2001; O’Cass and Fenech, 2003; Poddar, Donthu and Wei, 2009; Hausman and Siekpe, 2009
	perceived benefits	Childers <i>et al.</i> , 2001; Eastin, 2002; Hernández, Jiménez and Martín, 2009; San Martín <i>et al.</i> , 2009; Hernández, Jiménez and Martín, 2010
Website design	security	Swaminathan, Lepkowska-White and Rao, 1999; Liao and Cheung, 2001; Belanger, Hiller and Smith, 2002; Li and Zhang, 2002; Ranganathan and Grandon, 2002; Park and Kim, 2003; Kelly and Erickson, 2004; Mummalaneni, 2005; Flavián and Guinalú, 2006; Chang and Chen, 2009; Ha and Stoel, 2009; Roca, García and de la Vega, 2009; Zorotheos and Kafeza, 2009; Pan, Chaipoo Pirutana and Combs, 2010; Kukar-Kinney and Close, 2010
	privacy	Swaminathan, Lepkowska-White and Rao, 1999; Belanger, Hiller and Smith 2002; Ranganathan and Grandon, 2002; Galanxhi-Janaqi and Fui-Hoon Nah, 2004; Flavián and Guinalú, 2006; Dolnicar and Jordaan, 2006; Chang and Chen, 2009; Ha and Stoel, 2009; Roca, García and de la Vega, 2009; Zorotheos and Kafeza, 2009; Kukar-Kinney and Close, 2010; Lee, Eze and Ndubisi, 2011
Product		Peterson, Balasubramanian and Bronnenberg, 1997; Bhatnager, Misra and Rao, 2000; Liao and Cheung, 2001; Perea y Monsuwé, Dellaert and de Ruyter, 2004; Lian and Lin, 2008; Ha and Lennon, 2010; Cheema and Papatla, 2010; San Martín Gutiérrez, Camarero Izquierdo and San José Cabezudo, 2010; Kiang <i>et al.</i> , 2011

Personal perceived values include perceived danger which refers to the uncertainty and the unpleasant outcomes of purchasing a product or service (Pedersen and Nysveen, 2005; Mathews and Healy, 2007), perceived convenience involves the time and effort savings and the twenty-four-hour accessibility of an online shop (Lim and Dubinsky, 2004; Wang *et al*, 2005), perceived website quality contains values like the design, reliability and the services provided by the site (Wolfenbarger and Gilly, 2001), and perceived benefits involve the variety of products, the price savings and the speed of purchases (Childers *et al*, 2001). The third factor, website design, includes security which refers to the customers’ fear that their online transactions are not secure (Chou, 2007) and privacy which refers to the ability of the consumers to control the way their personal information are gathered and used (Galanxhi-Janaqi and Fui-Hoon Nah, 2004; Flavián and Guinalú, 2006). Last, the product is defined as every good and service that is offered for purchasing. A consumer believes that every product is a combination of uses that will offer him / her satisfaction (Lim and Dubinsky, 2004).

Online product classifications

There are several different product classifications. Lowengart and Tractinsky (2001) classified products into high risk and low risk. Verhagen, Boter and Adelaar (2010) thought that products should be categorised into goods and services and also into hedonic and utilitarian. There is a broad range of products and services marketed online (Kiang *et al.*, 2011), yet none of the above classifications refers to marketing products through the internet. Peterson, Balasubramanian and Bronnenberg (1997) insisted that a different categorisation was needed, one that would focus on online products. Based on the special characteristics of the internet, they proposed a classification for online products which consists of three dimensions: cost and frequency of purchasing, value proposition and degree of differentiation (Table 2).

Table 2: Product classification table. Adapted from Peterson, Balasubramanian and Bronnenberg (1997).

Dimension 1	Dimension 2	Dimension 3
Low cost, frequently purchased products	tangible and physical goods	High differentiation potential
		Low differentiation potential
	intangible services	High differentiation potential
		Low differentiation potential
High cost, rarely purchased products	tangible and physical goods	High differentiation potential
		Low differentiation potential
	intangible services	High differentiation potential
		Low differentiation potential

The first dimension ranges from low cost, frequently purchased goods to high cost, rarely purchased goods. The second dimension involves from tangible and physical goods to intangible services. The third dimension refers to the product degree of differentiation, which allows companies to gain a competitive advantage (Peterson, Balasubramanian and Bronnenberg, 1997). The studies of Girard, Silverblatt and Korgaonkar (2002) and Korgaonkar, Silverblatt and Becerra (2004) of online shopping suggest that the product classification model based on search, experience, and credence products could provide a useful approach to investigate how goods may influence shopping online. Search products are those whose qualities a consumer can determine without any inspection prior to purchase. Experience products, on the other hand, require actual experience prior to purchase in order to ascertain their quality. Credence products are those that are difficult to evaluate before or even after their consumption (Korgaonkar, Silverblatt and Girard, 2006). Degeratu, Rangaswamy and Wu (2000) classified the products on the web as sensory and non-sensory. Sensory products were defined as those that have attributes that can be conveyed through our senses, particularly touch, smell, or sound, while non-sensory products were defined as products with attributes that can be conveyed reasonably well in words (Cho *et al.*, 2003). Last, de Figueiredo (2000) examined whether quality is easy or difficult to judge in products on the Web. Products on the Web are unequal due to the inability to deliver actual services or adequately detail the specific nature of many products (Cho *et al.*, 2003). Therefore, a product’s attributes are not evaluated equally by customers on the Web. Thus, de Figueiredo (2000) categorised the products purchased on the Web in four groups which include commodity products (e.g. oil, paper clips), quasi-commodity products (e.g. books, CDs, videos, or toys), look-and-feel goods (e.g. suits, furniture, model homes, etc.), and look-and-feel goods with variable quality (e.g. arts, produce, etc).

Previous studies

Many studies have been conducted about online consumer behaviour. Most of them have tried to identify factors that affect or contribute to online consumer behaviour. Researchers seem to adopt different points of view and focus on different factors in different ways (Li and Zhang, 2002).

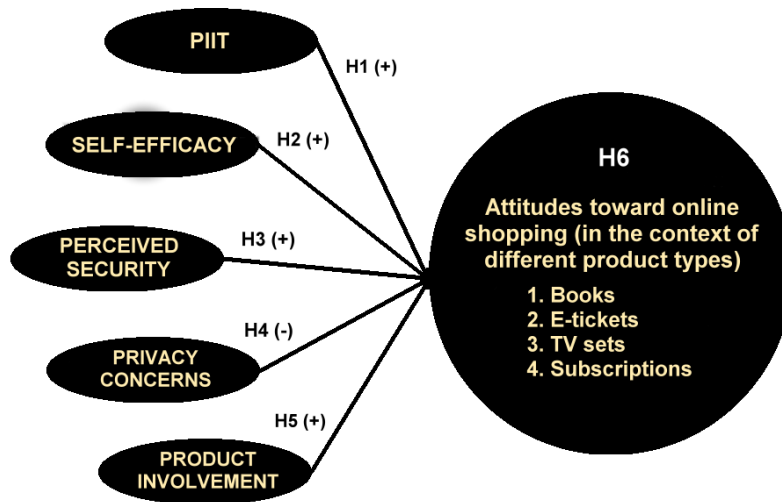
In a research carried out by Pérez-Hernández and Sánchez-Mangas (2011) it was found that having an internet connection at home increases the individual's probability to shop online up to 14%. Donthu and Garcia (1999), during their research for consumer characteristics related to online shopping, found that consumers who shop online seek convenience and variety. Moreover, they are more innovative and spontaneous than conventional buyers. Also they are less aware of the brand of the product and tend to have a more positive attitude towards advertising and direct marketing.

On the other hand, Siu and Cheng (2001) found that the most important factors in classifying online shoppers are the economic benefits that derive from online shopping, the product availability, the security dangers, their monthly income, the product technology opinion leaders and their attitude towards technological development. Ho and Wu (1999) and Li and Zhang (2002) discovered that there are positive relationships between online shopping behaviour and five categories of factors that include e-stores' logistical support, product characteristics, websites' technological characteristics, information characteristics and homepage presentation. Vellido, Lisboa and Meehan (2000) found nine factors that relate to consumers' opinions on online shopping. Among these factors, consumer risk perception was the one that defined users who had realised an online purchase and those who had not. Jarvenpaa, Tractinsky and Vitale (2000) examined a model of consumer behaviour towards specific online shops, in which perceptions about reputation and size affect consumer trust of the retailer. The level of trust had a positive relationship to the attitude towards the shop and a negative relationship towards perceived risk. Finally, attitude and risk perception affected consumer intention to buy from a specific store (Jarvenpaa and Tractinsky, 1999; Lowengart and Tractinsky, 2001). Chiu, Lin and Tang (2005), incorporated two additional variables in TAM with the view to enhance its ability to explain the consumers' attitudes towards online shopping. The new model suggested perceived usefulness, perceived ease of use, personal awareness of security and personal innovativeness influence both online purchase intention and attitude towards online shopping. Moreover, Lee, Fiore and Kim (2006) found perceived usefulness, perceived ease of use, and perceived enjoyment to be very important in predicting a consumer's intention to shop from a particular online retailer. Regarding perceived ease of use, Hernández, Jiménez and Martín, (2010) have found it to have a weak effect on potential online customers and it was rejected when examining experienced online shoppers. Pan, Chaipoo Pirutana and Combs (2010) build a model which includes individual perceptions, subjective norms, incentive programmes, personal characteristics and demographics in order to explain the customers' online purchase intention. Their results verified their model, with perceived usefulness being the most important factor. Contrary to the aforementioned research, Hernández, Jiménez and Martín (2011) in their study found that the socioeconomic characteristics of the individual (age, gender and income) do not have any significance in explaining the behaviour of experienced e-shoppers. Furthermore, San Martín *et al.* (2009) conducted a comparative research between Spain and Japan and found that there are no significant differences regarding the frequency of online purchasing in both countries; however perceived risk was found to be higher in Spain due to the users being less experienced in e-commerce technologies. Another comparative study was conducted by Constantinides, Lorenzo-Romero and Gómez (2010) about the factors that affect the users' online buying behaviour and the actual factors which affect their behaviour in Spain and the Netherlands. Their results indicate that usability and marketing mix have a significant effect on the individual's online purchasing preferences. Additionally, the interactivity factor appears to have an insignificant effect upon the selection of the online vendor. Although many studies have shown that consumer characteristics are important when it comes to online shopping, the majority of those ignore the effect of different product types. Wanting to overcome this limitation, the purpose of the present study is to examine how different product types affect consumer attitude in the context of online shopping.

Research model and hypotheses

Based on the above discussion and the study of the research model implemented by Lian and Lin (2008), it was decided that it could help examine how different product types affect consumer attitude towards online shopping in Greece. Lian and Lin (2008) proposed an integrated model which involves the four most common factors that define user acceptance of online shopping (see 2.2.) and that is the main reason for the selection of this model. From these factors derived the five variables that were included in the research model (figure 1). The critical consumer characteristic variables include personal innovativeness of information technology (PIIT), Internet self-efficacy, perceived Web security, privacy concerns and product involvement.

Figure 1: Research model



Personal innovativeness of information technology (PIIT)

Personal innovativeness was defined as the degree that one adopts new ideas faster than the other members of a system (Rogers, 1995; Ha and Stoel, 2004). Based on this definition Agarwal and Prasad (1998) applied the term of personal innovativeness in the domain of information technology, named it PIIT and defined it as the willingness of a user to experiment on new information technologies. Hwang (2009) stated that online shopping is an innovative behaviour that is more likely to be adopted by innovators. Kim and Forsythe, (2010) supported that one is more likely to adopt an innovation they are comfortable with. Online shopping is a new technology for Greek consumers because e-commerce is less mature in Greece than it is in other industrialised countries such as the USA. Consumer behaviour towards online shopping is significantly affected by PIIT and so users with high levels of PIIT are more likely to accept online purchasing. The following hypothesis derives from the aforementioned:

H1: High levels of PIIT have a positive effect on consumer attitude towards online shopping.

Self-efficacy

Internet self-efficacy derives from the social cognitive theory proposed by Bandura (1997). Within this perspective, one's behaviour is constantly under reciprocal influence from cognitive (and other personal factors such as motivation) and environmental influences. Bandura calls this three-way interaction of behaviour, cognitive factors, and environmental situations the “triadic reciprocity” (Bandura, 1989). Eastin (2002) and O’Cass and Fenech (2003), Perea y Monsuwé, Dellaert and de Ruyter, (2004), Wei and Zhang (2008) and Hernández, Jiménez and Martín, (2011) applied that term in the context of internet; they named it internet self-efficacy and defined it as the belief in one’s abilities to use the internet effectively. In other words, self-efficacy in online shopping describes the individual’s ability to apply their skills to complete a purchase on the internet (Hernández, Jiménez and Martín, 2009). Moreover, Eastin (2002) and O’Cass and Fenech (2003) showed that personal internet self-efficacy has a positive effect on user acceptance of online shopping. According to Perea y Monsuwé, Dellaert and de Ruyter (2004) consumers who have low self-efficacy levels are insecure and feel uncomfortable making purchases over the internet. Thus, the following hypothesis is inferred:

H2: High level of internet self-efficacy positively influences consumer attitude towards online shopping.

Perceived security

Perceived security was defined as a threat that creates an event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosures, modification of data, denial of service, and/or fraud, waste and abuse (Roca, García and de la Vega, 2009). Another definition states that perceived security is the consumer’s belief that his financial data is not visible, will not be stored or used by non-authorised users (Flavián and Guinalú, 2006). Security of online transactions is still the main issue of e-

commerce (Elliot and Fowell, 2000; Szymanski and Hise, 2000; Liao and Cheung, 2001; Park and Kim, 2003). According to Kesh, Ramanujan and Nerur (2002) and Chang and Chen (2009), security is one of the most important factors in the success of e-commerce. Liao and Cheung (2001) found that security concerns affect consumer behaviour. Moreover, security is the factor that often prevents users from shopping online (Li and Zhang, 2002; Zorotheos and Kafeza, 2009). Furthermore, O' Cass and Fenech (2003) consider that the adoption of online shopping is seriously affected by the user perception of security. From the above derives the following hypothesis:

H3: High levels of perceived online security positively affect the consumer attitude towards online shopping.

Privacy concerns

The term privacy is generally used to describe the state of being free from intrusion or disturbance in one's private life or affairs which includes a group of values like people's right to privacy of their own body, private space, privacy of communications and information privacy (Collier, 1995). For the cyberspace it is defined as the user's ability to control the terms by which his personal information is collected and used (Flavián and Guinalfu, 2006; Lee, Eze and Ndubisi, 2011). Perceived privacy in online shopping is the possibility that online companies collect data about individuals and use them inappropriately (Roca, García and de la Vega, 2009).

Personal information privacy is among the most significant inhibitory factors on the internet (Cho, Rivera-Sánchez and Lim, 2009; Zorotheos and Kafeza, 2009; Roca, García and de la Vega, 2009). Dolnicar and Jordaan's (2006) results show that privacy is a crucial issue for consumers and Pan and Zinkhan (2006) found that privacy issues affect consumers' trust towards the online retailer. In some studies it is found that privacy concern is the main obstacle to the expansion of online shopping (Chang and Chen, 2009; Lee, Eze and Ndubisi, 2011). According to Sheehan and Hoy (1999) as privacy concerns rise, consumers are not willing to provide personal information. Thus the following hypothesis is derived:

H4: High privacy concern levels have a negative effect on consumer attitude towards online shopping.

Product involvement

Product involvement represents a concern with a product that the consumer brings into a purchase decision (Pedersen and Nysveen, 2005). Consumer involvement with a product reflects its relevance (Zaichkowsky, 1985), influences consumer motivation to make a purchase decision (Peter and Olson, 1996) and has an impact on his shopping experience and behaviour (Koufaris, 2002).

Product involvement is an enduring type of involvement and levels of involvement with the same product vary greatly across people. Therefore, consumers with high product involvement experience constant high involvement with a particular product category (Ha and Lennon, 2010). In this study it is expected that high product involvement levels positively influence consumer behaviour towards shopping online and thus, the following hypothesis is stated:

H5: High product involvement levels positively affect consumer attitude towards online shopping.

Product categories

Many researchers (Bhatnager, Misra and Rao 2000; Peterson, Balasubramanian, and Bronnenberg 1997; Liao and Cheung, 2001; Lian and Lin, 2008) have insisted on the importance of different product types when being marketed online. Most of the previous studies have focused their attention on one product or one category of similar products. For example Liang and Lai (2002) studied the online book purchase, Dahlen and Lange (2002) examined the retail purchase of grocery products and Ruyter, Wetzels and Kleijnen (2001) focused on travelling services. This type of researches restricted the generalisation of the results to few products at best. Although Eastin (2002) used four common business-to-consumer activities (e-commerce, e-banking, e-investments and e-payments) in order to understand the critical factors regarding consumer acceptance, these four categories of products are similar. Thus, the role product category was expected to hold in the acceptance of online shopping was eliminated. In this study, by employing different unrelated product types, an attempt is made to examine their influence between consumer characteristics and consumer attitude towards online shopping and from the aforementioned the following hypothesis is derived:

H6: Product categories affect the relationships between consumer characteristics and attitudes toward online shopping.

3 METHODOLOGY

Sample selection

The sample of this study consists of Greek internet users, who know how to make an online purchase, possibly have made one or are willing to make one in the future. In the following table (Table 3) the characteristics of the participants are presented. 51.5% of the sample has more than 5 years' experience on the internet and 34.8% of the sample uses the internet for more than 14 hours weekly. Moreover, 46.6% were male and 53.4% were female. The age of the majority of the sample (83.3%) is between 18 and 44 years old.

Table 3: User characteristics

	Data	Frequency	Percentage %
Gender	Male	95	46.6
	Female	109	53.4
Age	< 18	16	7.8
	18 – 24	69	33.8
	25 – 34	75	36.8
	35 – 44	26	12.7
	45 – 54	15	7.4
	55 – 64	3	1.5
Education	High-school	71	34.8
	Technological	43	21.1
	University	73	35.8
	Post-graduate	17	8.3
Internet experience	< 6 months	17	8.3
	6 – 12 months	8	3.9
	1 – 2 years	24	11.8
	2 – 4 years	50	24.5
	> 5 years	105	51.5
Weekly use of the internet	< 7 hours	86	42.2
	7 – 14 hours	47	23.0
	14 – 21 hours	32	15.7
	> 21 hours	39	19.1
Online purchases	Yes	126	61.8
	No	78	38.2
Online purchases during the last year	0 purchases	86	42.2
	1 – 2 purchases	45	22.1
	2 – 4 purchases	25	12.3
	> 5 purchases	48	23.4
Amounts spent online (last year)	0 – 100 €	113	55.4
	100 – 300 €	36	17.6
	300 – 500 €	15	7.4
	500 – 700 €	12	5.9
	> 700 €	28	13.7

This study will try to resolve the relationships between consumer characteristics and their attitude towards online shopping, in the context of different product types. A total of 232 internet users were selected to complete a questionnaire.

Measurement development

The collection of the necessary data was done with the use of a questionnaire. The questionnaire consists of three parts: the introduction where the purpose of the research is stated, the personal information section which includes questions about age, education, internet experience and online shopping experience and the third and main part where the questions for measuring the variables are. All 37 questions of the third part of the questionnaire were adopted from various researchers (Table 4).

Table 4: Research variables

	Sources	Questions
PIIT	Agarwal and Prasad (1998)	4
Self - efficacy	O’Cass and Fenech (2003)	4
Perceived security	O’Cass and Fenech (2003)	3
Privacy	Smith, Milberg and Burke (1996)	15
Product involvement	Zaichkowsky (1994)	6
Attitude towards online shopping	Taylor and Todd (1995), adapted by Lian and Lin (2008)	5

The research was carried out in Greece due to rapidly developing in the context of online shopping (Favier and Bouquet,2009), especially in East Macedonia and Thrace, which is one of the largest geographical departments in Greece, in August 2008, and all the questions were translated into Greek. Then a pilot testing was conducted to avoid any miscomprehensions by the Greek users. All questions were measured in a five point Likert scale. From the distributed questionnaires 28 were unsuitable and thus, excluded. A total of 204 questionnaires were entered in the S.P.S.S. (*Statistical Package for Social Sciences*) statistical programme.

Online product selection

Due to the special characteristics of the internet, in this study the classification proposed by Peterson, Balasubramanian and Bronnenberg (1997) is used. Although many other studies have been conducted using different online products’ classification (Degeratu, Rangaswamy and Wu, 2000; de Figueiredo, 2000; Girard, Silverblatt and Korgaonkar, 2002; Korgaonkar, Silverblatt and Becerra, 2004), this model is thought to be more suitable for the market it is being used for. This model consists of three dimensions: the cost and frequency of purchase, the value proposition and the degree of differentiation.

In this study the last dimension is omitted because the Greek market is not mature enough with regard to online shopping and it is even less mature in the high-low differentiation products since the amount spend for online purchases in 2008 accounted for only 0.15% of the total online sales in Europe. Yet the increase of online purchases in 2008 was 54.7% over the previous year (Favier and Bouquet, 2009), which indicates that the Greek market is rapidly developing. It is considered sensible not to employ the third dimension in the study since online shopping is still in a developing stage in Greece.

As a result the four products selected are based on the two dimension classification. Books are used for tangible, low cost, frequently purchased products, e-tickets are used for intangible low cost, frequently purchased products, TV set are used for tangible, high cost, rarely purchased products and subscriptions are used for intangible high cost, rarely purchased products (Table 5).

Table 5: Products employed in this research

	Low cost, frequently purchased products	High cost, rarely purchased products
Tangible products	Books	TV sets
Intangible products	E-tickets	Subscriptions

Instrument validity

Before examining the hypotheses it is essential to examine the validity of the questionnaire that was used for measuring the six factors of the research model. Validity is the degree in which variables measure accurately what they are supposed to measure (Hair *et al.*, 1998) and consists of content validity and construct validity.

The purpose of the instrument content validity is to eliminate or to correct those questions that have not accomplished their research goal (Bock and Kim, 2002). Although, the content validity is confirmed from a previous study (Lian and Lin, 2008), before the beginning of the present research a discussion with academic staff and a pilot testing was made to avoid any miscomprehensions.

Construct validity was accomplished by using exploratory factor analysis and reliability analysis based on the Cronbach Alpha statistical metre. The results of these two analyses are presented in the following section.

4 EMPIRICAL ANALYSIS

Exploratory factor analysis

The exploratory factor analysis shows the number of factors that were empirically created and how the 37 questions employed in this study were distributed in those six factors. For that cause Principal component analysis and Varimax rotation were used.

The results of this analysis (Table 4) show that the use of exploratory analysis was justified. Kaiser-Meyer-Olkin (KMO) statistics range from 0.687 to 0.895 and Bartlett’s Test of Sphericity is significant at 0.00 level. The analysis showed all items, except for six, had loadings greater than 0.45, which are acceptable considering the sample size (Hair *et al.*, 1998). The six items that were unacceptable were eliminated.

Reliability analysis

Reliability is one of the most important criteria for evaluating research instruments and refers to the internal consistency of the factors (Chu & Murrmann, 2006). Cronbach’s alpha (*a*) is employed to test instrument reliability. According to Nunnally (1978) any value above 0.7 indicates reliability. The results show that all factors range between 0.811 and 0.915, which surpasses the criteria of reliability (Table 6).

Table 6: Factor and reliability analysis results

Factor	Item	Variable loading	KMO Bartlett's Test Sig.	Cronbach's alpha	
PIIT	PIIT1	0.845	0.791 p=.000	0.839	
	PIIT2	0.875			
	PIIT3	0.761			
	PIIT4	0.740			
Self-efficacy	SE1	0.843	0.836 p=.000	0.874	
	SE2	0.821			
	SE3	0.825			
	SE4	0.858			
Perceived security	PS1	0.628	0.687 p=.000	0.875	
	PS2	0.686			
	PS3	0.788			
Privacy Concerns	P1	Eliminated	0.867 p=.000	0.811	
	P2	Eliminated			
	P3	0.873			
	P4	0.850			
	P5	0.907			
	P6	Eliminated			
	P7	0.876			
	P8	Eliminated			
	P9	0.836			
	P10	Eliminated			
	P11	0.890			
	P12	Eliminated			
	P13	0.891			
	P14	0.849			
	P15	0.842			
Product involvement	Books	PI1.1	0.904	0.895 p=.000	0.915
		PI1.2	0.884		
		PI1.3	0.916		
		PI1.4	0.963		
		PI1.5	0.867		
		PI1.6	0.872		
	E-tickets	PI2.1	0.891	0.865 p=.000	0.886
		PI2.2	0.851		
		PI2.3	0.867		
		PI2.4	0.925		
		PI2.5	0.849		
		PI2.6	0.837		

	TV sets	PI3.1	0.913	0.867 p=.000	0.890
		PI3.2	0.870		
		PI3.3	0.854		
		PI3.4	0.907		
		PI3.5	0.822		
		PI3.6	0.849		
	Subscriptions	PI4.1	0.911	0.892 p=.000	0.903
		PI4.2	0.899		
		PI4.3	0.907		
		PI4.4	0.909		
		PI4.5	0.856		
		PI4.6	0.878		
Attitude towards online shopping	Books	A1.1	0.774	0.815 p=.000	0.898
		A1.2	0.763		
		A1.3	0.904		
		A1.4	0.815		
		A1.5	0.841		
	E-tickets	A2.1	0.809	0.810 p=.000	0.884
		A2.2	0.767		
		A2.3	0.871		
		A2.4	0.807		
		A2.5	0.803		
	TV sets	A3.1	0.856	0.850 p=.000	0.899
		A3.2	0.866		
		A3.3	0.844		
		A3.4	0.845		
		A3.5	0.843		
Subscriptions	A4.1	0.809	0.832 p=.000	0.884	
	A4.2	0.823			
	A4.3	0.871			
	A4.4	0.822			
	A4.5	0.848			

Correlations

Correlation is a statistical method used for measuring or describing the relationship between two variables. Finding correlations among variables is essential, yet it cannot be described as a relationship between cause and effect. The information given can only be taken as an indicator (Dimitriadi, 2000). Correlations among the six factors, in the context of four product types are presented in Table 7.

Table 7: Correlations between dependent and independent variables

Items	PIIT	SE	PS	PC	PI
A (books)	0.210**	0.109*	0.101*	-0.055	0.594**
A (e-tickets)	0.028**	0.048*	0.130*	-0.059	0.658**
A (TV sets)	0.205**	0.119*	0.167*	-0.075	0.633**
A (subscriptions)	0.308**	0.147*	0.060*	-0.048	0.684**

* Correlation is significant at the 0.05 (2-tailed)

** Correlation is significant at the 0.01 (2-tailed)

From the above it is safe to say that consumers' attitude towards online shopping is affected by different product types. Moreover the factors that are considered important are different for every product type. Regarding books the factors that are significant are PIIT and product involvement while regarding e-tickets only product involvement is significant. In terms of TV sets PIIT, perceived security and product involvement are significant while in terms of subscriptions PIIT, self-efficacy and product involvement are significant. As it can

be observed, privacy concerns are insignificant regardless of the product type, while product involvement is the only factor that is significant in every product category.

Regression analysis

As mentioned before, correlation analysis cannot be described as a relationship between cause and effect (Dimitriade, 2000). To overcome this limitation linear multiple regression was employed to describe the association among the factors and to form a mathematic model. Attitude towards online shopping in the context of different product types is the dependent variable (Y_1 : books, Y_2 : e-tickets, Y_3 : TV sets, Y_4 : subscriptions) and PIIT (X_1), self-efficacy (X_2), perceived security (X_3), privacy (X_4) and product involvement (X_5) are the independent variables. The mathematical models are displayed below.

$$\begin{aligned}
 Y_1 &= b_{0,1} + b_{1,1} * X_1 + b_{2,1} * X_2 + b_{3,1} * X_3 + b_{4,1} * X_4 + b_{5,1} * X_5 \\
 Y_2 &= b_{0,2} + b_{1,2} * X_1 + b_{2,2} * X_2 + b_{3,2} * X_3 + b_{4,2} * X_4 + b_{5,2} * X_5 \\
 Y_3 &= b_{0,3} + b_{1,3} * X_1 + b_{2,3} * X_2 + b_{3,3} * X_3 + b_{4,3} * X_4 + b_{5,3} * X_5 \\
 Y_4 &= b_{0,4} + b_{1,4} * X_1 + b_{2,4} * X_2 + b_{3,4} * X_3 + b_{4,4} * X_4 + b_{5,4} * X_5
 \end{aligned}$$

Regression results are shown in tables 8 and 9. In table 8 computed F-values and R^2 are displayed to understand the overall significance of each equation. All of the models yield significant p-values ($p < .01$) and R^2 above 40% of the variance in attitudes toward online shopping was explained.

Table 8: Summary of regression analysis

	Books	E-tickets	TV sets	Subscriptions
F-value	27.831	30.878	29.900	39.102
p-value	0.000	0.000	0.000	0.000
R²	0.413	0.438	0.430	0.497
Durbin – Watson	1.873	1.986	1.952	1.700

The results of significance testing of the study variables are listed in table 9. The regression results suggest the following: In the context of book buying, perceived security ($p = 0.043$) and product involvement ($p = 0.000$) yield coefficients with significant p-value. In the context of e-tickets purchases, only product involvement ($p = 0.000$) yield significant p-value for its coefficients. Furthermore, in the context of TV purchases, p-values are significant for PIIT ($p = 0.047$) and product involvement ($p = 0.000$). Finally, in the context of subscription purchase, two variables yield significant p-values including PIIT ($p = 0.009$) and product involvement ($p = 0.000$).

Table 9: Analysis of the four products

	Regression coefficient	Standard error of coefficient	Standardised regression coefficient	Sig.
Books				
Constant	-7253*10 ⁻¹⁷	0.054		
PIIT	0.211	0.060	0.211	0.000
Self-efficacy	-0.058	0.060	-0.058	0.338
Perceived security	0.117	0.580	0.117	0.043
Privacy	0.004	0.570	0.004	0.941
Product involvement	0.611	0.550	0.611	0.000
E-tickets				
Constant	-4196*10 ⁻¹⁷	0.053		
PIIT	0.013	0.058	0.013	0.822
Self-efficacy	0.000	0.059	0.000	0.996
Perceived security	0.062	0.056	0.062	0.270
Privacy concerns	-0.026	0.056	-0.026	0.636
Product involvement	0.651	0.054	0.651	0.000
Tv sets				
Constant	2594*10 ⁻¹⁷	0.054		
PIIT	0.118	0.059	0.118	0.047
Self-efficacy	-0.025	0.059	-0.025	0.671
Perceived security	0.110	0.057	0.110	0.053
Privacy concerns	-0.009	0.056	-0.009	0.873
Product involvement	0.616	0.055	0.616	0.000
Subscriptions				
Constant	-3474*10 ⁻¹⁷	0.050		
PIIT	0.149	0.056	0.149	0.009
Self-efficacy	0.033	0.056	0.033	0.550
Perceived security	0.016	0.053	0.016	0.762
Privacy concerns	-0.052	0.053	-0.052	0.329
Product involvement	0.647	0.052	0.647	0.000

5 DISCUSSION

This study developed a model for determining online shopping attitudes and tested it in the context of different product types. Results demonstrated that the four regression functions were all significant in the context of different products. The results are discussed below.

To begin with, in this study books were chosen to represent low cost, frequently purchased, tangible products. The factors that seem to positively affect consumer attitude towards buying books online are PIIT, perceived security and product involvement. This is probably due to the fact that books are inexpensive and are the first thing that someone buys when he wants to experiment with online shopping.

Low cost, frequently purchased, intangible products are represented by e-tickets. The only factor that seems to have a significant positive effect on consumer buying e-tickets online is product involvement. E-tickets are inexpensive and consumers' interest is focused solely on the purpose that it accomplishes to fulfil. That can also be said for other low cost, frequently purchased, intangible products.

For high cost, rarely purchased, tangible and intangible products, TV sets and subscriptions were adopted respectively. The factors that have a positive effect on them are the same and are PIIT and product involvement.

This is probably because of the relatively high cost that these products have and the reluctance to buy them from the internet. Users are not willing to experiment with buying high cost products online unless they consider them important.

It is obvious from the above that self-efficacy does not have any effect on consumers' attitudes towards online shopping no matter what the product is. Viewing the answers given by the sample, it is safe to say that all respondents consider themselves able to use the internet effectively (mean = 4.31). The only explanation for this is that online shopping is a relatively new technology in Greece and whether they will choose it as a purchase medium has nothing to do with their ability to use it effectively.

Moreover privacy concerns have no effect on consumer attitude towards online shopping. Consumers show a high level of concern about their privacy (mean = 4.40) yet that does not prevent them from buying online. This may be due to geographical reasons. It is possible that the local market does not have the products that consumers need so they are obliged to search for them in the universal market, ignoring their concerns.

All product categories have in common the product involvement factor and this is probably because consumers are reluctant and buy online only products that they really need and consider important.

Comparing the present study to the one carried out by Lian and Lin (2008) in Taiwan, it is observed that they have similarities but are not identical. The only factor that is shown to have the same positive effect towards online shopping is product involvement. Moreover the only product category that has the same results in both studies is the one of low cost, intangible products that is solely affected by the product involvement factor. In the rest of the results there are variations. This indicates that possible geographical reasons can explain the different online consumers' attitudes in the context of different product types.

These geographical causes are obvious, if we try to investigate the significant differences between the online markets of the two countries. In Taiwan, internet penetration reached 70% of the total population in 2011 and the total growth rate of internet usage since 2000 is 257.94% (Internet World Stats, 2011a). Additionally, it was found that despite the global economic recession, Taiwan's e-commerce annual growth increased by 20% and generated \$15.4 billion in 2010 (Highbeam Research, 2011).

On the other hand, in Greece the situation is completely different. From a recent survey (Internet World Stats, 2011b) it was shown that regardless of the growing numbers in the rest of its European counterparts, Greece cannot adopt at the same rate internet and e-commerce technologies. The rate of internet usage in Greece was 46.2% in 2011 and the total growth population reached 397.1% since 2000 (Internet World Stats, 2011b). Moreover, 12% of the Greek internet users had realised their last online purchase within the last twelve months (Eurostat, 2011).

6 CONCLUSION

From all the above, it is made clear that different product types are responsible for the differentiations of the results. As a final conclusion it can be said that consumer attitude towards online shopping is affected mainly by the product in question.

Additionally, it can be said that in Greece people are still experimenting with online purchases although the annual growth rate is higher than 50% (Favier and Bouquet, 2009). In the Nielsen Global Consumer Report (2010) it is stated that 23% of the Greek online shoppers did not intent to make any purchases in the following six months, when the Europe's average was near 21%. In the same report it has been found that Greek online shoppers prefer electronic equipment and computer hardware which fall under the high cost, rarely purchased, tangible goods which can justify the unwillingness of online shoppers to purchase online short-term (Nielsen Global Consumer Report, 2010).

Overall, it is obvious that the product classification and type of products that were selected are responsible for the variations in the results in the present study. Due to the different characteristics every product has, consumers' attitude shows variations. Consumers behave differently when buying inexpensive products and differently when they are buying expensive products. Also, their attitude changes when it involves everyday products and when they buy products and services they intent to use in the long-term.

The present study provides an understanding of what drives consumers to buy their products online and can be used by companies that promote their products through the internet. However, no personal perceived values such as perceived convenience, perceived danger, perceived website quality and perceived benefits, that could alter the findings of the research, were raised.

Furthermore, the third dimension of the Peterson, Balasubramanian and Bronnenberg (1997) model, the degree of differentiation, was not employed due to the Greek online market not being mature enough. If further attempts were to be made to expand the present model and to further examine the consumers' online buying behaviour, it would be interesting if they included personal perceived values and website design characteristics, as well as involve products and services that fulfil the degree of differentiation dimension.

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