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# Building Trust in Online Customers

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*Abstract* - Although significant progress has been made towards securing the Internet environment, many consumers remain reluctant to participate in making on-line purchases. Cyber-crime continues to have a negative influence upon the uptake and acceptance of E-Commerce by consumers. As a result commercial website operators are faced with the problem of overcoming user distrust in their systems.

The main argument put forward in this study is that a consumer's trust depends more upon traditional marketing strategies than it does upon their beliefs in the security of on-line systems. In many cases these issues have been overlooked by web developers and vendors alike. The main conclusions of the study indicate that website design can have a positive effect on a consumer's willingness to purchase from a website.

Much responsibility for reinforcing trust in consumers lies with web developers. This can be achieved by making efforts to educate and engender trust in visitors through the overall design and informational content of the website itself and through the careful selection and combination of website design components.

*Keywords* - online trust; transaction trust; web development; e-commerce; privacy; privacy statements; e-trust certificates;

## I. INTRODUCTION

Businesses retailing goods and services on the World Wide Web (WWW) are faced with the problem of maintaining trust in their ongoing and potential customers. The OECD [1] reports that the level of spam, fraud, harassment etc. reported on the web, continues to have a detrimental impact upon consumer trust in making Internet transactions and that over 80% of all Business to Consumer (B2C) Internet transactions are made using a credit card [2].

Unlike Business to Business E-Commerce (B2B) where accounts and relationships are established prior to any transactions taking place, businesses retailing directly to consumers online, need to instil trust in their customers via their website's interface.

Website development represents significant costs to businesses seeking to establish a share of the online market and by identifying which components are most important to which users, the development costs of a website can be managed more efficiently. Identifying those components that can be built into a website to maximise a customer's trust can also lead to more efficient website development practices.

Studies related to trust in E-Commerce have often focused upon specific factors and/or influences which may affect trust such as privacy, security, control and cyber-crime among others. However these studies have not explored the individual and combined effects that different website components and features may play in the task of building consumer trust from a website itself.

To explore these concepts further a study was carried out which sought as a primary objective to identify any potential trust building characteristics of a variety of website design components which are commonly integrated into many E-Commerce websites [3]. The key focus was upon which components are associated with trust in 'giving credit card details to websites'. The secondary objective sought to determine and identify any differences which may exist across differing demographic profiles regarding the importance of those components to gaining a customer's trust.

The findings of the study indicate that privacy concerns remain a focal issue regarding the establishment of trust in online customers. However it is also indicated that communications play an important role in gaining an on-line user's trust, particularly with regards to a user giving their credit card details to websites. Furthermore it is shown that there are key differences between the preferences of males and females, where female customers indicate a stronger preference for telephone communications whilst males show a higher preference for user forums. Moreover the results of the study indicate that as an online user's experience increases so too does the importance of E-Trust certificates for gaining their trust.

## II. THEORETICAL FRAMEWORK

The review of previous research taken in the study, divulged several theoretical concepts and models of how the establishment of trust works within the context of e-commerce. Firstly that the act of trusting is strongly associated with risk management and involves the acceptance of some level of risk [4, 5]. Another factor is that trust can also change over time and that too much trust may also lead to failure through over confidence.

Although techniques such as encryption and authentication have been utilised in an effort to make the Internet more secure, the concept of security has not translated well into the minds of consumers as trust [1]. Heightened security does not necessarily lead to heightened trust. Ulivieri [5] points out that the majority of online users have little understanding of how

security technologies work and that what users relate to is information provided on the website.

Many researchers have put forward various models of trust in an endeavour to gain a greater understand of its complexities. Two such models identified in the study are briefly outlined as follows.

A ‘Generic’ model of trust presented by Ganzaroli, Tan & Thoen [6] states that:

$$\text{Party Trust} + \text{Control Trust} = \text{Transaction Trust}$$

Where ‘Party’ trust represents trust in the vendor, ‘Control’ trust represents trust in the technologies involved and ‘Transaction’ trust is the level of trust which a user must reach in order to confidently complete a transaction.

However this suggests a dependency upon the user having sufficient understanding of the associated technologies in order to reach a level of Transaction trust. A more elaborate model developed by Egger [7], ‘Model of trust in E-Commerce’ (MoTEC), builds upon the ‘Generic’ model of Ganzaroli, Tan & Thoen [6] and also takes into account the dynamic nature of trust. MoTEC serves as an important part of the theoretical framework used in the study.

MoTEC consists of 4 dimensions and is structured around the differing stages a user goes through whilst browsing an E-Commerce website [7] as follows:-

1. **Pre-Interactional Filters**
  - User Psychology
  - Pre-purchase Knowledge
2. **Interface Properties**
  - Branding
  - Usability
3. **Informational Content**
  - Competence (Products and Services)
  - Risk (Security and Privacy)
4. **Relationship Management**
  - Pre-purchase and Post-purchase Interactions
  - Trust over Time

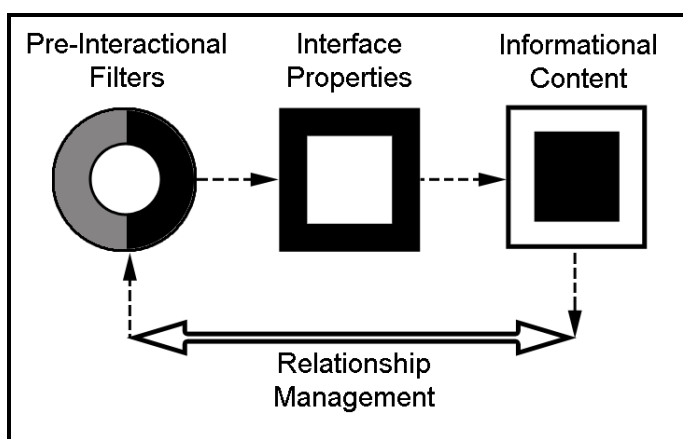


Figure 1. The Four Dimensions of MoTEC [7]

The **Pre-Interactional Filters** represents a predisposition towards trust even before a user visits a website for the first time. This is based upon the users own psychology and any pre-knowledge that a user may hold. This contributes to an initial level of trust which is then added to by their first impressions of branding and usability perceived by the user in the **Interface Properties**.

Further exploration leads the user to the **Informational Content** where the user reassesses their initial trust based upon their perceptions of the vendor’s competence and the perceived level of risk involved in making a purchase. Finally **Relationship Management** refers to how a vendor’s website handles enquiries and/or orders over time. This established trust value then influences the **Pre-Interactional Filters** when returning to the site and/or accessing other e-commerce websites.

Egger’s MoTEC also draws from earlier models such as the **Human-Computer Interaction** (HCI) model presented by Long and Dowell [8] and the **Technology Acceptance Model** (TAM) presented by Davis [9]. Although to some extent superseded due to the ubiquitous nature of computing, HCI and TAM are still relevant regarding a user’s evaluation of the usefulness of computer systems such as an e-commerce website.

When face-to-face with a shop attendant in a physical environment where they can see and touch the goods, a customer can readily reach a level of transaction trust sufficient enough to make a purchase. However in a virtual environment it is the interface of the vendor’s website which provides information to the user. It is in the interface where many trust issues primarily associated with conventional marketing practices need to be addressed. The website itself is often the only means by which a consumer can evaluate the trustworthiness of an on-line vendor.

Although important advances in security have made the Internet a safer place to conduct business this has not led to an increase in consumer trust [1]. As Olivieri [5] suggests, trust in B2C E-Commerce depends more upon sociological principles than it does on technical solutions.

A vendor’s ability to engender consumer trust from their website can lead to a significant advantage over their competitors and also to the success of their business efforts. However on-line business operators depend heavily upon web developers to build and maintain their websites.

Business policies are determined by each respective business concerned. However if developers are able to expand their knowledge of fundamental marketing principles and find practical ways to incorporate these concepts into the websites they build. They can then act in an advisory capacity to provide possible solutions to the problems of building trust.

### III. METHODOLOGY

An on-line survey was designed and constructed and participants were sourced from the staff and students of Southern Cross University. Participants were also given the opportunity to invite friends (not necessarily staff or students of

Southern Cross University) to take part who may have also been interested.

Control measures used in the survey included a login process which eliminated the possibility of repeat submissions by respondents. This also helped to ensure that the sampling frame consisted only of respondents with a sufficient on-line presence to be considered as a potential or practising on-line shopper.

Respondents were asked about their predisposition towards ‘trust in websites’, ‘trust in giving their credit card details to websites’ and ‘trust in websites recommended by word of mouth’. Respondents were also asked to complete a number of questions regarding their demographic profile i.e. age, gender, education, computer skills, experience with web browsing and their understanding of web technologies. Finally they were asked about their interaction with a number of website components which are commonly incorporated into the design of many E-Commerce websites.

A total of 21 website components/features were included in the survey which were identified from previous research plus current trends in emerging technologies and website design as follows. Privacy statements, contact information, buyer testimonials, guest books, user forums, E-Trust certificates, ease of navigability, absence of errors, good visual design, strong product branding, money back guarantees, order tracking facilities, after sales support, delivery costs, multiple payment methods, maps locating the business, images of staff and premises, assistance via Skype, assistance via telephone and assistance via e-mail.

The survey questionnaire utilised seven point Likert scales where ever appropriate. A seven point scale is commonly used and has been found to be effectively reliable [10]. Despite the controversy among statisticians, Likert scales are considered to communicate interval properties to respondents and are often treated as interval scales by many marketing researchers.

Finally another trust measure also included was ‘trust in shop assistants’. This was taken as a comparison to indicate the respondents’ predisposition towards trust in an off-line environment. However this was discarded from the main statistical analyses as it did not bear any relationship to the use of the website components included in the survey.

Ethics approval was obtained and the survey ran for exactly one week, yielding a total of 272 valid responses. This was considered as an excellent response considering the time restrictions. Based upon Cochran’s formulae for sample sizes [11], a sample of this size allows for the study to be generalised for the broader population. A total of 150 respondents also indicated that they were interested in receiving the results of the study.

The data collected from the survey website was collated and entered into a statistical software application for analysis. Multiple Linear Regression analysis was the primary method utilised where a single response variable can be predicted by a number of explanatory variables [12-14]. This approach was highly suitable for measuring the effects of multiple website components upon a single variable of trust. The same treatment

was applied to each of the trust variables and also the experience variables.

Non-parametric tests were used for the analysis of the nominal and ordinal data collected in order to assess any differences across various demographic profiles. The Mann-Whitney test was chosen to examine the ‘gender’ variable and the Kruskal-Wallis test was used to examine both the ‘level of education’ and the ‘age’ variables.

As part of the Multiple Linear Regression analyses, correlations were generated in order to preview significant relations among the variables. Tests were also carried out to ensure that the data used in the analyses met all the Classical Assumptions of Regression [12, 15, 16]. This included tests for normality, linearity and homoscedasticity.

#### IV. DATA ANALYSIS

Examination of the key descriptive statistics showed that the majority of the explanatory measures showed a mean within 1 of the midpoint (neutral) of the 7-point scale. What is interesting is that the explanatory measures that are not centred on the midpoint of the scale. These measures have a grey background in ‘Table 1 – Key Descriptive Statistics’ and are discussed following:-

TABLE I. KEY DESCRIPTIVE STATISTICS

Explanatory Measure	Mean
Assistance via Skype	2.04
Guest Books	2.41
Images of Staff and Premises	3.12
User Forums	3.32
Privacy Statements	3.72
E-Trust Certificates	3.76
Buyer Testimonials	3.93
Maps Locating the Business	4.25
Assistance via Phone	4.43
Product Branding	4.63
Absence of Errors	4.69
Good Visual Design	4.7
Ease of Navigation	4.78
Payment Tracking Facilities	4.79
Contact Information	4.95
Money Back Guarantees	4.97
Order Tracking Facilities	5.06
After Sales Support	5.07
Multiple Payment Methods	5.23
Assistance via Email	5.33
Delivery Costs	6.22

### A. Least looked for Website Components

The descriptive statistics highlighted 'Assistance via Skype' as a website component that most respondents (80% below the midpoint of the scale) do not check for when making a purchase on an e-commerce site. Indeed 58% of the respondents from this sample "Never" check for this component.

Similarly, 'Guest Books' are another website component that most respondents (72% below the midpoint of the scale) appear not to check for on an e-commerce site.

Guest Books have often been incorporated into many websites from the early stages of the development of the WWW, in contrast Skype (Voice over Internet Protocol) is a relatively new website component, first becoming available in 2003. Correlation analysis indicated weak associations with the demographic/experience measures 'Level of Education' and 'Understanding of Web Technologies' with the 'Assistance via Skype' website component, whilst Guest Books showed no associations with any of the other measures. This could mean that Guest Books are possibly fading in importance and that Assistance via Skype may be an emerging component increasing in importance as users become more familiar with its use.

### B. Most looked for website components

The descriptive statistics also highlighted that most respondents do however check for the following website components on e-commerce sites Order Tracking Facilities (69% above midpoint), After Sales Support (68% above midpoint), Multiple Payment Methods (72% above midpoint) and Assistance via Email (73% above midpoint of the scale).

The highest rated item is Delivery Costs, almost all respondents (91.5% above the midpoint of the scale) check for its presence before committing to a purchase on an e-commerce site. In fact 159 of the 272 respondents "Always" check for the presence of this component before making a purchase. This explanatory variable does not appear in any of the further analyses undertaken which suggests that it has less to do per se with trust and more to do with the economics of the transaction.

It must be noted that the website components identified via the descriptive statistics to be the most often checked for on a website do not influence to a large degree the further analysis of trust in this study. However, these components are expected to be present on an e-commerce site by the majority of respondents. Web developers and vendors overlooking these components on an e-commerce site, do so at their peril.

### C. Further Analyses

The findings of the Multiple Linear Regression analyses showed that from the 21 website components surveyed that 'privacy statements' are the most influential component on a website for reinforcing a consumer's trust overall. The study also revealed that privacy statements can be more effective when combined with other website components. In the case of trust in giving credit card details to websites, the findings show that trust is further reinforced when privacy statements are

combined with assistance via the telephone and strong product branding.

Furthermore the results indicated that trust is still enhanced when 'assistance via the telephone' is provided, without a privacy statement and that strong product branding can also reinforce this. However in this case that strong product branding alone has little influence on a consumer's trust without the presence of either a privacy statement or assistance via the telephone. A combination of the three components i.e. privacy statements, assistance via phone and strong product branding, attained the highest results in the final analysis for 'trust in giving credit card details to websites'.

Regarding the other two trust measures taken in the survey, 'trust in websites' and 'trust in websites recommended by word of mouth', trust in websites represents a general measure of trust where a financial transaction is not necessarily involved. Whereas trust in websites recommended by word of mouth represents a measure of trust where the respondent is preconditioned by another's recommendation, to some degree this implies that a transaction may take place.

From the statistical analyses two website components emerged which indicate an association with 'trust in websites' i.e. privacy statements and buyer testimonials. However in the analysis for 'trust in websites recommended by word of mouth', three website components were returned i.e. privacy statements, absence of errors and payment tracking. In all three cases 'privacy statements' showed the strongest association with trust.

There were three measures of experience also taken in the survey i.e. level of computer skills, experience with Web browsing and understanding of Web technologies. In these cases 'e-trust certificates' appeared as the predominant website component associated with experience. From the statistical analysis, 'level of computer skills' indicated only one component which was e-trust certificates. Whereas 'experience with Web browsing' also returned e-trust certificates along with the absence of errors whilst 'understanding of Web technologies' also returned three website components i.e. ease of navigability, e-trust certificates and user forums.

From the analyses of the trust variables and the experience variables it suggests that privacy statements are the most important website component in general and that as a user's experience grows, e-trust certificates become more important for gaining a user's trust. There were also three measures taken to represent the demographics of respondents i.e. gender, level of education and age.

An interesting result regarding gender was that 66% of the respondents were female. Given that the subject line of the invitation to take part in the survey read, "Are you concerned about purchasing on-line? Do our survey...", and the resulting 2:1 ratio of female to male respondents, this alone is a strong indication that females have greater concerns regarding purchasing on-line. This is also reinforced by the higher score by male respondents for 'trust in giving credit card details to websites'.

Further examination of the results on the basis of gender indicates that females show a stronger preference for assistance

via telephone whereas males showed a stronger preference for user forums and to a lesser extent, e-trust certificates.

The level of education variable indicated strong associations with level of computer skills, understanding of Web technologies, experience with Web browsing, age and the website component of 'money back guarantees'. Finally the age variable showed strong associations with 'experience with Web browsing' and contact information.

## V. CONCLUSION

To draw an analogy to Egger's MoTEC model consider the steps in the following scenario:

Step 1. A user visits an e-commerce website; this suggests that the user is in the process of shopping and has interest in what the site may offer. This can be seen as the 1<sup>st</sup> Dimension, Pre-Interactional Filters, where the user has an initial predisposition to trust based on their attitudes and experience.

Step 2. The user then initially evaluates the site via its interface properties. This can be seen as 2<sup>nd</sup> Dimension, Interface Properties. If the user does not find the items of interest and the services required on the website then the site would be regarded as unusable and the user would simply look elsewhere. For this analogy consider that the user has found the item/s of interest and the services offered. At this point the user has determined that the website is usable and that it may be able to satisfy their needs. Their attention then turns toward evaluation of the websites branding including the site itself, the products available and its functionality.

Step 3. At this step if the website is deemed as usable and the level of branding acceptable, the user then enters into the next stage for further evaluation. This is the 3<sup>rd</sup> Dimension, Informational Content. In order to evaluate the site's trustworthiness the user considers the competence of the company and its products and services and considers the risk involved. If there is some degree of doubt or a perception of risk the user will attempt to manage that risk in an effort to make a decision to trust the site and its vendor i.e. the evaluation of privacy, security, etc.

Step 4. The 4<sup>th</sup> Dimension, Relationship Management is where a level of trust is reached sufficient to complete a transaction on-line i.e. Transaction Trust is reached. The user completes the order form (a pre-purchase interaction) and then submits the order along with their credit card details and awaits delivery (a post-purchase interaction). Trust is again reinforced upon final delivery of the goods and services supplied and then re-evaluated on the basis that the goods and services are of the standards expected (trust over time).

The above analogy depicts the stages a user goes through in the process of making an on-line purchase in accordance with Egger's Model of Trust in E-Commerce, MoTEC. The resulting model in the Multiple Linear Regression analysis for Trust in giving Credit Card details to Websites supports the theoretical framework of MoTEC. Using the above analogy it can be clearly seen that the website components Privacy Statements, Assistance via Phone and Product Branding fit directly into Egger's MoTEC model as follows.

In step 2 in the above scenario branding and usability play distinct roles in engendering a customer's trust i.e. the 2<sup>nd</sup> Dimension, Interface Properties. A customer's evaluation of usability can also be considered to include yet not limited to, checking for Delivery Costs, Assistance via Email, Multiple Payment Methods, After Sales Support, Order Tracking Facilities which were shown to be commonly checked for in the descriptive statistics for the explanatory measures shown in Table 1. As noted before the Multiple Linear Regression model returned in the analysis suggests that the more often a user checks for Product Branding the higher the predicted value for "Trust" will be. In step 3 in the above scenario, the user, in an effort to manage risk, evaluates the trustworthiness of the website and its vendor, before proceeding to the next stage of making a purchase. The Multiple Linear Regression model indicates that the more often a user checks for Privacy Statements and Assistance via Phone the lower the predicted value for trust will be.

This can be explained more clearly by revisiting the association between trust and risk. Ulivieri [5] suggests that the decision to trust involves the acceptance of some level of risk and that where there is no perception of risk, trust is of no concern. To elaborate further upon how this applies to the above scenario and taking into account the model returned by the Multiple Linear Regression analysis. Before making an on-line purchase the user can be seen to be making an attempt to manage a perceived risk by checking for the presence of Privacy Statements and Assistance via Phone on the website.

This also suggests that if the user is intent on making a purchase from a website and makes no attempt to check for either Privacy Statements or Assistance via Phone then it can be presumed that they perceive no level of risk in doing so. In such a situation they would have no reason to try to reinforce their trust because they already have a high level of trust in the site and so Product Branding is then becomes their primary concern.

To briefly summarise, the findings of the study suggest that the website component of Privacy Statements is the most prominent component included in the study that can be seen to both engender and reinforce a respondent's trust in making an on-line purchase and that as a respondent's experience increases they are more likely to also check for E-Trust Certificates before making a purchase. From part 3 of the survey E-Trust Certificates were identified as being the most important to gaining respondents' trust followed closely by Contact Information and Privacy Statements.

For practitioners of e-commerce including web developers, vendors and marketers these findings have strong implications for policy and practice. Considering that as "Experience" amongst the users of the WWW increases with the passage of time, so too will the importance of having third party E-Trust Certificates included on e-commerce websites as well as Privacy Statements. It can be concluded from the results of the study that Privacy Statements are an indispensable website component for an e-commerce website. This website component (and several others) has been found to contribute to the gaining of consumer trust in an e-commerce system.

Trust as a concept is complex in its nature and requires strong definitions within the context of how it is being measured and evaluated [4, 5]. This is of particular concern to researchers engaged in studies involving trust. In a situation where a high level of risk is perceived and if after careful deliberation a decision is then made to trust in a particular agent in expectation of a particular outcome, can it then be claimed that a high degree of trust is invested in such a decision?

A definitive answer to this would be: No! The above question defines a high level of risk, however the degree of trust placed in the decision has not been made clear. In such a situation the level of trust placed in the decision would also need to be evaluated. In contrast where a low level of risk is perceived, trust itself diminishes in its importance [5]. However in this situation it can be implied that complete trust may be placed in the expectation of an outcome where a low level of risk is involved.

This suggests that another measure of trust is required, which is the importance that trust plays in a decision. In relation to this study this means that Trust in giving Credit Card details to Websites plays a more important role than simply Trust in Websites, even though respondents reported a higher level of Trust in Websites than for Trust in giving Credit Card details to Websites.

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