The Acceptance Of Dual Processing Evaluation Theories in Accessing Online Information Credibility

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ABSTRACT

The tremendous amount of information available online, coupled with the growing use of the Internet to find it, has resulted in a considerable amount of research on information and source credibility. The vast majority of these researchers have developed guidelines and framework that can be applied to evaluate web content credibility. Wathen & Burkell’s credibility theory is one of dual processing theory proposed in judging the credibility of online information. Hence, this study intended to test the proposed theories. This study has developed a set of questionnaire to help users evaluate each of the theories characteristics based on given web source. Finally, the results obtained from this study prove the effectiveness of the theory in assessing online information credibility. Furthermore, other associations in perceived credibility also been identified in this research.

Keywords: Credibility; online information; dual processing credibility theories

I. Introduction

Internet users have access to enormous amounts of information on the Web, not all of it is necessarily reliable. Additionally, there are no universal standards for posting information online, and digital information may be easily altered, plagiarized, misrepresented, or created anonymously under false pretenses ([1], [2], [3]).

Therefore, the ability to evaluate or critically review online information is a crucial skill for internet users. In addition, there is evidence that many people are unprepared for this responsibility, and may have trouble determining how and when to assess the credibility of online information ([4], [5], [6]).

In the context of the Internet, the traditional methods of evaluating materials (peer review, meeting collection development criteria, and identification of an authoritative or reputable publisher) do not work. As a result, few studies have developed guidelines and framework that can be applied to evaluate web content. One of it is a model proposed by Wathen & Burkell’s [7].

The model presented as an attempt to synthesize the literature into a framework that will allow for further research to address the gaps. Figure 1.0 presents a proposed possible model by Wathen & Burkell’s of how credibility assessment may occur on-line.

The model posit a three-stage theoretical model of the credibility judgment process, highlighting the effects of surface credibility (the impact of the messenger), message credibility (composed of source and message credibility), and finally the impact of the cognitive state of the individual making the credibility judgment.

The model is laid out as a staged process with the caveat that this is untested model. If the on-line information seeking process, both within and between Web sites, is iterative, the steps themselves are likely not linear, as presented in Figure 1, but in fact interactive, especially as initial surface and source cues interact.

This research gap is needed to be fulfilled in order to prove that the proposed model is sufficient enough to guide internet users in judging the credibility of the information. Therefore further studies are necessary to fill in the research gap.
II. Literature Review

In just two decades, the Internet has integrated itself into our lives as an important, if not indispensable, tool for information and communication. Millions of people perform searches each day looking for a wide variety of information, including medical and health information, product and commercial information, political and news information, as well as entertainment, travel, and many other kinds of information [8].

Internet and the Web have evolved into informational tools that can be accessed by anyone, virtually anywhere in the world. Not only can anyone access them, but any person, organization, or business with the proper computer hardware and software can also publish material on them, regardless of content. As a result, the validity and accuracy of information being disseminated through the Internet and the Web have been questioned. The challenge that most people then face is to judge which information is more credible.

Unlike most traditional (print) publishing, information posted on the Web may not be subject to filtering through professional gatekeepers, and it often lacks traditional authority indicators such as author identity or established reputation.

Additionally, there are no universal standards for posting information online and digital information may be easily altered, plagiarized, misrepresented, or created anonymously under false pretenses ([1], [2], [3]).

[9] further suggests that because information is presented in a similar format online (i.e., Web sites), this creates a kind of ‘leveling effect,’ putting all information on the same level of accessibility and, thus, all authors on the same level of credibility.

Due to these reasons, it is crucial for Internet users to develop the skills in evaluating the Web-based information. In additions, there is evidence that many people are unprepared for this responsibility, and may have trouble determining how and when to assess the credibility of online information.

Credibility has been defined as believability, trust, reliability, accuracy, fairness, objectivity, and dozens of other concepts and combination thereof [10]. It also has been defined in terms of characteristics of persuasive sources, characteristics of the message structure and content, and perceptions of media [3]. Some studies focus on the characteristics that make sources or information worthy of being believed, while others examine the characteristics that make sources or information likely to be believed [11].

Dual processing theory provide a good basis for developing a new model of Web credibility assessment that prioritizes user motivation and ability and accounts for the situational nature of credibility assessment (i.e., that it will not be important for all Internet users at all times).

Dual processing models from persuasion, such as the Elaboration Likelihood Model [12] may be a helpful guide in formulating a model of credibility assessment that takes motivation into account. Like most dual processing models, the model proposed in Figure 2 assumes that motivation and ability are keys to whether and to what degree users will critically evaluate Web information.
III. Research Questions

As mentioned in the problem statement section before, the model is as an attempt to synthesize the literature into a framework which never been tested in real online situation. Following are problems that intended to be addressed by this research.

1. Does Wathen & Burkell’s theory relevant in providing framework to help internet user in determining online information credibility?
2. Does the theory represent the act or behavior of internet user when assessing online information credibility?

IV. Hypotheses

The following research hypotheses were tested using the Wathen & Burkell’s Dual Process Credibility Theory in judging online information in order to determine the effectiveness of the theory:

H1: Web site which is believed or well known in providing credible information should complies with all the 3 stages theory stated in Wathen & Burkell’s credibility theory.

H2: User will leave the site if the credibility evaluation of current stage is failed without considering to continue next stage.

V. Research Objectives

The objective of a research project summarizes what it to be achieved by the research. There are several objectives which have been identified for this research.

1. To evaluate the Wathen & Burkell’s Dual-Process Evaluation Model in assessing online information credibility.

This study intended to test the theory drawn by the Wathen & Burkell’s theory of credibility judgment in accessing online information. The theory consists of three-stage model which involves an interaction between low-effort evaluation as well as high-effort evaluation. Therefore, the three stages will be evaluated separately in order to determine the effectiveness of the Wathen & Burkell’s proposed theory which never been tested before based on chosen web. Therefore the theory has been supported by empirical data based on the result obtain from this research.

2. To propose and enhance existing model to cater online user in judging online information.

With the result of Wathen & Burkell’s credibility theory evaluation derive from the above activity; it will determine whether the proposed theory is relevant enough to guide the internet user particularly in accessing online information credibility. As the result, improvement can be done to enhance the theory.

VI. Research Methodology

In this research the population of interest may be anyone who is internet users. In particular, to know how internet users judge the credibility of information they found in internet. To achieve this, random sampling is used among the population so that it has an equal chance of being selected.

A Likert scale questionnaire survey was the main instrument providing quantitative data and was designed quantitative data. Two e-Halal websites were chosen in this research in order to test the dual credibility theory proposed by [7].

The first website is www.halal.gov.my which is a Malaysian official Halal Portal while the second website is halal.ipij.info, an unofficial Halal info portal for Islamic community in Japan.

The main reason these both website were chosen is because the Malaysian official Halal portal site should have highest credibility scores since the content was organize by JAKIM trusted institutional therefore it should satisfy the hypothesis of the Wathen &
Burkell’s model whereby the other site was unofficial site which might have highest score or lowest score.

The pilot test was conducted using a convenience sample of 10 respondents, primarily to ensure the clarity of the question and to measure whether the questionnaire could be completed within a reasonable period of time and secondly to elicit some comments about the content validity, as respondents were asked to describe any difficulties they had in completing the questionnaire accurately. The survey instrument was modified on the basis of comments and suggestions made by the pilot test. Rewording of the questionnaires was necessary in order to remove any jargon, inconsistencies or leading questions.

After the questionnaire is adequately prepared, the questionnaire was distributed randomly to a numbers of respondents. There are two methods used in this research in order to distribute the questionnaires to the respondent which by email and handed directly to the respondent and collecting them a few days later.

All participants were required to browse the two website before determine how credible the information was. At the beginning of questionnaire, participants were asked to complete the demographic section.

There are three main characteristics to be evaluated by the participants which is the first characteristics is surface credibility. The evaluation of surface credibility relies on an examination of web surface characteristics such as appearance/presentation, interface design and organization of information within the site.

Second characteristic is the evaluation of message credibility which relies on an examination of source characteristics (e.g: expertise, trustworthiness, and credentials) as well as message characteristics (e.g: content and relevant). The last one is content evaluation which relies on thorough analysis of the content. Participant should answer all the four part of questionnaire based on the two Halal portal chosen in this study.

In this study, the data analysis involves three major steps which are data preparation, descriptive statistics and inferential statistics.

VII. Findings

During the course of running the study, 43 people succeeded to complete the questionnaire. Three questionnaires were discarded because they did not contain complete answers for all the 34 questions. Table 1 shows the demographic information for 40 participants.

<table>
<thead>
<tr>
<th>Demographic item</th>
<th>Overall results</th>
</tr>
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<tbody>
<tr>
<td>Age (median)</td>
<td>29.7 years</td>
</tr>
<tr>
<td>Gender</td>
<td>40% Female, 60% Male</td>
</tr>
<tr>
<td>Computer skills</td>
<td>60% Skilled, 35% Satisfactory, 2.5% Highly skilled, 2.5% Somewhat weak.</td>
</tr>
<tr>
<td>Online access (per day)</td>
<td>45% Quite often, 27.5% Sometime, 22% Frequently 5% Occasionally.</td>
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</table>

The evaluation of surface credibility (first stage) was assessed by asking the respondents to examine the surface of web characteristics such as the appearance/presentation, interface design and the organization of the content. 11 questions were presented and 9 items was measured on 5 point scale ranging from (1) strongly disagree to (5) strongly disagree. The result of surface credibility score for both site are summarized as table 2.

<table>
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<tbody>
<tr>
<td>Mean</td>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>1. Does the site look professional?</td>
<td>3.7000</td>
<td>3.1750</td>
</tr>
<tr>
<td>2. Does the site include appropriate information and features?</td>
<td>3.8750</td>
<td>3.1500</td>
</tr>
<tr>
<td>3. Does the site easy to control?</td>
<td>3.8500</td>
<td>3.5500</td>
</tr>
<tr>
<td>4. Does the site easy to effectively retrieve specific information on the site?</td>
<td>3.6000</td>
<td>3.2000</td>
</tr>
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</table>
Based on the mean data, each of the surface credibility characteristics represent higher credibility scores for the first Halal portal web (M = 3.5861, SD = 0.8404) compared to the second portal (M = 3.1667, SD = 0.9303). This shows that www.halal.gov.my has the most credible interface layout to most of the respondents. In general, the portal has the professional look.

The second stage of the proposed model is about the evaluation of message credibility. This stage consist of evaluation of two major main characteristics which is source characteristics (e.g: expertise, trustworthiness, credentials) and message characteristics (e.g: content, and relevant) of the web. In accessing the web source characteristics, respondents were asked 5 questions that represent some of the web source characteristics based on the two Halal portals given earlier. The results of descriptive study are showed in Table 3.

Again, the first portal achieve higher source credibility score (M = 3.9450, SD = 0.77847) compared to second portal (M = 3.3050, SD = 0.92849). As expected, the higher mean data find in above table is the item of domain extension of the first portal is appropriate for the content which is .gov ( M = 4.0750, SD = 0.8831). In contrast with the second portal which has the lowest mean data for the same item (M = 3.1000, SD = 1.03280).

In order to determine the second major characteristic which is the message credibility, there are five minor items listed to identify the credibility of the message. It was relevance, content, accuracy, currency and usability. In total, there are 12 questions asked to the respondent to evaluate the message credibility of both portals. The summarized descriptive statistics are presented in Table 4.

<table>
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<tbody>
<tr>
<td>The information is published by an entity that makes sense?</td>
<td>4.0500</td>
<td>3.4750</td>
</tr>
<tr>
<td>Author has a high level of expertise and experience related to the site's subject.</td>
<td>3.8250</td>
<td>3.3750</td>
</tr>
<tr>
<td>The domain extension is appropriate for the content? (e.g: .gov, .edu)</td>
<td>4.0750</td>
<td>3.1000</td>
</tr>
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<tbody>
<tr>
<td>Does it explain why the page exists in any way?</td>
<td>3.6250</td>
<td>3.6250</td>
</tr>
<tr>
<td>Does this page meet the goals/objectives?</td>
<td>3.8250</td>
<td>3.4250</td>
</tr>
<tr>
<td>The purpose and intent of the site is clear, including any bias or particular viewpoint.</td>
<td>3.8750</td>
<td>3.5500</td>
</tr>
<tr>
<td>On this site, facts are presented as facts and opinions are presented as opinions.</td>
<td>4.0000</td>
<td>3.5500</td>
</tr>
<tr>
<td>This site displays correct grammar and punctuation. Words are spelled correctly.</td>
<td>4.0000</td>
<td>3.7250</td>
</tr>
<tr>
<td>The information on this site is accurate and well documented.</td>
<td>3.8500</td>
<td>3.4000</td>
</tr>
<tr>
<td>Additional research supports the information on this site.</td>
<td>3.5000</td>
<td>3.1500</td>
</tr>
</tbody>
</table>
From the above table, the first portal site once again achieved higher credibility score for message characteristics (M = 3.8100, SD = 0.82014). However, both portals have equal means value for the first item (M = 3.6250) where both portal succeed to explain why the page exist in any way to their users. The last stage requires a thorough understanding of the material to address the questions asked. There are four questions were asked to determine the content credibility of the web. The summary data of descriptive study are shown in Table 5 below.

<table>
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<tbody>
<tr>
<td>Does the information match with your previous knowledge?</td>
<td>4.0000</td>
<td>3.7250</td>
</tr>
<tr>
<td>Do you need the information badly?</td>
<td>3.7500</td>
<td>3.5500</td>
</tr>
<tr>
<td>Do you familiar with the topic?</td>
<td>3.8000</td>
<td>3.6250</td>
</tr>
<tr>
<td>Are you ready to believe the information?</td>
<td>3.8750</td>
<td>3.4750</td>
</tr>
<tr>
<td>Average</td>
<td>3.8563</td>
<td>3.5938</td>
</tr>
</tbody>
</table>

In this part contains the most important question to conclude how confident the respondent with the information for both portals after go through all the stages before. From the result, it shows that first portal gain higher score in readiness to believe the information (M = 3.8759, SD = 0.89125) in comparison to the second portal (M = 3.5983, 0.98983).

VIII. Conclusions

In this study, all three stages of [7]credibility process were tested to measure how efficient the model was in guiding user online judging the online information. The aim of this study is to measure all three main components proposed by the theory and the effects on perceived web credibility.

Since there is greater awareness on the Halal issues nowadays especially for the Muslims, it is important for Muslims to retrieve the credible Halal information and the easiest and fast way is through the Halal web portal.

Therefore, due to the high credibility in Halal information, two Halal portals were chosen in this study as instrument to identify the effectiveness of Wathen & Burkell’s credibility theory. This is to indicate that the components or characteristics define in the Wathen & Burkell theory is included in the Halal portal to ensure the information found within the portal is credible.

Based on the first hypotheses, it is known that the first Halal portal which is www.halal.gov.my have higher credibility score compare to halal.ipij.info. This is due to the fact that the portal was organized by government bodies which are known as Department of Islamic Development Malaysia (JAKIM) while halal.ipij.info was organized by Islamic community in Japan.

Findings shows that credible web site such as www.halal.gov.my does complies with the most characteristics in Wathen & Burkell’s credibility model. Therefore, the model has been tested and proven that by following the theory, user are able to judge the online information credibility accurately. As the results, the first research objective is achieved.

There is interesting finding during data analyses where out of three characteristics list out in the model. It shows that the most important characteristics in determining the web surface credibility is how the web organizes the information within the web is more important compared to the appearance and interface.

In contrast to [13], determined that the design look of the site has the greatest impact on credibility. The “design look,” in that study, included topics such as visual layout, white space, and use of appropriate color schemes.
Therefore based on this result, organization of the information should have high priority compared to the other two characteristics in evaluating the web surface especially there are time constraint involves.

Second hypotheses in this study is to identify whether the user will leave the site if they are not satisfied with the web surface credibility or message credibility without considering to proceed the next stage of evaluation. Based on the result achieved, if the rating is a “fail,” the user is likely to leave the site and seek out another.

However, it should be kept in mind that this pass/fail “criterion” would likely to differ among users, depending on the contextual factors and intervening variables, such as time, expertise, experience with web sites/computers, existing knowledge, and the need for information.

Finally, the associations between age, gender and computer skills in perceived credibility of online information does not give any different. However, computer skill did give impact in perceived when higher computer skill, they tend to evaluate the information credibility quite often. This shows that, accessing the credibility might be a lot more easier task if the computer skill is higher.

This is because, they can easily identify the characteristics stated in Wathen & Burkell’s credibility model. Also, they might evaluate based on their previous experience which applied in assessing online information.

One of the primary intents of this research was to provide an empirical basis for the model proposed by [7] which states that individuals first examine surface credibility (e.g., media format, design) and message credibility (e.g., reputation.), before finally reaching an evaluation of content.

It can be concluded that the Wathen & Burkell’s credibility theory does represent all the credibility characteristics exist in credible web content. Based on the outcome of data analysis, there are some suggestion points to improve the theories as an aid tool in assessing online information credibility.

The results of this research encourage a more nuanced understanding of the credibility judgment by framing it as a dual-process model, and showing that certain variables can affect the perception of credibility. Finally, the results support the importance of Wathen & Burkell’s credibility theories in helping the internet users in credibility judgments, especially in the online environment.

REFERENCES

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