

College Students' Credibility Judgments in the Information-Seeking Process

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Information seeking is an important part of people's everyday lives. To obtain information, people use Web search engines, consult authorities, ask questions of friends, go to libraries, read newspapers, and watch television, among other methods. Through such activities, people continually make judgments about how useful information is to their particular needs, actively construct meaning, and form judgments about the relevance of the information to their goal based on various attributes or criteria.¹

When people assess information, however, they may notice that the characteristics and value of some information are not always consistent.² That is, people may find texts that seem to be clearly written but are inaccurate, that are easy to obtain but out-of-date, that are current but not sufficiently comprehensive, and so on. In such cases, how do they make judgments about information? According to Wilson, people tend to ask whether they can believe what the text says or, if not, whether they can at least take it seriously.³ Wilson thus notes that credibility is a chief aspect of information quality and states that what and who people believe to be credible constitutes the potential pool of "cognitive authorities," or those that influence people's thoughts because they are perceived as "worthy of belief."⁴

Selecting credible information from among the various available resources is a challenge for anyone. The kinds of challenges may, however, differ for adults and for young people. For instance, adult information seekers are likely to select information when they think it is accurate, current, novel, objective, reliable, authoritative, trustworthy, understandable, well-written, comprehensive, easy to obtain, and on topic.⁵ Young people, on the other hand, often mainly consider whether information is related to the topic and whether it is new, interesting, and convenient, while showing less interest in authority, the readability of the language, and recency.⁶

Moreover, most adults possessed knowledge of how to evaluate information in traditional print media before newer digital media, especially the Internet, were introduced. Consequently, they had to learn how to apply the old rules and criteria for evaluating information to the relatively newer digital media.⁷ Their experiences differ from those of today's youth, who have used digital media since a very young age. Indeed, survey reports show that 20 percent of college students began using computers between the ages of 5 and 8, and by the time they reached 16–18 years, virtually all of today's college students were using computers.⁸ Thus, today's college students represent the first generation to "grow up digital."⁹ They have experienced life in which personal computers were commonplace from the time they were born, and where the Internet has been available since their elementary school years.

College students constitute an interesting population occupying the middle ground between childhood and adulthood. While the characteristics of college students closely approximate those of children and teenagers in terms of technology adoption and immersion, the information tasks they must perform in their daily lives are more like those of adults given that they often must strike a balance among school, work, and social life. This means that the kinds of information tasks in which college students engage are potentially much more diverse and complex than those of younger children and teenagers, and may be equally or even more complex as those of many adults.¹⁰

Although a number of empirical studies have examined college students' credibility assessments,¹¹ little research to date has examined the credibility judgments that young people make with respect to their information-seeking goals and strategies. We believe that examining young people's credibility assessments and concerns is best achieved by looking at their decision making and judgments in the process of information seeking because judgments, as guides for decision making, are always made internally and can be observed only through choice and its outcomes.¹²

This chapter examines how young people's credibility judgments are embedded in the process of everyday-life information seeking and identifies the relationship between credibility judgments and information-seeking strategies. The significance of information-seeking goals, information use contexts, and their effects on credibility assessments are also discussed. Specifically, the chapter seeks to answer a number of research questions. For instance, what kinds of information do young people pursue in their daily lives? What kinds of information resources do they use to accomplish their tasks? What strategies do they take in the process of information seeking? How do they evaluate the information they find? How do their credibility concerns relate to their information-seeking goals? And how do their credibility judgments differ, depending on the phases of information seeking? To address these questions, examples are drawn from empirical data collected as part of a qualitative study of college students' credibility judgments in the context of their everyday-life information seeking.

Youth Information Seeking, Perceptions of Digital Media, and Credibility

Information seeking refers to the "purposive seeking for information as a consequence of a need to satisfy some goal."¹³ In the course of information seeking, an individual may interact with people, printed materials, and digital media such as the Internet. Previous studies on youth information seeking first focused on information searching in the use of CD-ROMs¹⁴ and online library catalogs.¹⁵ Work in this area has more recently turned to Web search engines.¹⁶ Considerably less attention, however, has been given to identifying characteristics of information seeking with respect to a wider variety of information resources. Dresang presents a meta-analysis of youth information-seeking behavior and points out that research in this area generally overlooks newer behaviors emerging in the digital environment.¹⁷ She proposes interactivity, connectivity, and access as primary principles to better understand youth information-seeking behavior. Large, in reviewing a number of previous studies about children and adolescent information seeking behavior on the Web, found that young users of digital media often fail to express their information needs as queries required by Web-based search engines and experience difficulty making judgments about the relevance and, thus, credibility of the information they find.¹⁸ They also tend to spend relatively little time reading or digesting information found on the Web.

In the field of information seeking, children, adolescents, and college students are typically considered distinct user groups. Researchers tend to study young people's information behaviors within narrowly defined age groups as they believe that different ages are characterized by both different mental models of information systems and different cognitive capabilities relevant to information seeking.¹⁹ Only a few researchers have investigated young people's information seeking within broader age groups. Shenton and Dixon's participants, for instance, ranged from four to eighteen years of age.²⁰ Interestingly, their informants tended to assess the value of a source on the basis of the quantity rather than the quality of information. According to the authors, the young people in their study often used the most accessible information sources first and were very concerned with finding information as quickly and effortlessly as possible. As a result, they ended up using only a few sources and relied heavily on the same Web site or successive issues of a magazine over a prolonged period of time. Shenton and Dixon concluded that the most fundamental pattern of young peoples' information behaviors was an attempt to simplify the search process and ignore more thorough and conscientious approaches. However, as mentioned earlier, because there is so little research that compares young people's behavior across the range of children, teenagers, and college students, we do not yet have a good understanding of the similarities and differences that may exist between groups of young people from elementary school through collegiate life.

Literature reviews in the field of youth information-seeking behavior²¹ indicate that little research has focused on credibility assessments in the process of information seeking. If any, researchers have looked at credibility concerns of young people on the Web. For example, Agosto's study of high school students indicated that credibility was not a factor that students used in evaluating information.²² Agosto's participants paid greater attention to the amount of graphic and multimedia content than they did to information quality. Agosto's findings are consistent with those of Fidel et al.²³ in demonstrating that high school students relied on design and graphics of a Web site to determine its relevance and quality, while rarely mentioning credibility as an important factor for consideration. As these two studies did not look further than identifying whether credibility was discussed extensively by high school students when they evaluated information on the Web, it is difficult to conclude that young people simply ignore the importance of information credibility. Credibility assessments may be embedded implicitly in the selection of Web sites or strategies that young people take in Web searching. Young people, especially children and teenagers, may find it difficult to articulate their credibility judgments explicitly in the information-seeking process.

Several studies have examined college students' perceptions of digital media and their information-seeking behaviors on the Web. An early study by Lubans found that 20 percent of respondents believed that the Web had a positive influence on the quality of their written schoolwork, whereas 40 percent believed that the Web made no difference.²⁴ More recently, however, Metzger, Flanagin, and Zwarun showed that college students rely very heavily on the Web for both general and academic information, and that they expect this usage to increase over time.²⁵ Moreover, the Pew Internet & American Life Project reported that 79 percent of college students agreed that the Internet had a positive impact on their college academic experience.²⁶ While Dilevko and Gottlieb noticed that students tend to start the research process with print books, because they believe that books provide a more general overview than Internet resources and are more reputable, reliable, and, balanced,²⁷ the Pew study revealed that 73 percent of college students said they used the Internet more than the library, whereas only 9 percent said that they used the library more than the Internet for

information searching.²⁸ Finally, D'Esposito and Gardner reported that students are keenly aware of the importance of discerning reliable information on the Internet.²⁹ Although research has also shown that college students find information to be more credible than do those from a more general adult population, they verify the information they find online significantly less.³⁰

Most credibility studies of college students have taken approaches comparing young people's perceptions of the information on the Web with their perceptions of information from other media. Mashek, McGill, and Powell found that users rated traditional media as more fair and unbiased than their Internet equivalents,³¹ which is similar to Metzger, Flanagin, and Zwarun's finding that college students found the Internet to be less credible than newspapers, yet equally credible as television, magazines, and radio.³² By contrast, Johnson and Kaye reported that online newspapers and political issue-oriented Web sites were rated as more believable than their traditional counterparts.³³ Sundar's study revealed a similarity between the factor structures underlying readers' perceptions of the credibility of print news and those of online news.³⁴ It was noted that the findings from previous studies failed to show consistent trends in college students' perception of digital media in terms of credibility. This may be because the type of Web site (e.g., news, commercial, personal, entertainment) and type of information within a Web site may influence credibility perceptions.³⁵ This suggests that it is essential to examine young people's perceptions of online information and judgments of credibility across a diverse set of information tasks, information-seeking motivations, and information-use contexts.

A Study of College Students' Everyday-Life Information Seeking

To understand how college students conceptualize credibility, as well as when and why they are concerned about it and how they go about evaluating it, this chapter will discuss a qualitative study examining college students' credibility assessments in the context of everyday-life information seeking. The goal of the study was to develop a more complete understanding of credibility as it relates to information seeking by examining college students' credibility assessments in a wide variety of activities, using many different sources and media. School, work, and personal-interest information-seeking activities were studied, including those in which Web sites, libraries, books, newspapers, and other media, as well as person-to-person interactions, were used by participants to find desired information. The result is a rich set of data that provides insight into the ways that credibility assessments are shaped by, embedded within, and exert an influence on young people's information seeking processes.

Data were collected during 2005–2006, and twenty-four male and female undergraduate students took part in the study. Several efforts were made to ensure the diversity of the college students within the sample. First, participants represented a variety of majors including nursing, business, film and video, engineering, special education, social work, pre-medicine, and several others. Second, participants were recruited from three different institutions located in the U.S. Midwest, including a large research university, a middle-sized state university, and a community college. As is typical for qualitative research, the sample size was relatively small in order that detailed information could be collected and analyzed from each participant. Thus, this study should be considered exploratory until further work with larger samples can ensure that its results are generalizable to the entire college student population.

For this study, collection of the data through the students' own, natural information-seeking activities was critical because it enabled examination of how credibility judgments

vary depending on the types of information activities in which students engage. Each day for ten consecutive days, participating students were asked to use a password-protected Web site to record one information-seeking activity they had engaged in that day. These Web site entries served as information-seeking diaries, capturing the details of the processes undertaken. After the ten-day period, each student was interviewed individually about his or her entries.

The data were analyzed to identify the factors that influenced the college students' credibility assessments. The roles of information-seeking goals and tasks in the credibility assessment process were examined, as was the effect of credibility assessments on the selection of information-seeking strategies. The students' thoughts about credibility as they pertained to sources and media provided insight into the similarities and differences in their level of trust or distrust of various kinds of information sources and media. In other words, the data were examined to understand how credibility assessments fit into and shape the information-seeking process.

Information Seeking Goals and Credibility Concerns

User goals are the essential factor in information seeking given that they motivate the individual to engage in information-related activities. There are several levels of user goals ranging from long-term goals (a personal goal over a long time) and leading search goals (a current information task-related goal), to current search goals (specific search results sought), and interactive intentions (subgoals to be achieved during the seeking process).³⁶ For instance, a typical information-seeking goal of a college student might be composed of (1) academic achievement (long-term), (2) preparing for an exam (leading), (3) looking for papers (current), and (4) reading and evaluating papers (intention). Another example might be (1) entertainment (long-term), (2) keeping up with movies (leading), (3) looking for latest releases (current), and (4) comparing movie reviews (intention). In such an information-seeking process, today's college students use a wide array of media to achieve their search goals and intentions. Furthermore, they may switch their search goals and intentions during the process while their long-term goals and leading goals remain the same.³⁷ The study described in this chapter sought to examine the extent to which user goals influence credibility concerns and which levels of user goals matter the most in making credibility judgments.

The data indicate that long-term goals such as academic achievement, problem solving, personal information needs, entertainment, and routine work appear to be most directly related to the extent of credibility concerns. Participants in our study were more concerned with credibility when they were looking for information on academic achievement and problem solving. In addition, their concern for credibility increased when they were dealing with goals related to personal information needs such as health and finances. On the other hand, participants appeared not to be greatly concerned about credibility while seeking information for the purpose of entertainment.

These differential concerns for credibility are related to participants' perceptions about the consequences of information use. For instance, one student was considering a method of contraception involving a device that would be placed in her uterus. She indicated she was extremely interested in getting credible information about the procedure because it would "mess" with her body. The perceived effect on her long-term health increased her desire to find trustworthy information, making credibility a higher priority than it might otherwise have been. These findings are consistent with a previous study of scholars that found

participants were more concerned with credibility and authority during health-related information search tasks than during product-related or travel-related information tasks,³⁸ and with the results of a previous study of college students' credibility assessments by Flanagin and Metzger,³⁹ who found that credibility is less important for entertainment information than it is for other kinds of Web-based information, including factual and news information. The findings are also in line with theoretical predictions of dual-processing models of persuasion and social judgment, such as the elaboration likelihood model.⁴⁰

Another well-known fact of information seeking is that people sometimes seek information for other people.⁴¹ There are two common information-seeking situations in which this occurs. The first entails people looking for information on behalf of family members, friends, and so on; in this situation, the information obtained will be used by someone else. The second involves information seekers using the information for themselves, but where the information will eventually affect others. The participants in our study were aware of such social impacts of information seeking and often expressed a sense of responsibility. As one student put it, "If it's your own personal [use], that's not so important. But when other people are involved, and other people are going to use that information, you definitely have to have good sources of credibility." Apparently, like this student, participants were more concerned about information credibility when the use of information had the potential to affect others directly. One participant wanted to buy a video game as a birthday gift for a disadvantaged teenager for whom he served as a mentor. Before making a purchase, he researched several options. He explained that he was concerned about the credibility of the information he found given that the teenager had a tough life and would not likely be receiving any other gifts. That is, the fact that the information was to be used by a person he cared about increased his concern for finding credible information.

Another important element in the information-seeking process is context. People pursue their goals with respect to the context of information seeking. Context can serve as a framework of meaning, thus bringing the world into focus.⁴² Just as with information-seeking goals, various contexts can also influence the range and nature of credibility judgments. The next section discusses how the information-seeking context is an important element in the credibility assessment process.

Credibility Judgments in Social Context

The individual can be conceptualized as a social actor,⁴³ and information-seeking activities take place within a social community whose knowledge, characteristics, expectations, and norms are internalized within the individual.⁴⁴ This may be especially relevant for young people, whose information seeking and learning is inherently social given the importance of social ties and networks during adolescence and early adulthood.⁴⁵ Credibility judgments themselves are also inherently social in that these judgments usually involve the relationship of at least two people.⁴⁶ For example, with regard to the "expertise" dimension of credibility⁴⁷ even if a source of some information has expertise on a certain topic, this alone may not make that source automatically credible in the eyes of the information seeker: ideally, there should be others who also recognize the source as credible.⁴⁸

As a case in point for the students in our study, being a professor or a teaching assistant does not necessarily guarantee that students will believe their instructor to be a credible source, though many still do. Some participants were more explicit about this, as seen in the following example in which a participant was discussing her graduate student instructor

(GSI): "They're credible. They become GSIs, you know, you study something so hard and therefore you get that position, you don't just get it out of nowhere. You have to have credibility in order to become a GSI." This is evidence that students use a type of "authority" or "expertise" heuristic to judge credibility.⁴⁹ On the other hand, we found some students made credibility judgments using the standards of other people (in many cases professors and teaching assistants) as a guide for their own. One student, for example, said that he prefers using books to Internet resources for his school work because he is "pretty nervous about just using the Internet just because professors usually don't like that, and it's good to include some actual books." Said another student, "Well, I just assume that the textbook was credible because the teacher wouldn't make us buy a book that didn't have all the information she would be teaching in there" and she knows it is her professor's opinion that "this is the best book." Thus, participants sometimes used other people's credibility assessments in making their own judgments, most frequently when seeking information related to their schoolwork.

Awareness of the boundaries of the information-seeking context may help students determine the selection of resources by filtering out stimuli in the information-seeking process. For instance, as a rule of thumb, most students place a lot of trust in their textbooks. However, this general rule of thumb may not apply in certain contexts. For example, one participant from our study told us about an experience that led her to distrust her art textbook. Her professor had disagreed with some parts of the textbook and said that the theory had changed since the textbook was written. The participant said, "So for that class I know at least not to look in the book for everything. You have to go to lecture."

Another way in which contextual factors influence credibility judgments is by "bounding" or otherwise limiting the information-use environments. We found numerous instances in which certain contexts led participants to make particular credibility judgments that prevented them from extending their judgments to other contexts. In our study, such cases were most frequently found when participants made credibility judgments in the context of a particular class. Several participants talked about the credibility of the information they acquired from their instructors, acknowledging that some information might not be credible in the world outside of the classroom. As one participant expressed it, "It's reliable in the context of the class. It may or may not be reliable in the real world." Another said, "I would assume it's credible, but I also know it's completely credible within the class because the class is designed around it. So even if it's false, it's true within the bounds of the classroom."

The comments above highlight the fact that credibility is not always viewed as absolute but rather may be seen as relative with respect to the social context in which information seeking is pursued and credibility judgments are made. In other words, many of the students in the study demonstrate "cognitive flexibility"⁵⁰ in their credibility assessments. The following student clearly articulated how credibility judgments are closely related to the contexts of information seeking. In this example, credibility assessment was limited to a particular class. For questions falling within the class context, a professor is perceived to be credible, but on questions outside of it the professor may have no credibility at all:

I think I would be more easily swayed in believing something from a professor if it were on the subject of the class he was teaching, rather than on some completely random subject that he decided to talk about, just because you would think he would have the qualifications to be a professor of that subject. But on a different subject he could have nothing, no knowledge of that subject you know to answer your question.

Credibility Judgments as Process

Credibility assessment in the information-seeking process is not entirely dichotomous, nor does it occur only at one point in time. Rather, it is a consideration that people make throughout the entire process of information seeking. Based on Hogarth's judgment theory,⁵¹ Rieh found that people (especially scholars) tend to make two distinct kinds of judgments on the Web: predictive judgments and evaluative judgments.⁵² First they make predictions that reflect what they can expect when they access certain information resources. Then, once they encounter some information, they make evaluative judgments in which they express values and preferences about the information that they just have found. Occasionally, people make a third kind of credibility-related judgment, verification, at some later point when they encounter contradictory information or begin to use the information.

Predictive Judgments

As people identify their goals and initiate the information-seeking process, the first decision they make is where to start. At this point people make predictions that reflect what they expect to happen.⁵³ Their predictions guide them in deciding what actions they will take when given a number of different choices among information-seeking paths and resources. For instance, they consider how long it will take to access different resources, how long it will take to read a book, how someone might react to what they say or do, how likely certain actions are to be successful, and other similar factors. In addition, they make predictive judgments about how good and useful the information from a particular resource will be. According to Rieh, in the prediction stage, scholars (faculty members and doctoral students) are more likely to turn to resources they have used before, have heard of directly from someone, or have read about somewhere.⁵⁴ Thus, they begin the information-seeking process where they think they are most likely to find the best information.

The students who participated in our study seemed to make such predictive judgments before they took any actions in information seeking. Credibility is an aspect that the students in our sample took into consideration when making predictive judgments. These credibility judgments helped them determine where to start by identifying trustworthy resources. While Google was often the first place for students to begin on the Web, as also found in other studies,⁵⁵ most students were able to articulate why they decided to start at a certain point, such as with the Web, a book, a person, or some other medium. Such decisions based on predictive judgments were closely related to the type of information task, context, and perception of credibility that students might have with regard to a certain medium or source. For example, the following three cases from our study resulted in the use of three different media: (1) One student was looking for some Halloween costume ideas. He decided to go first to Google because "When I'm looking for a general thing, like, Google is generally the place to be, and it's likely to give me an answer." (2) Another student wanted some background information on the Gulf War and said that he would not use Google for information on such a topic because it was an "encyclopedia topic" and expected that he would find information about it "quickest and best in the encyclopedia." Based on this prediction, he decided to use Wikipedia. (3) Yet another student had questions about doing business on eBay. For advice she turned to her father because she knew he has had several successful experiences selling items on eBay. These three examples indicate that the college students in our sample were capable of making predictive judgments by paying attention to particular dimensions of

successful past experiences or other knowledge that could inform them about various media or source options.

Even though to some extent credibility assessments occur in predictive judgments, as just discussed, credibility is not necessarily always a determining factor influencing predictive judgments. In our study there were some situations in which credibility concerns had to be balanced with or subordinated to other factors, including the nature of the task, time, convenience, access, familiarity with resources/systems, and so on. For instance, one student who majored in film and video was looking for a list of the movies directed by a particular film director. He knew that the Internet Movie Database (IMDb) Web site would have details about exactly which movies the director had worked on and in what capacity. The student said that IMDb was more trustworthy than Wikipedia since the latter is prone to human error by virtue of being editable by the general public. He admitted that IMDb could also suffer from human error but believed those errors to be much less likely considering that the content on IMDb is controlled by professional editors. Of Wikipedia, he added that anyone could "intentionally put wrong information there." But despite his awareness of the difference in trustworthiness between these two resources in the prediction stage, he chose Wikipedia over IMDb because all he needed was "a little information about the person himself" rather than a complete listing of the director's work as offered on the IMDb site. Type of information needed, rather than credibility, was a more important reason for choosing Wikipedia in this context. Furthermore, while in this particular example the student chose Wikipedia for explicit reasons, there might be cases in which students simply decide not to choose the most credible sources because they have insufficient time, do not care much about credibility, or are unwilling to invest extra effort, among other reasons.⁵⁶

Evaluative Judgments

Once an individual has accessed an information resource as the result of a predictive judgment, that individual may then make evaluations of the information. These evaluations are value judgments by which preferences are expressed.⁵⁷ Evaluative judgments may include, for example, whether a book is interesting, whether a paper is relevant to an assignment, whether what they hear from a friend sounds reliable, or how good some information from the Web appears to be. Some evaluative questions are directly related to credibility judgments, for example, by addressing whether some information is trustworthy and/or appears to be reliable, whether the author looks to be authoritative, whether the text is written in a scholarly way, and whether the Web site is official.⁵⁸ If an individual finds that the evaluative judgments do not match the expectations of the predictive judgments, he or she might decide to start over using a new strategy. When making such a decision, the individual makes another predictive judgment, seeks more information, and then makes one or more evaluative judgments. The process tends to be iterative, repeating until the evaluative judgments meet the expectations of the predictive judgments.⁵⁹

Most studies examining credibility assessments and digital media tend to focus on evaluative credibility judgments of information and sources, and have identified a common set of factors that either do or should influence people's evaluative credibility judgments and perceptions of online information.⁶⁰ Metzger notes that although there are myriad factors suggested by researchers that may play into credibility assessments, there are relatively few factors found in empirical studies to be criteria that people actually employ.⁶¹ The criteria commonly appearing in various domains and research methods include the information itself (e.g., its organization, content, breadth, depth, type), source (e.g., its reputation,

type), and presentation/design (e.g., its design, layout, graphics, navigability, functionality, readability).⁶² In terms of the significance of each criterion, findings from earlier research are mixed. While Fogg and colleagues' respondents, who consisted of the general public, mentioned site/presentation elements most frequently,⁶³ Rieh's academic participants put much more emphasis on content and source reputation than on presentation, graphics, and functionality. Hong's college student study participants reported that messages were more important than structural features (e.g., navigation tools, site ownership, site contact information).⁶⁴ And, as mentioned earlier, studies of high school students seem to indicate that this group considers graphics and design more important than authority of sources in undertaking Web searching.⁶⁵

The credibility criteria identified in previous studies were also frequently mentioned by the participants in our study when they made evaluative judgments. Although we were not able to determine which criteria—information, source, or presentation—played the most important role in determining credibility judgments, we could identify some patterns of credibility assessments in evaluative judgments based on participants' behavior and experience.

First, participants said that their current knowledge on the topic mattered considerably in the process of making evaluative judgments. If a student has little knowledge of a topic, it will be difficult for him/her to make a decision on the credibility of the information. For example, one student who ran marathons needed more information on nutrition, a topic about which he had little knowledge. He first went to a local art fair where he encountered a woman from a company that sells sports nutrition products. He did not trust her because he thought she would just recommend products to make a sale. Furthermore, she was able to provide only general information, whereas he wanted more specific and detailed information. He then turned to his coach, whom he trusted because he knew the coach was a runner. The coach talked to him about the benefits and problems of sports nutrition but ultimately did not tell him what he should do. This student said he did not find the coach's advice useful because the coach "didn't say 'don't do it' or 'just forget about it.'" This student next turned to the Web and found that there was a sports nutrition store nearby. He went to the store and talked with a salesperson who was also a weightlifter. The student said that at that point he was able to make an "informed credibility judgment" because by then he "already knew a little bit, like, that a particular ingredient is for endurance athletes." In this case, the student began the information-seeking process where the information was most accessible (art fair), then turned to a trusted source (coach). Because he was not quite satisfied with his coach's advice, he used the Web to find a local store where he finally found the information that he could trust. During this process, he gathered and evaluated information piece by piece. As illustrated in Bates's "berry-picking" model of information search,⁶⁶ he moved through a variety of sources. Each piece of information gave him new ideas and directions to follow, allowing him to learn little by little. At the end of his information-seeking process, he could make a credibility judgment with confidence.

The second interesting finding is that college students in our sample made evaluative judgments based on their perceptions of the quality control mechanisms in digital media. Most of our study participants were able to distinguish general Web resources from scholarly information published in journals and could point out the lack of quality control mechanisms on the Internet. As one participant put it: "People can just make up sites and stuff online, but with a book you have to go through publishing companies and getting that whole book process." The participants generally showed high levels of respect and trust toward peer-reviewed scholarly journals. One student said that she used Google Scholar for her

homework because "it's [Google Scholar] only looking for journal articles and peer reviewed information so I think that's a really nice part about Google. You know it's coming from a better source. You're not going to get a .com or .net where their ultimate goal is to get you to buy something." When she got two articles from Google Scholar, one from *American Psychologist* and another from the *Journal of Public Health*, she knew that "they're peer reviewed and the articles were of good quality." Indeed, there were a number of other examples in which our participants relied not only on the source itself but also on the process of publishing and dissemination mechanisms when making evaluative judgments. College students in general are likely more aware of publishing standards and the meaning of peer review than are younger students (e.g., primary through secondary school students). This indicates that life experience, in this case a college education, shapes and influences the credibility criteria that people use.⁶⁷

The third point based on the data analysis of our study is that not all participants were confident in evaluating the credibility of information. Some of them would simply say that credibility could not be known for certain. Others would say that they would know the credibility of some source or information only when actually using the information. As one student put it, "I personally cannot know if they're telling the truth unless I try some." One student relayed the experience of injuring her ankle while dancing. Her dance teacher told her to rest her ankle and apply heat; however, she eventually realized the heat was causing additional inflammation. As she was aware that her ankle was not healing, she went to a physical therapist, who informed her that the heat was indeed making the injury worse and that she should instead be applying ice. This experience considerably changed her level of trust in her dance teacher. Subsequently, she has tended to "second guess" everything her teacher tells her. This example indicates that once the credibility of a source is questioned, all information from the source may be suspect from that point forward. It also raises an important question about verification in the process of information seeking and credibility judgments. Had she doubted the teacher's recommendations in the first place, she could have tried to verify them early on. The judgments that young people make to verify information are discussed in the next section.

Verification

Young people sometimes need to verify or reevaluate information after they have made evaluative judgments. There are at least two kinds of information-seeking situations in which young people attempt to verify information. One involves initially accepting information without questioning its credibility, but later being prompted to doubt the credibility of that information as a result of encountering contradictory information from another source or due to finding that the information is incorrect when it is used. This creates the need to verify information that may then be accomplished by continuing to look for information either to confirm or refute the initial information. The other situation arises when people are uncertain about the credibility of information when first encountered. These doubts prompt them to engage in the verification process to decide whether or not they should believe the information and thus whether or not to use it.

The following example aptly illustrates the first situation involving information reevaluation. When one student we interviewed heard her friends speaking negatively of a particular political action campus group that was planning a local protest, she did not doubt the credibility of what her friends said. As she put it, "I didn't really question at the time whether what they were saying was true or not. I just assumed [it was]." Later, while reading about the

group on its Web site, she encountered information that contradicted many of the things her friends had said. She explained that she “questioned [whether] what [my friends] were talking about was true.” To further complicate the picture, she found other Web sites that gave negative information about the man whom the group had invited to speak at the protest, and “these awful things that happened as a result of his speaking.” She felt that she could not tell what was true “because people probably blow things out of proportion, and then write about it on the sites. I don’t know, you just have to make your own judgment on whether it’s credible or not.” After reading “both sides” of the story, she decided to go to the protest, see for herself, and make her own judgment. This example indicates that people’s credibility judgments are enacted over time, often in an iterative process. It is possible for young people to change their judgments when they encounter additional contradictory information.

The second information-seeking situation that may call for verification arises when individuals have doubts or uncertainties upon first encountering new information. One participant, a transfer student, had to engage in a series of information-seeking activities to verify that information she’d originally gotten from “random people on campus” was reliable. In the process, she met several other students registered for the same Linguistics course. They told her there was a homework assignment due on the first day of class. When she questioned them for details, she realized that none of them had actually seen a syllabus for the course but were simply repeating what they had heard from others. In an attempt to verify the “rumors” and gather details, she went to a university Web site that lists syllabi for all courses but only found that it did not display the syllabus for her course. Next, she went to the linguistics department office. The individual with whom she spoke there instructed her to check her e-mail as the instructor had just sent out a notification. Later when she checked her e-mail, the student found a message from her instructor with a link to the online course syllabus that included the due date for the first assignment.

This example also indicates that credibility judgments are a continuous and iterative process from prediction and evaluation through verification. In addition, the story reveals there is a close relationship between motivation and credibility judgments.⁶⁸ In this case, the student’s uncertainties regarding the credibility of information motivated her to engage actively in information seeking by using multiple resources and strategies until she solved her problem. Motivation appears to be key, however, to verification efforts, as some work shows that college students verify information only occasionally and do so significantly less than adults.⁶⁹ The next section discusses how people’s concerns about credibility influence the strategies they employ in the information-seeking process.

Influence of Credibility Assessment on Information-Seeking Strategies

Concerns about credibility as it influences information-seeking behaviors in general and information-seeking strategies in particular are discussed in this section. A strategy is a plan for an entire information-seeking episode and contains various kinds of “stratagems” or repetitive sequences of information-seeking activities.⁷⁰ Young people’s credibility assessments can be embedded in the ways in which they plan their information seeking, often without their conscious realization that selection of stratagems is closely related to the notion of credibility. Our data revealed a number of different information-seeking strategies that students employ to accomplish information seeking. At least three strategies emerged as significant and closely related to young people’s credibility judgments: (1) starting information seeking at a trusted place, (2) using multiple resources and cross-referencing, and

(3) compromising information credibility for speed and convenience. Each of these strategies is discussed in detail below.

Starting Information Seeking at a Trusted Place

Although today's youth live in a digital environment, they do not necessarily always begin their information-seeking process on the Internet. In many cases, the participants in our study turned to a person they knew for information, just as young people always did prior to the advent of the Internet.⁷¹ Sometimes they talked to a professor, a teaching assistant, a coach, a mother, a father, or a friend in expectation of obtaining information directly. In other cases, they approached these people looking only for advice on where to start their information seeking. That is, students may consult other trusted individuals for help when choosing the best place to go for credible information, which is similar to the idea of "reputed credibility" discussed by Flanagin and Metzger.⁷² When doing this, students preferred e-mail over face-to-face communication because it seemed not only to be convenient but also effective in receiving the information anticipated when that entailed links, book titles, journal names, individuals' names, and so on.

There appear to be at least two compelling reasons behind our participants' strategy of turning to human resources first. On the one hand, the students understood that they would get the best answers or the most credible information by asking knowledgeable people. On the basis of personal experience with an individual, a student might know that person to be a "diligent researcher" or to have considerable knowledge on the subject. The participants also felt that asking people is easier and more time-efficient than finding information online. For instance, one person stated, "It has to do with accessing. It has to do with: are you asking the correct person, the person who has that specific piece of knowledge? However, they're much easier to get knowledge out of than to get such knowledge out of Google. Google can't understand what you say. It can just guess and [you] hope [it's correct]," while another said: "Okay, time is like a real big thing to me, so I always go to the most credible people. So I usually don't get wrong answers."

On the other hand, the participants tend to have a few "favorite" Web sites to which they turn on a regular basis for routine tasks such as news, technology, cooking, movies, sports, and so forth. As with trusted human resources, these students show a great deal of loyalty and trust for their favorite Web sites. One student talked about a movie Web site he regularly visits that gives information about movie tickets and show times. Of it, he said "it's a very well-known site and one that I knew would probably have most, if not all, the information I was looking for." Another student talked about a technology site that he visited "just about everyday [to] check stuff out." He explained the reason for his regular visits by stating that the information there is "generally pretty good." He also described this site as "a very good springboard" and added, "it's where you start . . . if you want to look at electronics or something."

Google is a place where many participants like to begin when looking for information. When asked why they would start with Google, many students in our study said that Google is much more accessible, easy, fast, quick, and convenient than any other resource they could rely on. These students displayed considerable trust in Google, asserting that "Google is generally the place to be and it's likely to give me an answer," "It was excellent quality," "Google seems to be more legitimate," and "Google appears to be more credible because it does not have any of the other stuff." They also said that they are most comfortable with using it compared to other search engines, so now going to Google is their "habit." Thus, whether they turn first to another human or to the Web, one strategy many young people

use to begin their information seeking is turning to a trusted source that has served them well in the past. This is quite similar to Tseng and Fogg's notion of "earned credibility,"⁷³ which is defined as credibility based on first-hand experience that extends over time. According to Fogg, earned credibility is difficult for an online information source to gain in the eyes of users, and yet is the most effective in terms of influencing users' attitude and behavior owing to users' perceptions of the reliability and usefulness of the information resource.⁷⁴

Using Multiple Resources and Cross-Referencing

Cross-referencing multiple resources was one of the most common information-seeking strategies employed by our participants. A number of the students said that it would be too risky to judge the credibility of the information they found by merely examining the information or its source. Rather than making a credibility judgment of information retrieved from a single source, they often attempted to find other sources of information for comparison and verification. In general, participants seemed to use a type of "bandwagon" credibility heuristic⁷⁵ in their perception that "information is more credible, more trustworthy if it comes from different sources, and all the sources agree," as one of the students said in our study.

Many students appeared to use what Meola terms a "contextual approach" to credibility assessment.⁷⁶ For example, another student believed that a source was "probably correct because it was very similar information. Two separate sources have similar information. So that's kind of where I got the idea that it's probably credible." One student took news as an example. She asserted that she did not trust everything she read because, "You tell one side of the story, they tell another side, and I tell a different story." She said that she also did not trust everything she found on the Web. If she goes to Google and types in "diabetes," she would then go to at least three sites from the results to see if the information "matches." She explained that when she is uncertain as to whether or not a story is true, she would like to have the story from "another Web site." According to her, "If you read something on a news Web site, you hear it on the TV news, and then see it in the local newspaper, it reassures you." Another student working on a research paper for his history class needed information regarding the different types of space missions undertaken by the United States and the Soviet Union. He went to a local bookstore and scanned two books. He trusted the information in them when he realized that "both of them were consistent with one another—both the books had the same type of information and exact same information." Therefore, he found them to be "really useful" for his paper.

All of these examples indicate that college students in our sample often use multiple information sources as a way of assessing the credibility of the information they find. If they discovered that the information from multiple sources was inconsistent, they were likely to engage in the verification process as described in the preceding section. One student initially believed without questioning the information she received from her friends about a politically active campus group. When she encountered contradictory information on the Web site, she engaged in the verification process to settle the matter in her own mind. In this case, the strategy she employed was to turn to the third source—attending the protest to listen directly to the speech.

Although students in our study sometimes used this strategy for nondigital materials, such as books, television, and magazines, it seemed that they most frequently used it when seeking information on the Web. In part, this is because the Web tends to heighten concerns about information credibility in the first place given the ease with which anyone can publish

information there. Furthermore, the structure of the Web also makes it easy for people to cross-check information and thus may encourage them to use the cross-reference strategy.

Compromising Information Credibility for Speed and Convenience

Although the strategy of using the most accessible resource to get the most credible information seems to work, there are situations in which the young people in our study had to decide between two kinds of information resources: one that is quickly accessible and one that is more credible but also more time-consuming to access. We found that the participants, when faced with this dilemma, were willing to compromise credibility, that is, to give it less priority, in favor of other considerations that most frequently involved speed and convenience. One participant expressed this information behavior pattern: "If it's a question of how fast I'll find it over how trustworthy it is, I will generally go with fast, as long as I have a good deal of trust in it." Another participant, whose major was special education, was looking for information on how to teach probability to a learning-disabled student. Not knowing a good way to approach the topic, he chose Google because he "always" uses it. He considered other ways of finding information, such as e-mailing people who were in the teaching program, but did not pursue this strategy because "It might be two, three, four days before I hear back from somebody" or "They might blow me off." Therefore, rather than risking a significant loss of time by relying on his network of people, he used Google, which he considered "faster," "very immediate," "the quickest way," and most of all, because "There's not a human being that's going to be involved in the process."

These cases occurred often when participants perceived that the consequences of using the information were not critical enough to warrant the additional time needed to obtain more credible information. That is, the degree to which they were willing to "satisfice" was closely related to the goals and motivations of information seeking. For example, one student in our study wanted to know when an aerobics or kickboxing class would be offered at her gym. She checked the flyers on her gym's wall and visited their Web site from her home. She noted that she could have called the gym to ask about classes, but felt that using the Web was "more convenient" because "You don't have to actually talk on your phone." She said that if she had received inaccurate information from the Web, she might have shown up at the wrong time, but eventually someone would have informed her of the correct date and time. While it may be important to have accurate information, she added that "it's not [a] life or death situation." Therefore, she chose the most convenient method, which was looking at the flyer on the wall and checking the Web site.

Thus, college students are not necessarily ignorant of information credibility concerns nor do they necessarily lack the knowledge and skills required to evaluate credibility. Rather, they often feel the need to balance credibility concerns with other demands. In practice, this means that they sometimes decide where to begin their information seeking based not on credibility per se but on speed or convenience. However, the concerns of speed and convenience sometimes conflict with credibility concerns. Students want to start their searches at trustworthy places and often turn to trustworthy sources to verify the information they find. In some cases, doing so actually saves them time. Their reasons for relying on human resources and Google are the same: quick and easy access. Assessing credibility is not something with which students are explicitly concerned every time they select information resources; rather, their concerns about information credibility are incorporated into their existing information-seeking strategies. In fact, students may not even realize the extent to which they actually assess credibility in the process of information seeking.

Conclusions and Future Directions

As mentioned earlier, the research reported in this chapter was an exploratory study in which only twenty-four college students were interviewed; consequently, further work is needed to verify our findings among a larger population of college students and other young people. Nevertheless, the results provide a fruitful basis for a number of interesting discussion points. First, our study findings imply that young people, or at least college students, may not be as naïve in assessing credibility with digital media as some prior work suggests. In general, most students we interviewed did not seem to believe that information can be considered trustworthy simply because they “saw it on the Internet.”⁷⁷ They were aware of the potential problems of information credibility in digital media and employed several information-seeking strategies to deal with it. For instance, they often begin their information seeking at a place recommended by knowledgeable (e.g., professors and teaching assistants) or trusted (e.g., parents, coach, friends) individuals. They sometimes report verifying the information obtained by checking it out using multiple sources.

This chapter demonstrates the importance of examining young people’s credibility assessments within the context of everyday-life information seeking by identifying a number of interesting patterns of youth information-seeking strategies related to their credibility concerns and judgments. It was found that depending on the long-term goals young people pursue (e.g., academic achievement, personal needs, entertainment) and consequences of information use (e.g., health, finances, impact on other persons), the participants in our study were more or less motivated to pay greater attention to credibility issues. At the same time, it was found that young people’s credibility judgments were socially directed. If the use of information had the potential to affect others, they were more likely to take credibility issues seriously. They also made credibility judgments by “bounding” or limiting their assessment within certain social contexts.

As we investigated credibility judgments with respect to the information-seeking process, we also found that credibility assessment was an ongoing and iterative process rather than a discrete evaluation event, as the participants made three distinctive kinds of judgments: predictive judgments, evaluative judgments, and verification. In this process, credibility judgments are deeply influenced by students’ accumulated knowledge and prior experiences. The participants in our study made predictions about information and accessed sources based on their prior experiences, and thus were more likely to trust those sources. The rationale for these strategies was related to their preference for obtaining “the best information in the quickest way.” Rather than wandering around the digital world randomly, they want to begin their information-seeking process at a place that they predicted would be most trustworthy, which then becomes their “shortcut.” Sometimes their initial predictions about trusted sources might not meet their expectations. In such cases, the students faced situations in which they needed to decide whether they would accept the information that was easily accessible, even though they were uncertain about its credibility. Again, depending on the types of information-seeking goals and motivations, the students were either willing to compromise credibility concerns for speed and convenience, or they invested further effort into information seeking until they were assured about information credibility.

Digital media make it easy to collaborate, relay, and clarify information with other students.⁷⁸ The study presented here also has implications for teaching young people to improve their credibility assessment capabilities. One of the major findings of the study is that participants tended to consult individuals whom they felt were likely to have knowledge and

expertise on a topic. Often these individuals were professors, teaching assistants, coaches, or parents. However, participants also turned to their classmates, roommates, and friends when they believed their friends might have some knowledge on the topic. Indeed, it is well known in the field of information seeking that information exchange between two parties works best when they share similar beliefs, values, educational levels, and social statuses.⁷⁹ This means that young people's strategies for seeking information and deciding whether to use certain information is deeply influenced by others with whom they feel socially close and with whom they share common ground. This is likely especially true with college students, who often voluntarily belong to study groups or need to work as a group to meet class requirements. Thus, when developing an intervention program to help young people, it is critical that the social aspects of credibility assessments be considered, a point echoed by Flanagan and Metzger.⁸⁰

This chapter has implications as well for methodology in future investigations of credibility. In general, there seem to be two prevailing research methods in this field. One is to produce a list of terms and conceptual dimensions that are related to credibility by eliciting verbal reports from study participants.⁸¹ The other approach is to assemble a list of candidate terms based on literature reviews of past empirical research and present it to the study participants, asking them to select, rate, or rank the terms based on exposure to experimental stimuli or survey questions.⁸²

With the former method, it proves quite difficult to design a study that allows researchers to generate comprehensive credibility-related terms from the study participants.⁸³ This is because credibility assessments are made internally, and not everyone is capable of articulating cognitively processed judgments. The second method, using predetermined credibility factors and Likert-type scales, might make study participants merely passive recipients of information. This method also makes it difficult to collect rich qualitative data about people's goals, intentions, knowledge, and other information problems. Given the limitations of previous credibility study methods, the study presented in this chapter took a more naturalistic approach in which students kept records of their information-seeking activities in Web-based diary form and did not necessarily pay special attention to credibility issues. Even in the interviews, questions were mostly asked about participants' information-seeking strategies and experiences, while minimizing use of the terminologies of credibility, trust, and believability. The purpose of this design was to identify the implicit values of credibility often embedded in the information-seeking process. This method seemed to work well because it identified a number of information-seeking patterns and strategies employed by the participants without obviously leading them toward credibility. In the future, more discussion is needed on the topic of methodological approaches to credibility research. As credibility judgments are not something that researchers can easily observe, it is important that credibility researchers develop research methods that can accommodate the complex nature of the credibility concept.

Finally, the findings of this study imply that research on young people's credibility assessments can progress by taking into consideration the broader contexts of information seeking and use. Previous credibility studies involving college students have looked at credibility assessments within a limited domain: news and political information,⁸⁴ scholarly information,⁸⁵ and health information.⁸⁶ This appears to be a reasonable approach to the study of young people's credibility assessments because the types of information with which young people are interacting have been shown to influence their assessments.⁸⁷ On the other hand, young people are using digital media for diverse purposes as was illustrated by

the examples and quotes in this chapter. It is important to note that young people can carry over to one domain the perceptions and judgments that they have acquired from another.⁸⁸ Furthermore, the students in our study did not use the Internet as an isolated medium. While the participants relied heavily on the Internet for information and communication purposes, they used the Internet along with other more traditional resources such as people, books, newspapers, and online library materials. In addition, because of the mobility of digital media, the borderline between tasks for schoolwork and tasks for everyday life is much less clear than ever before.⁸⁹ Therefore, it is important for credibility researchers to include a variety of information tasks, information-seeking activities, and information resources and media encompassing various contexts, including school, personal life, news, and entertainment, in order to better understand young people's credibility assessments in the digital environment.

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