Culture and E-Commerce: An Exploration of the Perceptions and Attitudes of Egyptian Internet Users

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Abstract

This paper examines the perceptions and attitudes that Egyptian users hold towards electronic shopping sites. Internet sites are globally available, opening up huge potential markets for online retailers. However, it remains unclear whether sites designed for the US or European markets will be acceptable in other cultures. This paper describes an exploratory card sorting study conducted with Egyptian consumers. The study was designed to examine the e-commerce interface features that are most salient to this user group and to explore how these relate to user intentions to engage in internet shopping. The results support the role of site familiarity in predicting purchase intentions within this cultural setting.

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1. Introduction

As the use of the internet for business-to-consumer (B2C) electronic commerce continues to expand rapidly, researchers are becoming increasingly interested in identifying the web site features that are associated with success. Studies suggest a number of factors which lead to more positive evaluations of e-commerce sites including the characteristics of the organisation running the site (e.g. Jarvenpaa et al. 2000) and the interface characteristics of the sites themselves (e.g. Kim and Moon 1998, Egger 2002).

A defining feature of the World Wide Web is that it is a global medium, allowing organizations to market and sell their products beyond geographical borders. However, studies on e-commerce tend to consider only US, European or occasionally Far East Asian users; those from other cultures may have different perceptions and priorities. Site designs that work in the US and Europe may therefore fail to elicit positive reactions in other countries. Recently some research has begun to address this issue with studies investigating user attitudes towards, and behaviour with, e-commerce sites in various alternative cultural settings including Israel, Australia and Turkey (for example Jarvenpaa and Tractinsky 1999, Lightner et al. 2002). The current paper continues in this vein by exploring the attitudes of Egyptian consumers towards e-commerce sites.

Egypt is an interesting case to study in this context for several reasons. As an example of an Arabic country, it represents a cultural group that has typically been ignored in previous studies of consumer behaviour in e-commerce. Furthermore in Egypt increased use of the World Wide Web has been encouraged by government policies. Egypt is now a leader the Arab world in terms of internet use, and companies from both within and outside Egypt will increasingly want to exploit this opportunity to sell their goods online. However, little is currently known about the factors that affect online purchasing within this culture. Insight into these factors could help companies to design sites that will be more effective in Egypt and this the motivation behind the research described here. Since so little is known about

Egyptian web users, the work takes an exploratory approach, using a card sorting technique to establish the features of e-commerce sites that this group perceive as being most salient. A follow-up study then attempts to link these features to purchase intentions.

2. Background

2.1 Behaviour and E-commerce systems

Given the purpose of e-commerce web sites, their success can ultimately be measured in terms of sales volume generated. However, given the difficulty of using real sales as an outcome measure in research, consumer 'intention to buy' is often used as a useful surrogate dependent measure when assessing e-commerce site effectiveness. There is now a growing body of research linking various web design features with intention to buy and several researchers have proposed models to account for these relationships. This section briefly reviews some of the main findings in this area.

One major research strand has examined the link between trust in a site and intention to buy, and tries to establish antecedents to trust. Gefen (2000) for example, surveyed 217 potential E-commerce users about their attitudes towards Amazon.com. His data suggests that familiarity with an internet vendor increases trust in that vendor, and that both familiarity and trust influence intentions to purchase. Similarly Jarvenpaa et al. (2000) found that perceived reputation and size of an on-line store affected trust ratings. Trust in turn was found to affect attitude towards a store which affected intention to buy. Grabner-Kräuter and Kaluscha (2003) present a review of empirical research in on-line trust which describes these and a number of other similar studies in more depth.

Another strand of research has investigated how interface characteristics affect purchase intentions. Some studies draw upon the technology acceptance model (Davis 1989) which hypothesises that IS adoption is influenced by user perceptions of (1) ease of use and (2) usefulness. For example, Gefen and Straud (2000) investigated the applicability of this model

to web purchase intentions. They found that perceived usefulness did affect user purchase intentions. Perceived usability had no direct effect on purchase intentions, but did affect ratings of perceived usefulness. Other studies have identified other factors that may affect intention to buy. For example Ranganathan and Ganapathy (2002) found that information content of a site, design (specifically navigation aids), security and privacy all had some impact on the online purchase intent of consumers.

More recently work has started to explore the relative contributions of user perceptions of trust and perceptions of the technology (interface). Van der Heijden et al.'s (2003) study of 228 potential on-line shoppers found some evidence to support the role of both perspectives in explaining purchase intentions. Similar work by Gefen et al. (2003) showed that perceived usefulness of the site affected purchase intentions for repeat customers but not for potential customers. The same study showed that trust affected purchase intentions regardless of experience. There is also some evidence that technology issues may help to build trust. Kim and Moon (1998) present a study which shows that visual design factors in the interface can induce feelings of trust in an e-banking system.

2.2 Cross cultural research on behaviour and E-commerce

The majority of the research discussed above was conducted either in the US, Europe or in Far East Asia. However, the growth of the web is a global phenomena and it is therefore important to establish whether patterns of e-shopping established in one culture also apply in other cultures. Some research is beginning to address this issue with mixed results.

Jarvenpaa and Tractinsky (1999) report a cross-cultural validation study of their internet consumer trust model (Jarvenpaa et al. 2000). This model hypothesises that perceived size and reputation of an internet store act as antecedents to trust (with larger stores with better reputations being trusted most). Trust in a store is in turn hypothesised to predict attitude and willingness to buy. Support for all of these hypothesised relationships was obtained in

separate studies conducted in Australia, Israel and Finland, providing tentative support for the generalisability of the model across cultures. Jarvenpaa and Tractinsky (1999) also hypothesised that there would be some specific differences between the Australian and Israeli sample due to culture. Their argument concentrates on the individualism-collectivism dimension (where either individual or group values take precedence) which is thought to vary between cultures (Hofstede 2001). However, the data did not support Jarvenpaa and Trackinsky's (1999) hypotheses in this case. On the other hand Siala et al. (2004) found some evidence that those from a collectivist cultural grouping prefer to buy from sites from within their cultural in-group rather than from outside.

Simon (2001) compared the perceptions and attitudes of four cultural groups (North American, South American, Asian and European) towards four example web sites. Their research was based on the clustering of a number of dimensions which, according to the model of culture proposed by Hofstede (2001), are thought to vary by culture. Their sample was categorised into two cultural clusters: (1) high power distance, collectivist and masculine (South America and Asian participants) and (2) low power distance, individualist and feminine/neutral (North America and European participants). It was found that perception and attitude did vary significantly by cultural cluster, with the European and North American participants giving more positive ratings of the sites than the South American and Asian participants. However, these results could reflect a US/European cultural bias in the choice of web sites (for example Reebok and British Airways) rather than suggesting more general differences between cultures.

In another cross cultural study Lightner et al. (2002) surveyed the e-commerce shopping behaviour and preferences of Turkish students. They then compared the results to those obtained with US students, looking for differences due to culture. The majority of the Turkish students surveyed had not used the internet for shopping. Lack of trust in shopping on the web was cited as the main reason and transaction security was also the issue of most concern to the

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Turkish group as a whole. These findings are in line with the important role proposed for security and trust in e-commerce discussed above. Comparisons of the Turkish results with an equivalent US survey showed a similar pattern of results for both samples but revealed that the Turkish respondents were more concerned about security than US respondents. This may simply be due to the relative inexperience of the Turkish group with the internet compared to the US group, rather than to cultural differences per se. Lightner et al. (2002) also conclude from their study that the online shopping experience for Turkish users could be improved by offering more scope for price negotiation (an analogy is made here with the Turkish bazaar). While this is an intriguing possibility, support for the idea from the results is not strong.

The limited evidence available from cross cultural research to date therefore suggests that the same general concerns affect online shopping behaviour across cultures. While there is some evidence of cross cultural differences it is unclear whether these can be related to established cross cultural variables (such as the individualist-collectivist dimension) or to what degree they will impact behaviour in the longer term. Research is also some way from providing detailed e-commerce design recommendations for those cultures which have already been studied; many other cultures remain completely unexplored.

2.3 Current research objectives

Little research has yet considered how consumers in the Arab world perceive e-commerce sites, or their subsequent online shopping behaviour. Nevertheless, as use of the internet in Arab countries continues to grow, more and more e-commerce sites are starting to appear here. Egypt, together with Saudi Arabia and United Arab Emirates, is a leader in the region in terms of web uptake (Loch et al. 2003). There are currently around 140 internet service providers in Egypt and the government there is actively encouraging internet uptake through schemes such as the subscription free internet initiative and the PC for every home initiative (see http://www.mcit.gov.eg). Loch et al. (2003) describe Egypt's policies for IT diffusion as exemplary. While uptake of the internet is increasing rapidly in Egypt, achieving widespread

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adoption of e-commerce is seen as more challenging. El Nawawy and Ismail (1999) analysed the situation in Egypt and identified a number of deterrents to the use of e-commerce. While most of the issues they discuss concerned either the technological, business or legal infrastructure, they also recognised the importance of social and psychological barriers to use. However, little empirical work has been done to investigate these barriers.

The aim of the current study was to explore the attitudes of Egyptian consumers to e-commerce and to examine the way in which salient web design features affect their perceptions. Research of this kind often takes a survey based approach, collecting and analysing the attitudes of large samples of users. However, we argue that it is not always appropriate to begin with this method. Surveys are most effective when they are designed to test specific hypotheses or models. Currently little is known about web user attitudes in Egypt so it may be premature to begin testing specific hypotheses within this population. It would of course be possible to test the validity of current e-shopping models in this new cultural setting (following the cross cultural approach demonstrated by Jarvenpaa and Trackinsky, 1999). However, the issues which are potentially most important for this culture may fail to be discovered using this approach since the range of questions will be constrained by what has been found elsewhere. This could limit the practical significance of any findings.

Another approach would be to draw upon existing theories identifying cross-cultural differences in order to try to hypothesise how Egyptians will perceive e-commerce. The most well known cultural differences are the power distance, individualism-collectivism, masculinity-femininity, uncertainty avoidance and long –short term orientiation dimensions proposed by Hofstede (2001). Other researchers have also proposed characteristics by which cultures may be said to differ, for instance oral dominance (Zahara 1995) and polychronic time perception (Hall 1973). A number of suggestions have been made for how consideration of cultural dimensions such as Hofstede's could improve web and interface design (Marcus 2001) but these are not yet supported by empirical evidence. Where studies have explicitly

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tested the role of pre-established cultural variables the results have been equivocal. Some examples were discussed above and thus while Siala et al. (2004) found some evidence for a role of the collectivist cultural trait in predicting reactions to e-commerce web sites, Jarvenpaa and Tractinsky's (1999) study found none; Simon's (2001) paper found differences between cultures, but it is impossible to separate the possible impact of the different cultural variables studied. Hall (2001) cautions against trying to use cultural characteristics deductively in HCI research, citing the work of El-Shinnaway and Vinze (1997) as an example of where use of Hofstede's dimensions led to incorrect predictions about the behaviour of US and Singaporean users of group support software. Consequently our position is to treat the relevance of established cultural dimensions with caution, while not ruling out their potential value in influencing web perceptions and behaviour. We feel that the relevance of cultural characteristics should be identified through exploratory work before warranting full empirical tests. This is also advisable given the large number of cultural variables which could play a role, not all of which it would be feasible to investigate in a single empirical study.

On the basis of the discussion above we argue for the need for exploratory research on Egyptian perceptions of e-commerce. While not explicitly testing hypotheses at this stage, such research can be interpreted in the light of current models and lay the foundations for future hypothesis and model testing. It will also help to guide the design of e-commerce applications for use within this culture. Other authors have argued for the need for more exploratory qualitative research in the area of on-line trust and purchase intentions. For example Grabner-Krauter and Kaluscha (2003) argue that the methodological base should be broadened and that qualitative research should be preferred when trying to generate new insights.

The next section describes the exploratory approach taken in the current research, explaining why a card sorting method was chosen over alternative qualitative methods. The paper then

goes on to describe the results and to analyse these in the light of current theories of e-commerce acceptance and trust, and in the light of cultural dimensions such as those proposed by Hofstede (2001). We end by discussing the implications of the findings for both future research and current web design.

3 The Card Sorting Study

There are a number of methods that are suitable for use during the exploratory stages of research. Methods such as interviews and focus groups remain popular but rely upon participants being able to explicitly verbalise their views. Participants' responses are also likely to be biased because of social desirability effects. Such problems have led to an interest in alternative, 'contrived' methods of knowledge acquisition (Shadbolt and Burto, 1990). Card sorting is an example of such an approach. Its use derives from Kelly's (1955) Personal Construct Theory which posits that in their attempt to understand the world, people will develop sets of representations or hypotheses about the world ('personal constructs'). Card sorting methods provide a means to tap into the constructs that people hold within a particular domain, allowing researchers an insight into how that domain is perceived. The basic technique involves asking people to sort entities (such as pictures, physical items or words) from a given domain into groups (Upchurch et al. 2001). Card sorting can be used with a single respondent or with groups of respondents where the commonalities in constructs become relevant. Useful results can be obtained with sample sizes which are relatively small compared to those required for survey analysis.

Card sorting also has the advantage of being culturally neutral. Unlike questionnaires the method does not implicitly impose the researcher's view of the world (and therefore their cultural biases) upon the participants. If the data collection instrument is unconstrained by cultural bias in this way, it increases the possibility of discovering new insights.

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Card sorting is now widely used in the design and evaluation of interactive systems. Nielson (1993) proposes it as a means of discovering the mapping between the user's conceptual model and the information displayed on the interface. In interface design it is most often used to select meaningful categorisations of menu items or hyperlinks (for example see Lisle et al. 1998, and Rau and Liang 2003, for two cases where web content was organised on the basis of card sorting results). Maiden and Rugg (1996) also suggest sorting techniques as the primary method for elicitation of perceptions of quality and design aspects in web pages. Upchurch, Rugg and Kitchenham (2001) describe the use of card sorting to elicit web page quality attributes. They used screen dumps of web pages as the material to be sorted and were able to generate criteria by which web pages could be judged. The current paper takes a similar approach to this. Card sorting is used to identify the features of e-commerce web sites that Egyptian users perceive as varying between different vendors. We then look at how these relate to intentions to buy from a site.

3.1 Task design

An initial card sorting task was designed in order to identify the design features of e-commerce web sites that Egyptian users are most likely to notice when comparing several sites. We were particularly interested in which features would be most salient to this group. We chose to focus on users' initial perceptions of a web site, which would be formed on the basis of a view of the site's homepage. Screen shots of e-commerce home pages were therefore used as the materials for the sorting task.

We used book selling e-commerce sites for the trials. This domain was chosen because of its extensive use in previous e-commerce research and because books represent the most purchased items by Arabs using consumer web sites (Dabbagh Information Technology Group, 1998). Eleven sites were chosen as being representative of what is currently available to consumers in Egypt. This number of items is within the range of eight to twenty recommended by Upchurch et al. (2001). The chosen sites included local (Egyptian) vendors,

vendors from other Arabic countries and international sites. They also included sites which use Arabic, English or a mixture of the two languages. A description of the sites included in the study is given in Table 1. The language column indicates the predominant language used on the site at the time when the screen shots of the sites were captured for this study (July 2002), several of the sites have subsequently changed language.

[insert Table 1 about here]

The study used repeated single-criterion sorts. Participants were asked to look at the cards and to choose a criterion by which the web site home pages could be distinguished from one another. For example they might choose the background colour of the web site. Having named the sorting criterion they would then name categories for this criterion and sort the remaining cards into these categories. For example the background colour criterion might yield categories of blue, green, and other. It was up to the participant how many categories they chose for each criterion. The choice of criteria reveals the design feature variations that are noticed by participants and those that are chosen most frequently reveal which features are most salient. This procedure was repeated until the participants could think of no more criteria.

We were also interested in linking these results to users' purchase intentions. In order to explore this issue we ran a follow-up forced choice sorting study one month after the original study, where participants were asked to sort all of the sites according to the criterion: "I would/would not buy from this site". We hoped to link the findings from this follow-up study to the sorting results obtained in the first part of the study.

3.2 Participants

Fifteen Egyptian professionals (9 male, 6 female) participated in the study. Eight had an IT background. The participants were aged between 23 and 36 (with 50% under 30). All were

regular internet users with between three and ten years experience of using the web. All were University educated. While the sample is not representative of the Egyptian population as a whole, it does reflect the characteristics of those who are currently most likely to have access to the web.

Around half of the sample had never shopped online, mainly citing security reasons. The remaining participants had shopped online, mainly using international sites with English interfaces. 75% of these participants bought books online.

3.3 Materials and Procedure

A screen shot was captured of the home page of each selected internet site, as viewed in Internet Explorer 6.0. Printouts were produced using a high quality Deskjet 950C HP colour printer. These printouts were laminated for use in the card sorting trials. The card sorting trials themselves took place either in the participant's workplace or in another office location. Participants were given a brief training session on card sorting, using materials from a different domain (pictures of cars). Following the training session, participants were presented with the eleven laminated cards, illustrating the e-commerce home pages. Participants were asked to name a criterion by which the cards could be sorted and then sort the card set according to this criterion, naming each category that they used. This procedure was repeated until the participants could think of no more criteria on which to sort the cards. The experimenter kept a record of the criteria and categories chosen and the sort results obtained throughout. Following completion of the card sorting, participants were asked to complete a brief questionnaire which recorded their demographic details and experience with e-commerce.

Approximately one month after the original card sorting trial, participants were contacted again and asked to take part in a follow-up. Here they were asked to perform a single forced criteria sort of the same materials, using the criterion "willing/not willing to buy from".

Having sorted the cards according to this criterion participants were asked to provide a reason for the sorting decisions made. Thirteen of the original fifteen participants were available to take part in this follow-up.

4 Results

Table 2 provides an example of the raw data from this study (the first sort produced by participant 1). In this example the participant sorted the home page pictures into four categories. They named these categories: blue, green, brown and no dominant colour. They named their sort criterion as 'dominant colour in the page'. Various analyses can be performed with the raw data from card sorts. This section follows the sequence recommended by Rugg and McGeorge (1997). All analysis is based on the criteria generated by participants before a 'drying up' point was reached (that is the point at which they could not think of any more criteria).

[insert table 2 about here]

4.1 Criteria count

Card sorting results can be analysed in terms of the number of criteria used (table 3). In general experts will be expected to identify more criteria than non-experts (Upchurch et al, 2001). In the current study the IT-specialist group did identify slightly more criteria on average but the difference between groups is not large.

[insert table 3 about here]

4.2 Content analysis

The data were analysed for verbatim and gist agreement between the names of the criteria chosen by different participants, following the procedure outlined by Upchurch et al. (2001). Where possible criteria were grouped into superordinate constructs. For example the criteria "language used", "site language", "web site language" and "language with which site is

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designed" were grouped into the superordinate construct of "site language". Table 4 shows the superordinate constructs identified and the number of participants who used each construct.

[insert table 4 about here]

The most salient web site features, chosen by four or more different participants, were site language, categorisation of content, search method, use of adverts and general interface appearance. There was no evidence of systematic differences between the IT specialists and non-IT specialists in terms of the number or type of criteria and categorisations generated. The discussion of results which follows therefore considers the data from both groups together.

Site language was the criterion most commonly chosen by the participants. This suggests that language use is a highly salient feature for this group of users. Participants varied in terms of the number of categories they defined for the language criterion. The most common choice was three categories (chosen by five participants):

(1) Arabic, (2) English, and (3) a mixture of Arabic and English.

The remaining six participants choosing this criterion used binary categories. Four used English vs. Arabic, one used single language vs. multilanguage, and the final participant used Arabic vs. non-Arabic.

The next two most frequently used criteria concerned the categorisation of content on sites and the search methods available (chosen by six respondents each). Although we have chosen to look at these criteria separately, there is considerable overlap between them and it would be possible to combine them into a single superordinate criterion of ways of finding books. The categorisation of content criterion refers to whether users can browse a site via categories or via item lists. Four of the six participants used two categories and the remaining participants

used three categories. The most common categories were lists of books/items vs. lists of book/item categories (chosen by three participants).

The search method criteria were distinguishable from the categorisation criteria by the inclusion of an explicit reference to a search option. Four participants chose binary categories. Three of these were similar to one another (search option present/obvious vs. search option absent/not obvious), the third distinguished between book lists only and lists plus a search option. The remaining participants used multiple categories which resembled the categorisation of content categories discussed above but with the addition of a category for the presence of a search option.

Use of adverts was included in the criteria chosen by five participants. All used binary categorisations. The most frequent categorisation (two participants) was the presence vs. absence of adverts. A further participant categorised by the relative amount of advertising on a site. Two participants chose categories which referred to the content of the advertising.

Four participants chose criteria which referred to general subjective impressions of the appearance of the site. However, participants varied in the categories they used. One distinguished between attractive and non-attractive sites, another between cheerful and flat sites, and another between professional and non-professional looking sites. The final participant ranked the sites as excellent, good, bad and very bad.

A number of constructs from the literature on e-commerce uptake also appeared in the results. For example the familiarity/reputation of the store was mentioned by two participants. Two participants also distinguished between real (bricks and mortar) stores and virtual-only stores. However, some constructs were missing, most notably the issue of site security which dominates much of the e-commerce literature.

4.3 Cluster analysis

Card sorting results can be analysed using cluster analysis, a technique which emphasises establishing categories within the data (Eberts 1994). Cluster analysis provides a means of calculating the strength of the perceived relationship between pairs of cards, based on how often members of each possible pair of cards are sorted into a common group by multiple participants (Martin, 1999). It thus allows us to look for commonalities in the category judgements made within the study. All criteria chosen by more than one participant were analysed in this way. Data from the IT and non-IT specialists were aggregated. The clusters were calculated using the EZCalc tool developed by IBM (Dong et al 2001). Cluster analysis provides a numerical indicator of the degree of relatedness (with a value between zero, at the origin, meaning not related, to one at the other extreme meaning highly related). However, there is no straightforward statistical test to interpret the significance of these figures. A useful feature of EZCalc is therefore that allows the cluster results to be visualised in the form of a tree diagram, where the relationship between each pair of cards is shown graphically by the distance between the origin and the branching of the lines linking to the cards (Martin, 1999). This visualisation can aid researchers in interpreting the findings. An example of the results obtained is shown in Figure 1. This figure illustrates the clustering results for the criterion site language. This example will be used to illustrate how the diagrams are read and interpreted.

[Figure 1 about here]

In Figure 1. the names of the sites used in the picture sorting task are shown on the left hand side. The degree of category relatedness between items is indicated by the tree structure (Eberts 1994). The shorter the path that can be traced between two items through the tree, the more likely the items are to belong to the same category. If a branch between items occurs at the far right hand side of the diagram (the origin) this indicates that no participants grouped the items together. If a branch between items occurs at the extreme left hand side of the

diagram this indicates that all participants grouped the items together. Any major

categorisations are therefore indicated by the branch closest to the right hand side of the

diagram. For example with language the main categorisation is as follows:

Cluster 1: Boustanys, Amazon.com, Barnes & Noble, Borders, Alkitab and Arabooks.

Cluster 2: Almaktabah, Al-basheer, Arabicworld, E-Kotob and Neelwafurat.

The branches between these sets of items meet at the origin only, indicating that no

participants sorted any of the items named in cluster 1 together with any of the items named

in cluster 2 within this particular sort. The two clusters are therefore highly differentiated with

respect to the categorisation of site language.

Once clusters have been identified within the data the meaning these must be interpreted by

the experimenter (Eberts 1994). Analysis of the category names given by participants during

sorts can be helpful in informing this process. In the case of the language use criterion (figure

1), interpretation is fairly straightforward. The sites in cluster 1 use English language. The

sites in cluster 2 use Arabic. Within cluster 2 a further sub-cluster is observable. Two sites

which cluster together are Almaktabah and Al-basheer. These, while using mainly Arabic

language, also included some English. Both were consistently rated as mixed-language by

those participants who used three categories for the language sort.

All of the criteria analysed produced either two or three high level categories. In all cases

these main clusters occurred to the far right of the cluster diagram, indicating a high level of

agreement between participants. In most cases the high level categories could be interpreted

in a straightforward way by referring to the category names chosen by the individual

participants. The exceptions were the 'categorisation of content' and the 'use of adverts'

criteria. This suggests that in these cases it may have been inappropriate to merge the

different categorisations used by participants into single superordinate constructs.

Cluster analysis was also conducted with the results of the forced choice sort with the criterion "willing/not willing to buy from". The results of this analysis are shown in Figure 2. Interpretation of the main clusters in Figure 2 suggest that there are three sites that these consumers are more likely to purchase from: E-Kotob, Amazon and Barnes & Noble. The remaining sites are those that these consumers are less likely to purchase from.

[Figure 2 about here]

A sample from the complete set of clustering results is summarised in Table 5. These results are considered in more detail in the following section.

[insert table 5 about here]

4.4 Linking web page features to purchase intentions

During this stage of the analysis the sorting results from both sort tasks were examined to investigate whether there were any features that distinguish the sites where consumers were more likely to buy, from those where consumers were less likely to buy. We looked first at the features associated with the three sites where respondents were more likely to shop. We were interested in whether these three sites were categorised together according to any of the other sort criteria. The results are shown in Table 6.

[insert Table 6 about here]

Table 6 indicates that the 'buy' sites are more likely to be categorised together than not. They therefore appear to share a lot of the same salient features. The results imply that features indicated in the left column are those that are desirable for a web site designed for this user group. The 'buy' sites generally have multiple navigation features, are attractive, are

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familiar/reputable and are easy to use. Features in the right hand column, such as site language and use of colour, can apparently vary without any impact on willingness to buy.

A second analysis looked at the commonalities between the complete sort results for the willing to buy / not willing to buy dimension and the remaining category judgements. We were interested in whether there were any commonalities in category judgements from the initial sort results that would wholly predict membership of the buy or not buy category. The analysis was based on inspection of the complete sort results, a sample of which appears in Table 6 above. Table 6 shows the sort results where the categories had the most in common with the buy / not buy categorisations.

No criteria were found which wholly predict the buy / not buy outcome. The sort with the most commonality with the buy / not buy outcome was for the criterion: familiarity / reputation, which correctly predicts the outcome for all but one of the sites (the exception was Alkitab). Participants were willing to buy from all of the sites categorised as familiar (except Alkitab) and were unwilling to buy from any of the sites categorised as unfamiliar. The sort with the second most commonality was the general interface design criterion, which correctly predicted the buy / not buy outcome for all but two of the sites (the exceptions were Alkitab and Arabicworld). It was the attractive sites that were preferred.

4.5 Survey results

After the forced choice sorting task (willing to buy / not willing to buy) participants were asked to provide a reason for their sorting choices. Participants were free to choose more than one reason. The results are shown in Table 7. The most common reasons concerned the reputation and familiarity of the sites.

[insert Table 7 about here]

5 Discussion

The card sort commonalities analysis, together with the participants' own post hoc explanations of their 'willing to buy' sorts, provide strong evidence that web site reputation/familiarity is a key criterion for Egyptians in deciding which sites to purchase from. This supports previous research findings which emphasise the role of store reputation in internet purchase decisions across a number of cultures (Jarvenpaa & Tractinsky 1999). This suggests that future empirical work exploring the relevance of store reputation and familiarity is worthwhile in this cultural setting. Previous work has suggested that store familiarity affects purchase intentions via its effects on trust. The current study does not specifically address this issue and future work could investigate whether familiarity has an effect in this culture because of it impact on trust.

The card sorting also identified a number of salient features that tend to be associated with a willingness to buy. The preferred sites are perceived as attractive and easy to use and tend to have multiple features to support navigation. This again supports previous findings in Western cultures which have found a role of interface features in predicting purchase intentions. However, it is not clear from the current study whether these factors had any independent effect on willingness to buy. It may be that the more well know sites also tend to have better interface designs.

While site language was the most salient feature of the sites used (identified by 11 out of 15 participants) there was no evidence of site language playing any role in willingness to buy decisions. This finding may appear counterintuitive since one might expect that people would prefer to interact with the web using their own language. However, English is actually used extensively in Egyptians' interactions with the internet (Warschauer et al. 2002) so there may be strong role of past experience here.

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The card sorting did not demonstrate any role of security features, which is surprising given the emphasis on this issue in findings from other cultures. However, the omission may well be due in large part to the design of the study. Security features tend to be displayed at the bottom of a home page, only visible on scrolling. As the cards used in this study show the home page view before scrolling, none showed the security features. It would be interesting to look at sorting behaviour with site views that do mention the security features.

Previous work has tried to link user reactions to web sites to Hofstede's (2001) theory of cultural dimensions. Siala et al. (2004) found some evidence that those from a collectivist cultural grouping prefer to buy from sites from within their cultural in-group rather than those from outside. Egypt is characterised (along with other Middle Eastern countries) by Hofstede (2001) as a collectivist society. From this one might expect Egyptians to be more willing to buy from Egyptian (in-group) sites than from international (out-group) sites. However, there was no evidence to support this from the current card sorting results. Neither site language nor site nationality were found to vary with intention to buy. Egypt is also characterised by Hofstede (2001) as a high uncertainty avoidance culture. Members of such a culture are expected to have a low tolerance for ambiguity and uncertainty. Engaging in e-commerce can be seen as an example of an activity with an uncertain outcome. The outcome becomes less uncertain when the e-commerce store is one with a good reputation. It is therefore tempting to explain the influence of store reputation on intention to buy, posited in the current study, in terms of uncertainty avoidance. However, the effect of store reputation also appears to be important in low uncertainty avoidance cultures such as the US and Australia (Jarvenpaa and Tractinsky 1999). Nevertheless it is possible that the effect of store reputation may prove to be relatively more important in high uncertainty avoidance cultures. Further work is required to investigate whether this is the case.

6. Limitations

It is also unclear whether the sample are representative of Egyptians in general in terms of Hofstede's (2001) measures of cultural dimensions. In the discussion above we have assumed that our sample represent high collectivism and high uncertainty avoidance culture, however without measures of these variables we cannot be sure that this is the case. On the positive side, Hofstede's original work was done with IBM employees within each of the countries studied. These participants were therefore better educated than the population at large and more experienced with computers; our sample have similar characteristics. Nevertheless we recommend that future work explicitly measures Hofstede's (2001) dimensions to check whether the samples conform to prior expectations about the culture from which they are drawn.

Finally, while we have argued that the card sorting method is culturally neutral, the same cannot necessarily be said about the data analysis stage. Content analysis of cluster names is inherently subjective and is likely to be biased by the researcher's prior expectations and culture. In this study the categorisations were checked by one researcher from within the observed culture (Egyptian) and one from outside (UK) to avoid cultural bias as far as possible.

7. Conclusions

The current study found that two web site attributes had the most commonality (in a sorting task) with the attribute 'willing to buy from this site'. These were familiarity / reputation of the site and perceived attractiveness of the site design. These findings are supportive of previous findings in e-commerce following both trust and technology perspectives (e.g. van der Heijden et al. 2003). Studies in the trust literature have found that store reputation affects trust and hence intention to buy (e.g. Jarvenpaa and Tractinsky 1999). Similarly studies in the technology literature have shown that various interface attributes can affect user attitude towards web purchasing (e.g. Gefen and Straud 2000; Ranganathan and Ganapathy 2002).

The fact that supportive findings were obtained in the current study provides some support for the generalisability of these effects. Not only have they been found in a previously unstudied culture (Egypt), but they have been found with a novel data collection method. Previous studies relied upon questionnaire data which, while allowing quantitative assessment of relationships, is constrained by the scope of the questions asked. That similar findings have been obtained with a card sorting method suggests that these results are not simply an artefact of the measures used. The positive results found here provide a good justification to pursue further work in this topic. We therefore plan larger scale studies within Egypt to explore the implications of the current work, particularly the possible role of uncertainty avoidance in the relationship between web site familiarity and purchase intention.

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Table 1: Internet sites used in the sorting task

Site name / internet address and affiliations	Location of internet retailer	Language/s used
e-kotob: the online Arabic bookstore http://www.e-kotob.com/ Affiliated with Amazon	USA	Arabic
Amazon.com http://www.amazon.com/	USA	English
Barnes and Noble http://www.barnesandnoble.com/	USA	English
Borders http://www.borders.com/	USA	English
Alkitab http://alkitab.com/orginalsite/	USA	English
Neelwafurat http://www/neelwafurat.com	Lebanon	Arabic
Almaktabah http://www.almaktabah.com/BrowSubjects.asp	Lebanon	Arabic
Arabooks http://www.arabooks.net	Lebanon	English
Boustanys http://www.boustanys.com	Egypt	English
Arabicworld http://arabicworld.com/books.htm	Lebanon	Arabic
Al-basheer http://al-basheer.com/arabicBooks.asp	USA	Arabic

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Table 2: Example card sorting raw data

Participant id1, sort no. 1, Sort criterion named by participant: **Dominant colour in the page**			
Category named by participant	Blue	Green	Brown	No dominant colour
Card numbers	1,2,3,5,10,11	4,6,8	7	9

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Table 3: Number of Criteria for Sorting (Group of Respondents)

	Non-IT specialists	IT specialists
Minimum number of criteria per respondent	3	2
Maximum number of criteria per respondent	8	7
Total number of criteria	32	38
Average number of criteria per respondent	4.6	4.8

Table 4: Number of respondents using constructs in superordinate construct groups

Superordinate construct	Non-IT specialists	IT-Specialists	Total
Site language	4	7	11
Categorisation of content	2	4	6
Search method	2	4	6
Use of adverts	3	2	5
General interface appearance	1	3	4
Ease of use	2	1	3
Content: Islamic books	2	1	3
Content: Product range	0	3	3
Real store	1	1	2
Appears to be a home page	1	1	2
Use of command buttons / tabs	1	1	2
Use of frames	1	1	2
Familiarity / reputation	1	1	2
Subjective preference	1	1	2
Online buying (ability / ease)	1	1	2
Screen clutter	2	0	2
Presence of book descriptions	2	0	2
Site nationality	2	0	2
Use of colour (subjective)	1	1	2
Colours used (objective)	1	0	1
Book language	0	1	1
Right message	1	0	1
Scroll bar position	0	1	1
Already use site	0	1	1

Search speed	0	1	1
Top sellers list feature	0	1	1
Total superordinate constructs	**32**	**38**	**70**

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Table 5: Sample of the clustering results obtained

Site name	Buy / Not Buy	Familiarity	Interface Design	Search Method	Ease of Use
1	Buy	Familiar	Attractive	Search option	Easy to use
2	Not buy	Not familiar	Attractive	Search option	Easy to use
3	Buy	Familiar	Not attractive	No search option	Easy to use
4	Buy	Familiar	Attractive	Search option	Easy to use
5	Not buy	Familiar	Attractive	Search option	Easy to use
6	Not buy	Not familiar	Not attractive	Search option	Easy to use
7	Not buy	Not familiar	Not attractive	No search option	Not easy to use
8	Not buy	Not familiar	Not attractive	No search option	Not easy to use
9	Not buy	Not familiar	Not attractive	No search option	Not easy to use
10	Not buy	Not familiar	Attractive	Search option	Not easy to use
11	Not buy	Not familiar	Not attractive	No search option	Not easy to use

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Table 6: Criteria where 'buy' sites share the same or different category features

Criteria where all 'Buy' sites belong to the same category (category value in shown in brackets where clear cut)	'Buy' sites belong to different categories
Categorisation of content	Site language
Search method (search option available)	Content: Islamic books
Use of adverts	Book description
Interface design (attractive)	Site nationality
Ease of use (easy)	Use of colour
Content: Product range	Online buying ability /ease
Familiarity / reputation (familiar / well known)	
Home page vs internal page (home page)	
Real vs virtual (virtual)	
Command buttons/tabs (present)	
Frames (multiple frames)	
Subjective preference (preferred)	
Screen clutter (cluttered)	

Table 7: Reasons given for 'willing to buy' categorisation

Stated Reason	Number of participants (out of 13)
Famous site (reputation)	10
Familiar site	5
Secured site	3
Ease of use	3

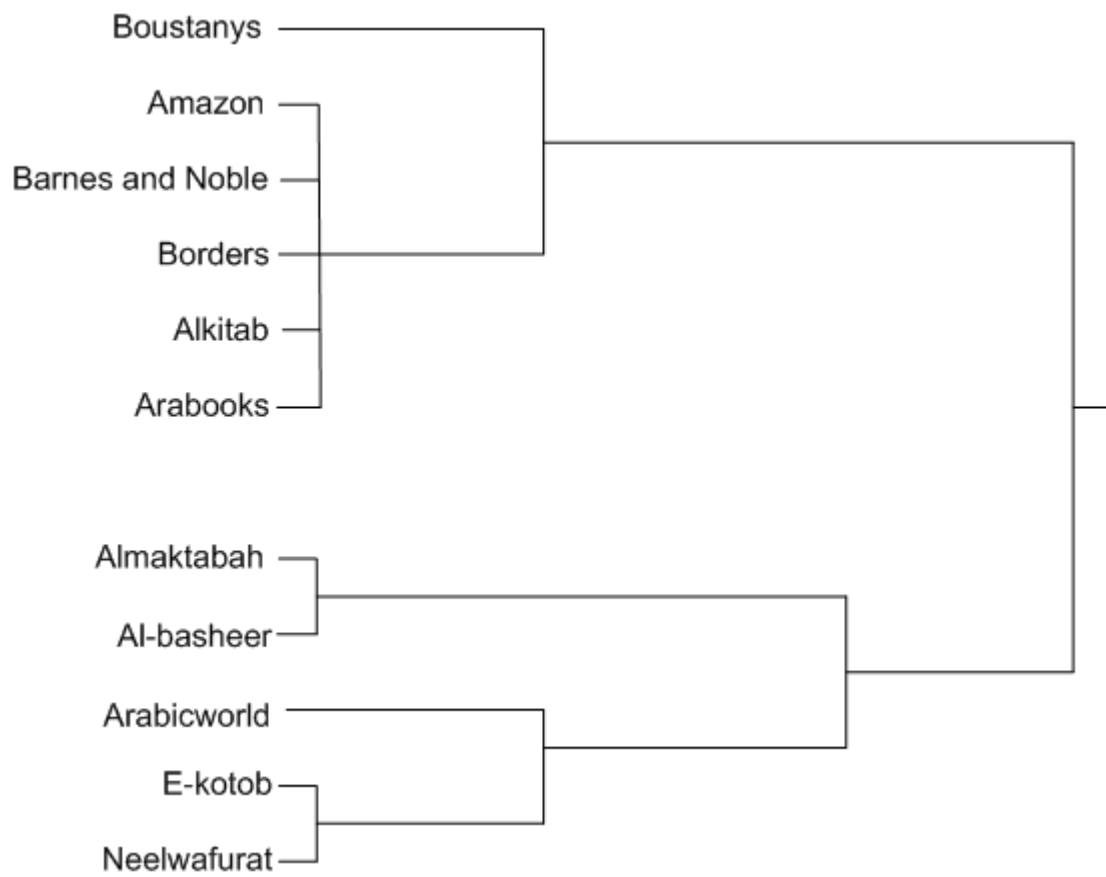Figure 1: Cluster analysis results for site language

Figure 2: Cluster analysis results for forced choice 'willing/not will to buy from' sort