



The determinants of individuals' perceived e-security: Evidence from Malaysia



Mahmood Hussain Shah^a, Hamid Reza Peikari^{b,*}, Norjaya M. Yasin^b

^a Lancashire Business School, University of Central Lancashire, United Kingdom

^b Graduate School of Business, Universiti Kebangsaan Malaysia (UKM), 43600 Bangi, Selangor, Malaysia

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ABSTRACT

Despite the critical role of individuals' perceived security in an online environment, previous research has not attempted to comprehensively study the influences and interrelations between the determinants of online individuals' perceived security. This research employs five theories to examine the interrelations that might exist between the antecedents of individuals' perceived security in online environment in Malaysia. It is the first attempt to empirically examine the interrelations of the confidentiality related factors identified in the literature which is a significant original contribution. A questionnaire was the primary research methodology and structural equation modeling was employed to test the hypotheses. The findings suggest that individuals' perceptions about security are significantly influenced by their perceived technical protection while technical protection was found to be influenced by website design features. Moreover, it was found that individuals' perceptions toward internally provided assurances are highly influenced by externally provided assurances. However, the results found no significant relations between internally and externally provided assurances about a website's security. The findings imply that e-retailers should launch well-designed websites and communicate the technical protection capabilities of their websites to address individuals' security concerns. The results also suggest that e-traders should consider the factors influencing individuals' security perceptions when designing/developing their websites.

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1. Introduction

The development of the internet and particularly e-commerce has created a revolution in peoples' lifestyle and standard of living. Moreover, e-commerce has also brought about many advantages for SMEs (Abbasi, Sarlak, Ghorbani, & Esfanjani, 2010; Koiso-Kanttila, 2005; Ozer, 2002). At present, most businesses have their own website to perform at least a part of its marketing activities (Kamarulzaman, Madun, & Azmi, 2010). However, despite the benefits and advantages of e-commerce solutions, many issues have been cited as the barriers challenging the global diffusion of e-commerce. Jarvenpaa, Tractinsky, and Vitale (2000) believe that while in the early stages of internet application, users' concerns were more about the performance of technologies and how firms have implemented their technologies and later, security has become a greater concern. The issue of security in the online environment is cited by many others as a critical factor (Berthon, Pitt, Cyr, & Campbell, 2008; Chang & Chen, 2008, 2009; Peikari, 2010c; Peterson, Meinert, Criswell, & Crossland, 2007).

Security features of a website have been cited as one of the determining factors of website success (Greunen, Herselman, & Niekerk, 2010), individuals' online trust (Berthon et al., 2008; Chang & Chen, 2009; Chen & Barnes, 2007; Flavian & Guinaliu, 2006; Furnell, Dowland, Illingworth, & Reynolds, 2000; Kim, Tao, & Shin Kim, 2010; Mahmood, 2006; Miyazaki & Fernandez, 2000; Ribbink, van Riel, Liljander, & Streukens, 2004; Roca, Garcia, & Vega, 2009), customers' online purchase intention (Delafrooz, Paim, & Khatibi, 2011; Peikari, 2010a; Salisbury, Pearson, Pearson, & Miller, 2001), perceived value (Kurt & Hacıoglu, 2010) online satisfaction (Chang & Chen, 2009; Lee & Lin, 2005; Ribbink et al., 2004) and online loyalty (Flavian & Guinaliu, 2006; Liu & Hung, 2010). Therefore, individuals' perceptions of the security features of a website play a critical role in their online behavior and purchase decision making process. Considering the critical role of factors such as customer satisfaction and loyalty in the financial performance of organizations (Ahmed et al., 2010), online security is a critical factor for online retailers.

Although the antecedents of online security have been studied by the scholars in the field of computer science and engineering, their approach is from the technical and engineering perspective and not from the social science and Management, which refer to security from the subjective perspective. Studying the antecedents of online security from the subjective perspective is important

* Corresponding author.

E-mail addresses: mhshah@uclan.ac.uk (M.H. Shah), omid726@yahoo.com (H.R. Peikari), norjaya@ukm.my (N.M. Yasin).

because the antecedents of security are difference in subjective and objective perspective (Chellappa & Pavlou, 2002; Kim et al., 2010; Linck, Pousttchi, & Wiedemann, 2006; Peikari, 2010b,c) and the findings of each approach cannot be applied to the approach. Therefore, it is needed to study the antecedents of online security from the managerial and social science perspectives, using the subjective approach.

Despite the importance of the issue, the studies investigating the security perceptions of individuals from the subjective perspective are limited in their understanding of the determinants of perceived online security. More specifically, the interrelations between different antecedents and determinants of security have not been fully investigated and understood by researchers. In other words, previous studies have not fully addressed how to influence individual security perceptions in the online environment and only a few attempts have been made to study the antecedent factors of individuals' perceived security (Chang & Chen, 2009; Chellappa & Pavlou, 2002; Kim et al., 2010). However, these studies had a limited approach and scope. They have not investigated the interrelations that may exist among these factors and have only studied their direct influence on perceived security. Therefore, there is a need to investigate the factors influencing individuals' perceived security and their interrelations more deeply.

This research intends to address the interrelations between the determinants of individuals' perceived security of websites in the B2C context. The findings of this study will contribute in the academic world by improving the current models and understanding of the interrelations that exist between such factors and overall security features, which enriches the existing knowledge and theories regarding the determinant factors of individuals' perceived security and their interrelations. The findings also help e-retailers and practitioners to gain a better understanding of the security antecedents which in turn enables them to have more efficient and effective e-commerce strategies and design to address and improve their individuals' security perceptions.

Another issue is that cultural differences of different nations have been found as one of the factors significantly differentiating their perceptions toward online risk and security (Cheskin Research Group, 2000; Cyr, 2008; Cyr, Bonanni, Bowes, & Ilsever, 2005; Peikari, 2010a; Talukder & Yeow, 2006). Since the majority of the research available on e-commerce has been conducted in the US: a country with high level of individualism and uncertainty avoidance, the findings of such research therefore cannot be generalized to other countries with different cultures (Alam & Yasin, 2010b). This calls for more research about individuals' perceptions of online issues in developing countries (Abbasi, 2007; Peikari, 2010a). Furthermore, the adoption of online transactions by citizens and businesses is in its early stages in Malaysia (Alam & Yasin, 2010a; Delafrooz et al., 2011). Since customers in countries where the utilization of online shopping is in its early stages have higher levels of security concerns (Alam & Yasin, 2010a; Hwang, Jung, & Salvendy, 2006), it is therefore needed to conduct context-based research about the factors influencing customers' perceptions toward online security and its determinants in Malaysia. This brings about differences with many of the past studies in this field, which have collected data from other countries. First, Malaysia represents an Asian country with its unique culture of collectivism and uncertainty avoidance (Hofstede, 1984, 2001) which has made them skeptical in revealing sensitive information in the online environment (Alam & Yasin, 2010a; Peikari, 2010a). This is because the nations – like Malaysians – with high collectivism and uncertainty avoidance characteristics have more caution and less risk propensity in their social and business interactions (Bellman, Johnson, Kobrin, & Lohse, 2004; Cyr et al., 2005). This makes the findings

of this research different from those conducted in the Western countries such as the US and UK where the people have a lower level of collectivism and uncertainty avoidance.

Secondly, although the Malaysian government urges Malaysians to do many of their transactions online (Lim, Yap, & Lee, 2011), Malaysians are in the early stage of the adoption of online shopping. This has made their perceptions different with those of the nations with more online experience (Alam & Yasin, 2010a). Thirdly, there is no study available about the factors influencing customers' perceptions of online security in Malaysia. This justifies the need to conduct this research in the context of Malaysia. The findings may help companies willing to enter the Malaysian markets for e-commerce. The findings can provide useful insights for the policy makers and business managers to effectively and efficiently address Malaysian concerns about online security. Moreover, the findings will improve our knowledge of the global diffusion of e-commerce in the developing countries in general and in Malaysia with its unique features specifically.

2. Literature review

2.1. Security perceptions in e-commerce

Azizi and Javidani (2010) maintain the belief that security concerns refer to the security of financial information such as credit card information or online account passwords. Chellappa and Pavlou (2002) argue that an online transaction is secure if the information originates from the right party and reaches the right entity without being observed, changed or destroyed during the transition process and storage. Kurt and Hacıoglu (2010) argue that customers perceive online security as an ethical issue and expect online merchants to guarantee the security of sensitive information which they hold.

As shown in Table 1, previous research has referred to a variety of variables and factors as the dimensions of online security. According to Table 1, some scholars have referred to such factors using the broad term of “security” while others have been more detailed and specific. Some have referred to security measures either as different technological solutions by specifying the nature and application of such factors as technical protection, authentication and encryption or as internally or externally provided confidentiality assurances such as privacy and security seals or security and privacy policy statements. Therefore, other than the broad term “security”, there are two main security related measures, namely: confidentiality technological solutions and confidentiality assurance evidences.

A few scholars attempted to study the influence of customers' perceptions of different confidentiality factors on their perceived security. For instance, Chellappa and Pavlou (2002) studied the influences of customers' perceptions of various factors including encryption, authentication, technical protection and verification on customers' perceived security. Likewise, Kim et al. (2010) investigated the influence of the customers' perceptions of a security statement and websites technical protection on their perceived overall security. Belanger, Hiller1, and Smith (2002) used four factors – third party privacy seals, third party security seals, privacy statements and website security features: to measure the customers' feel of merchant trustworthiness and found that customers value the security features more significantly compared to the other three variables in establishing trust toward the online merchant. Therefore, it can be concluded that customers' perception of overall security is different with their perceptions about specific confidentiality related factors such as third party seals or security/privacy statements.

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