An Investigation of the Trustworthiness of

E-Business Websites

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Abstract
The present study aimed to investigate the trustworthiness of e-business websites. Six e-business websites were evaluated by 3 evaluators and 100 university students. In a descriptive correlational research design, the 3 evaluators examined those websites according to EBTI model introduced by Hulsey (2010). The second groups examined the same websites and responded the consumer survey. The statistical analysis indicated a significant difference among the websites in terms of trustworthiness. Furthermore, a low correlation was found between the results of EBTI and consumers' view. The findings of the study bear implications for those involved in e-commerce, namely online shoppers, online sellers, and website designers.

Keywords: Trustworthiness, E-Business Websites, EBTI

I. Introduction

The use ofthe Internet fore-commerce has been an interesting issueforresearch workand themediareports. As the Internethas altered thecommunicationand information exchange, the purchaseofgoodshasalso beenaffected by it.Someresearchers(Nicholson, Clarke, Blakemore, 2002) consider online shopping as an ideal substitute fortraditionalphysical shopping.

However, this state of the art methodofbuying does not possess a largeshare oftrading methods in the current world.Thiscontradiction accentuatesthe needto review andinvestigate buyers' motivations andconcerns.TheInternethasdevelopeddramaticallyinthe past two decades and peoples' attitude toward onlineor semi-online buyinghas drastically changed. The motivations andconcerns ofthe people whousethe Internet forshoppinghave been the center of attention for many researchers(Syke et al. 2004). Various assumptions, models andopinions have been proposed aboutwhatpeople choose to buyand sell through internet.

It has been found that customerstrustin vendoris one of the most fundamentalfactorsin businesssuccess, and directlyaffectthe customers' purchasing habits. Trustworthiness plays a more pivotal role than the priceinpurchasingdecisionsof customers and especially the potential customers who have notpreviouslyattempted tobuy online(Kim, H., Xu, Y. & Gupta S.,

2012).Such a great role assigned to trust in e-commerce transactions is due to the higher level of economic uncertainty in e-sopping as opposed to the traditional one. Another reason could be that the conventional ways to create trust are hardly applicable to the virtual world of e-business.

There areseveralrisksassociated with economic transactionsin the Internet. Theserisks are associated either withtheexchange of informationor with financial threats involvedin the internet transaction.There is a positiverelationshipbetweenconsumers' trust and their attitudeand anegativerelationship between their trust and the observed risk in online shopping (Thompson & Jing, 2005).Several studieshave reportedthat customersareconcerned abouthow they can trust an e-business website which they have no direct physical access to. Online sellers are alsoobsessed with creating an attractiveand trustworthy atmosphere for customersand convincing themtopurchase.

Researchersagree thatimproving the trustworthiness, is animportant(Odom, Kumar, & Saunders, 2002)andcritical(McKnight &Chervany, 2002) factor for e-businessas itsignificantlyaffectsthe individuals' decisiontopurchase.A multitude of trust models has been proposed (Ang, Dubelaar, & Lee, 2001; Egger, 2003; Serva, Benamati, & Fuller, 2005) and variousdimensions of trust have been the subjects of various studies(Gefen, 2002).

Although the resultsof many recent research made it clear thatthetrustworthiness ofonlinebusinesssitesis a significant factor,customerscontinue to consider this factor as themain obstacle in online shopping (Bente, Baptist, & Leuschner, 2012).The fact thattrustworthinessis stilllistedas themain problem in online shopping by many shoppers raisesmany questions: Do such concernsprevent exploring the fullpotentialof e-commerce?Aftermany attemptsinrecent years,can we sayonline shopping websitesare trustworthy now? Can we use a model based on the resultsof previousresearch to examine the trustworthiness of e-business websites? There exist few studies on whether therecent findings are being applied by thee-commercebusinessor not.The problemis thatdespite the importance ofreliablee-businesshas been endorsed by the findingsof thevarious studies; there are few objectivemeasuresto evaluate the trustworthiness ofonline retailstores.

Customers' trust is achievableonly after their expectations are met. The commonbeliefis that security is an underlying factor in achieving trustand that trust and security will eventually lead to the higher acceptance of online shopping by people(Kim, Tao, Shin, & Kim, 2010).Customers judge various features of e-business websites inassessingthe trustworthinessofelectronic shopping. These Featuresare organizedbyresearchers in the framework of trustworthinessmodels. Applying areliablequantitativemeasureof e-business trustworthiness such as EBTI model developed by Hulsey (2010) can be beneficial toe-business ownersaswell astheonlineshoppers. The following research questions try to raise basic questions about e-business trustworthiness and put some related common beliefs into test and provide a better understanding of the current state of e-business trustworthiness.

Research questions

1. Is there a significantdifferenceinthe level oftrustworthinessofe-businesswebsitesas measured by the EBTI?
2. Is there a significantdifferenceinthe level oftrustworthinessofe-businesswebsitesaccording to consumers' survey?
3. Is there a significant positive correlation between the results of EBTI and customers survey regarding the trustworthy of e-business websites?

Research hypothesis

1. There is a significantdifferenceinthe level oftrustworthinessofe-businesswebsitesas measured by the EBTI?
2. There is a significantdifferenceinthe level oftrustworthinessofe-businesswebsitesaccording to consumers' survey?
3. There is a significant positive correlation between the results of EBTI and customers survey regarding the trustworthy of e-business websites?

II. Methodology

A. Sample Characteristics

Three samples were used in this study. E-business sites, evaluators and consumers. Online shopping websitesforbooks and magazinesand CDwere used as representative sample of e-business websites. These websites encompass the majority ofonlinetransactions among other e-business websites In Iran. Six book selling websites (adinebook.ir, behbook.com, bekhan.com, hamseda.ir, iketab.com, karaketab.com) were randomly chosen from fifteen popular ones as the sample of this study. Thesewebsiteswere selectedfrom amongthosewebsitesthatare still activeand have many visitors. Threegraduates of IT management from Payam-E-NoorUniversity ofTehranwere selectedasevaluators to apply the EBTI. The survey was completed by 100 university students fromdifferent majors in Ghaemshahr Azad University with the average age of 25. One hundred six students filled the survey. To simplify the statistical procedure 6 of them were randomly removed from the study.

B. Materials and Instruments

The EBTI (E-business Trustworthiness Index) tool was designed by Husley (2010) to ask objective questions about trustworthiness level. These questions could be answered by objective observation. EBTI questions could be answered by binominal responses representing the presence, Yes, or absence, No, of the features. A response of yes equals the value of one while a response of no is assigned the numerical value of zero. Having 23 questions for 23 features, the maximum score of 23 represents the highest level of trustworthiness. A score of zero indicates

the lack of trustworthiness. The EBTI form was translated into Persian for Iranian evaluators. Forthe second partof the study, students were asked to indicate their opinion about the trustworthiness of websites in form of response to a five-item Likert scale survey from strongly disagreetostrongly agree. Strongly agreeequalsnumerical valueof five and strongly disagree equals the numerical value of1. The English versions of EBTI and the consumer survey are given in Appendices A and B.

C. Procedure

The evaluators were asked to evaluate 6 website according to the EBTI form. The order of evaluation of the websites varied among the evaluators in order to reduce the effect of ordering in evaluation of websites. The consumers also evaluated the websites in different orders. The list of website was presented to them in different orders and they were asked to follow the list to evaluate the websites. There was no strict time allocation. The evaluators were well-informed about the EBTI form by the researchers and the entire consumer received a brief and clear instruction about the survey. No further explanation was provided. The EBTI form was incorporated into a Microsoft® Excel spreadsheet. Each page contained the EBTI form for a certain website.

D. Data Analysis

A descriptive correlational research design was applied in this study as there was no manipulation of variables. To facilitate data analysis, the numerical value of 1 was assigned to Yes and the numerical value of 0 was assigned to No in for EBTI checklist. Finally, positive responses were added together to obtain the EBTI score of a site. Cronbach's Alpha was calculated to check the reliability of evaluators. One-way analysis of variance (ANOVA) was calculated by the researcher to determine whether there is a significant difference among the EBTI scores of websites or not. Each consumer rating could range from 1 for strongly disagree to 5 for strongly agree. Cronbach's Alpha was calculated to check the reliability of consumers. Once again, One-way analysis of variance (ANOVA) was used to compare the websites from consumers' point of view. Finally, Pearson coefficient correlation was used to determine the relationship between consumers view and EBTI scores.

III.   Results and Analysis

As mentioned before, Cronbach's Alpha was used to test the consistency of the evaluators in the EBTI and the participants in the consumer survey. Cronbach's Alpha resulted in a reliability coefficient of 0.93 for the evaluators and 0.97 for consumers which were greater than a threshold of .70 and indicate anadequate andacceptablestability and compatibility.

Hypothesis 1

Table 1 demonstrates the mean EBTI scores for each of the 6 websites as measured by evaluators. Figure 1 furtherillustrates these considerably unequal mean scores gained by the websites.As Table 1 indicates and Figure 1 demonstrates, substantial differences were observed among these websites.

TABLE I
MEAN SCORES FOR EBTI

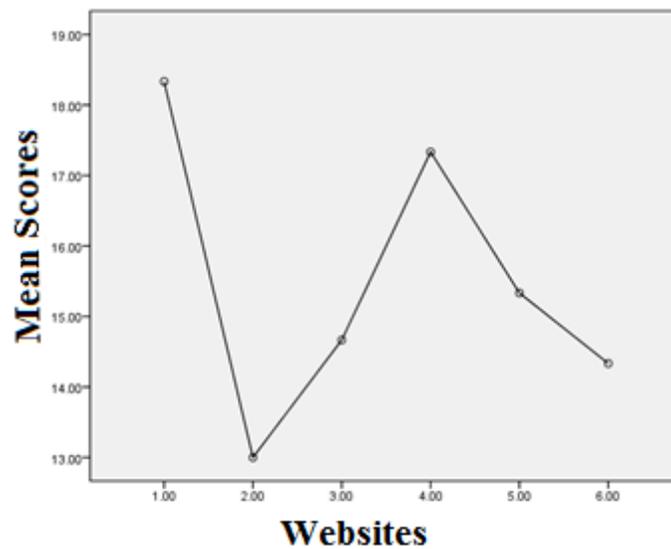| Websites	N	Mean	Std. Deviation
1	3	18.33	0.57
2	3	13	1
3	3	14.66	1.15
4	3	17.33	0.57
5	3	15.33	1.52
6	3	14.33	1.52
Total	18	15.50	2.09

Figure.1. Mean difference for the trustworthiness scores of websitesbased on EBTI

The results of one-way ANOVA test, presented in Table 2, indicated statistically significant difference among the websites at the $F (5, 12) = 9.26, p=.001$. The results showed a significant difference in the level of trustworthiness of the e-business website measured by EBTI. The observed significant difference among the websites' EBTI scores provided a positive answer for the first research question and verified the first hypothesis.

TABLE II
ANOVA–EBTI SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	59.167	5	11.833	9.261	**.001**
Within Groups	15.333	12	1.278		
Total	74.500	17			

According to the EBTI results, the sample websites had considerably different degrees of trustworthiness. One of the reasons of such a great variability could be that those trust-related features were not equally important to all e-business owners and designers. Another reason could be that they did not have sufficient information about the essential features that make a website trustworthy. The e-business owners might be quite aware of that vital research and still fail to reflect them in their websites.

Hypothesis 2

As the summary ofstatistical resultsfromconsumers' survey in table 3 and figure 2 shows, the early assumption that the six websites were not equal in terms of trustworthiness was supported. Figure 2 clearly shows the drastic difference among the 6 websites in terms of trustworthiness.

TABLE III
MEAN SCORES FOR CONSUMER SURVEY

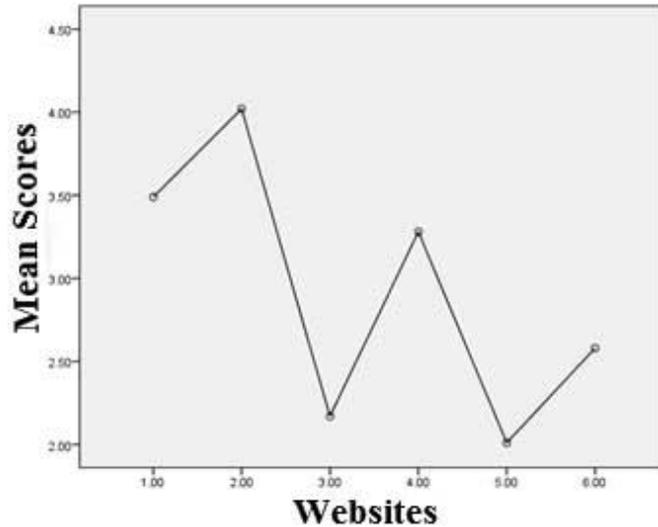| Websites	N	Mean	Std. Deviation
1	100	3.49	1.24
2	100	4.02	1.15
3	100	2.17	1.12,.,.
4	100	3.28	1.42
5	100	2.01	1.06
6	100	2.58	1.31
Total	600	2.92	1.42

Figure.2. Mean Difference for the trustworthiness scores of website based onconsumer survey

The lowest and highest average scores received by websites were 2:01and 4.02 respectively. Theresults of the one-way ANOVA test resulted in second hypothesis being accepted (see table 4).The results of one-way ANOVA test, presented in Table 4, indicated statistically significant differences among the websites at the $F (5, 594) = 41.91$, $p=.000$.

TABLE IV
ANOVA–CONSUMER SURVEY SCORE

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	317.055	5	63.411	41.918	**.000**
Within Groups	898.570	594	1.513		
Total	1215.625	599			

These statistical analyses provided a positive answer for the second research question. The reason for this difference in scores can be consumers' attitude toward trustworthiness and also their expectations and motivations. Online consumers may have different expectations and look for different features in e-business websites while shopping online. Online e-businesses can hardly look similar in consumers' view as these consumers rely mainly on some personal and individual criteria in evaluation of trustworthiness. These criteria are hardly accessible to e-business owners. These efforts have been summed up in various models of trustworthiness, such as MOTEC (Egger, 2001). Such models attempt to describe how online shoppers evaluate the

trustworthiness of e-business. Variability and vagueness of consumers' motivation, attitude and their socio-cultural background makes it difficult for website designers to identify straightforward elements that makea website trustworthy in consumers' eyes. That is why different features are being emphasized in various website to deal with trust-related issues.

It is interesting that the brand recognition an e-business web-site by another website assessment has little effect on the score. Two of the websites with the highest (19) and the lowest trustworthiness score (12) did not have a nation-wide popular brand name. These two websites received the scores of 3.49 and 3.28 by consumers which are relatively high scores. It can be concluded that consumers do not necessarily consider a website with nationally popular brand as a trustworthy website.it seems that brand names may not have that much important role to play in evaluating the trustworthiness of e-business websites. The high EBTI scores of unpopular websites and the low scores of nationally recognized brand lead to conclusions different from the findings of some earlier research. Egger (2001) in his MOTEC model put more emphasis on the importance of website brand than product brand. Website brand enhances brand recognition and adds a sense of credibility to an e-business website (Egger, 2001). Clarke (2001) also considers branding as a significant indicator of the trustworthiness. One of the most valuable assets of any company could be its brand and the more valuable a brand is, the more trustworthy it could be for t consumers.

Hypothesis 3

Table 5 shows the results of Pearson's correlation test which was used to investigate the third hypothesis. A Pearson *r* value of .079 indicates a low degree of correlation. As shown in Table 5, the significance value is .756 which is greater than 0.05. This result is not statistically significant (Ravid&Haan, 2008). This result indicates that there is a low and insignificant correlation between consumers' view and EBI results. Therefore, the third hypothesis was rejected and the answer to third research question was negative.

TABLE V

PEARSON'S CORRELATION–EBTI SCORE VERSUS CONSUMER SCORE

		EBTI Score	**Consumer Score**
EBTI Score	Pearson Correlation	1	.079
	Sig. (2-tailed)		.756
	N	18	18
Consumer Score	Pearson Correlation	.079	1
	Sig. (2-tailed)	.756	
	N	18	18

These findings clearly show that many of the factors contributing to consumers' trust in a website are still unknown to e-business specialists. Another reason for this low correlation could be that consumers did not have specialized knowledge of e-business and might ignore some of the features included in EBTI form and base their evaluation on their own expected features. EBTI includes various features that consumers may not take into consideration when evaluating websites.

IV.   Conclusion

The findings of current study showed that some trustworthiness features are incorporated into some e-business websites more than others and the online stores are not equal in terms are trust worthiness from both consumers' subjective view and EBTI objective of view. This study clearly indicates that consumers have their own criteria in evaluating the trustworthiness of online stores. Their criteria in assessing the trustworthiness of e-business website are not necessarily in accord with those presumed by experts. These finding indicates the need for further attempt to find out the consumers' attitude and motivation in online shopping. This study also accentuates the need for providing consumers with more objective tools in making logical decision and adopting appropriate approaches in evaluating the trustworthiness of e-business websites.

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Appendix A: EBTI Form(Hulsey, 2010)

Instructions: Please review the e-business site specified in the URL below. Using the provided characteristics, please indicate the presence or absence of each characteristic.

URL: _____

Attributes	Operationalized Characteristic	YES	NO
Competence	C1. Product comparisons or alternatives are offered. C2. Display credentials and affiliations. C3. More than one means of contact is provided.		
Predictability	P1. National brands are offered. P2. Second-level domain name is consistent with brand or company name.		
Benevolence	B1. Personalization capabilities are present. B2. A link to provide feedback is provided. B3. Provide a map of the sequence of steps required to make a purchase. B4. Allow customization, such as language selection.		
Integrity	I1. A link to the history of the company is displayed. I2. A link to company philosophy, mission, and values is available. I3. A link to profiles of key personnel with photographs is available.		
Risk	R1. Link to security policy is displayed. R2. Indication of secure pages is displayed. R3. More than one payment option is provided. R4. Terms and conditions of transaction are available. R5. A link to a redress policy is available. R6. Link to privacy policy is available. R7. Seals or trust-marks are displayed.		
Usability	U1. Site uses a consistent look and feel. U2. Multiple means of navigation are provided. U3. No broken hypertext links. U4. Status of shopping cart or basket is kept updated with each selection.		

Appendix B: Sample of Consumer Survey Form

Instructions:
Please reviews the e-business website specified in the URL below and respond to the following statement by choosing the appropriate option.

URL: _____

This e-business website is trustworthy.

Strongly Disagree	Disagree	No Idea	Agree	Strongly Agree
1	2	3	4	5