Online source credibility:

Experts and fellow users

P. Jason Morrison

COMM 65020

Kent State University

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Abstract

This study attempted to measure the effect of different ways information is presented and attributed on web sites on perceived credibility. Internet users were asked to use information on one of three web sites to make evaluations of digital cameras and then rate several measures of the credibility of the information. One site presented information as a table with no attribution, one presented the information in the form of an expert review, and one in the form of multiple user reviews. Results were mixed, with those using the review sites slightly more likely to say they had enough information, could make a decision, were confident in the choice they made, did not want to look at more or different kind of information, and did not think reviewers were biased. The results did not support the idea that user reviews positively affected credibility more than expert reviews, and more expert users were less likely to find the information credible in all significant cases.

Introduction

Why do people believe what they see online? Why would a user trust information in an article on a web site, or be willing to make a purchase based on reviews on a merchant's site?

Even before the advent of the Internet, people have been exposed to, have searched for, and have made decisions based upon information from various sources. It follows that people have needed to evaluate the information and the source of the information, to assign them levels of credibility, or to put a level of trust in the the source. Sometimes this is easy; for example, one person might know someone who is an professional photographer, so they might take his or her advice about buying a camera very seriously. In mass media, people can often rely on the reputation of a publication, familiarity with a writer, or an established personal history of using information

from that source.

These methods of evaluation are not always so easy on the Internet. When seeking information on digital cameras, for example, users may visit the manufacturer's site directly, a newspaper's online edition, an online-only publication the user has never read before, a personal home page or blog of a current camera owner, a forum filled with myriad opinions entered by anonymous enthusiasts, etc. How does one identify how much weight to give to which sources? Other types of information face similar (and often more pressing) concerns: how is a user to know that a news story, a piece of health advice, or a reference article is credible?

Web sites use a number of different methods to make the information they provide seem credible, trustworthy, or often in the case of commercial web site, convincing. These include elements as disparate as reputation, co-branding, links to reputable sources, guarantees, suggestions personalized to the user, source attribution, authority of authors and user contribution, among others. Many of these are difficult to quantify and measure, and a given web site may use any or all of the above, making it difficult to determine exactly how much each user might be affected by each tactic.

This study looks at a very small part of this overall question. There are two methods in particular that many web sites have used to give users a sense that a source or piece of information is reliable and credible. In the first method, the site will credit the information to an expert author or reviewer. In the second technique, more prominent online than in traditional media, sites will allow all of their users to review something (a computer, a store, a seller, an article, etc.). The result is a sort of average review of sometimes thousands of individuals, the idea being that the

user can trust the overall rating or impression because it is a sum of a large number of individual, subjective opinions. Ebay, Amazon.com, Bizrate.com, and a growing number of others apply this technique.

These two methods, authority of authors and user contribution, present a nice contrast and a good target for study.

RQ1: If information content is held relatively equal, does the way in which information is presented and sources attributed affect users' perception of credibility?

Literature Review

Research into traditional media credibility has been going on for decades. Hovland and Weiss defined credibility as being made up of two dimensions: trustworthiness and expertise.[1] Petty and Cacioppo, developing the Elaboration Likelihood Model, saw two ways in which a text can be found credible or untrustworthy: the central route, where readers evaluate the text and make decisions about its arguments, and the peripheral route, which include external cues like reputation.[2]

Research specifically into the credibility of information online has often started from this base, often directly comparing online and traditional media. Since credibility is very much a concern of the news media, it is not surprising that a large amount of the research on Internet information credibility been done in specifically with the news media.

As early as 1998, the Pew Research Center found the number of Americans getting their news

online had grown at an astonishing rate, while attitudes about traditional news media had soured and credibility had stabilized below levels in the 1980s.[3] By 2004, while many media outlets' credibility declined, they found that 29% of Americans reported regularly going online to get news.[4]

Credibility is an important issue for online information sources because the less people believe or trust what they see and hear, the less the pay attention to it.[5] In one early study, Brady created a web page with information on candidates running for congress and found that 71% of the participants thought it was more in-depth than television, while 43 percent said it was less biased.[6]

In 1998, Johnson and Kaye studied politically-interested Internet users in order to gage whether they thought Internet publications were as credible as their traditional media counterparts.[7] They measured credibility as consisting of four dimensions: believability, accuracy, bias, and depth. They found that in general, both Internet and traditional sources were seen as "somewhat" credible, and that online information was seen as at least as credible as traditional. Online newspapers and candidate literature, in fact, were seen as significantly more credible. They also found that that reliance was a stronger predictor of credibility for print media than online, although it was positively correlated in both cases. Reliance was a better predictor of credibility for online sources than simple use.

Later in 2000, Johnson and Kaye looked at the influence of reliance on credibility of online political information.[8] Their study had three research questions: first, how do those who rely heavily on online information rate the credibility of online newspapers, television station sites,

online newsmagazines, candidate literature, and issue-oriented sites? Second, how credible will people who normally rely on traditional media see those sites to be? Third, will online or traditional media sources better predict credibility of those sites? In general, reliance on the web was a significant predictor of credibility for all of the online information sources in the study, and reliance on the traditional media versions was a significant predictor for most. In addition, they found that younger users were more likely to find the online sources as credible and that the more educated found them less credible. Overall, the researchers though that concerns that the Internet would never be taken seriously as an information source were overblown, and that as people begin to rely on online information sources they will see them as credible.

In a 2000 study, Flanagin and Metzger found that information from the Internet was seen to be as credible or more credible as information from magazines, radio, and television, though not as credible as newspapers, despite the fact that information on the Internet might have had the least amount of editorial control.[9] Their study looked at the relative perceived credibility of different news media and different types of information presented via those media. They measured credibility as believability, accuracy, trustworthiness, bias, and completeness and looked at four different type of information: news or current events, entertainment, reference, and commercial. They also found that Internet information credibility was positively correlated with Internet experience, but they could not support their hypothesis that Internet experience was positively correlated with Internet credibility relative to other media.

Studies have shown varying results on how source attribution affects perceived credibility. The presence of attribution was found to be an important factor in credibility of online news sources in one study by Sundar.[10] In this study credibility was considered an overall measure of the

objectivity of a story, and six types of information were presented to participants: national, international, local, business, sports, and entertainment. In at least one of the many studies on this subject researchers found that the more participants relied on print media, the more likely they were to look for attribution.[11]

In a more general study, Kiousis found that although people are generally skeptical about all of the news media, they rated online news sources above television (but below newspapers).[12]

Research into the credibility of online information sources has not, of course, been limited to the newsmedia. After a broad review of the literature, Freeman and Spyridakis found that a large number of organizations and experts more or less agreed on a number of positive characteristics publishers could include to enhance the credibility of their site.[13] The study looked to see if interest or presence of a street address and external links would correlate positively with credibility, and found that they did. The measurement of credibility included accuracy, bias, credibility, expertise, and trustworthiness.

Credibility and trustworthiness in other contexts have found other factors as well. In a study of online support groups, Wright found the perceptions of credibility were related to network size and satisfaction, and that satisfaction was linked to the amount of time spent and number of messages exchanged by users.[14]

Hypothesis

H1: Users will find information written by other people (with value judgments and attribution) more credible than that same information listed out with no context.

H2: Users will be more likely to trust information attributed to multiple fellow users than information attributed to an expert.

H3: Users that are more accustomed to using information online are more likely to find information attributed to multiple fellow users credible.

Method

Internet users do not search for information in general, but instead go online looking for information on a certain topic or subject. Digital cameras were chosen as the particular subject in this study because there was a wealth of objective information available from manufacturers online and because it seemed to be a subject that users would actually look for online. Three different web sites were created: the control site, with information simply listed for each camera, the expert review site, where the information was presented as a review written by a digital photography expert, and the user review site, where the information was presented as short reviews written by a number of users.

In order to keep the time requirements of the survey down, only four cameras were shown on each test site (Canon PowerShot A75, Nikon Coolpix 5700, Canon PowerShot SD300, Sony Cyber Shot DSC-F828). To ensure that all of the cameras were of similar quality and that there would be a clear distinction between them, cameras were chosen from the "Editors' Top Cameras" lists of a major review site[15], one from each of four categories: "3-megapixel cameras," "5-megapixel cameras," "6-megapixel and higher cameras," and "Ultracompact cameras."

The same 14 pieces of information were collected about each camera from review sites and

manufacturer's sites, including the following:

- Resolution
- Optical/Digital zoom
- Lens manufacturer/brand name
- Autofocus system
- LCD screen size/resolution, presence/absence optical viewfinder
- body materials (plastic, aluminum, etc.)
- Movie modes
- Presence/absence of Low-light focus assist illuminator
- Shutter speeds of 15 seconds to 1/2000 second
- Selectable ISO settings from 50 to 400
- Battery type
- Storage type (CompactFlash, SecureDigital, Memory Stick, etc.) and included memory size.
- Size
- Weight

Each specification was then written as a sentence for each camera. The control site had all information listed out as bullet points on the page. In the expert review site, the sentences were put together in the form of a review, with some written as positive and others negative. In the user review site, similar positive/negative sentences were broken up into a number of different user reviews.

For example, the fact that the Canon A75 weighs 7.1 oz. was written as follows: “Weight: 7.1 oz” (control); “The A75 weighs 7.1oz which is light in the hand, but too heavy to put in a pocket.” (expert review); and “It is light (7.1 oz) when I'm shooting, but it is too heavy to put in my pocket.” (user review).

Although the goal was to keep the information content of each site as similar as possible, both review sites framed some of the information in positive or negative comments. This was done in order to make the reviews seem as naturalistic as possible.

In order to ensure they would read the site and use it to make some kind of evaluation, participants were asked to perform two simple tasks requiring them to evaluate digital cameras using information provided. They were randomly assigned to one of three groups: the first group, the control group, was given information about the cameras in a table with no context. The second group, the expert review group, was given the same information presented in the form of a review written by a digital photography expert. The third group, the user review group, was presented the same information in the form of multiple short reviews written by fellow users.

After the participant fulfilled their task and chose cameras, they were asked a series of demographic questions and asked to rate ten statements on a 5-point Likert-type scale. The notion of credibility or trust of an online source was been operationalized as consisting of seven facets:

- The user's ability to evaluate with the amount of information provided (sufficiency)
- The user's ability to choose based on information (decision)
- The user's confidence in action based on information (confidence)
- The user's lack of desire to look for additional information (completeness)
- The user's belief that the source is trustworthy (trust)
- The user's belief that the source is unbiased (bias)
- The user's belief that the information is accurate (accuracy)

Other questions asked the user to rate their familiarity with the subject matter, how much they liked the organization of the information, and their previous experience with these particular brands and cameras.

Data Collection

The survey was made available to employees of SBC through and invitation sent out via the billing group email distribution list and the web developer mailing list on April 20, 2005 and the survey web site was open through April 29. Participants were not given any incentive to participate and were asked to complete the survey outside of work hours.

Results

Demographic information collected is presented in the tables below.

Table 1 - Gender

	Frequency	Percent
Female	19	33.3
Male	38	66.7

Table 2 - Education

	Frequency	Percent
Some High School	1	1.8
High School Diploma or Equivalent	6	10.5
Associate's Degree	5	8.8
Bachelor's Degree	33	57.9
Master's Degree	10	17.5
Ph.D	1	1.8
Other	1	1.8

Table 3 - Income

	Frequency	Percent
$0 to $19,999	0	0
$20,000 to $39,999	1	1.8
$40,000 to $59,999	16	28.1
$60,000 to $79,999	17	29.8
$80,000 or higher	19	33.3
Missing	4	7.0

Table 4 – Age and Internet Use

	N	Minimum	Maximum	Mean	Std. Deviation
Year of Birth	57	1946	1981	1963.74	10.829
Number of purchases online in past year	57	0	200	24.12	37.202
Number of years using the Internet	56	2	19	9.23	3.347
Average number of hours spent online in a week	56	1	80	18.63	18.750

Hypothesis 1: Users will find information written by other people (with value judgments and attribution) more credible than that same information listed out with no context.

The first way this hypothesis was tested was by taking a mean of the seven credibility indicators and comparing those for all participants that viewed plain information versus those that saw one of the two review sites (Table 5). An ANOVA table was calculated to test for significance.

Table 5 – Overall Credibility Rating, Plain Information v. Reviews

Information type	Mean	N	Std. Deviation	Std. Error of Mean
Plain Information	2.8786	20	.61187	.13682
Information in Reviews	2.9344	37	.60758	.09989
Total	2.9148	57	.60420	.08003

ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	.040	1	.040	.109	.743
Within Groups	20.403	55	.371		
Total	20.443	56			

Participants in the Review groups did report a slightly higher overall credibility, but the difference was very small and the results were not statistically significant. Although the seven indicators were chosen from among a number of studies in the literature, it is quite possible that the simple average shown above is not a reliable measure of credibility. A in a second attempt to test the first hypothesis, means were calculated for each measure individually (as well as the measure of whether the participant liked the site's organization) for each group and an ANOVA table was calculated to test for significance (Table 6).

Table 6 – Individual Credibility Indications, Plain Information v. Reviews

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Sufficiency	Plain Information	20	2.65	1.089	.244	2.14	3.16
	Information in Reviews	37	3.19	1.101	.181	2.82	3.56
	Total	57	3.00	1.118	.148	2.70	3.30
Decision	Plain Information	20	2.55	1.191	.266	1.99	3.11

	Information in Reviews	37	2.68	1.156	.190	2.29	3.06
	Total	57	2.63	1.159	.154	2.32	2.94
Liked	Plain Information	20	3.40	1.095	.245	2.89	3.91
	Information in Reviews	37	2.89	1.075	.177	2.53	3.25
	Total	57	3.07	1.100	.146	2.78	3.36
Confident	Plain Information	20	3.25	1.446	.323	2.57	3.93
	Information in Reviews	37	3.35	.978	.161	3.03	3.68
	Total	57	3.32	1.152	.153	3.01	3.62
Complete	Plain Information	20	1.65	.813	.182	1.27	2.03
	Information in Reviews	37	1.76	.895	.147	1.46	2.06
	Total	57	1.72	.861	.114	1.49	1.95
Trust	Plain Information	20	3.60	1.046	.234	3.11	4.09
	Information in Reviews	37	3.24	.925	.152	2.93	3.55
	Total	57	3.37	.975	.129	3.11	3.63
Bias	Plain Information	20	2.80	1.005	.225	2.33	3.27
	Information in Reviews	37	2.95	.911	.150	2.64	3.25
	Total	57	2.89	.939	.124	2.65	3.14
Accuracy	Plain Information	20	3.65	.933	.209	3.21	4.09
	Information in Reviews	37	3.38	.639	.105	3.17	3.59
	Total	57	3.47	.758	.100	3.27	3.67

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Sufficiency	Between Groups	3.774	1	3.774	3.135	.082
	Within Groups	66.226	55	1.204		
	Total	70.000	56			
Decision	Between Groups	.205	1	.205	.150	.700
	Within Groups	75.058	55	1.365		
	Total	75.263	56			
Liked	Between Groups	3.352	1	3.352	2.864	.096
	Within Groups	64.368	55	1.170		
	Total	67.719	56			
Confident	Between Groups	.133	1	.133	.099	.754
	Within Groups	74.182	55	1.349		
	Total	74.316	56			
Complete	Between Groups	.148	1	.148	.197	.659
	Within Groups	41.361	55	.752		
	Total	41.509	56			
Trust	Between Groups	1.652	1	1.652	1.761	.190
	Within Groups	51.611	55	.938		
	Total	53.263	56			
Bias	Between Groups	.277	1	.277	.310	.580
	Within Groups	49.092	55	.893		
	Total	49.368	56			
Accuracy	Between Groups	.958	1	.958	1.686	.200

Within Groups	31.253	55	.568	
Total	32.211	56		

As the table above indicates, participants that used the review sites for their tasks were slightly more likely to say they had enough information, could make a decision, were confident in the choice they made, did not want to look at more or different kinds of information, and did not think reviewers were biased. On the other hand, they were less likely to say they liked the site, trusted these kind of sites, or thought the information was accurate. Differences between the two types of site were small and none of the measures were statistically significant.

Participants were divided into groups depending of whether they had seen the plain information site or either of the review sites and their response to the question. Because of the small number of participants, the likert-type scale responses were coded so that responses of strongly disagree, and disagree were considered "does not agree," responses of neutral were considered neutral, and responses of agree and strongly agree were considered "does agree." Crosstabs were created for each measure individually and Chi-square tests done to test significance. Only one measure had significant results ($p < .05$), shown below (Table 7).

Table 7 – Confidence in Choice, Plain Information v. Reviews

		Information type		Total
		Plain Information	Information in Reviews	
Not confident	Count	9	9	18
	% within Information type	45.0%	24.3%	31.6%
Neutral	Count		10	10
	% within Information type		27.0%	17.5%
Confident	Count	11	18	29
	% within Information type	55.0%	48.6%	50.9%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.266	2	.026
Likelihood Ratio	10.421	2	.005
Linear-by-Linear Association	.332	1	.564
N of Valid Cases	57		

a 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.51.

In this case, participants that saw plain information were less likely to be neutral than those who saw one of the two review sites. This is interesting, because it seems to indicate that reading expert and user reviews has made our participants less confident about how confident they are in their decision. Of course, this is hardly a ringing endorsement of the hypothesis. Although the data is slightly in favor of the hypothesis, there is not enough difference to support it. It is quite possible that the difference show here is real, but small, in which case further study with more participants would be useful.

Hypothesis 2: Users will be more likely to trust information attributed to multiple fellow users than information attributed to an expert.

The second hypothesis was tested similarly to the first. A mean of the seven credibility indicators was calculated and compared for all participants that viewed expert reviews versus those that saw user reviews (Table 8). An ANOVA table was calculated to test for significance.

Table 8 – Overall Credibility Rating, Plain Information v. Reviews

Review Type	Mean	N	Std. Deviation	Std. Error of Mean
Expert Review	2.9444	18	.65582	.15458
User Reviews	2.9248	19	.57611	.13217
Total	2.9344	37	.60758	.09989

ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig.

Between Groups (Combined)	.004	1	.004	.009	.923
Within Groups	13.286	35	.380		
Total	13.290	36			

In this case the the expert reviews were rated slightly higher than the user reviews, although not enough to be significant. Means were then calculated and compared for each of the measures individually, with an ANOVA table was calculated to test for significance (Table 9).

Table 9 – Individual Credibility Indications, Plain Information v. Reviews

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Sufficiency	Expert Review	18	3.17	1.150	.271	2.59	3.74
	User Reviews	19	3.21	1.084	.249	2.69	3.73
	Total	37	3.19	1.101	.181	2.82	3.56
Decision	Expert Review	18	2.67	1.283	.302	2.03	3.30
	User Reviews	19	2.68	1.057	.242	2.17	3.19
	Total	37	2.68	1.156	.190	2.29	3.06
Liked	Expert Review	18	3.06	1.162	.274	2.48	3.63
	User Reviews	19	2.74	.991	.227	2.26	3.21
	Total	37	2.89	1.075	.177	2.53	3.25
Confident	Expert Review	18	3.11	.900	.212	2.66	3.56
	User Reviews	19	3.58	1.017	.233	3.09	4.07
	Total	37	3.35	.978	.161	3.03	3.68
Trust	Expert Review	18	3.33	.970	.229	2.85	3.82
	User Reviews	19	3.16	.898	.206	2.72	3.59
	Total	37	3.24	.925	.152	2.93	3.55
Accurate	Expert Review	18	3.44	.784	.185	3.05	3.83
	User Reviews	19	3.32	.478	.110	3.09	3.55
	Total	37	3.38	.639	.105	3.17	3.59
Complete	Expert Review	18	1.83	.985	.232	1.34	2.32
	User Reviews	19	1.68	.820	.188	1.29	2.08
	Total	37	1.76	.895	.147	1.46	2.06
Bias	Expert Review	18	3.06	.938	.221	2.59	3.52
	User Reviews	19	2.84	.898	.206	2.41	3.28
	Total	37	2.95	.911	.150	2.64	3.25

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Sufficiency	Between Groups	.018	1	.018	.014	.906
	Within Groups	43.658	35	1.247		
	Total	43.676	36			
Decision	Between Groups	.003	1	.003	.002	.964
	Within Groups	48.105	35	1.374		

	Total	48.108	36			
Liked	Between Groups	.939	1	.939	.809	.375
	Within Groups	40.629	35	1.161		
	Total	41.568	36			
Confident	Between Groups	2.023	1	2.023	2.185	.148
	Within Groups	32.409	35	.926		
	Total	34.432	36			
Trust	Between Groups	.284	1	.284	.326	.572
	Within Groups	30.526	35	.872		
	Total	30.811	36			
Accurate	Between Groups	.153	1	.153	.368	.548
	Within Groups	14.550	35	.416		
	Total	14.703	36			
Complete	Between Groups	.206	1	.206	.251	.619
	Within Groups	28.605	35	.817		
	Total	28.811	36			
Bias	Between Groups	.421	1	.421	.500	.484
	Within Groups	29.471	35	.842		
	Total	29.892	36			

Participants who viewed the user review site were slightly more likely to say they had enough information and that they were confident in their decision. In all other measures there was no difference or the expert reviews scored higher. Although none of the results were statistically significant, there seems to be little indication that those who saw the information in the form of user reviews were more likely to trust it or find it more credible.

Hypothesis 3: Users that are more accustomed to using information online are more likely to find information attributed to multiple fellow users credible.

This study has three simple measures of how accustomed the participants were to using information online: number of years on the Internet, average number of hours spent online in a week, and approximate number of purchases made online in the past year. First, a bivariate correlation was run calculating Pearson's Correlation to try to determine if there was a linear relationship between any of the experience measures and the indicators for all participants (Table

10).

Table 10 - Individual Credibility Indications and Experience Measures

		YEARS	HOURS	PURCHASE
Sufficiency	Pearson Correlation	-.108	-.065	-.098
	Sig. (2-tailed)	.429	.633	.469
	N	56	56	57
Decision	Pearson Correlation	-.121	.090	-.023
	Sig. (2-tailed)	.374	.511	.865
	N	56	56	57
Liked	Pearson Correlation	-.250	.008	-.132
	Sig. (2-tailed)	.063	.953	.329
	N	56	56	57
Confident	Pearson Correlation	-.002	.178	-.002
	Sig. (2-tailed)	.989	.190	.987
	N	56	56	57
Complete	Pearson Correlation	-.224	**-.274**	-.157
	Sig. (2-tailed)	0.1	**.041**	.244
	N	56	**56**	57
Trust	Pearson Correlation	**-.366**	-.217	-.245
	Sig. (2-tailed)	**.006**	.108	.066
	N	**56**	56	57
Bias	Pearson Correlation	-.011	-.087	-.032
	Sig. (2-tailed)	.938	.522	.811
	N	56	56	57
Accurate	Pearson Correlation	-.159	.065	.030
	Sig. (2-tailed)	.243	.634	.824
	N	56	56	57

Bold signifies correlation is significant at the 0.05 level (2-tailed).

Although this did not directly test the hypothesis, it was interesting to see if the results, as a whole, showed a positive correlation between experience and credibility. In fact, the majority of the measures of credibility were negatively correlated with with experience—the longer the participant had been using the Internet, the more hours per week they used it, and the more purchases they had made, in general the less credible they had found the information. Only two of the correlations was statistically significant: the more years the participant had been using the Internet, the less likely they were to trust this and similar websites, and the larger number of hours spent on the Internet in a week, the more likely they were to want more information.

A similar tables was calculated, this time with just the User Review participants (Table 11).

Table 11 - Individual Credibility Indications and Experience Measures

		YEARS	HOURS	PURCHASE
Sufficiency	Pearson Correlation	-.180	-.392	.017
	Sig. (2-tailed)	.461	.108	.946
	N	19	18	19
Decision	Pearson Correlation	-.423	-.117	.147
	Sig. (2-tailed)	.071	.644	.547
	N	19	18	19
Liked	Pearson Correlation	**-.589**	-.204	.100
	Sig. (2-tailed)	**.008**	.417	.685
	N	**19**	18	19
Confident	Pearson Correlation	-.006	.114	.182
	Sig. (2-tailed)	.980	.653	.455
	N	19	18	19
Complete	Pearson Correlation	**-.489**	-.336	-.080
	Sig. (2-tailed)	**.033**	.173	.744
	N	**19**	18	19
Trust	Pearson Correlation	-.337	**-.571**	.166
	Sig. (2-tailed)	.159	**.013**	.497
	N	19	**18**	19
Bias	Pearson Correlation	-.206	.033	-.370
	Sig. (2-tailed)	.397	.897	.119
	N	19	18	19
Accurate	Pearson Correlation	-.245	**-.503**	.190
	Sig. (2-tailed)	.311	**.033**	.437
	N	19	**18**	19

Bold signifies correlation is significant at the 0.05 level (2-tailed).

Looking at the results just for the participants that saw the user reviews site, (table XX), a similar pattern emerges. In general, the more experienced the user, the lower the perceived credibility, and the four statistically significant results showed definite inverse correlations. The one measure of experience that did correlate positively (although never statistically significantly) more often than not was purchases. This is interesting because the tasks the participants were asked to perform were similar to what they would do in preparation for a purchase online. There is hardly evidence here to say that the more purchases a user makes, the more likely user reviews are able to increase a site's credibility, but user reviews do not incite the strong downward pitch in credibility when experience is measured by purchases alone.

One final correlation was calculated in order to compare the results of the correlation above with the results for all other participants (Table 12).

Table 12 - Individual Credibility Indications and Experience Measures

		Plain data or expert review			User review		
		YEARS	HOURS	PURCHASE	YEARS	HOURS	PURCHASE
Sufficiency	Pearson Correlation	-.059	.074	-.098	-.180	-.392	.017
	Sig. (2-tailed)	.727	.657	.559	.461	.108	.946
Decision	Pearson Correlation	.028	.189	-.044	-.423	-.117	.147
	Sig. (2-tailed)	.870	.256	.794	.071	.644	.547
Liked	Pearson Correlation	-.113	.175	-.227	**-.589**	-.204	.100
	Sig. (2-tailed)	.505	.295	.170	**.008**	.417	.685
Confident	Pearson Correlation	.014	.173	.005	-.006	.114	.182
	Sig. (2-tailed)	.934	.299	.978	.980	.653	.455
Complete	Pearson Correlation	-.092	-.241	-.188	**-.489**	-.336	-.080
	Sig. (2-tailed)	.587	.146	.258	**.033**	.173	.744
Trust	Pearson Correlation	**-.411**	-.010	**-.365**	-.337	**-.571**	.166
	Sig. (2-tailed)	**.012**	.952	**.024**	.159	**.013**	.497
Bias	Pearson Correlation	.087	-.141	.011	-.206	.033	-.370
	Sig. (2-tailed)	.610	.397	.946	.397	.897	.119
Accurate	Pearson Correlation	-.158	.280	-.013	-.245	**-.503**	.190
	Sig. (2-tailed)	.349	.088	.938	.311	**.033**	.437

Bold signifies correlation is significant at the 0.05 level (2-tailed).

None of the significant measures for one group was significant in the other, but in general it seems that if experience is measured in years online or average number of hours spent online, more experience correlates to lower perceived credibility for user reviews than other types of information. On the other hand, when experience is measured by number of purchases in a year, user reviews has a mild positive correlation for most measures of credibility.

Discussion

The survey results do not completely support either of the three hypothesis, although there are some indications that with a larger sample more of the small differences noted would be statistically significant.

It is also possible that the independent variable used here, the way in which information is presented and attributed, is not a strong factor in perceived credibility. Other variable that were held constant, for example the specific number of facts available on each site, the site's visual design, etc. may be much stronger predictors.

Clearly, more study needs to be done in this area. This particular study was most valuable as a test of the operationalization and survey mechanism.

Limitations

The largest limitation to this study is the small, non-probability sample. SBC employees most likely do no represent the universe of Internet users, and participants were highly self-selected. None of the results can be generalized to the Internet population as whole. This survey also suffers from some of the same general limitations that any study involving self-reporting does.

Informal interviews with participants later revealed that some of the questions could have been worded more clearly. Question 8 in part 2 ("I find the people who write product reviews on web sites biased") was not seen by all participants as referring to the specific reviews they read, but instead as referring to all web sites in general.

Another consideration was the artificiality of the test web sites themselves. Although users

presumably utilized the sites in the same environment as they normally would, the sites themselves were fairly plain and did not have colorful logos, advertisements, and other elements that typical web sites contain.

Further study

It would certainly be interesting to do a similar study using actual web sites, although in that situation it would be very difficult to put any amount of control over information content in the different types of sites. A cursory look at the amount of information presented on a Amazon.com product page, for example, will demonstrate that user reviews rarely cover every attribute listed in the "Product Details" section. A look at several web sites will show differences in the types and quantity of information offered at each. It might be possible to find a number of sites that are fairly close in information content, save them locally, and edit them for consistency. It may also be advantageous to take the current pages and reformat them to look much more like a particular site the users may be familiar with.

One thing that this study does not consider is the interaction between different types of information on the same site. It may be worthwhile to do a similar study to see if presenting the same information in multiple forms increases credibility or likely hood. In fact, the current study is in somewhat artificial in that many sites present factual information, expert reviews, and user reviews on the same page.

With more participants, it might also be able to control for factors like familiarity with the subject matter. The questionnaire asked participants to rate themselves on expertise in the subject matter at hand as well as familiarity with the brands of the cameras themselves.

It would be interesting to run the same study with other types of information as well. Commercial product information in general, and digital camera information in particular, were chosen for this study because they seemed to lend themselves well to study. It would be valuable to run this same study with other kind of products and compare results. It would also be interesting to run similar studies with other types of information, perhaps the four types studied by Flanagin and Metzger: news, reference, entertainment, and commercial.

Finally, only three types of presentation and attribution were examined. Other studies have found other factors that affect perceived credibility, and it would be interesting to include additional sites to test these as well.

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