

Using the right information: A theoretical explanation of user motivation to validate web-content

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Onochie Fan-Osuala

University of South Florida, Tampa

onochie@mail.usf.edu

Abstract

Using unverified information can have many dire consequences especially when used in decision making or tasks. Evidence of gaffes caused by using *deficient* information abound. The increasing dependence of users on the web as a source of information raises the risk of using obsolete, inaccurate, and unreliable content if it is not validated. Though the web serves as an information store and archive, the nature of its information content is sticky due to the lack of centralized controls, regulation, and content gatekeeping. Using the regulatory focus theory as a lens and augmenting with propositions from attributional processing, this study seeks to theoretically understand how users can be motivated to validate web content and the moderating conditions.

Keywords

Information validation, regulatory focus, web content, disconfirmed expectancy, attributional processing

Introduction

Unverified information can have many consequences especially when used in decision making. For instance, the use of obsolete and inaccurate financial, medical, crisis response, and legal information can lead to severe financial and physical loss as well as dire social implications. The web has increasingly become a major source of information to individuals, often providing them with too much faith (Eysenbach and Kohler, 2002), and influencing decision making and actions. Though the web serves as an information store and archive, the nature of its information content is sticky. The lack of centralized controls and regulation on the posting of content raises issues on information currency, accuracy, and reliability. The reliance of individuals on web-provided content as a source of information increases the risk of using “*deficient*” content¹. We define deficient content as information that has lost its reliability, usefulness and value for a decision problem or task as a result of aging and inaccuracy. Despite the risk of using web-provided content, users rarely validate the content they use for deficiency (Metzger et al, 2003).

Cases of negligence to validate web provided information and its implications abound. For instance, in 2008, an employee of an investor information service based in Florida, United States, failed to validate the accuracy of content accessed from a reliable website causing United Airlines stock to crash from \$12.45 to \$3 within a period of ten minutes after running a story based on the outdated content (Abels, 2008). Similarly, there have been numerous cases of media companies and individuals retweeting, sharing, and posting unverified content accessed from web-enabled sites and social-media platforms. Issues like these highlight the need to study web-content validation behavior.

¹ We use content and information interchangeably in this study

There is a consensus among academics and practitioners that deficient web-content poses a lot of risk to users (e.g. Furneaux et al, 2009; Jurinski, 2003; ABC News, 2001; Kayhan, 2013) and therefore raises the need to understand how best to reduce these risks. Similarly, it has been suggested that information systems (IS) researchers explore some of the technical and theoretical issues associated with the use of deficient web-content (e.g. Furneaux et al, 2009) and to develop and test empirical models that can explain this problem. Particularly, Metzger (2007) suggests that understanding the role of user motivation in the credibility assessment process of content in the online context is paramount. From this line of thought and drawing from the regulatory focus theory (Higgins, 1997, 1998) and augmenting with propositions from attributional processing, we seek to theoretically understand under what conditions a user will be motivated to validate web-content. Specifically, we ask the following research questions:

- Under what conditions does a user validate web-content?
- How can we motivate users to validate web-content when using content accessed from the web?

This study is important for theoretical and practical reasons. Theoretically, the study extends the regulatory focus theory into the web use context and also provides insights about the conditions that drive web users to validate online content – an issue that is not well understood in the literature. Second, it explicitly includes and identifies the effects of rewards and loss on users' web-content validation behavior and contrasts their impacts. Practically, it provides organizations and users who work in highly dynamic environments where the use of the *right* information matter (e.g. investment companies) on strategies to motivate employees to validate content before using in decision making or actions.

The rest of this paper is structured as follows. First, we present a brief literature review. Following that is the theoretical framework. Then the research model and hypotheses are discussed, followed by a presentation of our proposed methodology. We then conclude with the potential contributions of the paper.

Literature Review

Prior research on web-provided content credibility and quality have primarily focused on identifying how users seek and use web-content (e.g. Kayhan, 2013; Zhang and Watts, 2008; Lankes, 2007), governance mechanisms that help users validate content quality (e.g. Kayhan and Bhattacharjee, 2013), and models for evaluating web-content (e.g. Metzger et al, 2003; Metzger 2007). Kayhan (2013) demonstrated that users sought confirming evidence of their pre-framed hypotheses when seeking information on the web. Hence, information confirming their hypotheses are less likely to be verified. Zhang and Watts (2008) found that users check the validity of web-content when there is a disconfirmation bias supporting the confirmatory-evidence seeking behavior of web information users. However, web-content users may seek information without a hypothesis in mind like in times of crisis. While it has been suggested that validation strategies for information from the web may differ from traditional information validation techniques (Gilster, 1997; Ward, 1997), Kayhan and Bhattacharjee (2013) showed that credible governance mechanisms like expert and community gatekeeping can help users validate content quality. Metzger (2007) identified different strategies in which users can validate web-content, but indicated that users rarely validate web-content. Most of these studies have adopted dual process theories like heuristic-systematic models (e.g. Zhang and Watts, 2008) and elaboration likelihood model (e.g. Kayhan and Bhattacharjee 2013) focusing primarily on web user information processing strategies and behavior. While these studies have identified how web-content is used and strategies for validating content quality, little has been done to theoretically understand the conditions and motivations of validating web-content quality.

Theoretical Framework

To understand the conditions and motivations of web users in validating web-content, we draw from regulatory focus (RFT) theory and attributional processing effect.

Regulatory Focus Theory (RFT)

RFT (Higgins 1997, 1998) describes the operation of the classic hedonic principle, which posits that people are motivated to seek pleasure and avoid pain. The hedonic principle has been utilized in motivational research for ages (Higgins 2006) and has been applied in IS research to explain IT threat avoidance and IT compliance behaviors (e.g. Liang and Xue 2009, 2010; Liang et al, 2013). RFT

postulates that motivated behavior serves two fundamentally different survival needs - nurturance and security (Higgins 1997, 1998); hence giving rise to two regulatory foci: promotion and prevention. Promotion focus is motivated by the need for growth and development, whereas prevention focus is motivated by the need for safety (Johnson et al. 2010; Liang et al, 2013). When individuals are promotional focused, they are driven by positive outcomes like success, gain, and reward. Conversely, when individuals are prevention-focused, they are driven by negative outcomes like failure, loss, and punishment. Prior research has shown that regulatory focus influences peoples' attitudes, emotions, and behavior (e.g. Higgins 2006; Liang et al, 2013). RFT has been shown to explain motivated behavior in work and non-work settings (Johnson et al. 2010; Cesario et al, 2004). To our knowledge, RFT has not been applied to understanding the motivations of users to validate web content which is a critical behavior for web users in work and non-work environments. We integrate RCT and RFT to empirically examine the conditions and motivations of web content validation behavior.

Attributional Processing and Disconfirmed Expectancy

Attributional processing stems from attribution theory (Kelley, 1967) and describes situations in which an individual will engage in causal analysis following an event. It associates the individual's consequent action or causal analysis behavior to her/his expectation before the event. Attributional processing suggests that when events conform to expectations, there is little chance that individuals will analyze the causes of such events. However, when events deviate from expectations, individuals are more likely to engage in causal analysis (Hastie, 1984; Pyszczynski and Greenberg, 1981). This causal analysis behavior is triggered by a state of psychological discomfort caused by the outcome contradicting expectancy or disconfirmed expectancy. The individual is forced to either discard the now disconfirmed expectancy or justify why it was actually disconfirmed. Prior research has confirmed that disconfirmed expectancy trigger attributional processing (e.g. Pyszczynski and Greenberg, 1981). Pyszczynski and Greenberg (1981) found that individuals were more likely to look for information that will be useful for inferring a cause following a disconfirmation less likely to do so following a confirmation of their expectancy.

Research Model and Hypotheses

Figure 1 depicts our research model. Based on RFT, we hypothesize that benefits expectancy encourages the validation of web-content and that promotion focus strengthens the relationship. Similarly, loss expectancy encourages the validation of web-content and that prevention focus strengthens the relationship. We also argue that the validation of web-content will be affected by disconfirmed expectancy and contextual factors.

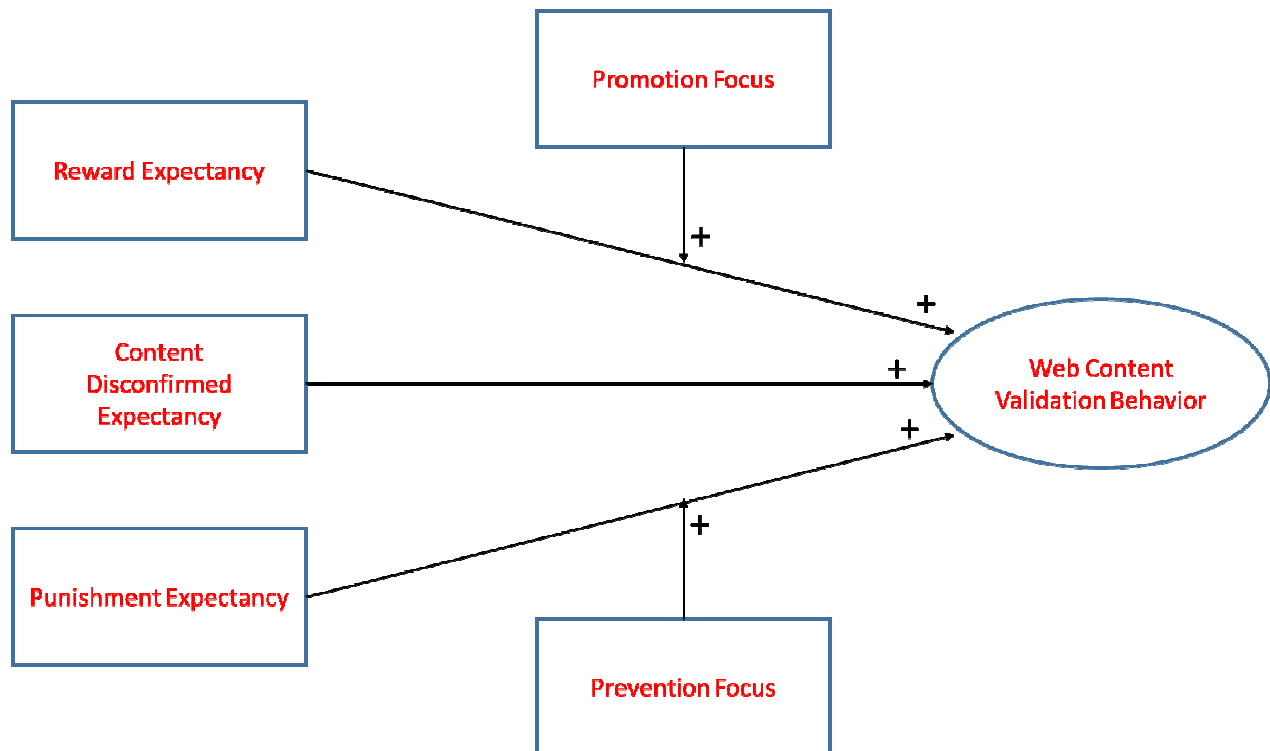


Figure 1. Research Model

Reward refers to positive consequences or outcomes. An individual's behavior can be motivated rewards such as monetary, pay, promotions, and a sense of accomplishment. Rewards have been shown to motivate work behavior and non-work behavior (e.g. Kuvaas, 2006; Lin and Bhattacharjee, 2010). According to the expectancy-value model (Ajzen, 1991), people favor behaviors with desirable outcomes over those with undesirable outcomes. We define reward expectancy as the expectation that validating web-content will be rewarded. For instance, if an individual expects that using the current trading price of currencies in the FOREX market will lead to arbitrage, the individual will verify that s/he is using the current price in his trade. Extant IS literature has shown that rewards expectancy is a key driver of behavioral change (Bulgurcu, 2010; Liang et al, 2013). Hence we hypothesize that:

H1: Reward expectancy positively affects web content validation behavior.

Punishment refers to negative consequences or the withdrawal of positive outcomes. Such negative outcomes could be financial loss, delay of promotions, verbal reprimand, and physical loss. It has been noted that individuals respond more to losses than gains and will engage in actions that prevent or reduce loss (Kahneman, 2003). We define punishment expectancy as the expectation that not validating web-content will be punished. For instance, knowing that you will be penalized if you lost money by trading with obsolete or inaccurate numbers will encourage you to validate numbers. IS studies have shown that punishment expectancy drives behavioral change (Bulgurcu, 2010; Liang et al, 2013). Hence we hypothesize that:

H2: Punishment expectancy positively affects web content validation behavior.

RFT theory proposes that as individuals move towards their desired goals, they show different strategic inclinations (Higgins, 1997, 1998). Individuals with a promotion-focus tend to approach the fits or matches of their desired goal due to their sensitivity to positive outcomes, whereas individuals with a prevention focus tend to be prudent, precautionary, and avoid mismatches to their desired goal due to their sensitivity to negative outcomes. Individuals with a promotion-focus are advancement and gains driven, whereas individuals with prevention focus are safety and non-loss driven. RFT has been used to explain why individuals exhibit varying degrees of motivation given the same incentive (Cesario et al.,

2004; Higgins, 2000). According to Higgins (2000), individuals experience a regulatory fit when their means to pursuing goals fit their regulatory focus. Cesario et al (2004) found that regulatory fit increases the intensity of the value experience of a desired goal such that the desired goal becomes more attractive. In IS, regulatory fit has been used to explain IT compliance behavior (Liang et al, 2013).

In the web-content validation context, we argue that regulatory focus will moderate the effect of reward and punishment expectancies on web-content validation. Reward frames promotion situations in which desired goals are rewarded. To attain this desired goal with reward, the individual with a promotion focus adopts a strategy of approaching matches and perceives the reward as being more attractive. Therefore as promotion focus increases, the rewards expectancy tends to be more motivating leading to a higher drive to validate web content. Hence we hypothesize:

H3A: Promotion focus positively moderates the effect of reward expectancy on web-content validation behavior.

Similarly, punishment frames prevention situations in which outcomes are undesirable. Individuals then perceive avoiding punishment as their desired goal. Prevention-focused individuals vigilantly try to avoid matches that lead to an undesirable outcome. Since regulatory fit increases the value experience of a goal, unattractive goals become more unattractive (Cesario et al, 2004; Higgins, 2006). Therefore as prevention focus increases, punishment expectancy becomes more motivating leading to a higher drive to validate web-content. Hence we hypothesize:

H3B: Prevention focus positively moderates the effect of reward expectancy on web-content validation behavior.

Individuals often have prior beliefs or expectancies about the attributes of an event and these expectancies can influence their subsequent behavior after the event depending on whether it is confirmed or disconfirmed (Burgoon and LePoire, 1993). Disconfirmed content refers to information that is inconsistent with an individual's previously held expectancy regarding the issue for which the individual is using the web-content for. When an individual receives such web-content, s/he try to defend their expectations through various cognitive processes or actions like denial and bolstering (Abelson, 1983). This tendency of defending prior beliefs or expectations is known as disconfirmation bias and has been shown to cause individuals to scrutinize such information (Edwards and Smith, 1996). When there is disconfirmed expectancy, individuals extend critical scrutiny to information that contradicts their expectations (Pyszczynski and Greenberg, 1981). Prior research on web-content credibility has shown that individuals are motivated to perform verification checks on information that is inconsistent with their expectations from prior beliefs (Zhang and Watts, 2008). In the case of web-content deficiency, we argue that when an individual's perceives that the web-content is inconsistent with his/her expectations from prior beliefs, the individual will be motivated to validate the web content. And that the higher these perception of web-content inconsistency, the more the individual will be motivated to validate such web-content inconsistency. Hence:

H4: Content disconfirmed expectancy positively affects web-content validation behavior.

Method

Our proposed model based on RFT will be tested via a survey of 700 individuals (workers and students). We have already developed measures for each of the construct of interest and have not included them in this paper for lack of space, but are available upon request. The instruments will be pilot tested with a convenient sample of undergraduate student at the authors' university prior to survey administration. We expect a response rate of 15-20% following multiple reminders, giving us an adequate number of observations for statistical analysis.

Conclusion

This study has several theoretical and practical implications. First, the study extends the regulatory focus theory into the web use context and also provides insights about the conditions and motivations that drive web users to validate online content – an issue that is not well understood in the literature. Second, it explicitly includes and identifies the effects of rewards and loss on users' web-content validation behavior

and contrasts their impacts. Third, it provides organizations and users who work in highly dynamic environments where the use of current and accurate information matter (e.g. investment companies) strategies on motivating employees to validate web-content before using in decision making or actions. Although we used RFT in our investigation, future research may examine other theories or investigate effect of contextual factors like environment and time pressure on web content validation behavior.

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