

# Comparative Optimism in Online Credibility Evaluation Among Parents and Children

Miriam Metzger, Andrew Flanagin, and Elmie Nekmat

*This study investigates comparative optimism—whereby people perceive themselves as relatively invulnerable to risks as compared to others—in the evaluation of online information credibility by children and their parents. Results of a representative national survey of Internet users revealed significant antecedents of children's and parents' comparative optimism, including demographic characteristics, cognitive thinking style, and perceived self-efficacy. Parental optimism was also found to relate to the mediation strategies used to regulate children's Internet use, and comparative optimism in children was associated with tendencies to believe online information and specific evaluation behavior. Findings are considered in terms of their theoretical implications and with regard to the role of parents in children's digital information literacy development.*

People are often overly optimistic that negative events will not befall them personally, perceiving themselves as relatively invulnerable to risks compared to others (Weinstein, 1980). This phenomenon has been termed *comparative optimism* (Radcliff & Klein, 2002), and it constitutes a form of optimistic bias in that people tend

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**Miriam Metzger** (Ph.D., Annenberg School for Communication, University of Southern California) is a professor in the Department of Communication at the University of California at Santa Barbara. Her research interests focus on trust and privacy in online communication.

**Andrew Flanagin** (Ph.D., Annenberg School for Communication, University of Southern California) is a professor in the Department of Communication at the University of California at Santa Barbara. His research focuses on the ways in which information and communication technologies structure and extend human interaction, with particular emphasis on the processes of organizing and information evaluation and sharing.

**Elmie Nekmat** (Ph.D., University of Alabama) is an assistant professor in Communications and New Media at the National University of Singapore. His research focuses on media effects and the social-psychological processes and effects in computer-mediated communication.

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to believe they are more likely to experience favorable (rather than neutral or unfavorable) outcomes than are others. The sense of invulnerability that such optimism imparts can counter the effectiveness of measures aimed at promoting people's well-being, and thus may foster the persistence of suboptimal self-protective behaviors and practices (Cho, Lee, & Lee, 2013; Radcliff & Klein, 2002). Optimistic biases have been demonstrated in several contexts, including threats to personal health, such as lung cancer and HIV (Dillard, McCaul, & Klein, 2006); societal health, such as the SARS outbreak (Wei, Lo, & Lu, 2007); natural disasters (Shepperd, Helweg-Larsen, & Ortega, 2003); and even uncertain events such as the Y2K problem (Salwen & Dupagne, 2003).

Studies have shown that optimistic biases operate online too (Baek, Kim, & Bae, 2014; Kim & Davis, 2009; Li, 2008), in the context of both risks (e.g., online fraud, privacy infringement) (Campbell, Greenauer, Macaluso, & End, 2007; Cho, Lee, & Chung, 2010) and benefits (e.g., finding jobs). Given the potential risks of misinformation online, examining comparative optimism in online information credibility evaluation would shed light on the extent to which people evaluate potential threats appropriately and thus on their willingness to protect themselves and others against the dangers of misinformation online.

Children constitute an especially important group in this regard. Due to their relatively limited cognitive and emotional development, life experience, and familiarity with the media apparatus, children may lack critical tools and abilities that enable them to evaluate information effectively, in spite of their often avid use of information technologies (Flanagin & Metzger, 2008). Indeed, children have been shown to be more susceptible to online "disinformation" (deliberate false information, such as hoax Web sites) compared to older online information seekers (Leu et al., 2008; Mathson & Lorenzen, 2008).

To combat the risks faced by children, media literacy scholars and educators have emphasized the role of parents as information mediators or "scaffolders," who can help guide their children's Internet use (Lauricella, Barr, & Calvert, 2009; Livingstone & Helsper, 2008). However, parents themselves may be overly optimistic about their own abilities to avoid online misinformation. It is therefore important to supplement existing empirical evidence on the determinants of parental mediation efforts for their child's Internet use (Kirwil, 2009; Paus-Hasebrink, Bauwens, Dürager, & Ponte, 2013) by investigating whether these efforts may also be influenced by comparative optimism.

This study examines these issues through an investigation of comparative optimism in the context of online information credibility evaluation. Both parents and their children, ages 11–18, are compared to one another and to "typical" Internet users with regard to perceptions of their skills in assessing the credibility of online information. The impact of demographic and individual dispositional factors is also examined, as are outcomes of comparative optimism with regard to the type of Internet mediation strategies parents employ with their children, and whether optimism on the part of children affects their beliefs about online information credibility and their information evaluation behavior.

## Comparative Optimism and Online Information Credibility Evaluation

Comparative optimism is a psychological predisposition that causes people to believe that negative events are less likely to happen to them, or that positive events are more likely to happen to them, in comparison to others (Radcliff & Klein, 2002; see also Weinstein, 1980). Comparative optimism is related to several terms that are often conflated (see Radcliff & Klein, 2002), including unrealistic optimism, optimistic bias, unrealistic absolute optimism, unrealistic comparative optimism, and dispositional optimism. A key difference lies in whether the perceived optimisms are realistic or unrealistic, or both. *Unrealistic optimism* is the perception that negative outcomes are less likely to occur to the self than is objectively warranted (e.g., a personal risk estimate that is lower than the base rate or some appropriate objective standard), reflecting an *inaccurate* or biased overconfidence in comparative risk. By contrast, *comparative optimism* occurs when a person *correctly or incorrectly* judges his or her risk to compare favorably to that of other people on average. As such, comparative optimism is the belief that one's risk is below that of a target group, without regard to whether this belief is correct (Radcliff & Klein, 2002).

Comparative optimism is also similar to the "third-person effect" (3PE) from mass communication research (Davison, 1983), which was formulated to explain self-other judgments in relation to mass media effects (e.g., violence, pornography) and the individual processing of media stimuli. The 3PE is therefore most relevant in explaining one's susceptibility to mass media message influence (e.g., negative impacts of violent media messages), in contrast to optimistic biases, which deal more directly with the likelihood of personally experiencing an event (Salwen & Dupagne, 2003, p. 72) and with judgments concerning one's likelihood to experience negative events or risks as compared to others (for discussion of differences see Li, 2008; Salwen & Dupagne, 2003; Wei et al., 2007). Another important difference is that whereas the 3PE mainly concerns negative phenomena, optimistic biases are linked to both positive (e.g., comparative skill at information evaluation) and negative events (e.g., getting duped by misinformation; Li, 2008), making comparative optimism more appropriate for explaining one's ability to avoid experiencing direct risks and negative events caused by false or noncredible information online.

The tendency toward comparative optimism is premised upon self-serving motivated reasoning, which functions to reinforce personal self-esteem, boost one's ego, and achieve a sense of control over situations (Duck, Terry, & Hogg, 1995; Weinstein & Klein, 1995). Outcomes of such an optimistically biased point of view range from positive effects such as feelings of well-being and higher self-esteem, to negative consequences such as engaging in risky behaviors, overconfidence, and failure to take precautionary safety measures.

Optimistic biases, including comparative optimism, appear robust across many contexts, and they are stronger for events that are perceived to be in one's control (Cho et al., 2010), suggesting that they are largely due to people overestimating

how skilled they are relative to others. Because the online environment complicates traditional indicators of credibility (e.g., ambiguous or missing source information, blending of information, advertising content, etc.), the evaluation of information credibility online can be a somewhat uncertain and risky endeavor; yet, Internet users manage this ambiguity by making subjective judgments about the believability of the sources and information they encounter online (Metzger & Flanagin, 2008). RQ<sub>1</sub> therefore asks whether people will incorrectly estimate their ability to discern credible from noncredible information online, compared to others:

RQ<sub>1</sub>: Does comparative optimism exist in the evaluation of online information credibility?

### **Disparities in Comparative Optimism in Online Information Credibility Evaluation**

Several socio-psychological mechanisms help explain the ways in which parents and their children may perceive their susceptibility to online credibility risks differently in comparison to other Internet users, and when compared to each other. In particular, individuals' risk estimates can be influenced by biased views arising from perspectives on referent groups. Research finds that comparisons to a generalized and stereotypical referent group can be ambiguous, cognitively challenging and, consequently, can induce greater self-optimism, especially in risk events that are perceived to be manageable (Duck et al., 1995; Klein & Helweg-Larsen, 2002).

By contrast, assessing one's risk by comparing to in-groups that include psychologically closer and more specific targets, or those people known personally (e.g., friends or family members), leads to more realistic personal risk estimates and thus diminishes comparative optimism (Helweg-Larsen & Shepperd, 2001; Liberman et al., 2007; Meirick, 2004). Studies have shown, for example, that as information and knowledge about a target decrease, target risk estimates increase while personal risk estimates decrease (e.g., Harris & Middleton, 1994; Paek, Pan, Sun, Abisaid, & Houden 2005). The social distance corollary similarly posits that relative physical and psychological distance can determine perceptions of comparative risks between self and others, with more distant outgroup members perceived as more susceptible to risks compared to oneself (Meirick, 2004; Paek et al., 2005).

Shepperd, Quелlette, and Fernandez (1996) provide an explanation of how individuals' personal risk estimates may be influenced directly by comparison targets, such as those between parents and their children. Being accountable for others' risks (e.g., one's own child), they argue, induces people to make more conservative, realistic, and accurate judgments of risks. Because parents tend to believe that their child has more positive than negative traits, they place their child in more favorable light, compared to other kids (Regan, Snyder, & Kassin, 1995). For instance, parents perceive their own children to be less affected than other kids by violent media content (Hoffner & Buchanan, 2002). Therefore, even though parents are able to

make more accurate comparative risk judgments involving their child, parents' estimates may be biased by their personal accountability toward their child.

Accordingly, when it comes to perceptions of their child's ability to evaluate the credibility of online information, parents may be prone to feel their child is better at discerning information online than the child's actual ability. Moreover, they may make more realistic and conservative comparative risk estimates in comparison to their own children than in comparison to a general group of people whom they do not know personally (e.g., "typical" Internet users). Therefore, parents may perceive the risks of using misinformation online faced by their child as similar to their own risks, which should be lower than the perceived risks of general Internet users, in accordance with their own personal comparative optimism in this domain.

Likewise, this perceptual discrepancy would ostensibly affect the child in the same manner. As evidenced by Chapin, de las Alas, and Coleman (2005), for example, children tend to make more realistic assessments of risks (i.e., exhibit less comparative optimism) when comparing themselves to people they know personally, and display more optimism when comparing against people they need to imagine. Therefore, the following hypotheses are forwarded:

- H<sub>1</sub>: Parents will display higher levels of comparative optimism in online credibility evaluation when comparing themselves to "typical" Internet users than when comparing themselves to their own children.
- H<sub>2</sub>: Children will display higher levels of comparative optimism in online credibility evaluation when comparing themselves to "typical" Internet users than when comparing themselves to their parents.

### **Trends in Parent–Child Comparative Optimism in Online Information Credibility Evaluation**

As children develop, they progressively gain a greater sense of individuality, identity, and autonomy, making them more confident in their own ability to assess risks, such as those from the media (Oppenhaffen, Vandebosch, Eggermont, & Frison, 2012). They also accumulate a set of life experiences and knowledge about the world that is useful in evaluating the credibility of the information they encounter. In fact there is evidence that older students (e.g., college freshmen) can easily detect farcical Web sites (Mathson & Lorenzen, 2008), whereas younger children (e.g., seventh-graders) tend to view the same Web sites as "very credible" (Leu et al., 2008). At the same time, higher internalization of morals in older children can make them feel more invulnerable to negative media content (e.g., Hoffner & Buchanan, 2002). Together, this suggests that as children grow older they should be more skilled in credibility evaluation, more confident in their abilities, and should therefore exhibit greater comparative optimism.

Parents are also likely to recognize that their children's increasing cognitive capabilities and life experience better position them to discern credibility appro-

riately as they grow older, and thus may tend to view their children as exhibiting lower comparative optimism relative to themselves as their children move from preadolescence to emerging adulthood. These relationships are investigated in H<sub>3</sub> and H<sub>4</sub>:

- H<sub>3</sub>: Children's comparative optimism about online credibility evaluation will increase with age.
- H<sub>4</sub>: Children's and their parent's opinions about each other's comparative optimism concerning online credibility will tend to converge as the child's age increases.

### **Antecedents of Comparative Optimism in Online Information Credibility Evaluation**

Several individual factors have been found to moderate people's risk perceptions. Demographic differences, for example, affect optimistic biases across different risk contexts, such as personal health, group violence, and media use (Chapin et al., 2005; Hoffner & Buchanan, 2002; Moen & Rundmo, 2005; Salwen & Dupagne, 2003), as do dispositional and personality factors (Moen & Rundmo, 2005; Suls, Lemos, & Stewart, 2002; Xie, 2014). With regard to comparative optimism in online credibility evaluation specifically, parents' educational level and income, and children's cognitive decision-making styles and perceived self-efficacy are proposed to affect optimism in evaluating the credibility of online information compared to others.

#### **Parents: Education and Income Level**

Research shows that people with greater formal education tend to display self-enhancing perceptions of their own ability. For example, people with more education generally perceive themselves as being less susceptible to media influence than others (Xu & Gonzenbach, 2008). Similarly, more affluent people have been found to feel less vulnerable to events that threaten society as a whole (Salwen & Dupagne, 2003). Moreover, parents with higher levels of formal education tend to be professionals, are computer users themselves, and possess better linguistic skills (Sonck, Nikken, & Haan, 2013), all of which are likely to enhance their optimism in evaluating the Internet and its content (Valcke, Bonte, De Wever, & Rots, 2010; Vekiri, 2010). Therefore, we hypothesize that:

- H<sub>5-6</sub>: Parents' level of formal education (H<sub>5</sub>) and income (H<sub>6</sub>) are positively related to their comparative optimism in evaluating online information credibility.

## Children: Cognitive Thinking Styles

Effortful thinking and careful scrutiny of information available in memory and in the immediate environment are necessary to accurately and realistically assess personal and others' susceptibility to risks (Chambers & Windschitl, 2004). Humans, however, tend to make comparative judgments heuristically. Indeed, the reliance on cognitive shortcuts encourages people to make downward social comparisons, and thus has been proposed as an explanation for optimistic biases (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995). Therefore, mechanisms such as one's thinking or decision-making style can impact their self-other comparative risk assessments (Chambers & Windschitl, 2004; Klein & Helweg-Larsen, 2002).

Accordingly, Wei and colleagues' (2007) survey of people's personal risk perceptions on a health pandemic showed strong positive correlations between cognitive elaboration and perceived impact of risks. Similarly, Li (2008) showed that one's rigor in information processing directly influences perceived susceptibility to risks associated with online communication and moderates their optimistic bias. Individuals who systematically process information by utilizing greater cognitive resources (e.g., experience or skills) tend to be more careful and comprehensive in evaluating relevant knowledge and information, and less influenced by heuristics. Therefore, we predict that children who tend to engage in more elaborate processing of information will display less comparative optimism:

H<sub>7</sub>: Children's predisposition to engage in effortful thinking is negatively related to their comparative optimism in evaluating online information credibility.

## Children: Perceived Self-Efficacy

Perceived self-efficacy refers to one's confidence in his or her own abilities "to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3), and is consistently found to be positively related to optimistic biases (Klein & Helweg-Larsen, 2002). People with low perceived self-efficacy tend to display a more fatalistic outlook toward risk events (e.g., Crowell & Emmers-Sommer, 2001). Vekiri (2010), for example, showed that among elementary school students, those with more confidence perceived themselves as better able to cope with the risks associated with Internet use. Moreover, students' confidence in Internet use is positively related to their attitudes toward the credibility of online information (Rains, 2008), and increases their tendency to carry out cognitive (e.g., purposeful thinking) (Tsai & Tsai, 2003), as well as content evaluative strategies (e.g., information currency, authorship), when searching for information (Hong, 2006). In short, greater perceived self-efficacy should increase children's optimism in discerning the quality of information found online such that:

H<sub>8</sub>: Children's level of perceived self-efficacy is positively related to their comparative optimism in evaluating online information credibility.

## Consequences of Comparative Optimism in Online Credibility Evaluation

Studies have shown that optimistic biases can be negatively related to self-protective behaviors, such as taking precautionary measures against risks (Cho et al., 2013), as well as positively related to prolonging risky behavior in people (Dillard et al., 2006; Kim & Davis, 2009). To illuminate how optimistic biases might be relevant in the context of credibility evaluation online, we investigate whether comparative optimism on the part of parents is related to the type of Internet mediation strategies they employ with their children, and whether comparative optimism on the part of children is related to their attitudes toward and behaviors in evaluating the credibility of online information.

### Comparative Optimism and Parental Mediation Strategies

Parental mediation is essentially the role taken by parents to regulate and manage their children's usage and experiences with media (Clark, 2011; Nathanson, 1999). The strategies parents use may be broadly categorized as (1) *passive mediation*, where parents are physically present with the child during media use, without necessarily discussing the medium or its content, (2) *active mediation*, which involves parents interacting with their child by talking about media content during media use, and (3) *restrictive mediation*, which refers to parents enforcing rules that limit a child's usage of media in terms of time, location, or types of content, again without necessarily explaining the medium or its content (Nathanson, 1999; Valkenburg, Krmar, Peeters, & Marseille, 1999).

Studies have increasingly focused on how parents' perceptions of their child's susceptibility to harmful media effects influence the type of mediation strategies they employ. For example, studies have revealed that parents' tendency to manifest third-person perceptions (i.e., perception of their own child's reduced susceptibility compared to others) explains the amount and type of mediation strategy employed (Meirick, Sims, Gilchrist, & Croucher, 2009). Parents' perception of their children's vulnerability to media effects is consistently and positively related to both active and restrictive mediation (e.g., Hoffner & Buchanan, 2002; Valkenburg et al., 1999).

Relatively little, however, is known about whether the comparative confidence in parents' abilities over their own child's or others' abilities (i.e., comparative optimism) is related to the mediation strategies invoked. Paus-Hasebrink and colleagues (2013) examined parent-child dyads across 25 European countries and found that the type of Internet mediation strategies employed by parents is dependent on how parents perceive the child's competency in using the Internet unsupervised, as well as the child's own estimates of his or her Internet skills. Active mediation occurs primarily in families where both parents and child perceive that the latter is highly competent in Internet use, whereas restrictive strategies occur in homes where parents perceive that their child is not competent (even though the child



may not agree). Overall, less mediation occurred in homes when both parent and child perceived that the child is more highly capable in Internet usage. H<sub>9</sub> and RQ<sub>2</sub> extend this work by addressing parents' comparative optimism as it relates to their mediation efforts:

- H<sub>9</sub>: Parents' comparative optimism relative to their children is positively related to the level of Internet mediation carried out at home.
- RQ<sub>2</sub>: What is the relationship between parents' comparative optimism relative to their children and the type of mediation employed?

### **Comparative Optimism and Children's Beliefs and Behaviors Toward Information Credibility**

Young people are inclined to believe they know more about the Internet than their parents (Paus-Hasebrink et al., 2013) and also tend to be optimistic that negative Internet-related events are less likely to happen to them than to their peers (Campbell et al., 2007). In addition, people who are optimistically biased about their ability to avoid risks as compared to others are more likely to be more defensive, complacent, and less attentive when processing risk-related information (Cho et al., 2013), which may make them more susceptible to believing false information (Dillard et al., 2006). At the same time, these people are less willing to seek additional information to verify and supplement the information they receive (Wei et al., 2007) or, in other words, to engage in more analytical information evaluation strategies. Optimistic biases have also been found to encourage other forms of risky online behaviors (e.g., providing personal information) and complacency in applying simple self-protective online behaviors (Campbell et al., 2007). There is thus reason to believe that comparative optimism about one's own ability to avoid noncredible information online may be related to beliefs about the credibility of online information in general, as well as to actual evaluation behaviors, as follows:

- H<sub>10a-b</sub>: Children's comparative optimism is (a) positively related to the extent to which they find online information to be believable, and (b) negatively related to their concern about online information credibility.
- H<sub>11</sub>: Children's comparative optimism is negatively related to the use of more analytical strategies to evaluate information credibility online.

## **Method**

Online surveys were conducted with a nationally representative panel of Internet users in the United States, fielded by the professional research firm GfK (formerly Knowledge Networks). GfK maintains a probability-based panel of participants, selected via random-digit dialing and address-based sampling methods to ensure

a nationally representative sample of U.S. Internet households. Invitations and reminders were sent to 5,936 U.S. adult parents in the panel with at least one child aged 11 to 18 years informing them of the survey and requesting their family's participation. The invitations stated that the purpose of the study was to understand people's "opinions about digital media use and Web sites on the Internet," with no mention that the study was about credibility. A total of 3,136 (52.8%) parent-child dyads responded to the invitation and completed the survey, of which 2,747 (91.7%) were valid for analysis (reflecting the removal of constant raters, constant refusers, and "speedsters"). Complete information about the sampling frame and sample representativeness of the Knowledge Networks panel may be found on their Web site (see <https://www.gfk.com/Documents/GfK-KnowledgePanel-ESOMAR-28-Questions.pdf>).<sup>1</sup>

Questionnaire content was pre-tested first in a focus group with children aged 11 to 18 years and then in face-to-face interviews with 40 parents and children from this age group. Additionally, to enhance data generalizability, survey responses were weighted according to demographic distributions from the most recent U.S. Census Bureau's Current Population Survey data for (a) post-stratification adjustments of demographic distributions (i.e., gender, age, race, education, Internet access) to balance errors from panel recruitment and attrition, and (b) study-specific post-stratification adjustments (i.e., profiles of children between 11 to 18 years) to account for survey non-response.

## Measures

### *Comparative Optimism.*

The standard instrument developed by Weinstein (1980) and others was adapted to measure participants' comparative optimism in online credibility evaluation. Each parent and child answered two sets of three questions. The first set asked, with regard to information obtained from the Internet, who is more (1) "likely to believe false information" (reverse coded), (2) "likely to question the information," and (3) "better at figuring out which information is good or bad." Parents were asked to compare themselves to their children, and vice-versa. The second set repeated the questions, but parents and children were asked to compare themselves to a "typical Internet user" instead. Responses to all items were measured on a 7-point comparative-risk scale (1 = *comparison group much better/likely*, 7 = *self much better/likely*), with a score of 4 indicating that respondents rated themselves as "equally likely/good" as the target of comparison. Respondents' scores across the three items were scaled by calculating the mean value ( $\alpha = .66$  for parents;  $\alpha = .65$  for children). Thus, mean scores falling above the midpoint of the scale indicate increasingly more comparative optimism (i.e., self better than comparison group), and scores at or below the scale midpoint indicate increasingly less comparative optimism relative to the comparison group (i.e., comparison group same as or better than self).

*Cognitive Thinking Style.*

Cognitive thinking style was operationalized in this study as one's disposition to engage in effortful thinking, which is also known as "need for cognition" (Cacioppo & Petty, 1982). This is a widely studied individual-level trait variable that has been found to impact information processing and decision making generally, because it reflects the degree to which people enjoy taking on mental challenges and thinking about problems. Adapting standard measures for this variable (e.g., Epstein, Pacini, Denes-Raj, & Heier, 1996), the child participants answered nine items measuring their need for cognition (e.g., "I enjoy problems requiring a lot of thought;" "It's really cool to figure out a new way to do something;" "I like to spend a lot of time and energy thinking about something") on a 5-point Likert-type scale (where 1 = *strongly disagree*, 5 = *strongly agree*;  $\alpha = .82$ ,  $M = 3.17$ ,  $SD = .61$ ).

*Perceived Internet Self-Efficacy.*

Self-efficacy was operationalized as one's confidence in the ability to use the Internet well, and one's level of Internet knowledge and skill compared to other users. Three items asking child participants to rate their (1) "ability to find what you are looking for on the Internet," (2) "knowledge of the latest Internet trends and features," and (3) technical skill with the Internet, compared to "other Internet users," on a scale of 0 to 10 ( $\alpha = .82$ ,  $M = 6.82$ ,  $SD = 1.96$ ).

*Parental Mediation Strategies.*

Following the three types of parental mediation strategies developed by Nathanson (1999) and Valkenburg and colleagues (1999), parents rated how often they (1) sit with their child while he or she is on the Internet (from 1 = *never* to 5 = *very often*; *passive mediation*); (2) talk with their child about whether information found on the Internet is trustworthy (from 1 = *never* to 5 = *very often*; *active mediation*); and (3) the degree to which they control their child's Internet use (by limiting time spent on the Internet, limiting sites visited, restricting computer location, or in "other" ways; summed such that 1 = *use of none of these methods* to 5 = *use of four or more of these methods*; *restrictive mediation*).

*Online Information Credibility.*

Child participants answered four questions on a 5-point scale (1 = *not at all* to 5 = *very much*) regarding online information credibility: (1) how much of the information online is believable, (2) how much should other people believe what they see online, (3) how concerned should people be about believing information found on the Internet, and (4) how often do you think about whether you should believe information you find on the Internet. A factor analysis showed the items represent two separate factors: (a) *believability of online information* comprising items (1) and (2) (component scores range = .755 – .801,  $p < .01$ ), and (b) *concern about the credibility of online information* from items (3) and (4) (component

scores range = .675 – .768,  $p < .01$ ), explaining about 69.3% of cumulative variance.

### *Analytical Evaluation Strategies.*

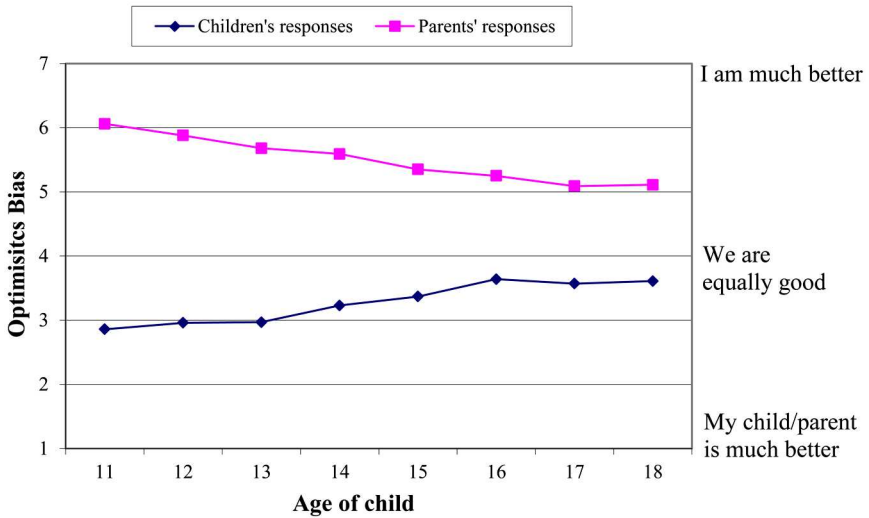
Children's use of analytical information evaluation strategies when considering the credibility of information encountered online was measured on a 5-point Likert-type scale (1 = *never* to 5 = *very often*) by asking child participants: "When you decide what information to believe on the Internet, how often do you": (1) give careful thought to the information, (2) look at several things to figure out whether you should believe it or not, (3) gather as much information as you can to help you decide, (4) double check your information to be sure you have the right facts, and (5) make decisions in a careful, well thought-out way ( $\alpha = .85$ ,  $M = 3.43$ ,  $SD = .75$ ). These items were included as part of a list of a range of possible information evaluative behaviors, including heuristic approaches, to decide whether information is credible.

## Results

RQ<sub>1</sub> asked whether comparative optimism exists in the evaluation of online information credibility. T-tests showed significant differences from the scale midpoint of 4 (indicating respondents rating themselves as "equally likely/good" as the comparison target) across all comparison groups (2-tailed). The highest comparative optimism was displayed by parents comparing themselves to their child ( $M = 5.48$ ,  $SD = 1.18$ ,  $t[2746] = 65.75$ ,  $p < .001$ ), followed by parents comparing themselves to a typical Internet user ( $M = 5.09$ ,  $SD = 1.10$ ,  $t[2746] = 52.06$ ,  $p < .001$ ), and then children comparing themselves to a typical user ( $M = 4.53$ ,  $SD = 1.11$ ,  $t[2734] = 24.87$ ,  $p < .001$ ). Although there was a significant difference for children comparing themselves to their parents ( $M = 3.29$ ,  $SD = 1.22$ ,  $t[2734] = -30.42$ ,  $p < .001$ ), the results show that children felt they were *not* as good at online credibility evaluation as their parents. Results thus indicate the existence of comparative optimism in online credibility evaluation among parents (compared to their children and to typical Internet users), and among children but only when they compare themselves to "typical" Internet users.

H<sub>1</sub> and H<sub>2</sub> predicted that the comparative optimism in online credibility evaluation displayed by parents and children would be greater when they compared themselves to typical Internet users, versus when the comparison was to each other. Paired-samples t-test results showed significant differences in comparative optimism displayed by both parents,  $t(2746) = -15.38$ ,  $p < .001$ , and by children,  $t(2734) = -45.82$ ,  $p < .001$ . However, as demonstrated by the means noted in RQ<sub>1</sub>, parents' comparative optimism was greater when they compared themselves to their own child as opposed to the typical Internet user, whereas children displayed greater

**Figure 1**  
**Trend Between Children's and Parents' Comparative Optimism in Evaluating Online Credibility Across Child's Age**



comparative optimism over the typical user than their own parent. Therefore, the data do not support  $H_1$  but do support  $H_2$ .

$H_3$  predicted a positive relationship between children's age and their comparative optimism. Regression results showed increases in children's optimism by age when compared to their parents,  $F(1, 2734) = 165.65$ ,  $\beta = .239$ ,  $p < .001$ ,  $R^2 = .06$ , and when compared to typical Internet users,  $F(1, 2734) = 77.24$ ,  $\beta = .166$ ,  $p < .001$ ,  $R^2 = .03$ , showing support of  $H_3$ .  $H_4$  predicted that children's and parents' optimism in evaluating online credibility when compared to each other will converge as the child's age increases. Figure 1 illustrates the converging trend, and regression results further show that parents' comparative optimism decreased significantly as the age of their child increased,  $F(1, 2746) = 230.88$ ,  $\beta = -.279$ ,  $p < .001$ , in support of  $H_4$ .

### Antecedents of Comparative Optimism in Online Information Credibility Evaluation

Multiple regression analyses were used to test the influence of individual factors on comparative optimism.  $H_5$  and  $H_6$  predicted positive relationships between formal education and income and parents' comparative optimism in evaluating the credibility of online information. Both hypotheses were supported. Parents with higher income ( $\beta = .05$ ,  $p < .01$ ) and education level ( $\beta = .09$ ,  $p < .001$ ) were more optimistic when comparing to their own children,  $F(2, 2746) = 19.17$ ,  $p <$

.001,  $R^2 = .013$ , and also when comparing to typical Internet users,  $F(2, 2746) = 51.86, p < .001, R^2 = .057$  (income:  $\beta = .07, p < .01$ ; education level:  $\beta = .16, p < .001$ ).

$H_7$  and  $H_8$  were analyzed together via multiple regression analysis. Although the results of the regression analyses were significant for the child versus parent comparison ( $F[2, 2730] = 110.86, p < .001, R^2 = .074$ ) and for the child versus typical Internet user comparison ( $F[2, 2730] = 217.62, p < .001, R^2 = .137$ ), they did not always confirm the hypothesized relationships. Specifically,  $H_7$  predicted a negative relationship between children's effortful thinking and their comparative optimism, yet, effortful thinking was *positively* related to optimism when children compared themselves to typical Internet users ( $\beta = .05, p < .01$ ) and to their parents ( $\beta = .21, p < .001$ ).  $H_8$  predicted a positive relationship between perceived self-efficacy and comparative optimism, which was supported by the data. Perceived Internet self-efficacy led to greater optimism when children compared themselves to typical Internet users ( $\beta = .26, p < .001$ ), as well as to their parents ( $\beta = .26, p < .001$ ).

### Consequences of Comparative Optimism in Online Credibility Evaluation

Multivariate multiple regression analyses were conducted to test the relationships between parents' comparative optimism relative to their children on parental mediation strategies ( $H_9$  and  $RQ_2$ ), and children's comparative optimism on their believability of online information ( $H_{10a}$ ), concern about credibility of online information ( $H_{10b}$ ), and analytic evaluation of online information ( $H_{11}$ ).

$H_9$  was supported. The more optimistic parents were in their ability to evaluate online information compared to their children, the greater were the levels of passive, active, and restrictive mediation strategies used,  $\lambda = .938, F(3, 2780) = 61.10, p < .001$ .  $RQ_2$  explored relationships between parents' comparative optimism and the type of mediation strategies employed. The strongest relationship was observed between parents' comparative optimism and the amount of restrictive strategies employed: highly optimistically biased parents were most inclined to impose restrictions on their child's Internet use ( $B = .27, p < .001$ ), rather than sitting together ( $B = .10, p < .01$ ) or discussing the credibility of online information with their child ( $B = .04, p < .01$ ).

$H_{10a}$  predicted a positive relationship between children's comparative optimism and their perceived believability of online information. Despite significant overall F tests for when children compared themselves to their parents ( $\lambda = .995, F[3, 2724] = 4.64, p < .01$ ) and when children compared themselves to typical Internet users ( $\lambda = .947, F[3, 2724] = 50.71, p < .001$ ), the results did not support  $H_{10a}$ . Rather, a significant *inverse* relationship was found for comparative optimism and perceived believability of online information, and only when they compared themselves to typical Internet users ( $B = -.04, p < .001$ ).  $H_{10b}$ , which predicted a neg-

ative relationship between children's comparative optimism and their concern for online information credibility, was partially supported. The hypothesized negative relationship was found when children compared themselves to their parents ( $B = -.04, p < .001$ ), but a significant *positive* relationship was found when children compared themselves to typical Internet users ( $B = .13, p < .001$ ). Finally,  $H_{11}$  predicted a negative relationship between children's comparative optimism and their tendency to evaluate online information analytically. This was not supported, as children were actually *more* analytical in evaluating online information when their comparative optimism toward typical Internet users was greater ( $B = .11, p < .001$ ).

## Discussion

This study provides the first empirical evidence of the existence of comparative optimism among children and parents in the context of online information credibility. In fact, children in this study as young as 11 years old believe they are more skilled at evaluating the credibility of online information than the "typical" Internet user. This sense of confidence may be cause for concern given that some children may lack both the skills and life experience needed to evaluate information accurately.

Yet, at the same time, children and their parents exhibit a healthy understanding of one another's relative proficiency in evaluating online information. Whereas children display greater comparative optimism relative to a typical Internet user versus relative to their parents ( $H_2$ ), parents report greater comparative optimism relative to their own children rather than in comparison to typical Internet users (opposite of the hypothesized relationship in  $H_1$ ). Thus, the body of past evidence showing that in-group comparisons tend to spark greater similarity (and therefore less optimistic biases) applies in this study from the child to the parent but not vice-versa, suggesting that for parents the intimate knowledge of limitations in their children's information evaluation skills trumps the potentially bonding effects of in-group identification felt with them. From a child's perspective, comparative optimism is only felt over typical Internet users, and not in relation to their parents, even as they experience greater comparative optimism with age ( $H_3$ ), and even as their comparative optimism converges with that of their parents over time ( $H_4$ ). Overall, these findings point to the strong presence of comparative optimism in the domain of online information evaluation that is nonetheless tempered by a certain understanding on the part of parents and their children about the relative strengths and limitations of one another's specific skillsets.

Comparative optimism in online credibility evaluation is also linked in this study to important antecedents and outcomes, for parents and for children. Results confirm that adults' education and income are positively related to their comparative optimism regarding technology use, and extend past work by demonstrating that comparative optimism among adults is present in the evaluation of online informa-

tion credibility when compared to both their own children and to typical Internet users (H<sub>5-6</sub>). Children, too, exhibit enhanced perceptions of their evaluative abilities compared to others as they feel more efficacious in a variety of Internet skills (H<sub>8</sub>).

Further insight into children's confidence and sense of self-efficacy comes from examining the hypotheses from this study for which results *opposite* to those anticipated were found. Specifically, H<sub>7</sub> and H<sub>11</sub> together proposed that children invoking more effortful or analytical evaluation strategies would demonstrate less comparative optimism, due to increased cognitive elaboration that might temper their self-confidence, and H<sub>10</sub> argued that children with greater comparative optimism would find online information to be more believable and exhibit less concern about online information credibility due to complacency resulting from their confidence. Results showed, however, that effortful thinking and analytical strategies were positively related to comparative optimism, and that children's comparative optimism over typical Internet users was negatively related to the degree to which they found online information to be believable, and positively related to their concerns about online information credibility.

These unexpected findings can potentially be explained by partially reversing the originally hypothesized relations by noting that beliefs about the (lack of) credibility of information online may lead to concerns about information credibility, which can prompt the use of analytic or effortful evaluation strategies, which might then (justifiably) lead to optimistic biases. To test these alternative relations, *post hoc* analyses were run on the variables from H<sub>7</sub>, H<sub>10</sub>, and H<sub>11</sub>. Regression results showed that (1) the less children believed online information, the greater was their concern for online credibility ( $\beta = -.07, p < .001$ ), (2) the greater their concern for online credibility, the more analytic was their behavior in evaluating online information ( $\beta = .37, p < .001$ ), and (3) the more analytic they were in evaluating online information, the greater was their comparative optimism with regard to typical Internet users ( $\beta = .30, p < .001$ ).

It thus appears that at least some comparative optimism felt by children may, in fact, be well-justified and quite rational—and perhaps not overly optimistic at all. If indeed children's confidence in their capacity to evaluate the credibility of online information is rooted in their effective use of analytical evaluation strategies, concerns about them having a false sense of confidence and the negative outcomes that arise from them might be overblown. However, this ultimately hinges on the degree to which children actually invoke analytical strategies *effectively* to assess online information. If, for example, improper or inaccurate analytical evaluation strategies were used by children, then the seemingly constructive relationship between the use of these strategies and comparative optimism found in this study may in fact indicate precisely the kind of unjustified overconfidence that past studies have feared.

Although this study did not directly assess the actual use and effectiveness of children's analytical evaluation strategies, findings from this study do shed some light on this. In particular, H<sub>1</sub> showed that parents perceived that their children are less adequate than typical Internet users in this capacity. Moreover, children



indicate that their parents (whose information evaluation skills they are likely more familiar with than “typical” adult users) are better than they are at information evaluation online (H<sub>2</sub>) suggesting that—because there is no reason to believe that parents are actually any more or less skilled in information evaluation online than average adult Internet users—kids’ actual evaluation skills are truly at or below that of a typical user. Thus, and overall, evidence from this study suggests that in spite of the positive relationship between the use of analytical evaluation strategies and comparative optimism among children, the negative outcomes of being overly confident may still endure, given that children may lack the capacity to take full advantage of the analytical strategies they report using. Nonetheless, because the current study did not include an objective or baseline measure of information evaluation skill, the data collected for this study are limited in their ability to speak to whether the optimism expressed by participants in this study is unrealistic or not. Clearly, an important goal for future research is to resolve this by examining the specific information evaluation strategies children invoke and how effective these strategies are. Additionally, because past research (Flanagin & Metzger, 2000) has demonstrated perceived differences in information credibility according to its type (e.g., entertainment versus health information) future research might also explore whether various information topics affect the relations demonstrated here.

Comparative optimism was found to influence mediation strategies employed by parents. Parents with higher comparative optimism relative to their children tended to invoke higher levels of mediation techniques in the household (H<sub>9</sub>), particularly employing more restrictive means of mediation (RQ<sub>2</sub>). This finding echoes those resulting from parents’ confidence in Internet use (e.g., Paus-Hasebrink et al., 2013), and parents’ perceived negative impact of media on their children (i.e., “third person effects,” see Hoffner & Buchanan, 2002). Of course parents’ comparative optimism may stem from a true difference in information evaluation skill between adults and children. However, it is disconcerting that heightened mediation efforts could possibly be due also to parents being unrealistically confident in their own abilities to evaluate online information, when their true competency in doing so may not actually even be as good as their child’s. To address this, in-depth qualitative research could investigate the actual online information evaluation exercises undertaken by parents and children, as well as any biases affecting their perceptions of each other’s ability to evaluate online information. Of course, it is also possible that participants’ level of concern about information quality online or their use of mediation or information evaluation techniques exceeds the true population mean, perhaps even causing them to self-select into the study. That said, care was taken to mitigate any sampling bias by using a sophisticated sampling strategy to draw a large and representative sample of U.S. Internet households. The data further confirmed that there was good variance across participants’ concern about credibility, how often they think about this issue, and their use of various information evaluation or parental mediation strategies.

Furthermore, more parental mediation does not necessarily lead to positive outcomes. Unnecessary restriction of media use, for example, may lead to increased

aggression toward parents and increased desire to seek out forbidden content (see Kirwil, 2009; Livingstone & Helsper, 2008). It would therefore be useful for future research to gauge the impact of parents' comparative optimism on their child's Internet use (via mediation strategies), while also examining how accurate this optimism is in comparison to parents' actual information evaluation abilities. Future research should also consider the comparative optimism determinants found here in the context of more recently developed measures of parental mediation strategies that are directly germane to Internet use, such as checking the online social networking profiles and Web sites visited by the child, extensions to restrictive strategies (e.g., installing content filtering software), and targeted interaction restrictions (e.g., prohibiting online activities such as instant messaging) (Sonck et al., 2013), as well as the influence of tools such as social media and online social networks, which might provide opportunities for contradiction or reinforcement of one's comparative optimism via online word of mouth mechanisms.

Findings from this study also offer insight into nurturing children's online information literacy. For instance, the convergence of parent-child comparative optimism relative to one another as children grow older suggests that parental involvement in "scaffolding" their children's online information literacy should begin at the youngest age possible, when children perceive that their parents are most capable relative to them in evaluating online information. From the child's perspective, this study illuminates how comparative optimism can reflect practices associated with online information literacy (i.e., children being less believing and more analytic in evaluating the credibility of information). Future studies could examine whether these relationships extend beyond online *content*. For example, research might consider comparative optimism in relation to safe practices associated with online *contact* (e.g., harmful peer-to-peer communications such as harassment or bullying) and *conduct* (e.g., harmful or illegal activities such as pornography and intellectual property infringements). This would provide a more complete view of how comparative optimism is implicated in children's overall digital literacy.

## Conclusion

This study provides new evidence that comparative optimism operates in people's evaluation of online information, which is a critical domain of information exchange due to its prevalence, ubiquity, and importance today. Children's optimism when compared to their parents and other Internet users was shown to be related to their feelings of Internet self-efficacy, the cognitive styles they invoke to evaluate information, and their development over time. Adults—both when acting as parents and when compared to other Internet users—exhibit varying levels of comparative optimism that demonstrates their cognizance of differences across comparison groups, the influence of demographic factors on their comparative optimism, and the ways in which these factors manifest in the mediation strategies they employ to guide Internet access and use by their children. Implications for online information

literacy and future research directions were also suggested that extend knowledge beyond these early findings, as children confront the realities of coming of age in an environment increasingly dominated by online information resources.

## Funding

Support was received from John D. and Catherine T. MacArthur Foundation.

## Note

<sup>1</sup>Data for this study were collected in June 2009. There is no reason to believe that comparative optimism, which is understood to be an enduring trait of human nature, or strategies people use to evaluate credibility, which have been shown to be rather stable across time and platform, would be any different today. Nor has the type or format of information online changed radically or in any critical ways since data collection for this study was conducted. That said, this study is the first in what we hope will become an ongoing stream of research on this issue, as it has such important implications for digital literacy.

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