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The Impact of a 'Theological' Web Interface on Trust in the Context of Electronic Commerce

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ABSTRACT

Researchers and academics from diverse disciplines have highlighted the role of 'trust' for establishing and strengthening existing relationships between individuals and organisations in the commercial and the social context. Various models have been proposed which aim to identify both the antecedents and outcomes of trust displayed towards e-commerce Web sites. Increased trust is generally shown to increase positive user attitude, which in turn is believed to increase the intention to buy. Studies have shown the antecedents of trust include variables such as the perceived reputation and size of the vendor organisation. The current paper investigates the role of trust on e-consumers from a cultural perspective. Religious sub-cultures have been targeted as the main study area for this paper's research investigation. Participants recruited from Christian, Muslim and other faiths were asked to interact with online bookstores that identified with a Christian, Muslim or Neutral orientation. Neutral Web sites were those sites classified as devoid of any religious marketing, branding and logos. Trust and attitudes towards the Web sites were measured and this data was used to test the hypothesis that same-religion sites would be found more trustworthy and appealing than other religion or neutral sites. This hypothesis was partially supported, but only for the Muslim participants. It was found that the Muslim group expressed significantly more trust in the Muslim site compared to the Christian site. They also expressed significantly more positive attitudes towards the Muslim online bookstore than the other two sites. The implications of these results for theories of web based trust and attitude are discussed along with the practical implications of the findings.

Keywords: Web-based Trust, Web-based Attitude, Culture, Religion

1. INTRODUCTION

The continuous growth in internet shopping has incited researchers to investigate the various factors that influence consumer purchase decisions in the web context. Trust is one of the variables which is receiving considerable attention. The lack of trust was often cited as the significant barrier to engage in e-commerce transactions [6,8]. Studies such as Jarvenpaa et al (2000) substantiate the supposition that there is a relationship between trust in an online store and willingness to buy. Other studies have also suggested a number of HCI and organizational factors that could contribute to increased trust in a Web site [6,16,18]. This paper considers the nature of the relationship between culture and trust in the e-commerce context. It asks whether a consumer's cultural affiliation can itself act as an antecedent to trust. The main theme of this study tests the hypothesis that participants will trust and like an e-commerce site affiliated to their own religion more than one affiliated to a different religion or to no religion.

2. TRUST IN THE E-COMMERCE CONTEXT

Definitions of trust vary from one context to another. Husted (1989) argues that trust is complicated due to the wide spectrum of approaches that define and describe it. In general the concept of trust involves a relationship between the trustor and the trustee [12]. A precondition for trust to manifest and become a relevant concept is the presence of risk or uncertainties in a potential decision [10]. Internet purchasing certainly meets this criterion since all transactions in e-Commerce are dealt with remotely. Our research involves studying trust from a one-to-many relationships perspective (for example between an individual and an organisation) since it is this type of trust which an individual consumer holds in a Web-based retail organisation. In recent years a number of researchers have begun to investigate the role of consumer trust in e-commerce purchase decision making and several models have been developed [6,16,19,31]. In such models trust is generally seen as a factor which can affect a consumer's willingness to buy [31]. Jarvenpaa et al (2000) also proposes that this relationship is mediated by attitude (a positive relationship) and risk perception (a negative relationship). An empirical study carried out in a number of different countries corroborates this model [15]. Some researchers focused on identifying the antecedents of trust in e-commerce stores. Kim and Moon (1998) provide empirical results which suggest that the visual components of a Web site (such as color and graphics) can be manipulated to induce trust in Web visitors [18]. Egger's (2002) Model of Trust for

Electronic Commerce (MoTEC) suggests that prepurchase knowledge (including store reputation), interface properties and informational content (for instance information provided by the store about their policies/guarantees) are all trust-instigating factors [6].

3. TRUST AND CULTURE

There are several reasons to assume that culture may be an important factor in on-line trust. Some studies found the ingrained cultural values that form an essential part of the cultural heritage of a person to be influential in evoking an individual's trust [9, 29]. In general, trust in its cultural context is credited with being the social 'glue' for sustaining bonds between members of cultural groups [32,33]. Individuals are more likely to perceive members outside their social circles as more untrustworthy than their in-group members [2].

In a collectivist culture, an individual is regarded as a part of the group that s/he affiliates [9]. Collectivists' behaviour is usually regulated by group norms. Credit or blame is a 'group' responsibility and strong distinctions are made between in-group and out-group members. This is in contrast to individualist cultures where the distinction between in-group and out-group members often overlaps or is altogether non-existent [36]. Further, collectivists value homogeneity within ingroups [32]. Thus, they are more willing to trust individuals and sub-groups within the same culture (ingroup trust). In this research, we have chosen to explore the role of membership in a collectivist culture in the formation of trust in online stores. As has been mentioned earlier, members of a collectivist culture assign a higher level of trust to others from the same ingroup than to those from outside. The question we address is whether this effect also applies to interactions with an interface, particularly a Web-based electronic commerce interface. In order to explore the proposed relationship between trust and culture, we needed to identify participants from collectivist cultures and have chosen religious identification to classify our cultural in-groups (religious sub-cultures). According to Iannaccone (1995), Islam, Judaism and Christianity share the traits of a collectivist culture. Devout followers of such religions are expected to abide by the rules set by their religious doctrines, for example, being strictly committed to the religious practices and membership of the group [13,27,28]. Membership of a collectivist religion thus provides a good example of where in-group trust should be present. We have selected the collectivist religions of Christianity and Islam in our research. Using two collectivist religions enables us to test the generalizability of any effects found.

3.1 Research hypotheses

On the basis of the discussion above we propose the following research hypotheses:

H1: Members of a collectivist religion will trust a samereligion web-site more than a neutral web-site or other religion web-site.

This hypothesis can be rephrased more specifically according to the religious groups used in this study, thus:

H1a: Members of the Muslim religion will trust a Muslim web-site more than a neutral web-site or other religion web-site.

H1b: Members of the Christian religion will trust a Christian web-site more than a neutral web-site or other religion web-site.

H2: Members of a collectivist religion will express more positive attitudes towards a same-religion web-site than a neutral web-site or other religion web-site.

Again this hypothesis can be rephrased more specifically as:

H2a: Members of the Muslim religion will express more positive attitudes towards a Muslim web-site than a neutral web-site or other religion web-site.

H1b: Members of the Christian religion will express more positive attitudes towards a Christian web-site than a neutral web-site or other religion web-site.

Note that H2 follows from H1, since theories of trust suggest that trust is related to attitude. The following sections describe the research which was followed in order to investigate these hypotheses. Note that the scope of this research is confined to initial trust attitude formation.

4. EMPIRICAL WORK

An empirical study with 91 participants was conducted to explore the relationship between religious identification and trust in on-line stores. The experimental task involved participants interacting with religious or neutral e-commerce book stores. Questionnaire responses were used to measure the main dependent variables of web-based trust and web-based attitude. A separate questionnaire was used to measure demographic characteristics of the sample together with the extent of their religious affiliation and web experience.

4.1 Construct measurement

A number of measures were developed and used in this research. Where measures were developed from scratch, we followed the procedure recommended by DeVellis (1991) and Bearden and Netemeyer (1999) for the development of psychological and latent construct measures which involved piloting an initial 'pool' of items drawn from the literature that are meant to represent the constructs. The Likert and categorical scaling procedures were used for developing the constituent items of the constructs following the guidelines provided by Zikmund (1977). To counter for

the response set of acquiescence, we reversed the Likert scale rating and the direction of the wording of some items [5]. The resulting items were tested in a pilot trial (involving 50 participants) and some items were reworded to remove ambiguities identified during this trial. It had been argued that the convergent loadings of items on a separate factor is a trait of construct validity [1,5] and that in general, factors extracted from a factor

analysis are assumed to represent the validity of the underlying latent constructs being investigated in a research study [5]. We have therefore performed a factor analysis on the constituent items representing the different constructs to see if they are valid. Cronbach's Alpha is used as a measure of the internal consistency of each scale used. A Cronbach's Alpha values of 0.80 or more are generally required for widely used scales [14]

TABLE 1. Characteristics of the sample cross-tabulated against religion (N = 91).

	Christian (%)	Muslim (%)	Others (%)	Total within Sample (%)
Gender				
Male	62	79	50	65.9
Female	38	21	50	34
Ethnicity				
Arab	0	29	0	12.1
Asian (Other)	3	8	17	8.8
Bangladeshi	0	3	0	1.1
Black African	3	3	0	2.2
Caucasian	3	0	0	1.1
Chinese	0	0	25	6.6
European/White	83	8	21	35.2
Hispanic	3	0	0	1.1
Indian	0	3	34	9.9
Kurdish	0	3	0	1.1
Mauritian	3	0	0	1.1
Pakistani	0	39	0	16.5
Persian	0	5	0	2.2
Srilankan	0	0	4	1.1
Usage of Internet				
< 6 months	0	0	0	0
1 year	10	3	4	5.5
2-3 years	28	39	30	33
> 3 years	62	58	68	61.6

4.1.1 Dependent variables

Measures of web-based trust and web-based attitude were developed following the procedure described above. Several literature sources from different disciplines were consulted in the development of the of constituent items web-based trust Web-based [3,4,7,17,21,23,25,34] and attitude [11,22,24]. Following the pilot study a final version of the questionnaire was produced with items representing 'web-based trust', 'web-based attitude' 'intention to buy' from an online store.

The web-based trust (Cronbach's Alpha = 0.88) and web-based attitude (Cronbach's Alpha = 0.93) constructs were both reliable. The Intention-to-buy

loaded on the web-based attitude factor and was therefore included within this general attitude measure. There was a significant correlation (p<0.05) between the scores on the measures of web-based trust and web-based attitude which lends ground to models that posit on-line trust to be an antecedent to attitude and willingness to buy [16].

4.1.2 Demographic variables

Several categorical demographic measures were used including one for the independent variable of religious identification (Christian, Muslim, none-or-other), as well as gender and ethnicity. In addition a number of demographic scales were used or developed to measure variables that might be expected to be important in the interpretation of the results (e.g. experience in using computers and the internet). We also wanted to establish the extent to which culture affects their general purchasing habits specifically the extent to which participants were inclined to buy from vendors within their own religious group. To measure this construct we adapted the pre-existing consumer ethnocentrism scale or 'CETSCALE' [26] so that it referred to religion rather than ethnicity. We refer to our new measure as the consumer religio-centrism scale (RELSCALE). The validity of the scales was checked through factor analysis and after some modifications the religious commitment scale (Cronbach's Alpha = 0.92) and the RELSCALE (Cronbach's alpha = 0.86) were both found to be reliable.

TABLE 2: Mean scores on the religious commitment scale and consumer religio-centrism scale.

	Religious Commitment	Consumer Religio-Centrism
Religious identification	Mean (standard deviation)	Mean (standard deviation)
Christian	2.72 (0.88)	1.39 (0.52)
Muslim	4.11 (0.58)	2.83 (0.77)
None-or-Other Religion	2.15 (0.80)	1.40 (0.42)

4.2 Method

4.2.1 Experimental design

A pseudo-experimental approach was used in the empirical study. A 3 x 3 mixed-factorial design was used. The naturally occurring variable of religious identification of the participants was used as the between subjects independent variable with three levels: Christian, Muslim and None-or-Other. The religious affiliation displayed by an e-commerce web site was used as the within-subjects independent variable, again with above three levels. The dependent variables were web-based trust and web-based attitude.

We decided to use online bookstores as our 'testbed' sites since this category of purchase has been the focus of a number of other studies [15]. We were also able to find web sites within this category which were clearly affiliated to particular religions. The use of real web sites increases the ecological validity of the results.

Our hypotheses were directly tested through the inclusion of the Christian and Muslim groups of participants. However, since we were not able to control for all of the features of the web sites used, we also included a control group of participants, not affiliated to either of the target religions. This allowed us a means to check for the role of extraneous (noncultural) variables. If the pattern of responses for all three groups across the three web sites were similar it would suggest that the results could be explained by non-cultural factors alone. If they vary by religious identification for the religious groups, and this pattern differs from that observed for the non-affiliated participants, we have stronger grounds for attributing the findings to the effects of culture.

4.2.2 Participants

Participants in this study were recruited from within the student population at Brunel University, West London, UK. This population was chosen since it is culturally diverse and generally experienced in using the web.

Ninety one participants took part in the study. Among them, 29 were categorised as Christian, 38 as Muslim and 24 as None-or-Other religion. Their demographic characteristics and web experience are summarised in Table 1 (see previous page).

The data indicate that the majority of participants within all religious categories are experienced web users.

However, there are large gender differences between the religious groups; nearly 80% of the Muslim sample are male compared to 62% in the Christian sample and 50% in the no-or-other religion group.

Mean scores on the religious commitment scale and consumer religio-centrism scale are shown in Table 2. The Muslim participants in our sample appear to be more strongly committed to their religion than the participants in the other groups, they also appear to be more consumer religio-centric than participants in the other groups. These differences were tested using the Krustal-Wallis test (this non-parametric alternative to one-way ANOVA was used since the assumption of homogeneity of variance was not met for these data sets). It was found that religious commitment varied with religious identification in our sample (Chi-Square(2) = 52.2, p<0.001). Post hoc Mann Whitney tests confirmed that there are significant differences between the Muslim participants and Christian participants (U=111, p<0.001), and between the Muslim and the None-or-Other religion participants (U=24.5, There was also a significant difference p < 0.001). between the Christian and the None-or-Other participants (U=222.5, p<0.05). It was also found that consumer religio-centrism varies with religious identification in our sample (Chi-Square(2)=51.7, p<0.001). The significant differences are between the Muslim participants and Christian participants (U=69.5, p<0.001), and between the Muslim and the None-or-Other religion participants (U=49.5, p<0.001).

4.2.3 Procedure and experimental tasks

All experimental tasks during this study were performed in a laboratory at Brunel University to control for any effects due to physical location. Each participant interacted with three Web sites; a same-religion site, a different-religion site and a neutral site. The neutral site in both cases was www.bol.com. The same-religion site for the Muslim participants was www.dar-us-salam.com (the other-religion site for Christian participants); for Christian participants the same-religion site was www.christianbooks.com (the other-religion site for the Muslim participants). They were asked to explore each web site for approximately 20 minutes before filling out a questionnaire based on their experience of it. Following completion of this part of the study, participants were asked to complete the demographic questionnaire.

4.3 Results

4.3.1 Results for web-based trust

The mean ratings of Web-based trust for each site by each group of participants are summarised in Table 3. A 3 x 3 mixed-factorial analysis of covariance was performed on ratings of web-based trust (see Table 4). The within-subjects independent variable consisted of displayed religion of the web-site. The between-subjects independent variable was religious identification of the participant. Gender was used as a covariate to remove effects due to the uneven distribution of gender of the sample. Analyses were performed by SPSS using type III adjustment for unequal sample size. After adjustments by the covariate, a significant multivariate main effect was observed with F(2, 86) = 3.67, p<0.05. There was also a significant interaction effect with religious identification of the participant (F(4, 86) =

5.15, p<0.05). A test of the within-subjects effects showed a significant main effect of site religion (F(1, 87) = 6.75, p<0.05) and a significant interaction effect between site religion and religious identification (F(2, 87) = 6.0, p<0.05). There were no significant betweensubjects effects. Planned comparisons were conducted for the Muslim and Christian portion of the sample to test Hypotheses H1a and H2b that in-group members of a religion will trust their own religion Web-site more than a neutral or other religion web-site. It was found that the Muslim participants did express significantly more trust in the Muslim book site compared to the Christian book site (t(37)=-2.74, p<0.05), however there was no significant difference between the mean trust rating for the Muslim site and the Neutral site. No significant differences were found in the Christian subsample so we cannot reject the null hypothesis.

TABLE 3: Mean ratings of web-based trust.

	Site Religion:		
Participant religious identification	Christian	Muslim	Neutral
Christian	3.49 (s.d. 1.04)	3.21 (s.d. 1.03)	3.49 (s.d. 0.86)
Muslim	3.18 (s.d. 0.88)	3.62 (s.d. 0.78)	3.39 (s.d. 0.80)
None-or-Other	3.44 (s.d. 0.75)	3.06 (s.d. 0.54)	3.60 (s.d. 0.85)

TABLE 4: Analysis of covariance of web-based trust.

Source	Sum of Squares	df	Mean Square	F	Sig.
Site religion	3.677	1	3.677	4.529	p < 0.05
Site religion x gender	2.635	1	2.635	3.246	n.s.
Site religion x religious identification	9.152	2	4.576	5.635	p < 0.05
Error (site)	70.643	87	0.812		

TABLE 5: Mean ratings of web-based attitude.

	Site Religion:		
Participant religious identification	Christian	Muslim	Neutral
Christian	2.50 (s.d. 0.94)	2.22 (s.d. 0.69)	3.39 (s.d. 0.65)
Muslim	2.39 (s.d. 0.77)	3.85 (s.d. 0.94)	3.18 (s.d. 0.92)
None-or-Other	2.85 (s.d. 0.70)	2.53 (s.d. 0.51)	3.78 (s.d. 0.71)

TABLE 6: Analysis of covariance of web-based attitude.

Source	Sum of Squares	df	Mean Square	F	Sig.
Site religion	8.572	1	8.572	16.906	p < 0.001
Site religion x gender	3.112	1	3.112	6.138	n.s.
Site religion x religious identification	42.309	2	21.154	41.721	p < 0.001
Error (site)	44.113	87	0.507		

4.3.2 Results for web-based attitude

The mean ratings of Web-based attitude for each site by each group of participants are summarised in Table 5. A 3 x 3 mixed-factorial analysis of covariance was performed on ratings of attitude toward the web sites (see Table 6). The within-subjects independent variable consisted of displayed religion of the web-site. The between-subjects independent variable was religious identification of the participant. The covariate was gender. Analyses were again performed using type III adjustment for unequal sample size. After adjustments by the covariate, a significant multivariate main effect was observed with F(2, 86) = 10.65, p<0.001. There

was also a significant interaction effect with religious identification of the participant (F(4, 86) = 5.65, p<0.001). A test of the within-subjects effects showed a significant main effect of site religion (F(1, 87) = 13.57, p<0.001) and a significant interaction effect between site religion and religious identification (F(2, 87) = 11.64, p<0.001). There were no significant between-subjects effects. Within-subjects planned comparisons were conducted with the Muslim and Christian portion of the sample to test hypothesis H2a and H2b that ingroup members of a religion would express more positive attitude towards their own religion site compared to another religion site or a neutral site. It was found that the Muslim participants did express

significantly more positive attitudes towards the Muslim site compared to either the Christian site (t(37) = -7.752, p<0.001) or the Neutral site (t(37) = -2.13, p<0.05).

For the Christian portion, a significant difference was found between attitude towards the Christian site and the Neutral site, but this was in the opposite direction to that predicted, with the neutral site being preferred over the Christian site (t(28) = -4.37, p<0.001). No significant difference was found between attitude towards the Christian and the Muslim sites.

5. DISCUSSION AND CONCLUSIONS

The global nature of the internet allows e-commerce stores to market around the world. Within this context it is important for web retailers to understand how aspects of their sites may help to engender trust and positive attitude within members of particular cultural groups. The current paper has explored the role which consumer cultural identification plays in the initial formation of trust and attitude towards Web-based stores which display culture-specific characteristics.

The main contribution of this paper is to show that trust and attitude in a web-based retailer can vary with culture, at least as represented by affiliation to a religion. Within one collectivist culture, identification with the Muslim religion, we have shown that in-group trust effects can transfer to the web context. Muslims in our study were found to be more trusting of a Muslim site compared to a Christian site (though not compared to the Neutral site). Muslim participants also liked the Muslim site more than the neutral and the Christian site. Since the attitude construct used in this study is closely related to willingness to buy, this finding suggests that this group would be more likely to buy from the Muslim site than the other two sites tested.

However, the hypothesised relationship between trust and religious identification was not supported by the Christian participants. The Christian portion liked the neutral site better than the Christian site. Overall the pattern of responses given by the Christians was similar to those given by the None-or-Other religion group. This could imply that Christians do not use religious distinctions in forming their initial trust and attitude towards a web site. In the absence of culture effects we would expect large and reputable stores (such as Bol.com) to be trusted and liked better by participants [15].

The lack of predicted effects with the Christian sample calls into question the generalisability of the findings with the Muslim sample to other collectivist religions. However, a potential explanation for the different results between the Christian and Muslim samples can be attributed to the scores of these two groups on the religious commitment scale which differed significantly, so may be the Christians in our sample were not

"devout" Christians. Interestingly the Muslim and Christian participants also differed significantly in terms of how much they said religion affected their general purchasing decisions (as measured by the RELSCALE). This supports the idea that the effects we have observed in our experiment may demonstrate a transfer of ingroup attitudes from the general to the web context.

5.1 Limitations and future work

There are a number of limitations that were identified during the course of this research study. One prominent issue was that we have assumed the existence of homogeneity within the religious groups. However, both Christianity and Islam have experienced profound schisms that resulted in the inception of several religious factions such as Roman Catholics and Eastern Orthodox in Christianity, and the Sunni and Shia sects in Islam [9]; Future work could address this issue by concentrating on specific religious sects, though the practical applicability of such research might be limited. Other avenues for future research include investigating online religious trust relationships for religious subgroups in (1) individualistic societies (e.g. US) and (2) in situations of high-risk purchase decisions (e.g. books) versus low-risk purchase decisions (e.g. cars) [20].

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