How Content Contributors Assess and Establish Credibility on the Web

Beth St. Jean, Soo Young Rieh, Ji Yeon Yang, and Yong-Mi Kim
University of Michigan School of Information
105 South State Street, Ann Arbor, MI 48109-1285, U.S.A.
bstjean {rieh, jiyeon, kimym}@umich.edu

ABSTRACT

The proliferation of user-generated content (UGC) is one of the distinguishing characteristics of Web 2.0. Internet users contribute content online through platforms such as blogs, wikis, video sharing sites, and sites that allow user feedback. Yet little is known of the credibility practices of these content contributors. Through phone interviews conducted with 29 online content contributors, this study investigates how content contributors assess credibility when gathering information for their online content creation and mediation activities, as well as the strategies they use to establish the credibility of the content they create. These contributors reported that they engaged in content creation activities such as posting or commenting on blogs or online forums, rating or voting on online content, and uploading photos, music, or video. We found that credibility judgments made when gathering information for online content creation and mediation activities could be grouped into three levels: intuitive, heuristic, and strategy-based. We identified three distinctive ways of establishing credibility that are applied during different phases of content contribution: ensuring credibility during the content creation phase; signaling credibility during the content presentation phase; and reinforcing credibility during the post-production phase. We also discovered that content contributors tend to carry over the strategies they used for assessing credibility during information gathering to their strategies for establishing the credibility of their own content. Theoretical implications for credibility research and practical implications for developing information literacy programs are discussed.

Keywords

Credibility assessment, strategies for establishing credibility of user-generated content, heuristic credibility judgment, online content contributors.

INTRODUCTION

With the rise of Web 2.0 technologies, Internet users have become increasingly engaged in contributing online content.

According to a recent Pew Report (Lenhart, Purcell, Smith, & Zickuhr, 2010), 30% of adult Internet users shared online content as of 2009, up from 21% as of 2007, and 26% of users posted comments as of 2009, up from 22% as of 2007. These users are no longer merely consumers of content, but active participants in its production. This shift has led to the proliferation of user-generated content (UGC) on the Internet. The common defining characteristics of UGC are that it is produced by non-professionals and made accessible to the general public. However, this content takes many forms and may be delivered through a variety of different platforms, such as blogs, wikis, video sharing sites, and sites that allow user feedback. Users now not only create content, but also mediate content published by established institutional sources by summarizing, editing, evaluating, or rating it or by voting or commenting on it.

Internet users who contribute content are distinguished from other users by their active exploitation of new applications and by strong motivation to share their work with other users. By increasing their voice and participation on the Web, content contributors "replace the authoritative heft of traditional institutions with the surging wisdom of crowds" (Madden & Fox, 2006, p. 2). These individuals constitute a user group that deserves greater attention from credibility researchers. Their credibility judgments and decisions influence other users not only because they are providing additional content, but also because they are making the Web a more engaging and interactive place.

To date, the UGC phenomenon has been widely studied with a focus on the diverse motivations and practices of content contributors (Bruns & Jacobs, 2006; Guadagno, Okdie, & Eno, 2008; Nardi, Schiano, Gumbrecht, & Swartz, 2004; Nov, 2007). Credibility research has seen the recent addition of investigations aiming to identify information seekers' credibility perceptions in regard to UGC (Flanagin & Metzger, 2008; Kim, 2010; Rieh, Kim, Yang, & St. Jean, 2010). However, the literature still lacks consideration of emerging types of content contribution activities, seldom moving beyond the more traditional types of online activities such as seeking, reading, listening, and viewing. To fill this gap, we examine content contributors' practices for assessing and establishing credibility while creating and mediating online content.

Information credibility is a complex concept that is often defined with respect to multiple constructs, such as trustworthiness, truthfulness, accuracy, completeness, reliability, and currency (e.g., Rieh et al., 2010). Rieh (2010) defines credibility as "people's assessment of whether information is trustworthy based on their own expertise and knowledge" (p. 1338). Under this definition, people ultimately recognize and make judgments about information credibility rather than being led to make such assessments by specific characteristics of an information object, source, or person. In this paper, it is presumed that information credibility judgments are highly subjective and entail multidimensional assessment processes.

This study has two main objectives: (1) To examine how people assess the credibility of information while deciding which information to use when gathering information for their online content creation and mediation activities and (2) To identify how people establish the credibility of their content when conducting content contribution activities, such as creating one's own content, commenting on someone else's content, tagging content, and rating or voting on content. Specifically, this study addresses the following research questions:

1. How do Internet content contributors assess credibility when gathering information for their online content creation and mediation activities?
2. What strategies do content contributors use in order to establish the credibility of the content that they contribute?
3. To what extent do content contributors' strategies for assessing credibility during information gathering carry over to their strategies for establishing credibility during content creation?

This study builds on the online information activity diary study that we conducted with heavy Internet users (Rieh et al., 2010). Whereas the aim of our initial study was to learn about credibility assessment with respect to the different types of online activities and information objects with which Internet users interact in their everyday life contexts, this study focuses specifically on Internet users' content contribution activities and their associated processes for assessing and establishing credibility. In order to investigate these areas, we conducted follow-up interviews with 29 selected participants from our diary study. These participants were selected because their diaries indicated that they were engaging in content contribution online.

LITERATURE REVIEW

Recent changes in social media and Web 2.0 tools and features such as blogs, wikis, recommender systems, ratings, and tagging make traditional notions and strategies of credibility assessment challenging and potentially outdated (Metzger, Flanagin, & Medders, 2010). Rieh et al.'s study (2010) found that traditional credibility constructs such as expertise, trustworthiness, and authoritativeness might not accurately reflect the kinds of

constructs people develop when they make credibility assessments with respect to UGC and social media tools.

Recently, a few researchers have examined information consumers' credibility assessments in relation to UGC. Kim (2010) explored questioners' judgments of answers based on interviews with 36 users of the Yahoo! Answers site. Her study findings revealed that these questioners rely more on message criteria such as logic, spelling/grammar, tone of writing, and layout than on source criteria such as the expertise and qualifications of answerers and answerers' references to external sources. A novel criterion she discovered was "answerer's attitude," which is an attribute related to interpersonal communication. For instance, her study participants considered the information to be more credible when answerers appeared to be humorous and polite and when they also provided emotional support.

A number of studies have focused on information consumers' judgments about the credibility of Wikipedia articles. Sundin and Francke (2009) studied high school students' credibility assessments of Wikipedia articles and found their study participants still apply the traditional credibility assessment criteria of origin and authorship. However, they also found that these students were highly uncertain as to whether the information from Wikipedia can be considered credible. More recently, Lim and Simon (2011) examined students' credibility judgments in relation to Wikipedia articles through an experiment and a survey. The majority of their respondents reported that when they were uncertain about the believability of a Wikipedia article, they scanned the length of an article, scanned the list of contents, scanned the references, checked for a warning message, and scanned or clicked on external links. Just small percentages of respondents checked out the history of edits (13.6%) and/or the discussion page (10.2%).

Despite the recent surge in credibility-related research in regard to UGC, very few studies have investigated the credibility assessment processes used by content contributors when producing their own content. In a recent article, Flanagin & Metzger (2008) discussed the credibility of volunteered geographic information, which is "information contributed by members of the public who are not geographers or even scientists" (p. 142). They pointed out that information credibility judgments made in relation to social computing tools tend to rely on the extent to which individuals provide their personal input honestly and accurately, rather than resting on the sole authority of the information source. They also noted that people's motivations to contribute information to social media matter a great deal. These motivations are closely related to information credibility because people may introduce bias or deception based on their desired outcomes. Francke and Sundin (2010) investigated the ways in which editors on the Swedish Wikipedia site consider credibility when they edit and read Wikipedia articles. They found that editors' reasons for using Wikipedia were similar to those of other user groups and that their credibility assessments were

based on authorship, verifiability, and the editing history of an article rather than merely whether the information is correct. Francke and Sundin did not find evidence that the wisdom of crowds influenced the credibility assessments of Wikipedia editors. Rather, they found that editors' credibility assessment patterns in Wikipedia were quite similar to those used for traditional media.

A review of the literature related to credibility assessment of UGC confirms that there is a pressing need for researchers and practitioners to better understand contributors of UGC on the Web. Lacking in the current literature is an investigation of the practices these contributors adopt to assess the credibility of information that they consider using when preparing content to make publicly available on the Web and the strategies that they then use to establish the credibility of their content with their audience.

RESEARCH METHODS

Recruitment

We identified 47 content contributors out of the pool of 333 respondents who participated in the online activity diary study (Rieh et al., 2010). Respondents were deemed eligible for this follow-up interview study if their diaries indicated that they had engaged in content contribution activities, such as: (1) creating and posting original content on a blog, wiki, or online forum; (2) commenting on a blog or online forum; (3) rating, voting, or tagging online content; or (4) uploading photos, music, video, or items for sale. However, we excluded respondents whose only content contribution activities involved social network sites and Twitter, as their content may not have been made publicly available. Also, we did not include respondents whose online content contribution activities were part of their professional practices because these activities are not within the scope of our study. We contacted the 47 potential participants by phone and e-mail. Twenty-nine (62%) people agreed to be interviewed.

Data Collection

Phone interviews were conducted during the Spring of 2010. Interviews lasted between 18 and 77 minutes, averaging just under 35 minutes. All phone interviews were audio-taped and then transcribed for data analysis purposes.

In the interview, participants were first asked to talk about their online content contribution activities in general. They were then asked to share their experiences regarding the processes they use to assess and establish credibility when they contribute content online. Participants were encouraged to talk about the last time they engaged in online content contribution, including the steps that they took in doing so, their motivation for conducting this activity, any steps that they took to gather information as part of this activity, and what they took into consideration to assess the credibility of information that they came across when conducting this activity. They were also asked to describe their audience, their interactions with their audience, and any steps that they take to ensure that the content they contribute will be perceived to be credible by their audience.

Data Analysis

Interview transcripts were imported into NVivo 8 for qualitative data analysis. A codebook was developed deductively from the interview protocol, as well as inductively through iterative analyses of the interview transcripts. Two of our major coding categories – credibility assessment for content contribution and strategies for establishing credibility – form the crux of this paper. Through inductive analysis of our interview data, we identified three different types of credibility assessment judgments, as well as three different phases and overarching strategies for establishing the credibility of one's own content.

FINDINGS

Characteristics of Respondents

Of our 29 interview participants, 12 (41.4%) were males and 17 (58.6%) were females. The participants represented many different age groups; however, the majority (n=10; 34.5%) were between the ages of 55 and 64. See Table 1 for a breakdown of our participants based on age group.

Age Range	n	%
18-24	5	17.2%
25-34	3	10.3%
35-44	5	17.2%
45-54	6	20.7%
55-64	10	34.5%
Total	29	100.0%

Table 1. Participants by Age Group

Participants were also diverse in terms of their educational attainment levels; however, nearly 60% (n=17) of our participants held a college degree. Moreover, over 1/3 of our participants had also completed at least some post-graduate training. See Table 2 for a breakdown of our participants based on level of educational attainment.

Educational Attainment Level	n	%
High school graduate or GED	3	10.3%
Business, tech, or vocational school	2	6.9%
Some college, no 4-year degree	7	24.1%
College graduate	7	24.1%
Post-graduate training	10	34.5%
Total	29	100.0%

Table 2. Participants by Education Level

Participants also held a wide variety of occupations, including accountant, church business administrator, educational technology coordinator, fiction writer, industrial designer, and movie theater employee. Among the most common occupations were housewife (n=5; 17.2%), teacher (n=5; 17.2%), and student (n=3; 10.3%). Three participants were unemployed.

The content contribution activities that participants reported engaging in on the Internet were quite diverse, as were their motivations for doing so. Their online content contribution activities involved providing, sharing, or soliciting factual information, experience-based information (including advice, opinions, input, and feedback), and/or social support (including camaraderie based on shared interests or experiences, and/or emotional support). Quite commonly, participants described online content contribution activities that involved providing social support and engendering and/or facilitating social interactions. When asked whether they enjoy engaging in these content contribution activities, nearly all participants answered affirmatively and with a great deal of enthusiasm. Almost all participants were able to describe who their audience is when they're contributing online content. Regardless of the type of content (i.e., factual information, experience-based information, or social support), participants described their audience as either people they know offline as well (friends, relatives, and other acquaintances) or as "other people like me."

Research Question 1: How do Internet content contributors assess credibility when gathering information for their online content creation and mediation activities?
Participants were asked to reflect on situations when they were actively gathering information as part of their content contribution activities. They were asked if they had considered whether the information they had found was truthful, fair, and reliable. They were also asked to describe any extra steps they took to confirm the trustworthiness of information that they had found.

A few participants pointed out that they were not so concerned about credibility issues within this context. One commonly mentioned reason for feeling unconcerned about the credibility of individual pieces of information was participants' comfort with the methods they had used to obtain this information. S04, a participant who blogs about her baby, stated, "I Google everything and I just type it in and hope I get… I usually don't go past the first page on Google and those first ones that pop up are the ones I usually go and look at to get more information. I don't really check its credibility. I just hope it's right and I post it." On the other hand, S08 does not check the credibility of each information object (recipes that he posts on his cooking blog) because "It's opinion… It doesn't rely on factual information." This participant explained, "You go with what you know… your own personal taste."

For most participants, however, their credibility assessment processes within the content contribution context involved one or more of three types of credibility-related judgments – intuitive, heuristic, and strategy-based. These types of judgments varied along two different dimensions – level of interactivity between the person and the information and level of conscious effort involved. See Figure 1. The left part of the figure depicts that these judgments ranged from judgments based purely on intra-personal factors (intuitive)

to judgments based on interactions between intra-personal factors and the information itself (strategy-based). The right part of the figure shows that these judgments also ranged from involving a low level of cognitive effort (intuitive) to a high level of cognitive effort (strategy-based). Specific examples of each of these types of judgments are provided in the sections that follow.
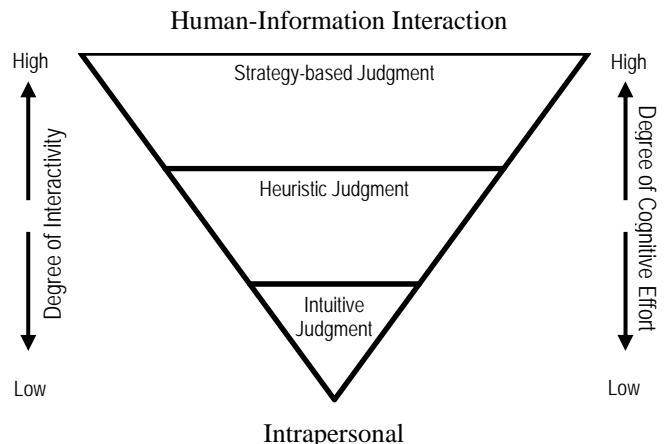

Figure 1: Types of Credibility Assessment Judgments

Intuitive Judgments
Intuitive judgments refer to quick, accept/reject, yes/no, automatic, effortless, and affective reactions (Gilovich & Griffin, 2002). In our study, several participants described their credibility assessments during information gathering for content contribution as being intuitive. This does not mean that their credibility assessments are random. They may be based on their experiences and knowledge. These participants, however, did not describe a particular judgment rule for their credibility assessment. For example, S10 explained, "I just read the information and got an instinctive feeling as to whether it was trustworthy or not based on the phrasing and just really subtle clues that it would be difficult to explain." S02 said, "I remember being in websites thinking 'this doesn't feel right,' and I really can't even tell you why." When asked what kinds of things he considered when deciding whether information he came across was trustworthy or not, S14 replied, "A lot of it is a gut feeling." When asked whether she had taken any extra steps to confirm whether information she had found was trustworthy, S25 replied, "I think that's mostly intuitive."

Heuristic Judgments
Heuristics are often described as something that people use deliberately to simplify judgmental tasks that would otherwise be too difficult and complex for them (Gilovich & Griffin, 2002). Heuristics can be used to make choices between simultaneously available objects while relying on simplistic principles (Gigerenzer, Todd, & the ABC Research Group, 1999). Heuristics provide ways of conveniently finding information and quickly making credibility judgments (Hilligoss & Rieh, 2008). The decisions and judgments that participants made were mostly

"fast and frugal heuristics" (Gigerenzer et al., 1999), as participants tended to devote a minimum of time and to use few decision rules. S19 described how he assesses the trustworthiness of content: "Right off, does it make sense to me? Does it match my own experience?" S25 similarly explained, "My prior knowledge about the subject has something to do [with it]. If it corresponds with what the person is writing, that makes it trustworthy."

The most commonly described heuristic was simply staying on familiar Websites rather than taking the risk of using unfamiliar sites. A majority of participants went back to sites they know very well and thus did not feel much need to be concerned with information credibility. This enabled them to minimize their effort in examining the content on those Websites. S07 stated, "Usually I go to sites that other teachers use or sites that I'm familiar with. I don't usually get a lot of the information from sites that I'm not familiar with." S19 explained, "I am inclined to give much more weight to people whose articles I've read in magazines or people who have a reputation in the field… Do I know the person's work? Am I familiar with them?"

Selecting information from reputable sources has been found to be a primary criterion for people's credibility assessment (e.g., Rieh, 2002; Rieh & Belkin, 1998). The content contributors who participated in our study showed the same practices, describing, "I usually don't pick up information from people like… TheStreet.com or MotleyFool.com or someplace like that. When I pick up my information, I usually pick it out of research from like… clinicaltrials.gov or the National Institute of Health, PubMed" (S24). S04 similarly explained, "I use WebMD a lot so I just kind of trust that it is truthful. It'd be different if it was like a weird Website or anything that I've never heard of before. I probably won't use that."

Heuristics involving source familiarity and source reputation were described explicitly with specific examples. When participants described using these heuristics, they often remembered site names, organizations sponsoring sites, and URLs. Our participants also described "intrinsic plausibility" as a way of instantly recognizing information credibility. S10 emphasized the depth to which content can be judged based on an author's word choices and the level of detail he/she provides. This participant said, "I also pay attention to how intelligent the person sounds who is writing these things out in the article. If they are intelligent, they're more likely to know what they're talking about. And you can tell how intelligent they are based on word usage and thinks like that... The more detail, the more likely they are to know what they are talking about." S22 similarly explained, "Generally speaking, someone who is professional about their posting will use language that is professionally-based. Someone who really could care less usually uses foul language, usually uses a shortened text speech or what do they call it – leet speech. Those weren't quite as reputable."

Strategy-based Judgments

Strategy-based judgments involved a higher degree of cognitive effort, deliberation, and explanation, as well as a greater degree of interactivity between person and information, than heuristic judgments. This type of judgment leads people to process information and sources more systematically (Chaiken, 1980) and to examine relevant features more carefully than heuristic judgments.

We identified two major types of strategy-based judgments that participants made when assessing information credibility. First, participants consulted multiple sources in order to cross-verify information. This has been found in previous studies as well (e.g., Rieh & Hilligoss, 2008). A novel finding in this study pertains to the multiple ways in which participants interpreted content repetition. While most participants who described engaging in cross-verification mentioned that they pursued a general agreement across diverse sources, there was one participant who indicated that he did not trust information if it appears verbatim across multiple sites. The following two quotes demonstrate different interpretations of content repetition. S25 stated, "One thing that stands out is repetition. If two or three blogs are saying the same thing, it just makes it appear more trustworthy. Now whether it is or not is a question that even I don't know. But repetition of content in different places makes it appear trustworthy." In contrast, S14 said, "If someone is saying something about whatever it is I'm looking at and I see the exact same thing on multiple sites, that looks to me as if it's not necessarily a real person. It basically tells me it's not really trustworthy."

The second type of strategy-based judgment participants described was accessing primary sources to verify information. As more information is delivered and filtered through multiple channels, some participants expressed a need to turn to primary sources. S05 indicated that she orders primary sources, such as birth certificates, death certificates, marriage licenses, and divorce papers. She explained, "Even though you want to believe what information that people have out there is true, sometimes people will draw and just assume that that's the correct information and in order to make sure that it is, you have to source it. You have to go into vital statistics, maybe a birth certificate, death records, social security information… So it's a lot of work but it's worth it to get the correct information." S12 similarly described, "If the information is available through the government, like if you can download the actual wording of that passage of the health bill or something, I would download that and read it myself and see what it says... So I would... kind of look through the whole spectrum and then try to get, like I said, straight from a document that's not interpreted and read through it and see if what I'm reading from other sources makes sense."

While credibility assessment processes described by participants more commonly involved heuristic judgments rather than strategy-based judgments, participants often transitioned to strategy-based judgment processes when

they perceived that their heuristics were inapplicable or insufficient for their situation. Further, this transition seemed to be associated with the type of online content contribution activity in which the participant was engaged. For instance, participants who engaged in high-stakes types of content contribution activities, such as contributing content to a genealogy/history Website, commenting on blog posts made by one's professional colleagues, posting to message boards relating to investing, or posting to a discussion board related to breast cancer, seemed to rely on the more effortful strategy-based judgments rather than intuitive or heuristic judgments.

Research Question 2: What strategies do content contributors use in order to establish the credibility of the content that they contribute?
Participants were asked whether they take any actions in order to make sure that the content they're contributing will be perceived to be credible. Most participants described one or more specific strategies they use to establish the credibility of their content for their audiences. Moreover, these strategies seemed to be applied across distinct phases of the content contribution process. First, participants ensured the credibility of their content during the content creation phase. Second, they signaled credibility during the content presentation phase. Third, they reinforced the credibility of their content during the post-production phase. These phases are illustrated in Figure 2 below.
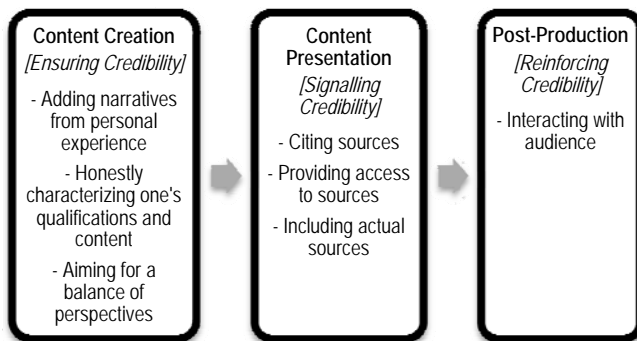

Figure 2: Phases of Establishing Information Credibility during Content Contribution

Content Creation Phase
Participants were explicit about how they established the credibility of their content in the process of generating it. At least three clear strategies for ensuring the credibility of their content during the content creation phase emerged from the data analysis.

(1) Adding Narratives from Personal Experience
According to Wilson (1983), second-hand knowledge is no substitute for first-hand experience and the phrase 'second hand' suggests second best (p. 10). Indeed, our participants seemed to understand that first-hand experience is better recognized as credible content than second-hand information. In fact, S09 emphasized that he doesn't consider information to be true unless "it has worked for me." Several participants talked about basing their content

on their own experience. For instance, when S08 posts recipes on his blog, he is careful to not say that he is "a great chef." Rather, he acknowledges that his posts are just recipes he has tried in the past. Similarly, S27 emphasized that the information that she posts to a discussion board is from her own experience with breast cancer. S28, a participant in a message board for moms, described, "This message board is geared towards moms and a lot of topics relate to things that I experience and a lot of people post questions about, you know, their kids and things like that. So it's relevant to my life so I tend to enjoy helping others if I can or also getting information from other people like me and, you know, using that in my life." (S28)

Another related strategy was to add rich personal narratives as a way of providing context or additional background information in order to enhance the content. Some participants believed that sharing relevant "personal information" helped to establish the credibility of their content. S08 described, "I don't just post a recipe, I also tell a little bit the history of the why or how I've done this or whatever anecdotal information I can come up with that may be of interest to the people." Similarly, S25 explained "My stories or my connections with that food or what I know about it, if I elaborate a little more about the content… that makes it… more credible than it was without it… This is where the blog is more helpful than actually reading the cookbook."

(2) Honestly Characterizing the Content Contributor's Relevant Qualifications and the Content
Many of our participants emphasized that honesty is a prerequisite for establishing credibility. Several diverse strategies were mentioned as effective ways to honestly characterize one's relevant expertise, as well as the content itself. First, participants explicitly acknowledged their limitations. S24 stated, "I try not to overstep. I say, 'This isn't my research, this is what I saw. And I'm sharing it with you all because you're interested in this topic and if you have any more questions, get back with me.'… I pretty much tell them that I have limitations… I'm telling them what I think I heard from this complex scientific discussion, from the panel discussions that I heard."

A related strategy is to honestly admit they are not necessarily experts on the particular topic and the information they are providing is second-hand. S24 described her strategy of beginning anything she posts with this qualification: "Well, I'm just a nurse here but this is what I saw, this is what I heard, and this is the language that was used and this is a piece of research that's associated with it…Make your own conclusions." S27 recounted responding to readers of her discussion board posts relating to her experience with breast cancer in this way: "You're welcome, but make sure you check with your doctor'… I always make sure that I let people know I am not a doctor, I am not a health professional, this is my experience."

A third honesty-related strategy is to acknowledge the incompleteness of the information one is posting and to

invite audience feedback. S17 described trying to be explicit about the nature of his content. He recounted, "I always stated down in my posts that this is just in my honest opinion and that I would like to get feedback for what everybody else thinks." S16 similarly described that when he posts questions on a blog, he might say, "As I've heard from such and such a person, can anybody verify this or what is your experience then?"

(3) Aiming for a balance of perspectives

Several participants described trying to rely on neutral, unbiased sources when generating content. For instance, S12 said he always makes sure that he finds "the most neutral sources" that he can and he also tries to include multiple sources from diverse viewpoints. He explained that he tries to use "something that is generally recognized as a reliable source," especially when he is "trying to make an argument that somebody is wrong about or incorrect about something that they consider… the truth." S17 similarly explained his criteria when looking for sources to use for content generation, stating, "I always try to make sure that it's non-biased and things of that nature."

Content Presentation Phase

The most commonly mentioned strategy for signaling credibility during the content presentation phase was to cite one's sources. Furthermore, some participants made these sources easily accessible to their audiences. For example, some content contributors described posting a link to the original Website from which they obtained the information. As S17 explained, "If I have seen something on the news on TV and I was going to talk about it on my post, I will go to the news station Website that I seen online, find the Webpage on the news site where they talked about it and then I will copy the link and I will paste it into my blog." When asked how he makes sure that his content will be perceived to be credible, S08 answered, "By posting where I get it from." S05, who was an active participant in a genealogy forum, went beyond just posting a link to her source. She not only cited her source, but posted a picture of it. She stated, "You share and you tell them who your source is so they can check it out and make sure that, you know, you're not just putting anything in there… That's what I do is I put the source, or if someone gives it to me, I will give that name with permission... That way, they can check it out for themselves. And I try to post the picture of the Census or the record itself so they can read it."

Post-Production Phase

Although most information searchers just see the results of a contributor's content creation and content presentation activities, some content contributors actually carry on a subsequent type of activity relevant to the content generation process. A few participants described strategies for reinforcing the credibility of their content that they carried out after making their content publicly available. These strategies often involved social interactions between the content contributor and member(s) of his/her audience. For example, S01 explained, "Once in a while you get

somebody that questions the spelling of something, you know, a name or something. But usually I can clear that up by sending an image of, an enlarged image so they can see it better." Similarly, S11 received comments on his blog from someone who was questioning how much he really knew about what he posted and whether the information he had posted was credible. S11 explained that through "the exchange of information back and forth, they understood what I was talking about and felt that the quality of that information was accurate." S22, who was beta testing software for game developers and then posting his findings on their forum, described reinforcing the credibility of his posts by continuing to post and provide professional feedback. He emphasized, "The fact that I continued to follow up with the problem made me a reliable source."

The ability of participants to articulate their strategies for establishing the credibility of their content suggests that they see this as an important part of content contribution. Furthermore, their efforts in this regard suggest that they consider their perceived credibility throughout the entire content contribution process. Participants' descriptions of their credibility establishment strategies also suggest they try to anticipate how they themselves, as well as their audiences, might assess the credibility of their content.

Research Question 3: To what extent do content contributors' strategies for assessing credibility during information gathering carry over to their strategies for establishing credibility during content creation?

One of the interesting findings from this study is that nearly all participants demonstrated some degree of consistency between the ways that they assessed credibility when gathering information for the purpose of content contribution and the ways that they established the credibility of the content that they were generating. We identified five major ways in which content contributors' strategies for assessing credibility during information gathering carried over to their strategies for establishing credibility during content creation.

Appearance of Content

Several participants emphasized the importance of the "looks" of content, whether it was other people's content that they were considering using for their own content contribution purposes or whether it was content that they were generating themselves. S04 explained that when looking for information, she "basically just go[es] by the looks of something." When asked whether she takes specific actions to ensure that her content will be perceived to be credible, she responded, "Not really credible, but I want to make sure it looks good."

Tone and Style of Writing

Several participants emphasized the importance of the tone and style of writing when they are working on assessing and establishing credibility. S04's stated that she believes information "if it sounds good – I know anyone can make something sound good – but if it sounds like it's true." When generating content for her blog, this participant reads

it over before she posts it to "make sure it sounds good." S19 emphasized the importance of authors sounding like they know what they are talking about. Regarding information gathering for content contribution, he stated, "Usually, I'll check around to see if it looks like he [the author] should know what he is talking about." Regarding creating his own content, he explained, "I try to make sure that I do know what I'm talking about. I mean, I'll look up things in reference books and such to make sure what I'm posting is accurate." The importance of wording and phrasing were often mentioned by participants. For example, S10 pointed out that when he is looking for information, he can tell whether it's trustworthy based on subtle cues from the author's phrasing, word usage, and inclusion of detail. Regarding the steps that he takes before posting his own content, he stated, "The only thing I do is read over the post and make sure that it's readable and that there aren't any blatant errors in the reasoning or the advice or whatever it may be."

Presence of Source Information
Participants whose credibility judgments were based on whether or not source information was provided often described making an effort to explicitly specify their sources within their own content. S17, for example, said that when he is looking for information, he bases his decision about whether to double-check information on where he got it from. In regard to generating his own content, he stated, "For whatever that I post… I post a link to the actual site that I received the information from." S27 similarly based her credibility assessments on whether information was provided to her by a trusted source. In turn, when posting her own content, this participant emphasized that she would state in her post, "Based on information that I have received from this source, this is what I would say."

Reliance on Multiple Sources
Several participants also emphasized the importance of relying on multiple sources. The use of multiple, unbiased sources pervaded S12's descriptions of his processes for both looking for information for content contribution and contributing content. He explained that he would look at different opinions and read each document carefully, as well as try to get straightforward information rather than information that has been highly interpreted. He then tries to judge whether "what I'm reading from other sources makes sense." He subsequently described what he does to establish the credibility of his own online content. He said that he always tries to consult a couple of different sources and use them in his preparation of his content. He further stated, "What I would probably do is I would probably check something like factcheck.org or something like that that a fair amount of people from a fairly wide cross-section of opinions can look at it and say, 'Okay. Well, that's reasonable.'" S01 expressed similar values, indicating that when she is looking for information she uses Google to identify multiple sites and then compares the information at these different sites. In order to ensure the credibility of the content she is generating and making publicly available,

this participant checks in more than one set of documents or books to make sure that the information is consistent across these multiple sources.

Basis in Author's Personal Experience
Some participants considered information to be more credible if it was based on the author's own personal experience. These participants preferred information that was based on people's first-hand experiences and preferred to present their own content with stories about their own personal experiences. S08, for example, pointed out that when he is looking for information to generate content for his cooking blog, what he is looking at is "not factual information as much as opinion and a variation on an old recipe or something like that." When he generates his own content for his blog, he doesn't just post a recipe. He includes anecdotal information about things like how or why he has prepared the recipe. He explained, "When I put that personal information in there, I think that adds to the credibility of it… There's a reason why I'm posting it, so I think that adds to the credibility to it." S27 also emphasized the importance of relying on one's own experience; however, she also mentioned relying on trusted sources, and taking care to distinguish between these two types of sources. When asked whether she had taken extra steps to confirm that information she had found was trustworthy, she explained, "Oh one, they were trusted resources provided to me by a medical professional and… or firsthand knowledge that was backed up with that." When she was later asked whether she takes specific actions to ensure that her content will be perceived to be credible, she answered, "What I would say is, in my opinion or based on information that I have received from this source, I would... 'I am not a doctor. I am not a nurse. But in my opinion, boy, you better'... 'You should contact your doctor.' I always couch that I am not a health professional, but in my experiences this is what I have or this is what I got from Cleveland Clinic, instead of just spouting off for the sake of spouting off because a lot of people do that."

Although participants clearly used several strategies to assess credibility during information gathering for content contribution and to establish credibility during content contribution, the degree to which these strategies overlap suggests that people still have a rather limited number of credibility strategies that they can articulate despite the new information activities they engage in using Web 2.0 technologies. In fact, most of the strategies identified as common strategies across these two information activity contexts are not necessarily at all new or innovative.

DISCUSSION
An investigation of content contributors' credibility judgments revealed that participants put more effort into information activities for content production such as creation, presentation, and post-production interactions with their audience than into information gathering for content contribution. While participants identified a number of specific strategies they used to establish the credibility of

the content they produced, they did not articulate diverse strategies they used to assess credibility in the process of information gathering for content creation. Rather, they described the credibility judgments they made during the information gathering process primarily as heuristic. This could be because participants have more extensive experience and knowledge about the task of information gathering on the Web than they do about content contribution activities. As they are more experienced and knowledgeable about information gathering, they are less likely to make a cognitive effort to evaluate the credibility of information within this context. In contrast, participants deliberately invest cognitive effort for content creation and mediation because they are aware that this is a significant task as their content will be publicly available on the Web.

Previous credibility research has found that people's credibility judgments tend to be heuristic and are often based on source reputation, endorsement, consistency, and aesthetics (Hilligoss & Rieh, 2008; Metzger et al., 2010). The findings of this study are consistent with previous research in that participants made heuristic judgments based on their familiarity with the source, the reputation of the source, and its intrinsic plausibility. A novel finding of this study is that credibility heuristics play a more important role at the stage of predictive judgment than at the stage of evaluative judgment. That is, when people make predictions as to which resource or website to turn to, their decisions tend to be quick and convenient, without consideration of all possible choices. Often this judgment is based on one deciding factor such as the person's familiarity with the source or the reputation of the source. However, once people's predictive judgments lead them to find certain information, their judgments and decisions tend to involve a greater degree of cognitive effort, as they now pay attention to multiple aspects of the information, such as writing style, spelling errors, type of information object, design, etc.

One of the novel objectives of this research was to investigate the ways in which content contributors establish the credibility of the content they contribute. An interesting finding in this regard was that people have a chance to reinforce the credibility of their content even after they post it online. Some content contributors tend to check back after they post their content and pay attention to the reactions from their audience. They sometimes post additional information, upload supplementary images, and/or provide feedback to their audience. Through these interactions with their audience, content contributors report that they can assure their audience of their knowledge and expertise. The identification of information activities and credibility practices in the post-production stage is significant because most information behavior researchers consider actions taken by people only up to the point of search completion and use of search findings (e.g., Kuhlthau, 2003). Our study expands the scope of information behavior, showing that content contributors' information activities and credibility establishment efforts

do not end when they create and present their content online. This finding also suggests that there is a social aspect to content contributors' credibility practices, as contributors seem to feel that their perceived credibility can be improved through direct interactions with their audience.

CONCLUSION

The findings from this study need to be interpreted with caution because this study is based on interviews with just 29 participants. Even though the sample size is rather small, the content contributors who participated in this study had quite diverse backgrounds in terms of age, education level, and occupation. Given the body of credibility research which has focused on understanding information seekers' or consumers' perceptions, this study expands our knowledge of credibility assessment in information behavior by focusing on the particular user group who contributes UGC on the Web. The findings from this study suggest that content contributors are more apt to make intuitive and heuristic judgments rather than strategy-based judgments when assessing credibility. Further, they seem likely to exert more effort when establishing the credibility of their own content than when assessing the credibility of other people's content. The results also indicate that when content contributors engage in content creation activities, they make an effort to establish credibility throughout distinct phases of the content contribution process. Furthermore, content contributors are actively willing to understand who their audience is and to interact directly with them in order to reinforce the credibility of their content, even after they have finished posting their content online. The findings from this study also reveal that content contributors tend to carry over strategies they used for assessing credibility during information gathering to their processes for establishing the credibility of their own content.

On the other hand, the findings from this study reveal that content contributors who are motivated to voluntarily contribute content online and who have reported that they enjoy engaging in online content contribution tend to apply a limited number of strategies for making credibility judgments during both their information gathering and content creation and mediation activities. Currently, information literacy programs and research tend to focus on the context of information seeking and use for school-related purposes rather than for everyday life information activities. As more Internet users have been and will be increasingly engaged in contributing online content, it is important for the general public to be aware of their social responsibility and the potential consequences of producing and sharing information that is not credible. Information literacy practitioners and researchers must reflect and incorporate newer forms of online information activities and broaden the scope of current information literacy programs by addressing diverse types of information activities such as content creation and mediation beyond seeking, evaluating, and using information. It is critical for

practitioners and researchers to develop information literacy programs that provide opportunities for people to learn more diverse strategies for assessing and establishing credibility during the process of content contribution.

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