

IMPORTANCE OF CREDIBILITY'S FACTORS – AN ANALYSIS ON A PARTICULAR CATEGORY OF WEB SITES

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Abstract:

The purpose of this study is to identify the relative impact of each dimension in credibility evaluation of a general presentation commercial web site and the importance of these dimensions within the construct's equation for a particular category of web sites. This research has two hypotheses:

- 1. The Real world feel is expected to have the most important impact in credibility evaluation. Ease of use, Expertise and Trustworthiness are expected to have an important impact as well;*
- 2. For a particular web site category, we expect to identify similar and also different important dimensions within the construct's equation comparing to those considered have a large impact for general presentation commercial web sites.*

Key words: *credibility, factor analysis, regression analysis.*

JEL classification: *M31*

INTRODUCTION

Internet's fast evolution raised new research aspects of assessing the credibility of this new medium. A part of the studies evaluate credibility of Internet as a type of media using direct interrogation of research participants on the manner they perceive the Web concerning its potential to supply credible information. Other studies focus on comparing users' perceptions on Web information credibility with the same information supplied by different media sources.

Lankes, R. D. (2008) explains the difference between online credibility and the physical one: (1) information is disconnected of the physical world; (2) all the interactions are intermediated by software instruments.

The construct's dimensions of web sites identified by various researches are: expertise (*), goodwill, trustworthiness (*), depth/sufficiency, fairness /privacy (*), real-world feel/identity (*), ease of use, tailoring, commercial implications/ advertising and sponsorships (*), amateurism, customer service, corrections, sufficiency, decision, confidence, accuracy. We detected those dimensions (marked with a “*”) identified by most of the studies of the past researches, given the same or similar label (Hong, 2006, Fogg, 2001, Morrison, 2005, Stanford, 2002).

In 1953, Hovland, Janis and Kelley identified the construct's dimensions of credibility in the first research of this type. The two dimensions identified by them were *expertise* and *trustworthiness*. Most studies on credibility of web sites find these two dimensions combined with *fairness, real world feel and commercial implications*.

Different studies on web sites credibility deliver a set of similar but different dimensions. Yet, no study approached only presentation commercial web sites so far. Given the previous literature on credibility, we conducted a research to identify the credibility construct for this particular category of web sites.

We selected a random sample to investigate population consisting of Bologna students in second and third year of study from the Faculty of Economics and Business Administration, University “Al. I. Cuza” of Iași. 298 valid questionnaires were included

in the study. According to Metzger, M. J., (2003), Students consider information found on the Internet to be more credible than other categories of users.

We used previous studies on credibility and the **focus-group** method to create the research instrument. This procedure was an instrumental research, planned to design the questionnaire. The questionnaire was tested on 60 subjects from the target and modified in order to obtain accurate and complete data.

This instrumental research was followed by a **survey** that consisted in collecting data for assessing credibility for presentation commercial web sites, on a general basis. The items are rated on a 7-point scale with the anchors *not at all credible* and *very credible*.

We processed the exploratory factor analysis using Principal Components method in SPSS. The final data processing delivered an output with 11 factors with EigenValue > 1. The factors explain 60% of the total variance. Before this final step, we processed data using Principal Components method to eliminate items that loaded with a value below 0.4 and those with similar loadings on at least two factors. The final scale has a good internal consistency as Cronbach-alpha is 0.850.

The table below presents the factors (dimensions) of presentation web sites with the associated internal consistency and percentage of the total variance explained by each of the dimensions.

Table 1: Dimensions of presentation commercial web sites

Dimension	Internal consistency	Percentage of variance explained
Sincere communication	0.789	17.333%
Ease of use	0.828	9.952%
Real world feel	0.873	6.384%
Company's experience	0.680	4.692%
Trust	0.553	4.122%
Framing adds	0.645	3.488%
Expertise	0.607	3.175%
Exterior site label	0.520	2.886%
Connection between site and user	0.6	2.776%
Site information support	0.590	2.704%
<i>Magnitude of site (number of pages)</i>		2.513%

“*The site is small*” is an item that also represents a dimension named as ***Magnitude of site (number of pages)***.

Two questions rose after identifying these dimensions of credibility:

1. Given the Fogg's (2001) study on credibility of general web sites, what is the impact of presentation commercial web sites on the credibility construct?
2. If this research would be applied on a certain presentation commercial web page, what instrument should we use and how important is each dimension in credibility evaluation?

These two questions created two hypotheses for a new study that is presented in this paper.

Using regression analysis to understand the importance of independent variables

In order to compute variables' importance, researchers use linear regression. Most of the times, independent variables in a linear regression are generally measured on different types of scales. For this reason researchers don't use unstandardized regression coefficients (Zuccaro, 2007) but standardized coefficients (Beta values). The

bigger the value of Beta coefficient is, the more important is the corresponding variable in predicting the dependent variable. Linear regression relies on the normal distribution hypothesis of dependent and independent variables.

Multicollinearity among independent variables can sometimes be very high. A general method to remove the multicollinearity issue is to eliminate the redundant variables (using qualitative studies) or to reduce the number of variables (using exploratory factor analysis).

RESEARCH METHOD

The purpose of this study is to identify *the relative impact of each dimension* in credibility evaluation of a general presentation commercial web site and *the importance of these dimensions* within the construct's equation for a particular category of web sites.

Hypotheses:

1. The *Real world feel* is expected to have the most important impact in credibility evaluation of presentation commercial web sites. *Ease of use*, *Expertise* and *Trustworthiness* are expected to have an important impact as well.

This hypothesis relies on Fogg's (2001) research on general web sites credibility and factors' impact on the construct. In Fogg's (2001) study, *Real world feel*, *Ease of use*, *Expertise* and *Trustworthiness* have the largest relative impact on increasing credibility.

2. For a particular web site category, we expect to identify similar and also different important dimensions within the construct's equation comparing to those considered to have a large impact for general presentation commercial web sites.

We rely on this hypothesis as we noticed that during the qualitative stage of the study, people gave different examples of important issues in credibility evaluation depending on the product type promoted on a web page.

Hypothesis 1 – The *Real world feel* is expected to have the most important impact in credibility evaluation of presentation commercial web sites. *Ease of use*, *Expertise* and *Trustworthiness* are expected to have an important impact as well.

We created a figure with a standardized vertical axis, using Fogg (2001) pattern. The first step consisted in converting values from 1-7 scale to -3 - +3 scale, as this is the rating scale used in Fogg's (2001) study.

On this axis, the maximum theoretical value of +100 corresponds to an ideal situation that every respondent rated maximum (+3) each item in the questionnaire, value 0 corresponds to 0 and value -100 corresponds to -3. We have chosen this approach in order to identify dimensions with a positive impact (those having a positive sign in the graph) and negative impact (negative sign in the graph).

The table below presents the values based on which we created the graph of relative impact.

Table 2: Relative impact of each factor of presentation commercial web sites credibility

Dimension	Sum of averages on initial scale	Sum of averages on scale -3, +3	Impact (-100, +100)
Sincere communication	35.85	3.85	16.04
Ease of use	29.73	5.73	31.83
Real world feel	11.87	3.87	64.5

Company's experience	18.12	2.12	17.66
Trust	15.62	3.62	40.22
Framing adds	14.54	2.54	28.22
Expertise	20.061	4.06	33.83
Exterior site label	19.57	3.57	29.75
Connection between site and user	9.65	1.65	27.50
Site information support	17.45	1.45	12.08
Magnitude of site (number of pages)	3.78	-0.22	-7.33

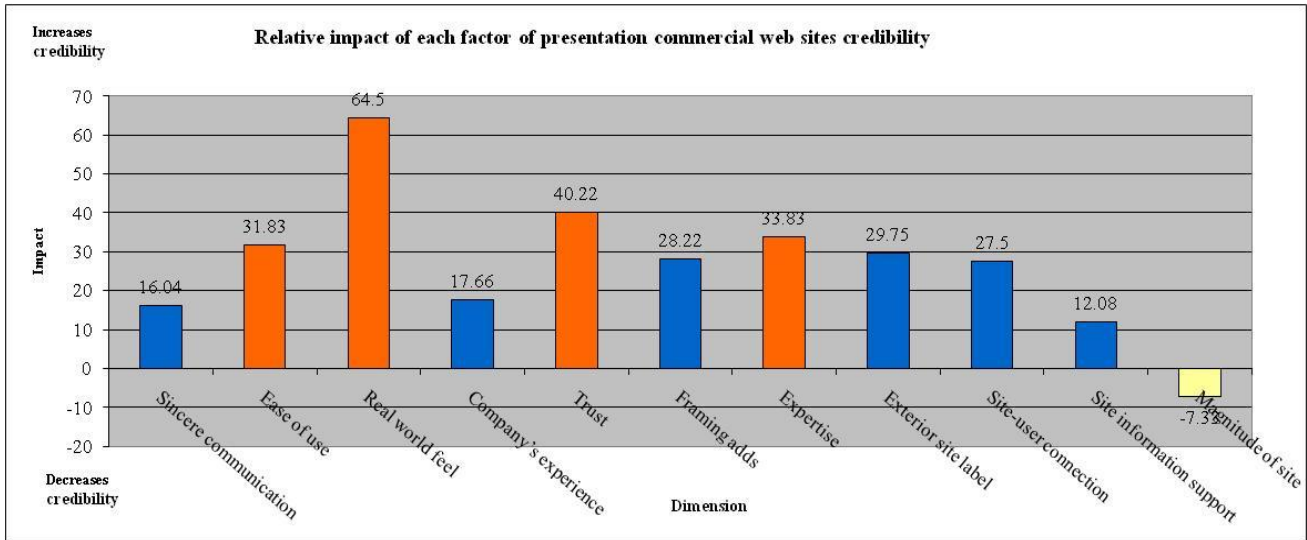


Figure 1. *Relative impact of each factor of presentation commercial web sites credibility*

Dimensions with a large impact (larger than 30 in the graph above, equivalent to 5 on the initial scale) are: *Ease of use*, *Real world feel* – largest impact, *Trust*, *Expertise*. These dimensions have also the largest impact in Fogg's (2001) study. *Real world feel* has a similar, largest impact in the two studies.

Dimension *Magnitude of site* has a negative impact, decreasing credibility (<0). Yet, this impact is not important, as it is not much smaller than 0.

All the other dimensions have a medium positive impact on credibility (score between 10 and 30).

Hypothesis 2 – For a particular web site category, we expect to identify similar and also different important dimensions within the construct's equation comparing to those considered to have a large impact for general presentation commercial web sites.

The second stage, explained in this paper, consisted in evaluating a certain web page with a new instrument developed after the first survey stage, explained in introduction.

The new instrument consisted of 11 simple questions, each question investigating one of the dimensions described above on a certain web page that students had to evaluate. In this second stage of research, respondents were asked to evaluate a certain web page from two points of view:

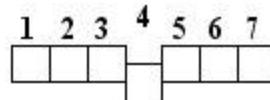
1. ranking the page for several criteria (each criterion represents a dimension of credibility as identified in the factor analysis; each criterion had clear, detailed specifications of what it meant);

2. ranking the general credibility of the web page (one grade for how credible the web page is).

According to Munteanu, C. (2009), the recommended type of scale found in the literature is using scales ranking from 0 to 100, with a 10-unit interval. Romanian evaluation of the teaching system uses the 1 to 10 scale, most of the grades being focused between 7 and 10. We avoided the 1 to 10 scale, as there could have been the risk for respondents to evaluate credibility's dimensions using grades focused mostly between 7 and 10. We also avoided the 1 to 5 scale because respondents tend to focus their answers around 1 and 5, as we noticed in the testing stage of this research. We decided to use the 1 to 7 scale.

**1 – criterion is not accomplished;
accomplished**

7 – criterion is very



In order to compute the construct's equation for a category of web sites we conducted regression analysis. According to Garson, D. (2010), a regression analysis requires the number of participants to be greater than 5 participants per independent variable. A stepwise regression requires even a greater number of participants (40 times the number of independent variables).

In this second stage of research, the sample consisted of 206 participants in an analysis with 11 independent variables. The number of respondents was not large enough to conduct a stepwise regression but it was large enough to test b and R² coefficients. This analysis allowed us to identify the important dimensions in evaluating a certain type of web site by students (clothes presentation web site). We selected one web page that is not considered to be popular among students in order to not influence the credibility's rank by the popularity of the site.

In the first survey designed to identify the credibility's dimensions, we included 299 valid questionnaires. 51% were students in the second year of study, 49% in the third year of study. In order to obtain valid results in the second survey stage, we used a similar distribution in the new sample: 107 students in the second year of study (52%) and 99 students in the third year of study (48%).

We conducted the regression analysis with the 11 variables as independent variables and the final item (ranking the general credibility of the web page) as dependent variable. The model explains approximate 67% of the variability of dependent variable. We expected this percentage to be around 60% because in the first stage of quantitative research, the construct's dimensions explain 60% of the total variance.

The Anova test rejects the hypothesis that each coefficient is 0. The independent variables help to explain the variation in the dependent variable. The coefficients that correspond a significant relation between variables (sig. < 0.05) are attached to dimensions *Ease of use* (sig.=0.031), *Real world feel* (sig.=0.010), *Exterior site label* (sig.=0.000) and *Site information support* (sig.=0.001). These are the important dimension defining the credibility construct for cloths presentation web sites.

We conducted the regression analysis again introducing for independent variables the four listed above that correspond a significant relation with the dependent variable. The new model explains 64% of the variability of dependent variable. The construct's equation applicable only for cloths presentation web sites targeting young people with college or faculty is:

Credibility = 0.642 + 0.132* *Ease of use* + 0.138* *Real world feel* + 0.377* *Exterior site label* + 0.213* *Site information support*.

In the particular situation of cloths presentation web sites, the most important dimension is *Exterior site label* (t value much higher than all the other t values). The second important dimension is *Site information support*. Although dimensions *Ease of use* and *Real world feel* have a large impact on the general construct of general presentation web pages (as tested in the first hypothesis), for this type of products aspects concerning *the label (shape)* are more important for students.

In the image below we specified the t values and regression coefficients corresponding each dimension.



Figure 2. *Important dimensions in evaluation of a cloths presentation web site*

Hypotheses confirmation or disconfirmation

Hypothesis 1 is confirmed. The dimension *Real world feel* has the most important impact in credibility evaluation of presentation commercial web sites. *Ease of use*, *Expertise* and *Trustworthiness* have an important impact as well.

Hypothesis 2 is also confirmed. For a particular web site category, we could identify similar and also different important dimensions within the construct's equation comparing to those considered to have a large impact for general presentation commercial web sites. For the particular case of cloths presentation web sites, important dimensions are *Ease of use*, *Real world feel*, *Exterior site label* and *Site information support*. Only two of these dimensions were also identified to have a large impact in the general construct for presentation web sites (*Real world feel* and *Ease of use*). *Exterior site label* and *Site information support* are important dimensions for the particular case of cloths presentation web sites.

CONCLUSIONS

Practitioners that want to promote cloths on a presentation web site have to consider the following aspects:

- The site should be *easy to access/use* (to load fast, to have no accessing errors, all the links in the page should be functional, to be easy to navigate inside the page, to allow searching for information posted in the past, to have a domain name to match the name of the company);
- Using the site should create the *real world feel* (to supply contact information – phone numbers, emails);
- The site should have a *good image* (to represent the official site on a certain subject, the user to find conversations on online forums about the company and the listed products, the site should present as many pieces of news);
- The *information* posted in the site should be *supported* (sound, intro page, articles with quotations, contact data of the articles' authors included in the page).

If a practitioner wants to promote products in the online environment, other than cloths, the specific questionnaire needs to be applied on a web site that presents that category of products. The hypothesis is that for different types of products importance of dimensions is different.

This second survey stage largely presented in this paper is more useful for practitioners and presents two types of results:

- identifying important dimensions on a certain case of a site that promotes a certain category of products;
- determining the credibility's construct (equation) on that type of site, including only the important dimensions in the equation.

It is expected that *Real world feel* to be an important dimension in evaluating any type of web site, as this dimension has the largest impact on the general construct of general presentation web sites.

The originality of the paper consists in the types of sites considered for analysis: presentation web sites. This is also the explanation for the new credibility dimensions, unspecified before by the scientific literature. Another original approach is the two stages survey: one to identify the credibility's dimensions and the second one to identify the important dimension on a certain case. The first stage is useful mostly for scientific literature, as it reveals specific dimensions for presentation websites. The second stage is useful mostly to practitioners, as it helps them identify what potential consumers consider to be important when evaluating credibility of a certain web page.

A limitation of the study is the instrument that was created using only students' perceptions. In order to investigate different profiles of online users, the questionnaire should be recreated.

Another limitation and a future research direction is the one-item dimension. It is necessary to conduct a qualitative research in order to identify new items to create a scale.

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