SOCIAL PROXIMITY AND USER-GENERATED HEALTH CONTENT:

AN EXPERIMENTAL TEST OF PERCEIVED SOURCE SIMILARITY

AND CONSTRUAL LEVEL THEORY

_____

Doctoral Dissertation

presented to

the Faculty of the

Missouri School of Journalism

_____

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

_____

by

RACHEL YOUNG

Dr. Glen Cameron, Dissertation Supervisor

MAY 2013

The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

SOCIAL PROXIMITY AND

USER-GENERATED HEALTH CONTENT:

AN EXPERIMENTAL TEST OF PERCEIVED SOURCE SIMILARITY

AND CONSTRUAL LEVEL THEORY

presented by Rachel Young

a candidate for the degree of doctor of philosophy

and hereby certify that, in their opinion, it is worthy of acceptance

_____

Professor Glen Cameron

_____

Professor Kevin Wise

_____

Professor Glenn Leshner

_____

Professor Deb Hume

_____

Professor Amit Prasad

To Bill and Sue Young,
for roots and wings

To Noah and Sadie,
for embodying what's most important

and

To Gabe,
of course

ACKNOWLEDGEMENTS

Dr. Amanda Hinnant, superhero, scholarly idol, and dearest friend, always knew just what to say and just how to help. If I can pursue this path with near the grace she has, it'll be a blessing. Thanks also to the rest of the fierce and lovely gang of friends and family who propped me up and had my back.

Finally, I thank my committee. Collectively, they brought breadth of insight and depth of knowledge that inspired me to think more deeply and critically about my work as a scholar. Their personal and professional support was unconditional, and their doors were always open.

Amit Prasad is a gifted lecturer who can keep your brain aflame during a three-hour class on Foucault. Dr. Prasad always seemed to know what I should do before I did, and he waited patiently for me to catch up. His cross-disciplinary knowledge is so vast it's scary, and he introduced me to some of the most purely inspiring theoretical work I read during my doctoral career. His advice on doctoral student strategy was as impeccably adept as his theoretical suggestions.

Deb Hume is the rare person who can be both keenly intellectual and supremely kind, all in the same class period. Her public health classes reminded me why I returned to school in the first place—because I believe in health as a fundamental human right, and in the power of research to inform the pursuit of justice. Dr. Hume is a model for how to be a public health activist and a disciplined scholar. I hope to fuse those passions in my own career as well as she has in hers.

Glenn Leshner is half the reason I came back to graduate school in the first place. As a master's student, his research class introduced me to post-positivism and the beauty of the scientific method. When I came to see him nine years and

two kids later to talk about the doctoral program, his immediate belief that I could do this and do it well convinced me to give it a try. Dr. Leshner's understanding of experimental methods is remarkable, and I know how lucky I am to have trained with him. He was always patient and kind during my sometimes slow transition from humanist to experimentalist. I hope to one day to see methodological puzzles with half the clarity he brings.

Kevin Wise is a model for what I hope to be as a mentor. Ever since he hooked me with a story in doctoral seminar (something about farmer's market tomatoes…), I've enjoyed our brainstorming conversations about theories and research questions more than any others in my doctoral career. In addition to having a lighting-quick and creative mind for research, Dr. Wise has great gifts as an advisor, official or otherwise. He welcomes all students so warmly, you'd think he had all the time in the world to tease apart tricky conferences papers or cheerlead you through a job talk. As I transition from student to teacher, I hope to give to students as freely as Dr. Wise has given to me. I also hope to buy him a beer from time to time so we can continue the deep talks about embodied cognition and other beautiful ideas.

My advisor Glen Cameron has had scores of doctoral students, and I have no doubt each one has felt wholly unique. Dr. Cameron is the other half of why I'm here. When I told Dr. Hinnant I wanted to study health communication, she arranged for me to meet Glen. His first words were "When can you start?" I know now this invitation represents his total generosity of spirit. He is a renowned scholar and a gifted collaborator who can make a brilliant match between any two researchers. On the job search, his name was gold. Yet he is one of the hardest

working, the most humble, and the most inclusive people I know. He always had time for me, though I'm not sure how. Thanks to his sharp mind and eternal optimism, I routinely left his office with much more clarity and lightness of spirit than I entered. I owe so much to him. I am humbled by his confidence in me, and grateful for his support.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

SOCIAL PROXIMITY AND USER-GENERATED HEALTH CONTENT:

AN EXPERIMENTAL TEST OF PERCEIVED SOURCE SIMILARITY

AND CONSTRUAL LEVEL THEORY

Rachel Young

Dr. Glen Cameron, Dissertation Supervisor

ABSTRACT

The affordances of the internet, particularly as manifest in social network site platforms, allow for interpersonal mediated communication with socially proximal sources. In a 3 (expert source cues vs. low cues vs. low cue) × 2 (socially proximal vs. distal source cues) online between-subjects experiment (n = 305), this study explores how source cues indicating expertise and social proximity affect assessment of interpersonal similarity and user-generated health messages. Assessment of interpersonal similarity moderates the impact of source proximity cues on assessments of messages, which in turn influence health-related behavioral intentions. In a test of construal level theory, results also show that psychological proximity to message sources influences how readers construe the actions depicted in those messages and how they describe beliefs related to message topics. The findings from this study add to the literature on perceived similarity as a variable relevant to health communication and identify mediated interpersonal health content as a domain ripe for further study. They also extend the application of construal level theory by demonstrating how psychological distance from sources influences reactions to messages produced by those sources.

INTRODUCTION

Health behaviors are associated with attitudes, norms, and value systems that are socially relevant, yet sociocultural factors are often absent from research about health behaviors (Abel, 2008). One example of social influence on health is the effect of information from socially proximal sources on health decisions (Shim, Kelly, & Hornik, 2006: Niederdeppe et al., 2007). Health information from socially similar others has the potential to create, reinforce, or alter the health beliefs that lead to behavior through several mechanisms, including social learning via modeling (Bandura, 1986) and constitution or reinforcement of shared sociocultural norms (Rimal & Real, 2003; Berkman, Glass, Briseette, & Seeman, 2000). This study explores how source cues indicating expertise and social proximity affect assessment of interpersonal similarity and user-generated health content.

Despite the convergence of mass and mediated interpersonal communication online, few studies integrate mass and interpersonal perspectives in analysis of online communication (Walther et al., 2011). This study attempts to synthesize those perspectives in relation to health communication from socially proximal sources. User-generated health content is defined as mediated text, images, and/or video produced by internet users for personal, i.e., not professional, distribution. This content is a product of mediated interpersonal communication, defined by Cathcart and Gumpert (1986) as "any person-to-person interaction where a medium has been interposed to transcend the

limitations of time and space" (p. 30). Web 2.0 technologies "enable participative and collaborative communication with respect to otherwise one-to-many messages" (Walther, DeAndrea, Kim, & Anthony, 2010, p. 470) as well as production of original content by users without professional credentials. The affordances of the Internet coupled with Web 2.0 platforms foster asynchronous interactive (viewers talk to each other) or reactive (viewers react to a central message) exchanges. In addition to the juxtaposition of user-generated and mass-mediated messages, participatory media sites also allow individual laypeople, defined as such due to their lack of specialized medical knowledge, to share online platforms with medical experts.

Due to the sheer number of users and their cultural prominence, social network sites are of interest in any discussion of user-generated content. Social network sites such as Facebook are platforms through which internet users broadcast information to an audience and access original or apomediated information from other users. According to a Pew Internet and American Life Survey, 67% of online adults have accounts on at least one social network site, including 83% of internet users ages 18 to 29 (Duggan & Brenner, 2013). Facebook remains the most commonly used social network site in the U. S. In December 2012, 10.8% of all time spent online was spent on Facebook—the most of any site (Media Life Magazine, 2013). In general, social network site platforms allow people to "(1) construct a public or semipublic profile within a bounded system, (2) articulate a list of other users with whom they share a connection, (3) traverse their list of connections and those made by others within the system" (Boyd & Ellison, 2007). This articulated list, or social network, usually includes

both strong and weak ties that can be leveraged to access information or social support. One "persistent, replicable, scalable, and searchable" feature of social network sites (Boyd, 2010, p. 49) is the content produced by users. Social network site conversations reside in a novel area that is neither wholly public nor private (Boyd & Ellison, 2007)—Walther and colleagues (2011) define messages on social network sites as "public interpersonal." The content is mediated but the target audience is a writer's articulated social network.

Health is one of a universe of topics addressed on social network sites. Several surveys generally address the consumption and production of user-generated health content. According to one survey of U. S. adults who report ever using the internet to search for health information, nearly a third (31.6%) have used social networking sites for health-related information, and half that (15.2%) have themselves posted health-related comments or questions to social media platforms such as online discussion boards, listservs, blogs or sites such as Facebook or Twitter (Thackeray, Crookston, & West, 2013). The use of social network sites to consume or create health-related information is more common among women and younger adults. A Pew survey found that 80% of internet users, or 59% of all American adults, have looked online for information about health topics (Fox, 2011a). Nearly a quarter of social network site users (23%) have followed friends' health experiences of updates on social network sites, and 15% have used the sites to find health information. Another Pew survey suggests that the health information source depends on the information need (Fox, 2011b). While nearly all respondents agree that professional medical sources like doctors and nurses are most helpful when seeking a medical diagnosis (91%) or

information about medications (85%), they also agree that peers are most helpful when the need is emotional support for dealing with a health issue (59%) or a quick remedy for an everyday health problem (51%). Peers and professionals are equally helpful when respondents need practical advice for coping with everyday health situations (45% named peers as most helpful, and 46% said professionals). Quick advice about a health issue is within the domain of information that could likely be sought or passively encountered on social network sites. These results also beg the question of what experiences or characteristics differentiate a peer as a more or less useful source of health information.

A defining feature of social network site sources is their likely social proximity to the communication recipient. Though social network sites enable connections among any two users despite their offline familiarity, connections on Facebook are primarily among those who already know each other offline (NM Incite, 2011). Social proximity is one route to perception of interpersonal similarity. Both are known to influence assessment of information sources and information processing. Still, the variable has been studied infrequently in health communication (Wang, Walther, Pingree, & Hawkins, 2008). As of yet, no studies have systematically altered perceived similarity by manipulating social proximity, and few experimental studies address processing of user-generated health content in contexts other than health discussion boards. This study addresses the type of communication that occurs on social network sites by examining communication source cues and the potential cognitive effects of processing mediated communication from other users. I examine the influence of source expert credibility and interpersonal similarity on intentions to engage in

health-promoting behavior through the potential mediators message credibility and message relevance. In research informed by construal level theory, I also address the effects of source social proximity on cognitions related to the source and to the health topic.

One direction for research into interpersonal mediated health content is the exploration of concepts relevant to assessment of user sources and the messages they produce. A concept used frequently in studies of audience assessment of health information is credibility, defined as the believability of information or a source of information (Hilligoss & Rieh, 2008). The assumption is that information or sources judged as credible will be more salient and more likely to be remembered and acted on in the future. Chaffee (1986) argued that credibility, defined as the dimensions source expertise and trustworthiness, was a better predictor than communication channel of whether information would be accepted. As Chaffee's argument indicates, credibility is traditionally assessed as a function of a source's perceived expertise, related to the topic of interest, and perceived trustworthiness (Hovland & Weiss, 1951). The trustworthiness and expertise of health information sources on the Internet has been a subject of much research interest, prompted in part by concerns related to user inability to assess the medical expertise of different web pages and the related inability to assess information quality as defined within medical epistemology. These concerns are highly relevant to health information seeking but perhaps not as relevant to incidental exposure to health information produced by socially proximal sources. Health information produced by peers is likely to differ qualitatively than information broadcast by medical experts. For user-generated

5

health content, it is unknown which source characteristics would render information more believable and whether acceptance of information is more strongly related to credibility as traditionally defined, to message relevance, or to source characteristics, such as perceived similarity.

Information produced by a peer might very well be assessed by different standards than information produced by a medical expert. Credibility criteria are one way in which assessment of content might differ by source or by utility of the information in a particular context or for a particular goal. This situational conceptualization of credibility is described by a woman interviewed about why she considered her textbook credible: "'Well, it isn't necessarily that the book would be right. It's that everything was taken from the book that would be on the exam. So, if the book wasn't right, like, technically, then, it was irrelevant. It'd be irrelevant to my goal [of passing the test]'" (Hilligoss & Rieh, 2008, p. 1480). In this description of situational or relative credibility, information is not necessarily credible because it represents truth or expert opinion but because it is what is needed within that situation. By this definition, information from a socially proximal source may be considered credible in constructing perceived norms of behavior or in determining which health beliefs and behaviors are socially sanctioned. In this scenario, a statement from a medical expert would not necessarily carry more weight, because expertise is not situated within the relevant domain of sociocultural knowledge and affiliation.

Some recent studies of credibility address how assessment of sources may differ in accordance with perceived similarity or shared group identification (e.g., Wang et al., 2008; Hu & Sundar, 2010). This study will assess whether source

social proximity cues and expertise cues contribute to assessing a source as interpersonally similar, and whether assessment of similarity predicts message believability (i.e., credibility), message relevance, and behavioral intentions. My study adds to that literature by manipulating, vs. measuring, social proximity through the use of source cues. The primary function of manipulating social proximity (high vs. low) is to achieve a range of values related to perceived interpersonal similarity. In addition, I manipulate source expertise (high expertise cues vs. low expertise cues vs. no cues) to determine how perceived medical expertise contributes to or diminishes perceived interpersonal similarity in conjunction with social proximity. In all analyses, the content of health messages is held constant.

How we characterize others and their likely influence differs according to how similar they are to us. This assumption is central to social identity theory, social cognitive theory, and other social psychological theories of intergroup or interpersonal behavior. Researchers in these traditions have called for more studies assessing how these social phenomena are confirmed or constructed through communication, or, in other words, how communication produces social psychological outcomes (Hogg & Reid, 2006). Guided by construal level theory, I also examine how manipulating source social proximity to elicit a range of values of interpersonal similarity influences characterization of that source's actions and message-relevant beliefs. Construal level theory identifies social distance as a form of psychological distance. Psychological distance is theorized to systematically influence construals of objects, events, or individuals. An individual perceived as socially distant from the self will be construed differently

than an individual who is socially proximal. Distance also influences construal of a target individual's behavior. With regard to user-generated content, the behavior of a source perceived as proximal to the self would be construed in more concrete terms vs. the behavior of a source perceived as distal to the self. As of yet, just a handful of studies have examined how psychological distance from a source or from a message influences information processing (Luchyn & Yzer, 2011; Katz, 2013; Nan, 2007). In addition to examine the interaction between expertise and perceived similarity, this study seeks to demonstrate whether social distance from the source of health messages influences beliefs related to the source and the content of the messages. Results of the study could be useful in determining how health messages from socially proximal others are likely to be processed and thus how messages from these sources might best be employed in health education and promotion.

First, I review the literature on social proximity, interpersonal similarity, and their relevance to communication and to health behavior. Next, I describe the relevance of source cues such as social proximity to credibility assessment of health information, particularly when credibility is defined as situational vs. absolute. Finally, I introduce construal level theory and explain how its assertions about social distance are relevant to communication, particularly mediated interpersonal communication and user-generated health content.

LITERATURE REVIEW

Similarity as a Source Characteristic

This study addresses a key feature of the internet: the fact that anyone with online access can produce mediated content on health or any other topic, and that this content may in turn be viewed by an active audience of other individual internet users. This approach assumes that a medium's structural components are more significant to communication research than the medium as a whole. Nass and Mason (1990) argue for a variable-based approach to technology in which structural features are isolated so that theories can be interaction-specific, not medium-specific.

Similar to the variable-based approach describe by Nass and Mason, in the view of affordance theory, a medium is composed of structural affordances that allow possibilities for action and interaction. Affordances are action possibilities perceived by the actor (Gibson, 1977). A chair affords sitting on. That is, sitting is an action that is possible with a chair, and this action possibility is relative to the perceiver. Affordance theory suggests that an object is perceived as the sum of its action possibilities, and several articles have applied affordance theory to the internet or internet platforms (Boyd, 2010; Sundar, 2008). The affordances of the internet allow anyone to be a creator or distributor as well as a consumer of content (Baym et al., 2012), which distinguishes the internet from other communication media such as print or television, in which access limitations more clearly distinguish between those with the capacity to communicate with an audience and those who receive communication. Online, the source, or point of

origin, of mediated communication may be a friend, a family member, or another socially proximal other. The mediated messages produced by interpersonal sources are the subject of this study (Cathcart & Gumpert, 1986).

In communication research, the source of a message is defined as the originator of communication (Newhagen & Nass, 1989). Sources may be defined ontologically, by what they do, or psychologically, in terms of the communication recipient's perceptions, or "what the receiver imagines the source to be" (p. 54). Determining or defining the perceived source is important because "sources are psychologically distinct and they elicit different psychological reactions" (Sundar & Nass, 2001, p. 52). A source defined psychologically, or as the recipient's perception, may be the self, another individual, a group, an institution or organization, or a label describing an individual or organization, such as "expert" or "conservative" (Sundar & Nass, 2001). The psychological definition of source is relevant to an internet communication context because of the broad range of attributable sources online.

The recipient perception of source also determines what characteristics will be assigned to the source and how that entity will be assessed as a producer of or channel for information. Newhagen and Nass (1989) identified that people perceived an organization or institution to be the source of print news but the journalist delivering the news to be the source of television news. Differing beliefs about whether the source of television and print news was institutional or individual led to different expectations about each source and differing perceptions of credibility. The internet is an interactive, multimodality medium and as such suggests an even greater array of potential information sources. The

originating source, the communication channel, and the related category of "selecting source," or conduit for information copied or forwarded online from its originator, could all be perceived as the source of information (Sundar & Nass, 2001). Experiments manipulating a receiver's image of an internet source have found that both individual and technological sources can be perceived as such and that the perception or localization of the source has consequences for how information is received. Liking, quality, and representativeness of information may all be different for the same information with different source attributions (Sundar & Nass, 2001)

The concept of source is significant in media effects research because a communication recipient's characterization of a source influences how a message is perceived and processed, and thus also influences the outcomes resulting from communication. Examples or source characteristics shown to be relevant to information processing include source credibility, or the motivation and ability of that source to provide believable information, and source social proximity to the recipient of communication. Psychological distance from an event or individual systematically alters how people construe those events (Trope & Liberman, 2003). Because the source is defined egocentrically, in relation to the self, the source can also be described in terms of its distance from the self. Psychological distance, or perceived distance of the source from the self, predicts perceived similarity (Liviatan, Trope, & Liberman, 2008). As stated in the introduction, social distance and perceived similarity are both uniquely relevant to communication online, particularly via participatory media platforms. I now define the concept of perceived similarity and review research on the concept,

particularly its significance to social psychological study of intergroup and interpersonal behavior.

Explicating Perceived Similarity

In this study, I define perceived similarity as "cognitive assessment of what one has in common" with a target or source (Moyer-Gusé, 2008, p. 410). Similarity, as a perception of common attributes, is a potential prerequisite for identification, which involves a subsuming of self-awareness and empathy with a target other, but the concepts are distinct. While similarity "involves maintaining one's own perspective … identification requires taking on the role and experiencing events" as the target other (Moyer-Gusé, 2008, p. 410). Other definitions include "an idiosyncratic and subjective sense that one is similar" to a target group or individual (Ames, 2004, p. 574) and, more specifically, "computation of featural and structural commonalities and differences between two activated mental representations," in the case of interpersonal similarity, that of the self and a target other (Medin, Goldstone, & Gentner, 1993, p. 1206).

Interpersonal similarity can be defined in reference to many different dimensions. McCroskey's operationalization of homophily (a term meaning "love of the same" that is sometimes conflated with perceived similarity) includes two subscales, background and attitudinal homophily. In general, attitudinal homophily or similarity was more predictive of source assessments than demographic homophily (McCroskey, Hamilton, & Weiner, 1974). However, social proximity in one area (such as demographics) can predict perceived

similarity in another area (such as attitudes). For this reason, the perception of similarity is more significant as a predictor than what is sometimes called actual or objective similarity, or the measurable overlap in attributes between two sources. In this study, similarity will be defined more broadly as "interpersonal similarity." The concept is an adaptation of attitudinal similarity but addresses potential commonalities that cannot strictly be defined as attitudes, or enduring, valenced beliefs.

The degree of interpersonal similarity to a target influences how that target is assessed. In other words, "people construct different representations of similar and dissimilar others even when they are provided with the same information about these individuals. These representations in turn affect people's judgments about similar and dissimilar others' actions" (Liviatan et al., 2008, p. 1256). Though the concept of perceived similarity is described as understudied in mass communication research (Wang et al., 2008), perhaps because interactive media that allow users to be producers of mediated communication are relatively new, in other fields of inquiry, perceived similarity has been studied in greater detail. In social network analysis, the principle of homophily states that similarity breeds connection (McPherson, Smith-Lovin, & Cook, 2001). This principle endorses a truism dating back to classic rhetoriticians. Lazarsfeld and Merton (1954) also addressed homophily as a mechanism in forming and strengthening friend relationships, a process they described with the aphorism "birds of a feather flock together." The homophily principle structures networks of various types, including marriage, friendship, work, support, and, relevant to communication, information transfer and exchange. Thus, homophily is a causal

factor explaining the extensive demographic and attitudinal similarity in social networks. Homophily, and the resulting network homogeneity, "limits people's social worlds in a way that has powerful implications for the information they receive, the attitudes they form, and the interactions they experience." (McPherson et al., 2001, p. 415). That is, similarity is important not just in processing communication but because it promotes communication. Perceived interpersonal similarity can be a cause of communication, an effect of communication, and a variable responsible for communication outcomes (McCroskey et al., 1974; Rogers & Shoemaker, 1971).

A broad base of social science research attests to how sources perceived as more similar are judged more favorably, and how similar others can influence beliefs and behaviors (Christensen, Rothgerber, Wood, & Matz, 2004), and individual attraction to similar others is an assumption of interpersonal and intragroup theories of social psychology. One example is social identity theory, or the study of how membership in social groups influences identity and intergroup relations. According to Turner (1982), "a social group can be defined as two or more individuals who share a common social identification of themselves or, which is nearly the same thing, perceive themselves to be members of the same social category" (p. 15). As defined within social identity theory, self-identified group membership influences cognition and behavior (Tajfel & Turner, 1986). Group membership fosters social and psychological interdependence through pursuit of shared goals and validation of attitudes and values. Group identification also predicts trust in information as truth (Guerin, 2003). Social distance, which theoretically would predict a low level of perceived similarity,

also has an inherent valence, consistent with theories of social comparison and intergroup relations. In accordance with social identity theory, people who are most distant from the self, as localized within an in-group, are perceived less positively.

Though perceived similarity is theoretically more significant than actual similarity, the perception of interpersonal similarity should shift somewhat depending on available source cues, which provide the basis for interpersonal comparison. Research applying social identity theory tenets online addresses the lack of visual cues in some internet platforms. The social identification model of deindividuation effects (SIDE) posits that group identity is more salient online, where source attributions often lack visual cues (Spears & Lea, 1992). SIDE predicts that people will affiliate more strongly with a group rather than individual identity if cues to individual identity are not available, such as in online discussion boards. The lack of visual cues promotes depersonalization of sources, which leads people to react on the basis of intergroup rather than interpersonal dynamics. According to SIDE, a prototype, an integrated abstract representation of specific stereotypical normative characteristics, is the basis for interaction (Wang et al., 2009; Spears & Lea, 1992).

Homophily and perceived similarity are also invoked as products of or drivers of interaction in theories of interpersonal behavior. The hyperpersonal model of interaction posits that people idealize their similarity with anonymous others and that the lack of physical cues can, under certain conditions, promote more self disclosure and exaggerated perceptions of similarity, presumably meaning exaggerated in terms of the proportional relationship to actual similarity

(Walther, 1996). Social cognitive theory, which describes how beliefs and behaviors are learned through observation, modeling, self-correction, and feedback (Bandura, 1989), describes modeling as a form of social influence. In social cognitive processes, social identity becomes psychologically operative to govern people's perceptions and behaviors. Modeling is one pathway by which individuals can alter self-efficacy, defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). People are more likely to identify with, and thus to model the efficacious behaviors of, those they perceive as similar (Bandura, 2002).

People also learn from media by identifying with certain characters or portrayals. In the Austin, Roberts, and Nass (1990) model of television interpretive processes, identification is predicted by perceived similarity and perceived attractiveness of a portrayal. In this model, perceived similarity, or the extent to which an individual believes a portrayal reflects his own cognitions and behaviors, is associated with increased identification and likely increased modeling among college students (Austin et al., 2002). In a study of the effects of televised portrayals on emerging adults' alcohol beliefs (Austin & Meili, 1994), perceived similarity is equated with personal acceptance of social reality, or norms. In entertainment media, one mechanism through which characters exert influence on story-consistent attitudes and behaviors is through perceived similarity and identification, which leads to increases in perceived vulnerability to health outcomes depicted in the narrative (Moyer-Gusé, 2008).

Perceiving oneself as similar to a target other also influences whether we classify that person as prototypical of a group or project our own traits onto that individual. Interpersonal similarity increases the likelihood of projection, defined as the inferential act of ascribing one's own traits to resolve something unknown about a group or individual (Ames, 2004). In line with theories of intergroup behavior, projection is much more prevalent for socially similar targets (Kreuger, 2000). The perception of similarity is said to moderate both projection and stereotyping, or activation of schema classifying a target as prototypical, as inferential tools. More specifically, perceived similarity could resolve the tension between self- and stereotype-representations by "tipping target inferences toward coherence" (Ames, 2004, p. 575). Students who wrote about how similar or different they were from an MBA student projected their own attributes onto the target significantly more often with individuals perceived as similar; the reverse was true for stereotyping (Ames, 2004). Ames (2004) calls for more research on the nature and effects of perceived similarity and its relationship to social comparison.

Assessment of a target other during interpersonal encounters is also relevant to our accrual of the health-relevant beliefs that influence processing of health messages and health behaviors. Social identity theorists emphasize the role of the interpersonal encounter in the social influence process, described as "the internalization of a contextually salient in-group norm, which serves as the basis for self-definition and thus attitude and behavior regulation" (Hogg & Reid, 2006, p. 13). Observing the interpersonal encounter is thus key to elucidating social processes at other levels of analysis. For instance, the influence of social

networks and social capital on health can be reduced in part to interpersonal conversations among group members that increase salience of cognitions or behaviors and construct norms, which are spared patterns of affect, cognition, or behavior (Viswanath & Emmons, 2006). Communication about norms can be direct, or information can be inferred from communication or from behavior. The imputation of norms through communicative process, and the influence of norms on health behavior, has been a study of much interest in health communication.

Research focusing on how peer influence can be leveraged to promote health behavior change has used norms to promote socially sanctioned behaviors. However, the use of group-based descriptive norms in social marketing campaigns has been criticized as ineffectual, because of the reliance on base-rate information, which is less involving than a narrative, and also because descriptive norms by definition describe prototypical behavior rather than the behavior of individuals within a particular social network (Campo, Brossard, Grazer, Marchell, Lewis, & Talbot, 2003). Critical analysis of norms-based messages found that messages communicating norms through base-rate information affected normative statistical judgments, or the amount that participants believed their peers performed a behavior, but not attitudes related to that behavior (Campo et al., 2003; Campo, Cameron, Brossard, & Frazer, 2004). In construal level theory, which will be discussed in detail later, psychological distance from a source is associated with invoking prototypical expectations when assessing that individual or her actions (Liviatan et al., 2008). This research suggests that norms-based campaigns may be effective at altering beliefs about prototypical behavior within a broad social group, but that alterations to descriptive norm-

based beliefs may not translate to attitude or behavior change. One proposed explanation for this discrepancy is that prototypical behavior is not as relevant to message recipients as the behavior of friends or close peers, those perceived as more interpersonally similar (Campo et al., 2003).

An impression of general tendency, such as that described by the norms concept, is formed through observation of or communication with individual cases, or exemplars. This study fills in a gap by addressing assessment of socially proximal sources who are both socially relevant, due to interpersonal similarity, and likely to contribute to normative beliefs through individual encounters. Norms research is not usually based on an exemplar or specific instance of norms imputation, yet the imputation of norms is likely to be additive rather than all-at-once, through exposure to narratives from socially proximal others or through direct conversation or experience of others' behavior. Next, I discuss how the relevance of interpersonal similarity to research on exemplars, individual sources or characters in media messages whose narratives exemplify a phenomenon or issue.

Brosius (1999) defines exemplars as "short quotations (verbal or visual) from concerned or interested people that illustrate a particular problem or a particular view of a problem." The influence of exemplars is potentially powerful, and exemplars, can lead to formation of beliefs that endure in the face of evidence to the contrary (Zillmann, 2006). Because individuals do not extensively process media messages, they rely on judgment shortcuts, or heuristics, to assess sources as well as message content. Judgment shortcuts are moderated by identification with exemplars to determine the exemplar's influence (Andsager, Bemker, Choi,

& Torwel, 2006). Exemplars may also carry weight as conveyers of normative behaviors or expectations. Exemplification theory of exemplar assessment and influence suggests that one encounter or observation can alter perceived norms (Zillmann, 2002; Zillmann, 2006). This contention justifies the approach of this study to assessment of a single source and how assessment of that source influences messages salience and relevance and effectiveness.

Health communication research on exemplars explores their relevance to entertainment media, health news, and persuasive health messages. Perceived similarity is one mechanism through which exemplars exert influence. Andsager et al. (2006) found perceived similarity of an exemplar was related to perception of a message as effective, or specifically relevant, realistic, and credible. Individual exemplars depicted in personal narratives involving alcohol use were perceived as similar if they were described as fun, like me, like my friends, intelligent and mature. This conceptualization of perceived similarity was significantly related to message effectiveness (Andsager et al., 2006). Results of this and other studies suggest that antialcohol messages including exemplars perceived as similar to the recipient are more likely to attract attention and to influence attitudes than are persuasive messages that are "impersonal" or "preachy" (Lederman, Stewart, Goodhart, & Laitman, 2003).

Social identity theory and social cognitive theory suggest that target others perceived as interpersonally similar are more likely to influence beliefs and behaviors. One potential mechanism by which socially similar others might be influential is through the additive effect of individual encounters on construction of salient group norms. Perceived similarity also moderates the influence of

exemplars, or individual sources or characters that exemplify a particular belief or situation. Summatively, this research suggests that cues indicating sources are socially proximal will influence both information processing and the effect of information on behaviors. In addition to varying social proximity cues to study the contribution of perceived similarity to these dependent variables, I also vary source expertise cues to determine how medical expertise influences perception of interpersonal similarity and how expertise and proximity cues interact in similarity assessment. Expertise cues are studied frequently in health communication because of the importance of medical expertise to validating health information. Fogg (2003) defines expertise as "perceived knowledge, skill, and experience of the source" (p. 124). Expertise is assessed based on reputation, firsthand knowledge, information about the source from others, or source credentials (Rieh, 2002).

As a perceived quality of a source, expertise is particularly central to how credibility is defined and operationalized in communication. The traditional bidimensional measurement of source credibility rates expertise and trustworthiness (Hovland & Weiss, 1951). In the distinction between sources of information defined as worthy of being believed vs. sources likely to be believed (Flanagin & Metzger, 2007), the notion of expertise conveys worth, identifying sources that *should* be believed. Interpersonal sources who are perceived as similar may be likely to be believed, but may not be considered worthy of being believed in terms of their expertise or specialized knowledge.

Source cues might distinguish someone as both an expert and socially proximal, but it is not yet known how these source cues would interact to

21

influence assessment of perceived expert credibility and perceived similarity. Would a socially proximal expert be less of a credible expert than a socially distal one? This is certainly possible, based on research that suggests expertise conveys social distance. Wang et al. (2008) endorse this argument, stating that "heterophily connoted for most users by a source with great medical expertise may compete with homophily one may experience through interactive or observational communication with peers in discussion groups." (p. 359). Others suggest that a lot of similarity and a little bit of expertise might be the optimal mix: ""The most influential source is highly homophilous with the receive in all other important respects, but is perceived as somewhat more competent on the topic in question" (McCroskey et all, 1974, p. 43). Rogers and Shoemaker (1971) define this ideal characteristic as "optimal heterophily," or a source who shares our perspective but with the addition of expertise or experience within the relevant domain.

The confluence of expertise and similarity is particularly relevant to user-generated health content. A trusted peer source could, for example, have some claim to expertise in addition to being interpersonally similar to the communication recipient. This study varies expertise and source proximity cues to answer the following hypotheses and research questions related to the contribution of social proximity and expert source cues to assessment of a source as interpersonally similar and as having the credibility conferred by expertise, i.e., expertise and trustworthiness:

> H1: Socially proximal sources will be considered more interpersonally similar than are socially distal sources

RQ1: What is the contribution of source expertise cues to perceived similarity?

RQ2: Is there an interaction between source expertise and social proximity cues on assessments of interpersonal similarity?

H2: Sources identified as experts by source cues will be considered more credible than both sources identified as nonexperts and sources with no cues indicating expertise

H3: Source social proximity cues increase perception of source expert credibility.

RQ3: Is there an interaction between source social proximity and expertise cues on assessment of source expert credibility?

RQ4a: Does perceived expert credibility moderate the effects of social proximity source cues condition on perception of interpersonal similarity?

RQ4b: Does perceived interpersonal similarity moderate the effects of expertise source cues condition on perception of expert credibility?

In summary, our attraction to similar others is an assumption of major interpersonal and intergroup theories of social learning and identity. Norms of attitudes and behaviors are imputed through observations of and communication with those perceived as similar. Perception of a source as more similar, vs. less similar, also influences processing of the message produced by that source. Research assessing reactions to exemplars and other characters in prosocial communication has found that perceived similarity contributes to identification and message effectiveness. As stated in the introduction, the structural features of the internet allow any user to also be an author of communication, which produces a wealth of information from socially proximal others on platforms such as social network sites. This study addresses how source proximity and associated variable, perceived similarity affect cognitive responses to sources and health

messages, and how social proximity interacts with expertise. I next review the literature on source credibility with particular emphasis on differential operationalizations of source and information credibility and how interpersonal similarity influences credibility assessment.

Source Credibility

In the health communication literature, most credibility research focuses on purposeful pursuits such as searching for information. Although discussions of the credibility of health information describe processes of active searching, such as for information about particular symptoms on Google or Web MD, users attend to health information encountered incidentally through health news, user-generated content, and a combination of the two, as with health news re-posted by users (Eysenbach, 2008). Information encountered incidentally must still be assessed for utility to reinforce of existing belief or a prompt to change beliefs or attitudes, and there is more work to be done in exploring possible cognitive differences in assessing credibility of information actively sought from medical experts vs. incidentally encountered interpersonally. This study examines the independent effects of interpersonal similarity as well as how interpersonal similarity and expertise interact in credibility assessment.

Credibility is the quality of inspiring belief (Hilligoss & Rieh, 2008). Rieh and Danielson (2007) differentiate the approaches to credibility by different academic disciplines. In information science, the focus is on evaluation of information, not sources, and credibility is one criterion by which information

seekers assess information quality. In communication research, credibility is a perceived characteristic, often of the source. Information is determined to be credible if recipients describe it as credible, often on a semantic differential scale. The fact that credibility is measured as a recipient perception means that credibility is conceptualized not so much the absolute credibility of information, or its veracity in accordance with accepted truths, but rather the relevance of information to the recipient's goal for use. Specifically, "credibility does not reside in the information object or source itself. Rather, it is users who recognize dimensions of credibility based on the characteristics of information objects and sources and then make credibility judgments," based on past experience, context, and other factors (Rieh & Danielson, 2007, p. 350-351). This section briefly reviews mass communication research on credibility, its relevance to persuasion, the significance of expert credibility in health communication research, and the contribution of interpersonal similarity and expertise to assessment of source and information credibility.

Credibility can be an attribute of a source, a message, or a medium and can accrue to the source of a message, the medium of message delivery, or the message content itself. In a study of the comparative credibility of newspaper and television news, Newhagen and Nass (1989) found that people assess the credibility of television based on personal components, such as individual newscasters, and the credibility of newspapers based on institutional components. In addition, perception of a source as credible is often positioned as predicting credibility of a message. In a classic test of this relationship, messages from expert sources determined to be credible were perceived as more fair, more

unbiased, and more predictive of opinion change than were the same messages from uncredible sources (Hovland & Weiss, 1951). In this case, the perceived expertise of the source serves as a cue to judging the information presented by that source as credible, which prompts changes in attitudes in a message-consistent manner.

Expertise, as a perceived quality of a source, is particularly central to how credibility is defined and operationalized in communication. The traditional bidimensional measurement of source credibility rates expertise and trustworthiness (Chaffee, 1986). The concept of source is important to mass communication because of the assumption that assessment of sources or of information as high quality prompts message-consistent cognitions and action. Although this study focuses on a type of source, specifically internet users, as objects of credibility assessment, source, message, and medium are interrelated, and there are often not clear distinctions among the three when attributing information to a source (Hilligoss & Rieh, 2008). The Hovland and Weiss (1951) study described earlier also illustrates the conceptual bleed between source categories and the importance of recipient perception in locating the source of communication—the experimental manipulation compared an organizational source (a newspaper) with an individual source (a famous scientist). Identifying the attributed source is important because assessments of different categories of sources vary systematically. In a classic study by Newhagan and Nass (1989), newspapers and television news were assessed based on different credibility dimensions. The contribution of these dimensions to perceived credibility differed by medium. Personal dimensions were more significant predictors of

credibility for television news, while dimensions related to institutional

performance and reputation were more significant for newspapers. The

explanation for this difference was that information on television is perceived as

originating with an individual source, a news anchor, while information in

newspapers was perceived as originating from an institutional source.

Psychological distance from the source, a variable of interest in construal level

theory, also played a role in the dimensions used to assess credibility. Local

newspapers were more likely to be assessed on personal dimensions, while

national newspapers were more likely to be assessed as institutions. This finding

has implications for health communication as well. The perceived source for

persuasive health messages, as institutional or individual, could be theorized to

influence how credibility of a source is assessed and how the message is received.

Chaffee (1986) argues that assessment of a source as expert and trustworthy, i.e.,

credible, is more important to determining whether information is accepted than

is the channel through which that message is delivered.

Efforts to integrate this view of source credibility as the superordinate

factor in message acceptance have yielded mixed results when applied to

communication online. In fact, consensus increasingly accrues to the view that

evaluative credibility assessment is much more rare even than users of the

Internet would report. Walther et al. (2011) argue that, online, the "radical degree

of access seems to have obviated traditional credibility concerns in terms of

preferences and acceptability of sources" (p. 23). Although describing credibility

assessment as an evaluative process may be accurate in an environment of

information scarcity, with information gatekeepers controlling the follow of

mediated content in the classic mass media format, on the Internet, the audience is no longer passive but also a user of the medium, and the potential population of content creators expands exponentially. Thus, complete evaluation of all information encountered is impossible and intuition/heuristic or social assessment of credibility are more common and more sustainable (Flanigin & Metzger, 2010).

In this environment of user-generated content and nested sources, Metzger, Flanagin, and Medders (2010) argue for the relevance of a dual process model of credibility, in which the need for accurate and trustworthy information is balanced with the need to conserve cognitive resources. Dual process models describe alternate routes to a cognitive endpoint. In dual process models of persuasion, information processing is characterized as central/systematic or peripheral/heuristic (Petty & Cacioppo, 1986; Chaiken, 1980). Central or systematic processing occurs under conditions of high involvement, such as when participants are aware that they will have to make conversation about the topic of a message. In systematic processing, features considered "central" to the message, such as argument quality, are more important to judgment of a message as credible than are factors peripheral to information strength or quality, and assessing central features requires more cognitive resources. Peripheral processing occurs when message recipients are unwilling or unable to process a message based on its central features, due to lack of interest or lack of cognitive resources. Peripheral processing relies on information that is tangential to the message content, such as how a message looks or whether a source is attractive. This type of information is often called "cues," defined as "a piece of information

provided by a medium that allows for evaluation of the information, possibly by

triggering heuristics" (Lee & Sundar, 2012, p. 423). Reliance on peripheral cues

leads to heuristic, or shortcut processing. Heuristics are "mental generalizations

of knowledge based on experience that provide shortcuts in processing

information" (Sundar, Xu, & Oeldorf-Hirsch, 2009, p. 4232). Rather than

requiring an evaluation of a message on its merits, heuristic processing relies on

well-worn mental shortcuts based on past knowledge or experience. Heuristics

include "if … then" constructions such as "If an item is expensive, it must be good

quality" or "If everyone else follows this person on Twitter, she must be

worthwhile." Chaiken (1980) states that communicator characteristics, which are

cues that trigger specific heuristics, directly affect message acceptance or

rejection but do not influence processing of persuasive argumentation.

Heuristics are significant to information processing theories that assume

limited cognitive resources available for processing a flood of interpersonal and

mediated communication. Credibility heuristics can be features of the source,

features of the medium, features of the messages, features of reception by an

audience, or features related to communication context or past experience (Fogg,

2003; Sundar, 2008). Use of heuristics to assess credibility online has been

suggested theoretically and demonstrated empirically. Although people voice

skepticism about the veracity of information online, credibility judgments are

much more likely to be momentary and heuristic rather than effortful and

systematic (Metzger et al., 2010). People claim to assess information found online

to determine its accuracy by checking other sites, which is the gold standard for

determining information veracity, but numerous studies have shown that these

claims represent ideal but not actual behavior (e.g., Flanagin & Metzger, 2007; Flanagin & Metzger, 2010). For example, focus group participants described snap assessments and reliance on group-based tools, such as user reviews, rather than assessment of information by verification on other, trusted sites (Metzger et al., 2010).

One heuristic used to assess the credibility of health information is that medical experts provide credible information. Availability of cues that a source is an expert would trigger the expertise heuristic, which would lead to information being judged as credible. In health communication, credibility conferred by perceived expertise is crucial to an understanding of the interactions between medical experts and nonexperts. The implication is that information from a source perceived as having specialized knowledge within a particular domain is more trustworthy and thus more worthy of reinforcing or altering message-relevant attitudes and beliefs. Credibility leads to message acceptance and then to persuasion, or the change or reinforcement of relevant attitudes. Thus, expert credibility in health communication is valuable not just in and of itself but in what it predicts—increased attention to messages and action in accordance with message aims.

Credibility research on health, particularly online, focuses on whether users will find and assess as credible information that is considered worthy of being believed. The quality of worth is often ascribed to information from sources with health expertise. Expertise in health refers to a medical understanding of the etiology and treatment of disease, as opposed to the experiential understanding of an individual's symptoms or health status, classified as lay knowledge (Prior,

2003). Expertise confers power, defined as likelihood that another will act in accordance with one's wishes (Beisecker, 1990) and thus is directly linked to persuasion. In the case of medical experts, the expert knowledge that confers power is situated within the realm of a scientific understanding of human health and disease. In the pre-Internet, information-poor society, where knowledge is disseminated from a centralized authority, expertise that stems from knowledge is both rare and valuable (Flanagin et al., 2010). Traditionally, the credibility associated with physicians' expertise allowed them to parcel out specialized knowledge to patients to persuade them to compliance.

However, expert status, and its relationship to credibility and persuasion, may vary within different communication contexts and channels (Chaiken & Eagly, 1983). Some recent research questions whether expertise as it is traditionally defined is always a salient cue in credibility assessment, particularly online. Sundar and Nass (2001) found information was perceived as most valuable when it was presented as having been selected by other users, vs. the computer, a news editor, or the participants themselves. In a study of how perceived source and site credibility influence behavioral intentions to act on or forward information, an expert source, one with "MD," after her name was no more credible than the same source without the degree and the expertise it confers (Hu & Sundar, 2010). In addition, although survey respondents report that physicians are the most credible sources of medical information, they do not first turn to physicians to attain information, but to Google (Eysenbach, 2008). Though participants in one study describe credibility criteria related to the worthiness of health information, when asked to search of answers to health

questions in a lab, they relied on the search engine feature that ranks pages hierarchically by relevance (Eysenbach & Köhler, 2002).

Research on the credibility of health information can be predicated on the assumption that expert information is the correct information. For example, research on health information seeking may be concerned with how expertise can be determined and validated in the online information environment. In surveys and interviews, participants display an understanding that online, anyone can write anything (e.g., Hilligoss & Rieh, 2008). The Internet is defined as information fecund, a place where the standard cues to credibility can be difficult to discern, and research about credibility seems driven in part by concerns about the public's motivation and ability to assess information that has not been filtered by a gatekeeper and lacks traditional old media cues to credibility. The concern that people have the skills necessary to accurately assess medical advice is certainly valid. However, it is also important to remember not just that credibility assessment is likely to be operating within an environment of competing demands on attention and limited cognitive capacity but also that expert medical advice is only one type of potentially useful health information. Sources of information relevant to well-being might be assessed differently, because the type of information needed is different as well. Extant theories and the results of past studies demonstrate that information is assessed not just for absolute credibility or believability but also in terms of its relevance to a particular information goal. Prominence-interpretation theory also considers the significance of cues in credibility assessment but it posits that what is relevant and thus prominent varies according to information needs (Fogg, 2003). Cue prominence, or what is

noticed, influenced by task and user motivation, experience, and individual differences. Interpretation then refers to judgment of noticed elements, and is influenced by context, user skill, and user assumptions based on culture and past experience. In work addressing motivations for information seeking, Atkin (1973) identifies behavioral adaptation, or the motivation to seek "information that is useful for directing anticipated behavior" (p. 217). The Chaiken (1980) experiment provides another example of the situational nature of information processing. For those in the high involvement condition, the knowledge they would have to restate the material in the message led participants to focus on the features most applicable to their information needs—argument quality—whereas participant in the low involvement condition were perhaps scanning rather than seeking information and were more influenced by highly visible and easily digestible features, like source cues.

Crucially, definitions of credibility are situational and dependent on factors such as the relationship between receiver and medium, or receiver and source (Chaffee, 1986). As is seen in mentions of "context" or "culture" or "experience" in literature on credibility, credibility assessments are based on expertise and knowledge within a particular domain. Metzger et al. (2010) describe the Internet as relentlessly and inherently social, and social elements of the Internet can cue heuristics to credibility assessment, as in the case of user reviews of products or endorsement of content. I propose that social proximity is an additional cue to assessing source credibility. This idea is supported somewhat by studies showing that user-generated content may have more credibility online than content attributed to experts (Eysenbach, 2008). However, there has been

little explanation of why this might be the case. If experts on a topic are assumed to be more credible, yet this is not born out experimentally, is the problem with the definition of an expert, a lack of information about the context, or the definition of credibility? The following section reviews research related to the link between credibility dimensions and perceived interpersonal similarity and proposes several research questions designed to investigate the relationship between the source credibility and similarity concepts.

Credibility and Perceived Similiarity. Interpersonal similarity and credibility are both perceptions of one person by another person. The relationship between the two has been mapped differently by different scholars. Rogers and Bhowmik (1971) define attitudinal homophily (e.g., this person is like me, shares my attitudes, thinks like me) as one of the "character" dimensions of credibility. McCroskey's interpersonal communication research also addresses the contribution of interpersonal similarity to source credibility assessment. Interpersonal similarity is related to voluntary exposure to communication, acquisition of information from communication, and influence through communication (McCroskey et al., 1974).

Few studies have examined which dimensions might apply to assessment of peers or other users, vs. expert, as credible sources of health information. A discourse analysis of how credibility is constituted in online support groups found that as legitimacy (i.e., a person's health concerns are genuine and justified) and authority (i.e., appropriateness relevancy, and sufficiency of information) others share (Galagher, Sproull, & Kiesler, 1998). Both personal

experience with a health topic and authority, often demonstrated through references to scientific research, were necessary to establish credibility. Though the information provided in online discussion boards can be factually inaccurate (12% of information in conflict with standards of medical or psychological care, according to a study by Winzelberg, 1997), a primary function of online discussion boards is provision of information related to emotional or physical well-being, or caring, vs. information related to medical treatment, or care (Weis et al., 2003). Thus, the dimensions used to assess a source as capable of providing useful caring information might be expected to differ from those used to assess a source as capable of providing useful medical care information. In other words, "Physicians can provide the facts, but other patients can tell you what it really feels like and what to expect next, in a way that only someone with personal experience can" (Preece, 1999, p. 63)

A few studies of health communication via participatory media platforms have examined the contribution of perceived similarity to information processing. Walther and colleagues (2010) examined perceptions of similarity to commenters on YouTube antidrug PSAs. Independent of perceived similarity to commenters, both supportive and derisive comments affected evaluation of the message but not attitudes toward marijuana use. Comments affected message-relevant attitudes only through perceived similarity with commenters. This finding was consistent for both supportive and derisive comments.

Wang and colleagues (2008) specifically assess the relationship between perceived similarity, credibility assessment and health message influence on both discussion board and web site platforms. As the only study to yet explore the

variables of credibility and homophily specifically in relation to online health information, the methods and results are reviewed here in detail. The study examines information credibility and perceived source similarity as different evaluative mechanisms for social influence, with regard to online health information. Wang et al. (2008) consider their research to explore a potential mechanisms for the persuasive effectiveness of online discussion groups, stating that "the effectiveness in health communication may be partly attributable to users' homophilous and credible identifications with sources, or due to the conversational nature of information presented in these interactive discussions" (Slater, Buller, Waters, Archibeque, & LeBlanc, 2003, p. 362). Specifically, authors examine the relationship between homophily and message evaluation: Does homophily (operationalized as perceived interpersonal similarity) directly affect message evaluation or is it mediated by information credibility assessments?

A note on methods: In Wang et el. (2008), definitions of source and channel are conflated and source characteristics are inferred rather than explicitly stated via provision of cues. Content via discussion groups is inferred to come from peer sources, while content from web platforms in inferred to come from expert sources. Discussion board content is described as advice based on firsthand experience with illness, treatment and recovery rather than information obtained through formal credentials. The circular relationship between communication channel or platform and communication source has external validity but also makes it more difficult to delineate the relationships between

source expertise, perceived source similarity, source credibility, and information credibility.

Outcomes of structural equation modeling indicate that homophily or perceived similarity drives message effectiveness and information utilization through information credibility. Even more striking, on web sites, homophily drives message effectiveness and information utilization, but there is no mediator role for information credibility. Wang et al. (2008) argue that, based on their results, homophily is the most important predictor of message effectiveness in user-generated content environments. In addition, the importance of homophily is not limited to just those platforms where content is inferred to be primarily peer produced. Rather, homophily remains the most significant predictor of message effectiveness for messages delivered via health web sites, which might be seen as channels for expert institutional or individual sources. These relationships were true regardless of message content, which was varied as coping vs. instrumental advice and didactic vs. narrative. The authors conclude that "Advice from similar others is more powerful than experts' advice when it comes to online health information" (Wang et al., 2008, p. 366). They also state that credibility, as it is traditionally assessed, has no relationship to message effectiveness: "Although expertise, a dimension of credibility, is important, credibility itself is not what differentiates influential from uninfluential advice" (Wang et al., 2008, p. 365).

The Wang et al. (2008) study poses some interesting questions about the utility of credibility, as traditionally defined, as a predictor variable in information processing studies. I suggest that one reason why it is difficult to

assess the value of credibility is the approach to measurement. Because the dimensions differ according to the target of interest, the conceptualization and measurement of credibility also differ, usually in relation to the candidate terms that are selected as dimensions of the credibility variable. Though reliability for these lists of candidate items is often high, indicating that the terms are linked conceptually, the terms themselves could be thought to have distinct meanings and the notion of credibility that emerges at their intersection might also differ accordingly. Due to the differences in dimensions, which are selected relative to the research context, it can be difficult to determine whether the amount of conceptual overlap among the various uses of the credibility term. Because the assumption that credibility dimensions differ according to the target of interest is often unstated, it can also be difficult to determine whether studies are interested in assessing empirically validated credibility, defined as whether message recipients are assessing health information that medically accurate as believable, or situational credibility, whether message recipients are assessing information as believable and relevant to their information problem (Rieh & Danielson, 2007).

This study seeks to clarify several points relative to credibility assessment of peer sources in a health communication context. By varying social proximity and medical expertise cues, I explore the contribution of perceived similarity to expert credibility. I can also explore the contributions of expert credibility and perceived similarity to credibility of a user-generated message, or information credibility, and also the contribution of perceptions of the message source to assessment of message relevance. Message credibility refers to the believability of

communication, while message relevance refers to the general suitability or appropriateness of a message to the particular information need or message recipient. To test these relationships, I propose the following hypotheses and research questions.

The link between source expertise cues and message assessment is well documented. However, the relationship of expertise cues to assessment of user-generated content is relatively novel. Also, the influence of explicit cues to social proximity, both alone and interacting with expert cues on assessments of messages, has not been tested experimentally. Therefore, research questions are more appropriate to hypotheses in investigating the following relationships.

RQ5a: Do source expertise cues influence assessment of the credibility of user-generated health messages?

RQ5b: Do source proximity cues influence assessment of message credibility?

RQ5b: Is there an interaction between source expertise cues and social proximity cues on assessment of message credibility?

RQ6a: Do source proximity cues influence assessment of message relevance?

RQ6b: Do source expertise cues influence assessment of message relevance?

RQ6c: Is there an interaction between source expertise cues and social proximity cues on assessment of message relevance?

In addition, studies of homophily in interpersonal and intergroup relations as well as mediated communication demonstrate that perception of similarity influences assessments of sources and of messages, but the contribution of actual similarity, as manifest in the independent source cues manipulation, is not considered as significant as perceived similarity (Ames,

2004). The next set of research questions investigates the role of perceptions of sources as similar, as credible, or the interaction between credibility and similarity assessments in predicting message credibility and relevance.

RQ7: Do interpersonal similarity, expert credibility, and the perceived credibility × similarity interaction predict message credibility?

RQ8: Do interpersonal similarity, expert credibility, and the perceived credibility × similarity interaction predict message relevance?

The goal of health communication is often to influence behavior, and a message can be considered effective if it alters or reinforces behavior or behavioral intentions. In this study, I distinguish present from future behavioral intentions, because temporal distance has been shown to influence how actions and goals are construed (Trope & Liberman, 2003). The following research questions investigate whether source and message variables influence participant statements of behavioral intention related to the preventive health behavior topics covered in the messages: healthy eating, physical activity, and stress reduction.

RQ9: Do interpersonal similarity, expert credibility, and the perceived credibility × similarity interaction predict intentions to engage in health-promoting behavior?

RQ10: Does a regression model including all source and message variables significantly predict behavioral intentions?

As stated previously, the cues to social proximity trigger assessment of similarity. While assessment is related to similarity, the variance captured in the measurement of similarity is more significant than the bidimensional manipulation of social proximity through provision of source cues. In research on perceived similarity, the focus is thus not on actual similarity, which is only

weakly related to perceived similarity. Perceived similarity does not actually track

with actual similarity because people draw conclusions idiosyncratically and from

a small sample of features (Ames, 2004). Ames (2004) also suggests that

perceived similarity is itself the independent variable, rather than the mediator

through which actual similarity exerts influence. To test this contention, I

performed a quartile split for values of interpersonal similarity to demonstrate

whether relationships among variables differed at the top (very similar) and

bottom (not at all similar) of the distribution. I also examined the moderating

effects of perceived interpersonal similarity on sources cues. The proposed model

suggests that perceived interpersonal similarity moderates the effect of source

social proximity cues on behavioral intentions through assessments of user-

generated health messages as relevant or credible.

> RQ11: Do relationships among the variables in the regression model differ
> when the file is split between high and low perception of interpersonal
> similarity?

> RQ12a: Does perceived interpersonal similarity moderate the effects of
> source cues on behavioral intentions through message relevance?

> RQ12b: Does perceived interpersonal similarity moderate the effects of
> source cues on behavioral intentions through message credibility?

Social Proximity and Construal Level

The study of source credibility is based on the assumption that recipients'

mental representations of sources influence how people respond to these sources

and the messages associated with them. The study of credibility dimensions

attempts to systematically assess how variations in the degree to which a source

is perceived as having an associated characteristic influences assessments of believability. This study assesses how expertise and social distance influence both traditional dimensions of credibility and perceived interpersonal similarity, a source characteristic that is highly relevant to participatory online media and contributes greatly to message effectiveness, yet remains understudied in communication.

I now review the literature describing how social distance from or proximity to a source can influence information processing by altering the level at which individuals mentally represent that source, the affiliated messages, and the behaviors messages depict. Influence of source characteristics on construal of behavior is particularly relevant to persuasive health communication messages, which generally seek to influence or reinforce health behaviors.

Imagine seeing a city from an airplane. You can categorize what you see broadly by type of area—crowded buildings and ribbons of road suggest a big city. Now imagine seeing the same area from a close-up vantage. Your view covers much less distance, but it is more detailed. You could see, for example, the condition of houses or city sidewalks, people's faces as they walk past, the speed and variety of vehicles on the road. In this example and in construal level theory in general, spatial distance from the object of scrutiny varies leads to different object assessments. Great spatial distance, the view from the airplane, is associated with the gestalt perception of "city." Having little or no spatial distance from the object of scrutiny allows us to see the constituent parts, details that add depth to our understanding. In another, more common analogy, being spatially distal allows us to see the whole forest, but being spatially proximal allows us to

42

see individual trees. When we are close, we focus on fragments, not the gestalt (Förster, Friedman, & Liberman, 2004).

In construal level theory, spatial distance is one form of psychological distance (Trope & Liberman, 2010). The theory describes and predicts how psychological distance, or distance from the self, affects construal, defined as people's mental representations of the objects in question. Construal level theory provides a "purely cognitive" description of intradistal events or objects, as differences in abstractness and centrality of content in construals (Day & Bartels, 2008). With regard to how information from the environment is processed, "Construal level theory links cognitive processing to the psychological distance of an item, with close items mentally represented concretely (low construal level) and far items represented abstractly (high construal level)" (Katz, 2013, p. 6). Spatial, temporal, social, and hypothetical (or how definite) represent different psychological distance dimensions, and the process of construing objects from any of these categories varies as a function of psychological distance. As with the airplane example, psychological distance from an event, object, or individual systematically alters how people construe those events (Trope & Liberman, 2003). The association between psychological distance and construal level has also been demonstrated via implicit and explicit judgments (Trope & Liberman, 2008).

Because a common reference point (the self) orients construals associated with the different distance dimensions, then these dimensions "should all be cognitively related to each other and similarly affect and be affected by the level of construal" (Trope & Liberman, 2010, p. 2). In one study using a picture-word

Stroop task, participants' responded faster when stimuli were distance congruent distance-congruent stimuli, such as when a spatially distal arrow contained a word associated with temporal distance or social distance vs. a word associated with temporal or spatial proximity (Bar-Anan, Liberman, Trope, & Algom, 2007). Other research shows that distance cues in one psychological dimension influences perceived distance in another dimension (Trope & Liberman, 2010). These results support the contention that psychological distance is a common dimension underlying temporal, spatial, and social distance.

It is important to note that psychological distance is perceptual. Though it may be associated with quantifiable distance, the variable of importance is not the actual or measurable but rather the subjective distance of an object, event, or individual. Another significant characteristic of psychological distance is that "distance from" is an egocentric construction that represents distance from the self, temporally, spatially, or socially. In construal level theory, there is a fundamental distinction, and distance, between self and not-self (Pronin, Olivola, & Kennedy, 2008). However the distinction is not dichotomous but rather one of degree. In addition to being "not-self," an object can be nearer or further from the self, and that distance affects construal. Construal level theory suggests that imagining temporal, spatial, or social objects as distant from the self's position along those dimensions—such as thinking about the future or by imagining another person's perspective—represents a kind of mental traveling. The psychological distance between our own perspective and another person's, or between the present and the future or this place and one far away, is traversed through construction of mental construals.

A key assertion of construal level theory is that with psychological distance, mental construals become increasingly abstract. Distal objects are described as being mentally represented at a more abstract or "high" level of construal, while proximal objects are represented at a more concrete or "low" level. While distance may or may not influence which information is available, it does influence which information is most important to constructing mental representations. Distance determines whether high-level information, such as theories, self-beliefs, and general trends, is more or less salient than low-level information, such as specific situation and task characteristics. Imagine you're preparing for a lecture you'll give when it's still a month away. The construal of the event would be more abstract, or high level: What will the topic be? What do you hope to accomplish conceptually in the talk? You would not yet consider the room number and how you'll get there from your office or whether there's a plug near the podium for your laptop. However, the day of the lecture, you would certainly consider your route to the lecture location as well as the equipment you'd need to present. As the event becomes more proximal, the construal becomes more concrete.

In a review of CLT and psychological distance, Trope and Liberman (2010) define high-level construals more specifically as "relatively abstract, coherent, superordinate mental representations."

> Moving from a concrete representation of an object to a more abstract representation involves retaining central features and omitting features that by the very act of abstraction are deemed incidental. For example, by moving from representing an object as a "cellular phone" to representing it as "a communication device," we omit information about size; moving from representing an activity as "playing ball" to representing it as "having fun," we omit the ball. Concrete representations typically lend themselves

to multiple abstractions. For example, a cellular phone could be construed also as a "small object," and "playing ball" could be construed as "exercising." An abstract representation is selected according to its relevance to one's goals. Thus, if one's goal is to contact a friend, then "a communication device" is relevant, but size is not (p. 2).

Compared with concrete or low-level construals, abstract construals are also more schematic or prototypical, more coherent and less ambiguous. An abstract construal of an *action* includes why an action is performed, or the ultimate goal for that action, rather than how, or the subordinate steps taken to complete the action. An abstract construal of an *individual* includes the traits that guide behavior, rather than the context within which a behavior is performed. Because abstract construals are not likely to change the closer we get to an object, it is more useful to construe distal objects in terms of the high-level vs. the low-level goal. Construing distract objects at an abstract level allows us to plan for the future, relate to other people, or learn from the past: "Forming and comprehending abstract concepts enables people to mentally transcend the currently experienced object in time and space, integrating other social perspectives, and considering novel and hypothetical examples. In this sense, the different levels of construal serve to expand and contract one's mental horizons and thus mentally traverse psychological distance" (Trope & Liberman, 2010, p. 4).

Construal level theory also addresses the potential origin of these systematic variances in perception. For distal objects, information about concrete features or specific context may be unavailable or unreliable, and a higher-level construal conveying central features is formed. Because this link between distance and high-level construal becomes "overgeneralized," high-level construal

is used for distal objects even when knowledge about concrete features or context is available. This clarification is important because CLT predicts that perceivers form higher-level construals of socially distal others even when contextual information about that individual is present or obtainable (Liviatan et al., 2008). Despite the availability of contextual information, high-level features receive more weight in constructing construals. Stated another way, "judgments of dissimilar others' actions would be based more unequivocally on high-level construal features, whereas judgments of similar others' actions would show relatively less differentiation between low- and high-level construal features" (Liviatan et al., 2008, p. 1257). Lower level construals are activated with social proximity, but not with social distance.

Few studies have examined the relationship of construal level theory to mass communication or information processing (Katz, 2013; Luchyn & Yzer, 2011, Nan, 2007). In a recent conference paper, Katz (2013) examines the effects of processing messages at near vs. far psychological distance when both message distance dimensions and processing orientation are manipulated. Processing orientation is the inclination to process information at a high or low level. Altering process orientation in turn influences construal of target objects, events, or individuals. Congruence between psychological distance and construal level orientation/processing state is predicted to increase persuasion (Katz & Byrne, 2012) because a fit between psychological distance and level of message abstraction increases cognitive fluency (Liberman & Trope, 2008; Fujita, Eyal, Chaiken, Trope, & Liberman, 2008). Messages are easier to process if the construal level orientation and the psychological distance are congruent (Kim,

Rao, & Lee, 2009). In addition, "congruence often enhances the persuasiveness of a message because people assume this fluency is due to a high quality message and they attribute the *feels correct effect* to their evaluations of the message itself" (Katz, 2013, p. 8).

For messages varied on all four dimensions of psychological distance, social, spatial, temporal, and hypothetical, psychological proximity increased message salience and message effectiveness (Katz, 2013). Wicklund (1974) describes a link between psychological distance in relation to reactance: "the closer a person is to the decision point (or action point), the greater power a preference has to threaten decision freedom. … The preference has no implications for action when the decision point is viewed as an abstraction far into the future" (p. 9). Based on this description of the relationship between reactance and temporal distance, Katz (2013) also explores the relationship between psychological distance and threat to choice on message salience.

Katz (2013) demonstrates that distance from objects, events, or individuals is relevant to persuasive communication because the degree of psychological distance has been shown to influence how a message is mentally represented. Of the distance dimensions discussed, the current study addresses social distance, specifically whether social distance from a source influences construal of that source's actions as relayed in a message. I also examined whether social distance affected construal of actions via message-relevant beliefs and behavioral intentions. Construal level theory of social distance predicts characterizations of others in a way that is particularly relevant to understanding user-generated content or exemplars. When considering characterization of a

socially proximal other, the high-level of concrete construal predicted by construal level theory would be more individuating, and thus less prototypical, than the construal of a socially distal other, even if all other cues were held constant. Construal of an individual would in tern influence evaluation of behavior that is otherwise ambiguous (Henderson & Wakslak, 2010). Liviatan et al. (2008) used a behavior identification form to measure the differences in participants' construals of activities performed by socially proximal vs. socially distal others. Participants were given a list of actions and asked to choose one of two restatements that best described that activity, either the means accomplishing that action or the ends. For locking a door, participants could choose either putting a key in the lock (means) or securing the door (ends). In a series of four experiments, actions of a socially proximal other were more likely to be described in terms of the subordinate ends rather than the superordinate means and to be determined by feasibility rather than desirability. Of interest, social attraction or liking was not the mechanism for differences in perception, as there was no correlation between liking and construal level.

Henderson and Wakslak (2010) found that social distance from an individual influenced the salience of cues, or temporally accessible constructs. With psychologically close others, participant judgments were influenced toward the meaning and valence of primed trait concepts, but with psychologically distal others, primes had no influence on evaluations. Global, general attitudes drove evaluations for spatially distant others, while primes drove evaluation of those who were socially close (Henderson & Wakslak, 2010). We typically have more concrete knowledge about socially proximal others because we can observe their

behavior and accumulate more knowledge about contextual, specific (low-level) features. More exposure to a target individual's thoughts and feelings leads to more complex construals.

Social distance and the related source assessment, interpersonal similarity, predict whether we focus on an individual's superordinate goal, such as getting healthier, or the subordinate means used to achieve that goal, such as joining a gym or stocking the kitchen with fresh produce. Greater interpersonal similarity is associated with increased focus on subordinate or secondary features in construal of others' actions. Feasibility, or how, becomes more important to assessing an action than is desirability, or why (Liviatan et al., 2008). Construal level theory is consistent with theories of how people categorize distal objects or individuals and how the language they use to identify their actions varies even when information is held constant. In general, people tend to characterize their own actions in terms of concrete situational factors, but they tend to characterize other people's actions in terms of dispositional properties (Jones & Nisbett, 1972). For instance, people use more abstract language to describe another individual's actions than when they describe their own (Semin & Fiedler, 1989). Correspondence bias predicts that people attribute behavior to traits or disposition rather than in the context of situational constraints. If I eat too much at a buffet it might be because I was stressed out or the portions were too big. If you eat too much, however, it's because you lack will power, a trait-based rather than a context-based definition. This difference reflects variations in self-knowledge vs. other-knowledge and in the "salience of behavior vs. situations"

(Trope & Liberman, 2010, p. 12). A third-person perspective is associated with a higher, more abstract level of construal.

Construal level theory predicts that actions are construed differently from actors of varying social distance. Specifically, the same action from a socially distal source could be construed more abstractly and more concretely from a socially proximal source. The action from the socially distal source would be described in terms of *why* an action was performed, whereas the same action from a socially proximal source could be described in terms of *how*, or what steps were taken to accomplish the action. This study relates construal level theory predictions about how source proximity influences characterization or sources actions to mediated communication by assessing whether perceived similarity to a source influences characterization of actions depicted in user-generated health messages. Based on CLT and findings from previous experiments, I propose the following hypotheses:

> H4: Participants who view messages from a source perceived as more interpersonally similar will be more likely to describe *how* a source reached a health goal, as a proportion of total thoughts, compared with participants who viewed messages from a source viewed as less interpersonally similar.

> H5: Participants who view messages from a source perceived as less interpersonally similar will be more likely to describe *why* a source reached a health goal, as a proportion of total thoughts, compared with participants who viewed messages from a source viewed as more interpersonally similar.

Another study examined the relationship between temporal distance and health behavioral intentions, specifically fruit and vegetable consumption and condom use (Luchyn & Yzer, 2011). People listed more feasibility beliefs when considering behaviors in the near future (tomorrow) than they did when

51

considering distant behaviors (six months and five years in the future). Once again, high construal level emphasizes why a behavior is performed, while low construal level influences how. In addition, pros or gains are more salient with temporal distance, whereas cons and losses are more salient with close distances.

Luchyn and Yzer (2011) state that high-level construals, or the desirability aspects of behavior, are conceptually similar to attitudes and normative beliefs as defined in the theory of planned behavior. In the theory of planned behavior, attitudinal beliefs are defined as "perceptions about the likelihood of positive and negative outcomes as a result of behavior performance" (p. 597). Attitudinal beliefs are thus related to whether an action is worth performing. The theory of planned behavior focuses on injunctive norms, with normative beliefs defined as "expectations about the perceived social pressure to perform or not to perform a behavior" (p. 598). Beliefs about whether a behavior is socially acceptable are classified as desirability. In contrast, the third behavioral belief defined in the TPB, efficacy beliefs, is conceptually similar to low-level construals, which address the feasibility aspects of behavior. Efficacy beliefs are defined as "considerations of all impeding and facilitating factors and the resulting perceived capability of successfully performing a behavior" (p. 598). The results from Luchyn and Yzer (2011) align with construal level theory predictions that distance shifts attractiveness of a choice from low- to high-level considerations. Desirability concerns are related to the value of an action's end state (high level) but feasibility concerns are related to the means used to reach an end state (low level). Thus high-level desirability concerns should receive greater weight when

distance from an action increases, whereas feasibility concerns are more

significant as distance from an action decreases.

> H6: Participants who view messages from a source perceived as more interpersonally similar will list more feasibility-related health beliefs, as a proportion of total beliefs, compared with participants who viewed messages from a source viewed as less interpersonally similar.

> H7: Participants who view messages from a source perceived as less interpersonally similar will list more desirability-related health beliefs, as a proportion of total beliefs, compared with participants who viewed messages from a source viewed as more interpersonally similar.

In addition, Nan (2007) examined how social distance influences

effectiveness of persuasive messages. For gain frames and for societal frames, the

persuasive impact is stronger for socially distal individuals (others) than for the

self. Positive and societal outcomes are also more salient as social distance

increases, though no differences were found for negative and individual

outcomes. This suggests that positive associations might increase with social

distance, while negative associations remain constant.

> H8: Participants who view messages from a source perceived as more interpersonally similar will list more negative health beliefs, as a proportion of total beliefs.

> H9: Participants who view messages from a source perceived as less interpersonally similar will list more positive health beliefs, as a proportion of total beliefs.

Psychological distance also alters the hypothetical decisions about present

or future actions. Psychological distance can be manifest as temporal distance, or

a decision about one's own behavior in the present vs. the future, or as social

distance, or a decision one makes about one's own behavior. Pronin and

colleagues (2008) found that participants were less likely to undergo an

experience that involved give up with personal time or attention, such as tutoring

peers or receiving emails from a charity, when they were making the decision for the present as opposed to a time in the future. In addition, decisions people made for themselves in the future mirrored decisions that they made for others. I suggest hypotheses related to a proposed action—asking students to write health messages similar to those they'd already read, either now or in the future or to assign a number of messages to the source—and suggest how these decisions should vary in accordance with social distance.

> H10: Participants who view messages from sources perceived as more interpersonally similar will agree to write fewer messages in the present.

> H11: Participants who view messages from sources perceived as less interpersonally similar will agree to write more messages in the future.

> H12. Sources perceived as less similar will be assigned fewer messages than sources perceived as more similar.

Finally, I propose that distance from a source will also influence intention to engage in behaviors described in the user-generated health messages. Social proximity primes feasibility beliefs and contextual factors, which should negatively influence intentions to engage in behaviors in the present but not the future. In addition, it is feasible that expressions of beliefs related to health behaviors could influence intention to engage in that behavior, which is addressed in the final research question.

> H13: Participants who view messages from a source perceived as more similar will have less intention to engage in the behaviors depicted in the messages in the present.

> RQ13: Does participant characterization of sources' actions or statements of health-related beliefs predicted present or future behavioral intentions among participants who perceived sources as more or less interpersonally similar?

> Appendix A lists all hypotheses and research questions.

Methods

This study is a within-subjects 3 (high expertise source cues vs. low expertise source cues vs. no expertise cues) × 2 (socially proximal cues vs. socially distal cues) experiment testing the effects of source expertise and social cues on cognitive and behavioral dependent variables.

Pilot Test

I conducted a pilot test to refine the measure used to select the social proximity cues, health topics, and message stimuli for the experiment. The study methods and procedures were approved by the University of Missouri Institutional Review Board (IRB).

Procedures. Undergraduate journalism students enrolled in a strategic communication research class (n = 29) received course credit for completing a 30-minute online survey. The survey was constructed and conducted using the online survey design program Survey Gizmo (http://www.surveygizmo.com). The mean age was 20.5 years (SD = 1.6, range = 17-27). Twenty-two participants were women, and seven were men.

Social Proximity Cues. Successfully manipulating social proximity depends on selecting cues that prime similarity. Therefore, I asked pilot test participants to rank 10 cues according to how important they were to (1)

"deciding if someone is similar to you" and (2) "deciding if someone understands where you're coming from." The cues were as follows:

1. Occupation
2. Age
3. College or university attended
4. Hometown
5. Political affiliation
6. Mutual friends
7. Sorority/fraternity
8. Favorite teams/athletes
9. Favorite books/movies/TV shoes
10. High school attended

The cues ranked as most important to determining whether someone is similar to you or understands your position were college/university (mean = 3.28, SD = 1.61, range = 1.00-7.50), followed by age (mean = 3.35, SD = 2.10, range = 1.00-8.50), hometown (mean = 4.82, SD = 2.23, range = 1.00-9.00), and mutual friends (mean = 5.00, SD = 2.27, range = 1.00-9.00). The other six cues had mean rankings between 5.84 (high school) and 8.77 (sports teams), with a ranking of one being most important and 11 being least important.

Health Topic Interest. The first set of questions assessed baseline student knowledge of and interest in information about six health topics: consumption of soda and other sugary beverages, sun protection and sunscreen, healthy eating, exercise, distracted driving or texting while driving, and stress relief. These topics were selected for three reasons: (1) importance to health promotion and disease prevention and (2) lack of associated stigma, and (3) potential for message to be written in a colloquial rather than a didactic style on these topics. Students

indicated their level of agreement with the following statements on a 7-point

scale (1 = strongly disagree; 7 = strongly agree).

1. I'd read a story about this topic.
2. I'd post a status update or Tweet about this topic.
3. I'd talk to friends about this topic.
4. I'd talk to a doctor about this topic.
5. I know a lot about this topic.
6. I hear a lot about this topic from others

Results of scale reliability tests were within the acceptable range for all topics:

soda, Cronbach's α = 0.83; sun protection, α = 0.77; healthy eating, α = 0.87;

texting while driving, α = 0.77; exercise, α = 0.80; and stress relief, α = 0.83. The

scores for all six items were summed to compute a single measure for each health

topic. All topics had levels of interest above the scale midpoint. I selected the

three topics with the highest level of baseline interest: exercise (mean = 5.33, SD

= 1.01, range = 2.17-6.83), stress relief (mean = 5.19, SD = 0.96, range = 3.50-

7.00), and healthy eating (mean = 5.03, SD = 1.15, range = 1.00-6.83). All three

had moderately high levels of interest and knowledge, but with a range of scale

responses indicating diversity of interest.

Message Testing. Media messages are "never an example of one thing and

nothing else" (Reeves & Geiger, 1994). Because messages are infinitely variable, it

is vital that studies examining the processing or effects of message manipulations

include more than one example of each. By including multiple messages at each

level of the independent variable, researchers increase the likelihood that any

differences in the dependent variable are then due to the shared, manipulated

independent variable rather than some other, extraneous difference between messages.

Although user-generated content is consumed frequently online, on blogs, in the form of user comments, or on social network sites, few studies examine the credibility of user-generated content online. The messages tested in this group fall within the category of user-generated content. The messages will be identified as having been written by other participants in the study, for both the expert source condition and the nonexpert source condition. The messages tested in the pilot study were no longer than three sentences, to conform to the affordances of the most popular social network sites. Messages were not explicitly persuasive or directive but stated personal beliefs, attitudes, or experiences, a tone that is consistent with norms of use for individual social network sites. The messages were developed with the assistance of two undergraduate research assistants. Initial efforts at constructing messages that could credibly have come from other undergraduates were deemed too didactic. Messages were then edited to be more colloquial, to not cite research but rather personal experience and opinion, and to use first-person. In sum, six messages on each of six health topics were written for pilot testing, for a total of 36 messages. Because analysis of issue interest data yielded three topics to be included in the main experiment only the 18 messages pertaining to those three topics are discussed hereafter.

Consistent message tone is necessary for comparison across topics in the final analysis of data. To keep message valence consistent, I first identified the two messages from each category with the highest mean on a 2-item measure of valence: "When I read this passage I feel Sad … Happy" and "When I read this

passage I feel Negative ... Positive." To test for equivalency of valence across messages, I averaged the valence scores for the three messages on each topic (healthy eating, exercise, and stress relief) and conducted paired-samples *t* tests. Mean valence was moderately positive for messages about three health topics (stress: mean = 4.89, SD = 0.88; healthy eating: mean = 5.01, SD = 1.11; exercise, mean = 5.07, SD = 0.93). There were no significant differences in valence among all three topic pairs (*p* >.20 for all comparisons).

Additional questions asked whether the messages were interesting and relevant. Participants were asked to rate their agreement with the following two statements: "This passage is interesting" and "This passage is relevant to me" (1 = strongly disagree; 7 = strongly agree). Scores on both statements were averaged to create a single measure of message interest. Mean scores for interest were all above the scale midpoint, but not at the top of the scale, which could indicate a ceiling effect for interest (exercise: mean = 4.46, SD = 1.33; diet: mean = 4.41, SD = 1.24; stress: mean = 4.54, SD = 1.16). The three topic pairs were of equivalent interest (*p* >.45 for all comparisons).

The final message testing question asked participants to rate their agreement with the following statement: "This passage reminds me of things I've read on friends' social media pages" (1 = strongly agree; 7 = strongly disagree). Scores were again summed across the two messages from each health category. Mean agreement was slightly greater for healthy eating messages (mean = 4.74, SD = 1.38) than for exercise (mean = 4.24, SD = 1.11) and stress relief messages (mean = 4.36, SD = 0.98). Mean agreement with this statement did not differ when comparing messages on stress relief and exercise (*t*(29) = 0.80, *p* = 0.43).

Mean differences in agreement approached significance when comparing messages on stress relief and exercise with those on diet (stress relief vs. diet: $t(29) = 1.75$, $p = 0.09$; exercise vs. diet: $t(29) = 1.99$, $p = 0.06$). This pattern of results was deemed acceptable, since neither relationship was significant at the $p = 0.05$ level.

In summary, message testing during the pretest yielded two messages from each of the three health topics. The six selected messages are presented in Appendix B.

Data Analysis. Pilot study data were analyzed using SPSS statistical software, version 21. I used exploratory factor analysis with varimax rotation to analyze factor loadings for scales with more than two items and Cronbach's α to measure scale reliability. I used paired-samples t tests to analyze mean differences for experimental stimuli.

Experiment

I conducted a 3 (high expertise cues vs. low expertise cues vs. no expertise source cues) × 2 (socially proximal source cues vs. socially distal source cues) between-subjects experiment testing two different conceptual relationships on the topic of perceived similarity and information processing. First, I tested the main and interaction effects of perceived interpersonal similarity and expert credibility on perceived message relevance, message effectiveness, information credibility, and behavioral intention. Second, as a test of the construal level

theory of psychological distance, I examined the effect of source social proximity, operationalized as high vs. low interpersonal similarity, on characterization of source behavior, present vs. future behavioral intention, and elicitation of desirability vs. feasibility beliefs and pros vs. cons related to message content.

A priori power analysis. Studies are often underpowered to detect hypothesized effects (Cohen, 1992). Power is defined as the likelihood of detecting a significant effect and is a function of sample size, study design, α level, and hypothesized effect size. A priori power analysis is used to determine the sample size necessary to detect the hypothesized effect given the set α level and other parameters. A generally accepted level for power analysis is .80 (Cohen, 1992). In mass communication research, because of the infinite variation of messages and individuals and the existence of multiple mediators and covariates in models of communication processes, effect sizes, or the amount of variance explained by the independent variable in the dependent variable, are often relatively small. In addition, because this research is exploratory, some figures necessary for computing power must be estimated based on theory not on prior research using these same variables. Therefore, I set the estimated effect size (partial η^2 of .05) relatively low, and the power to detect effects higher than the value suggested by Cohen (1992) ($1 - \beta = .90$). Using this parameters in a G*Power a priori power analysis, to have a 90% chance of detecting an effect size of .05 with an α level of .05, the necessary sample size for a between subjects study with two independent variables is 244, or approximately 40 participants per condition.

Participants. Undergraduate and master's level journalism students ages who participated for extra credit or course credit constitute the sample for this study (n = 312). The mean age was 19.21 (SD = 1.96), the mode was 19 years, and the age range was 17 to 35 years. Participants were recruited from six different journalism and strategic communication courses. More than two thirds of participants were women (69.2%). Most participants were freshman (72.5%), 11.8% were sophomores, 7.9% were juniors, 3.6% were seniors, and 4.5% were graduate students. Most participants were white race/ethnicity (81.6%), 8.5% were black/African-American, 4.9% were Asian/Asian-American, 2.3% were Hispanic/Latino, and 2.6% preferred not to give a race/ethnicity or left that question blank. Participants were allowed to select from multiple race/ethnicity categories, and 4.6% of students reported more than one race.

To increase the verisimilitude of the source expertise manipulation, participants were also asked to describe any professional or educational experience in health or medicine. Participants with experience to report briefly described their professional or course work. I coded nearly all open-ended answers as 1 or "some experience." Examples of health or medical experience includes professional or volunteer experiences in health or fitness (e.g., lifeguard with CPR training, hospital volunteer, worked in a nursing home); college coursework in medical fields, such as nursing; or personal experience such as a medical diagnosis of Type I diabetes. I coded as 0 or "no experience" fields left blank as well as open-ended responses that described typical experience (e.g., high school health class, "Google searching," or "learn from my roommate")

rather than specialized experience. A total of 40 participants (13.1%) reported some experience. However, describing medical experience did not significantly influence any of the dependent variables discussed, so this individual difference variable is not included in the analyses.

Data Screening. Data were screened for adherence to assumptions of the statistical tests used and for univariate and multivariate outliers. To test for multivariate outliers, I entered all the mediator and dependent variables into a regression model. The χ^2 table value for 11 degrees of freedom and an α level of .001 was 31.26. Therefore, all cases with Mahalanobi's distance values of greater than 31.26 were deleted (n = 7). Examination of the univariate means that the 5% trimmed means, or means after deleting the top and bottom 5% of cases, indicated that outliers were not exerting undue influence, and no univariate outliers were deleted. After deleting multivariate outliers, data were assessed for normality. Skewness and kurtosis were used as indicators of normality, and values were within ± 2.0 range for all variables. Fewer than 3% of cases were missing for each variable, so listwise deletion was the method used for addressing missing observations. The total number of cases after data screening was 305, with data missing for some variables. The sample size per condition after data screening was as follows: socially proximal/high expertise cues condition n = 52; socially proximal/low expertise cues condition n = 47; socially proximal/no expertise cues condition n = 53; socially distal/high expertise cues condition n = 50; socially distal/low expertise cues condition n = 53; socially distal/no expertise cues condition n = 50.

Independent Variables

Tao and Bucy (2007) distinguish between manipulated independent variables that are attributes of a message or source and measured independent variables assessed as psychological states or perceptions of participants. This study included two independent variables manipulated as source attributes: source expertise cues and source social proximity cues. Two additional independent variables are psychological states, or participant perceptions of sources: perceived interpersonal similarity and perceived expert credibility.

Source Attributes: Source Expertise Cues. The two manipulated independent variables used in the study are source expertise cues (high expertise vs. low expertise vs. no cues) and source social proximity cues (socially proximal vs. socially distal cues). Participants were randomly assigned to one of three source expertise conditions and one of two source social proximity conditions. The six conditions determined by the full-factorial design were as follows: high expertise/socially proximal, high expertise/socially distal, low expertise/socially proximal, low expertise/socially distal, no expertise/socially proximal, and no expertise/socially distal. Order of presentation of source expertise and source social proximity cues was counterbalanced to control for order effects. Half of participants who saw expertise cues saw those first and half saw social proximity cues first.

The term expertise is complicated by the assumption that a particular type of knowledge classifies someone as an expert. In the health domain, an expert is generally defined as a physician, nurse, or other professional with extensive

education in or professional experience with medicine and health care (e.g., Hu & Sundar, 2010). For the purposes of this study, an expert will be defined as someone with self-reported professional or medical experience in the health or medical field.

Perceived expertise has frequently been identified as a cue that confers credibility, a linkage sometimes called the expertise heuristic (Sundar, 2008). In studies assessing how people judge source credibility, expertise has been operationalized as a title (Eastin, 2001) or degree (Hu & Sundar, 2010). However, in Hu and Sundar's (2010) study of the credibility of health information from original and selecting sources, participants did not consider information from a source identified as an MD to be more credible than information from a source with the same name but no medical degree. The authors suggest this may have been due to the magnitude of the manipulation. The manipulation of an independent variable should be as strong as is feasible to increase the likelihood of finding a significant effect; in other words, the manipulation cannot have a significant effect on an outcome variable if participants do not notice it.

In addition to concerns about magnitude of the manipulation, I considered issues related to believability of the manipulation. In this study, I examined the interaction between source expertise and social proximity. Therefore, the operationalization of source expertise needed to also be believable as someone socially proximal for emerging adults ages 18 to 25. The sources were also classified as study participants, so the classification should ideally emerge from questions previously asked. With these concerns in mind, I operationalized high vs. low source expertise with a text block classifying the source as an expert or

nonexpert in health and medicine. The text for high expertise was as follows (Figure 1):

We examined participants' answers on the first survey to determine their level of expertise on health and medical topics. Participants were classified as having high levels of expertise if they were doctors or nurses, were studying medicine, or had other professional experience in health and medicine.

This participant has VERY HIGH medical knowledge or experience and is A MEDICAL EXPERT.

Figure 1. High expertise source cues text.

This text alluded to an earlier variable, which asked all participants to list any professional or educational expertise in health or medical fields. The text for low expertise replaced the words "very high" with "low" and the words "a medical expert" with "not a medical expert."

To increase the magnitude of the manipulation, I also added a second element to classify the source as having high or low expertise. After the text identifying the subjects as having high or low medical expertise, participants saw

a graphic of an arrow with the heading "Source Level of Medical Expertise." To represent high expertise, the arrow was filled in to near the top and labeled with "very high." To represent low expertise, the arrow was not filled in at all and was labeled "low." The text and visual elements for the high expertise manipulation are presented in Figure 2. Text and visual elements for the low expertise manipulation are presented in Figure 3. Participants in the no expertise condition answered the question about whether they had any specialized knowledge or professional experience in health or medicine, but they saw no information related to source expertise. A no expertise control category was included to assess the main effects of source social proximity cues without any interaction effects with expertise cues.

Figure 2. High expertise source cues image.
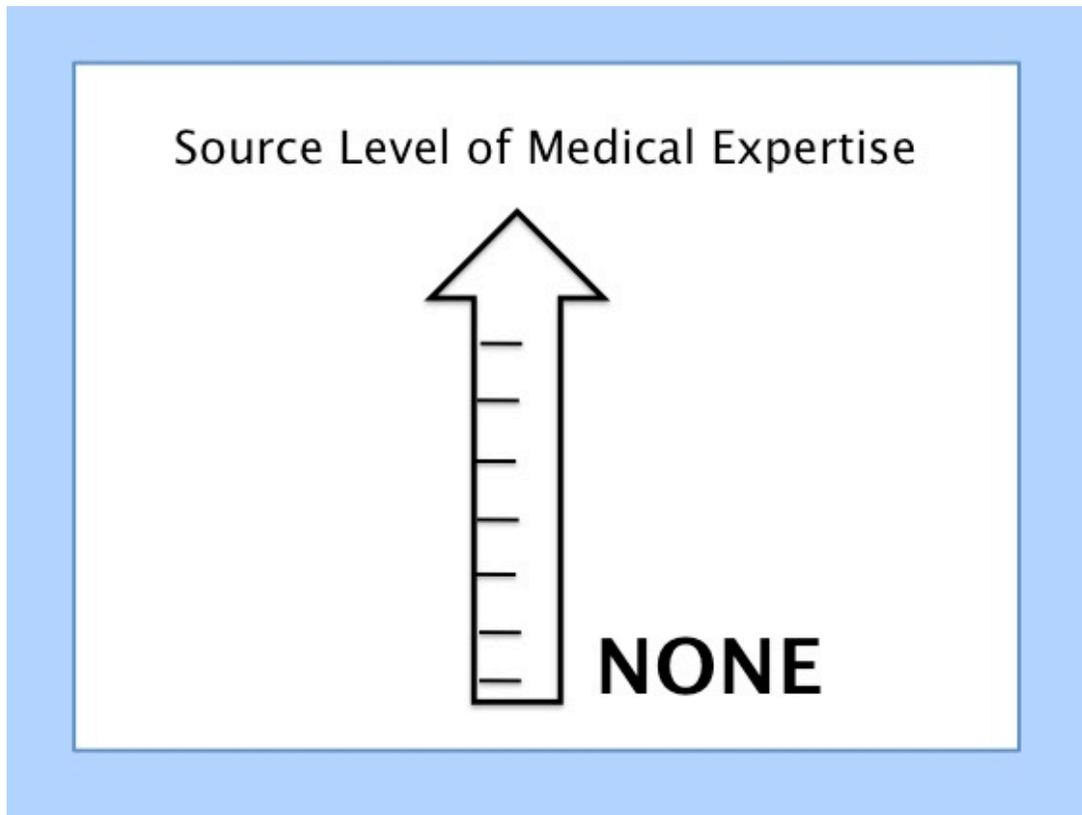
Figure 3. Low expertise source cues image.

The two levels for the independent variable of source social proximity cues are socially proximal vs. socially distal. The literature from different disciplines presents varied conceptualizations and operationalizations of source social proximity. Often, proximity is not manipulated but is inferred by the measurement of perceived similarity, an approach that is theoretically valid but may not result in an optimal range of perceived similarity values (Hu & Sundar, 2008; Wang et al., 2012). As stated in the literature review, the purpose of manipulating social proximity is to achieve a range of values for perceived interpersonal similarity. Proximity is thus operationalized as overlap in attributes

relative to each individual. This operationalization is differs from the operationalizations of proximity as a static cue, such as attendance at the same university as participants vs. a different university. These operationalizations of proximity customize the cues by imputing responses previously provided by participations, similar to Kalyanaraman and Sundar's operationalization of customization of news aggregator web sites (2006).

Studies operationalizing proximity through customization of cues have used a pretest to survey participants about relevant information and then included that information in the manipulation presented in the main experiment. Because of the large sample size required for this experiment and the difficulty of customizing more than 300 online surveys, I used a similar procedure of asking participants about relevant cues but then described cue overlap without identifying particular categories or answers. Specifically, participants were asked to answer several demographic and attitudinal questions in categories identified during pilot testing as relevant to assessing social proximity and similarity as well as additional demographic questions. Questions were open-ended, unless otherwise indicated:

1. What school do you attend?
2. What is your major?
3. What year are you in school? [multiple choice]
4. What is your hometown?
5. How old were you on your last birthday?
6. What is your gender? [multiple choice]
7. What is your race and/or ethnicity? [multiple choice]
8. What is your favorite band?
9. What is your favorite movie or TV show?
10. What is your favorite place to eat in town?
11. What is your favorite sports team?

After answering these 11 questions, participants were randomly assigned to receive either socially proximal or socially distal source cues. To increase the magnitude of the manipulation, as with expertise cues participants saw both a text block and an image depicting the manipulation. In the socially proximal condition, the text, seen first, was as follows (Figure 4):

The program compared your answers to the previous questions (hometown, age, etc.) with the answers of another participant.

We have determined that you and this person have _A LOT_ of answers in common. This means you are _VERY SIMILAR_ in areas such as age, hometown, or school attended.
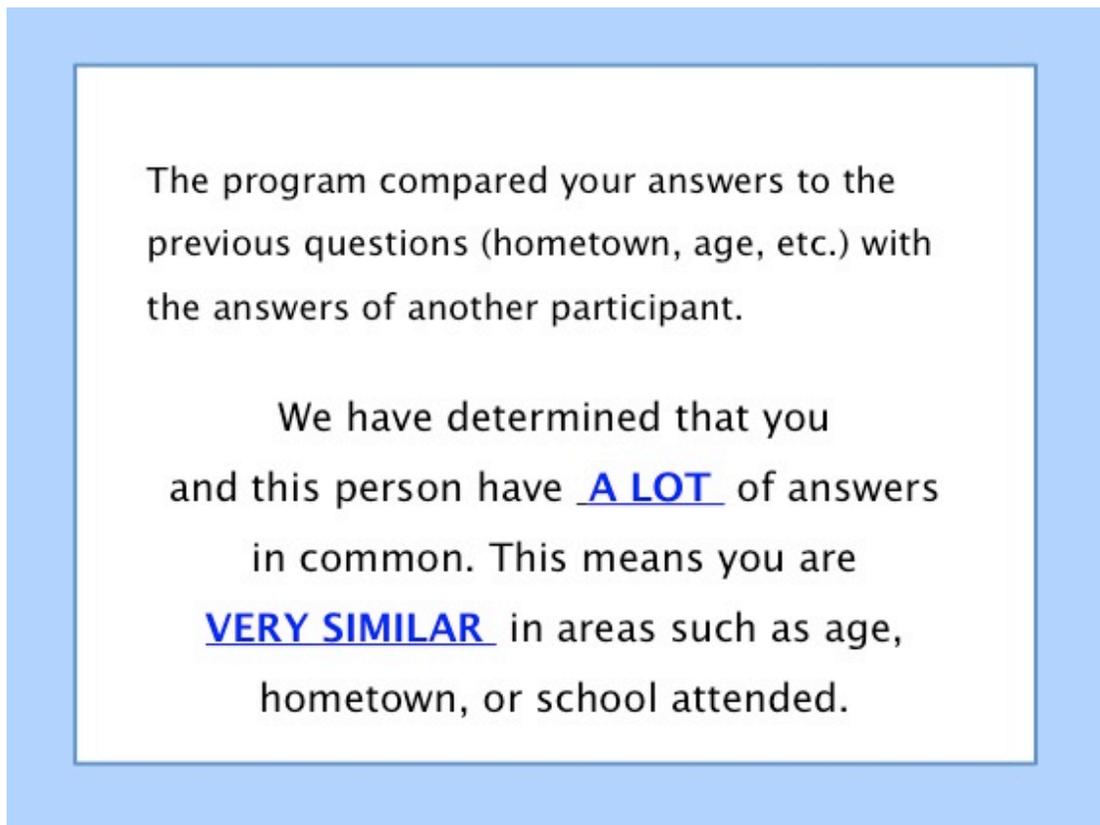
Figure 4. Social proximity cues text.

The text for the socially distal condition replaced "a lot" with "no" and "very similar" with "not similar." To increase the magnitude of the manipulation, participants also saw images depicting social proximity or social distance. Participants in both conditions saw two circles, one labeled "your answers" and

one labeled "other participant's answers" and a text label: "The circles below

represent the degree of overlap between your answers and the other participant's

answers." Participants in the socially proximal condition saw overlapping circles

with text underneath saying "a lot of overlap." Participants in the socially distal

condition saw two circles that did not overlap at all and text underneath saying

"no overlap." Overlapping circles as an operationalization of social proximity is

adapted from the organization identification scale developed by Bergami and

Bagozzi (2000). In this scale, participants wee a range of circle pairs, from not at

all overlapping to a high degree of overlap. The image for the socially proximal

source cues manipulation is presented in Figure 5 and for the socially distal

sources cues manipulation in Figure 6.
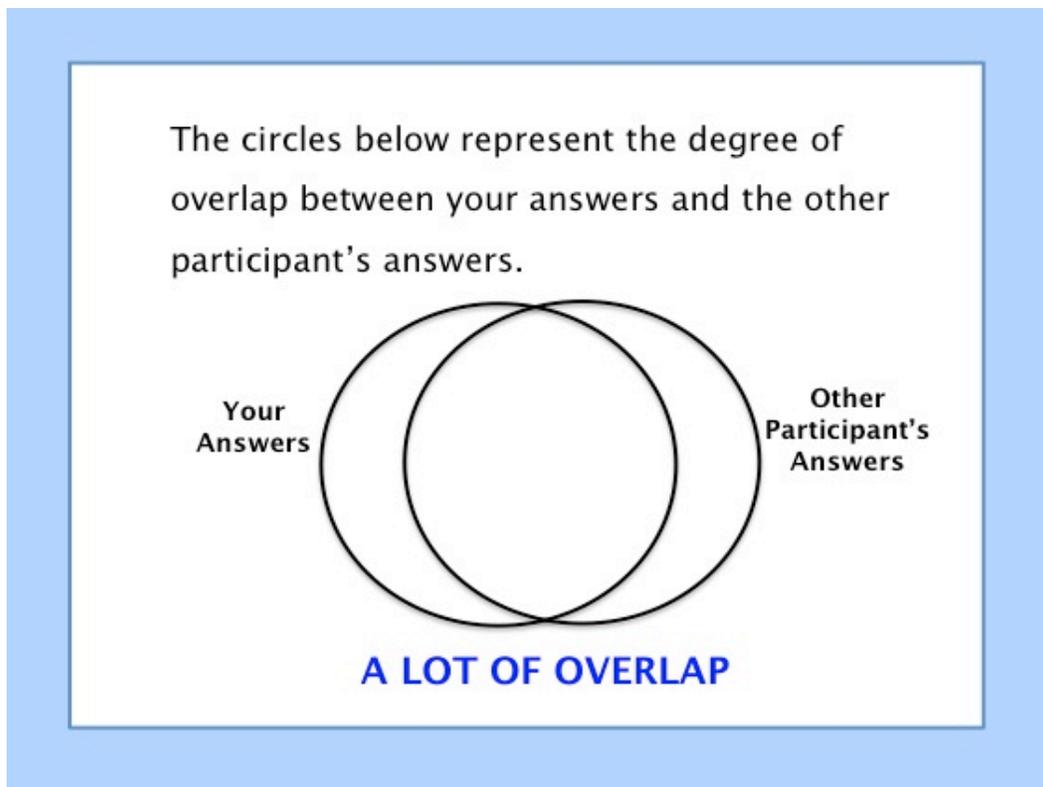
Figure 5. Social proximity cues image.

The circles below represent the degree of overlap between your answers and the other participant's answers.

Your Answers

Other Participant's Answers

NO OVERLAP
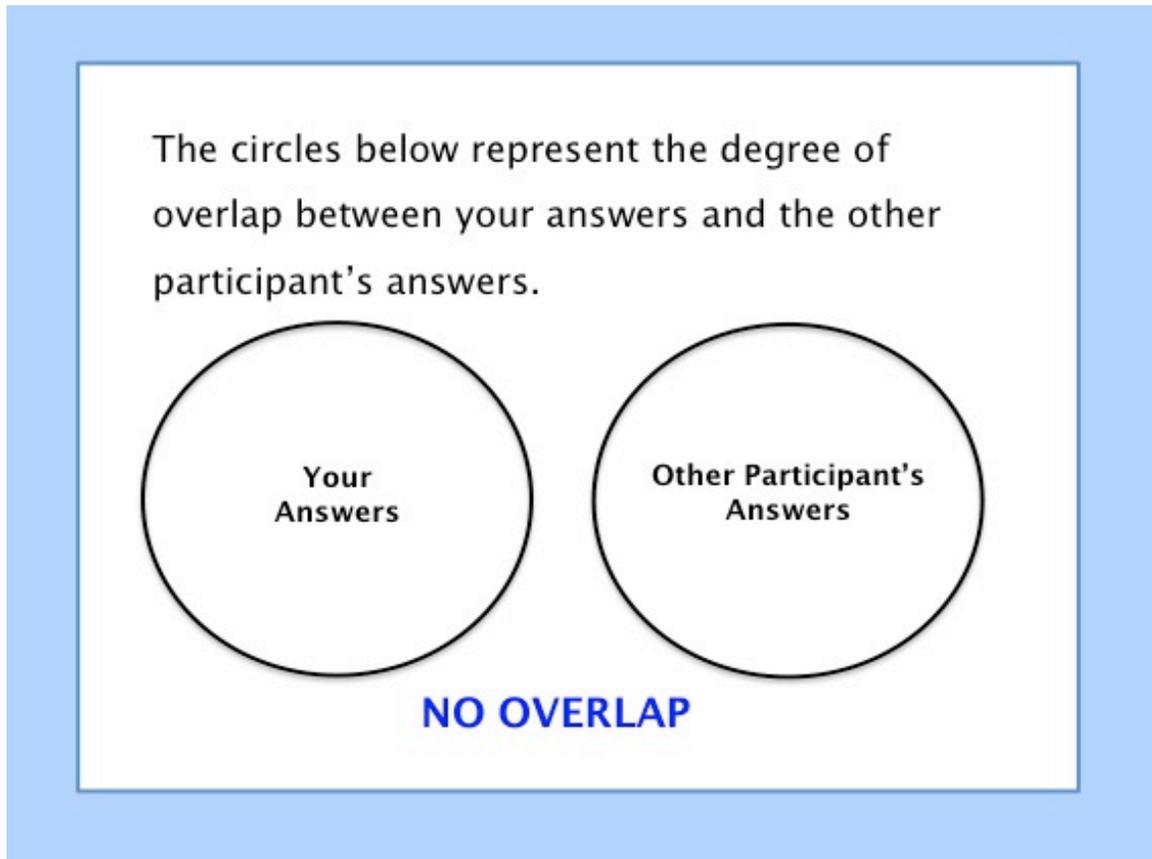
Figure 6. Socially distal cues image.

Manipulation Check. A manipulation check is a question that assesses whether the independent variable was successfully manipulated. Perceptual independent variables require a manipulation check to assure that variables were perceived as intended (O'Keefe, 2003).

The first question of the expert credibility scale served as a check of the source expertise manipulation. Participants indicated the level to which they

perceived the source was an expert on a 7-point semantic differential scale, from Not at all an Expert to Expert. The source expertise manipulation was successful. Participants in the high expertise conditions gave sources higher mean expertise scores (mean = 5.66, SD = 1.35) than did participants in the low expertise conditions (mean = 2.32, SD = 1.54) ($t(206) = 16.61$, $p < .001$) and in the no expertise condition (no expert source cues given) (mean = 3.98, SD = 0.89) ($t(197) = 10.56$, $p < .001$).

The original scale from Bergami and Bagozzi (2000) served as a manipulation check for the social proximity manipulation. Participants indicated which pair of circles best represented the overlap between their own identity and that of the other participant. The source proximity manipulation was also successful. Participants in the social proximity condition rated their identities as overlapping significantly more than did those in the distal source cues condition ($t(303) = 25.92$, $p < .001$; mean = 5.22, SD = 1.42 for proximal source cues; mean = 1.62, SD = 1.00 for distal source cues).

Psychological States: Perceived Interpersonal Similarity. In this study, interpersonal similarity and expert credibility serve as both independent and dependent variables. Existing measures of perceived similarity, often called homophily, vary widely. Some published studies of source credibility use two-item scales (Hu & Sundar, 2010), but the most comprehensive and rigorously tested measure of the perceived similarity concept was developed by McCroskey et al. (1974). Their homophily scale has two factors: attitudinal and background similarity. Recently, validity and reliability testing of the background subscale demonstrated low internal reliability (McCroskey et al., 2006), but reliabilities

for the attitudinal scale have ranged from acceptable to high in published studies

(Cronbach's α = 0.75-0.93). I used an adaptation of the McCroskey et al.

attitudinal homophily scale (2006) to assess interpersonal similarity.

Adaptations served to increase the emphasis on socially relevant values,

attitudes, and interactions. During pilot testing, participants (n = 29) completed

the scale after viewing sample Facebook profiles. A 15-item version of the scale

had high reliability (Cronbach's α = 0.93). All items loaded on a single factor,

accounting for 77% of the variance (eigenvalue = 11.54). For parsimony, I deleted

the four items with the lowest factor loadings ("I would like to talk to this

person," "I would expect to have friends in common with this person on social

media," "I would trust this person's opinion," and "This person reminds me of

myself"). The remaining 11 items were administered to participants after they

viewed the source manipulations. Participants ranked their agreement with these

statements on a 7-point scale, from Strongly Disagree to Strongly Agree:

1. This person shares my values.
2. This person understands what it is like to be me.
3. This person does not share my tastes (reverse coded).
4. This person seems like someone I already know.
5. This person and I think the same things are important.
6. This person does not understand how my friends and I behave (reverse coded).
7. This person talks like I do.
8. This person and I like to do the same things in our free time.
9. This person knows what the rules are in my world.
10. This person sounds genuine.
11. This person and I do not share goals (reverse coded).

The factor analysis of the scale in the experiment was different from

pretest results. Items 6 and 11 did not load at a value above the preset limit of

.500 and were deleted from the scale. The remaining 9-item, single factor

solution had an eigenvalue of 4.05 and accounted for 45.0% of the variance. The 9-item version of the scale had a reliability score within the acceptable range (Cronbach's α = 0.82). The mean source interpersonal similarity value reported among all participants was right at the scale midpoint (mean = 3.53, SD = 0.83). The minimum value reported was 1.0, and the maximum was 5.8.

Psychological States: Perceived Expert Credibility. After viewing the manipulations for source expertise and social proximity, participants were asked to "Please rate this person on the following scales." The scale consisted of three semantic differential items, from 1 to 7: Not at all an expert … Expert, Untrustworthy … Trustworthy, Not at all believable … Believable. Credibility has been measured using the concepts of expertise and trustworthiness for decades (e.g., Hovland & Weiss, 1951). Believability was added as a synonym for credibility. The reliability for the scale was within the acceptable range (Cronbach's α = 0.81). The mean score was 4.29 (SD = 1.34), and the range was 1.0 to 7.0.

Health Messages. Two messages on each of three health topics were selected during pilot testing. Before viewing messages, participants read the following text:

> As stated previously, as part of the study, we asked some participants to write messages about health topics. You were assigned to one participant randomly and told how similar your answers were to a range of questions, such as hometown and age. Next you will read three different messages written by this participant. Please take your time and read each message carefully.

Participants were randomly assigned to one of the two selected messages for all health topics: exercise, healthy eating, and stress relief. Order of presentation for

health topics was also randomized using the Qualtrics Survey Flow function. In sum, participants saw a total of three of six health messages, all on a different topic. Messages are presented in Appendix B. To increase the font size for legibility, message stimuli were created in PowerPoint and saved as image files (example: Figure 7).

I have no chips or candy in the house,

so I am eating an apple by default.

Strategy! If I don't buy junk food,

I eat way less of it.
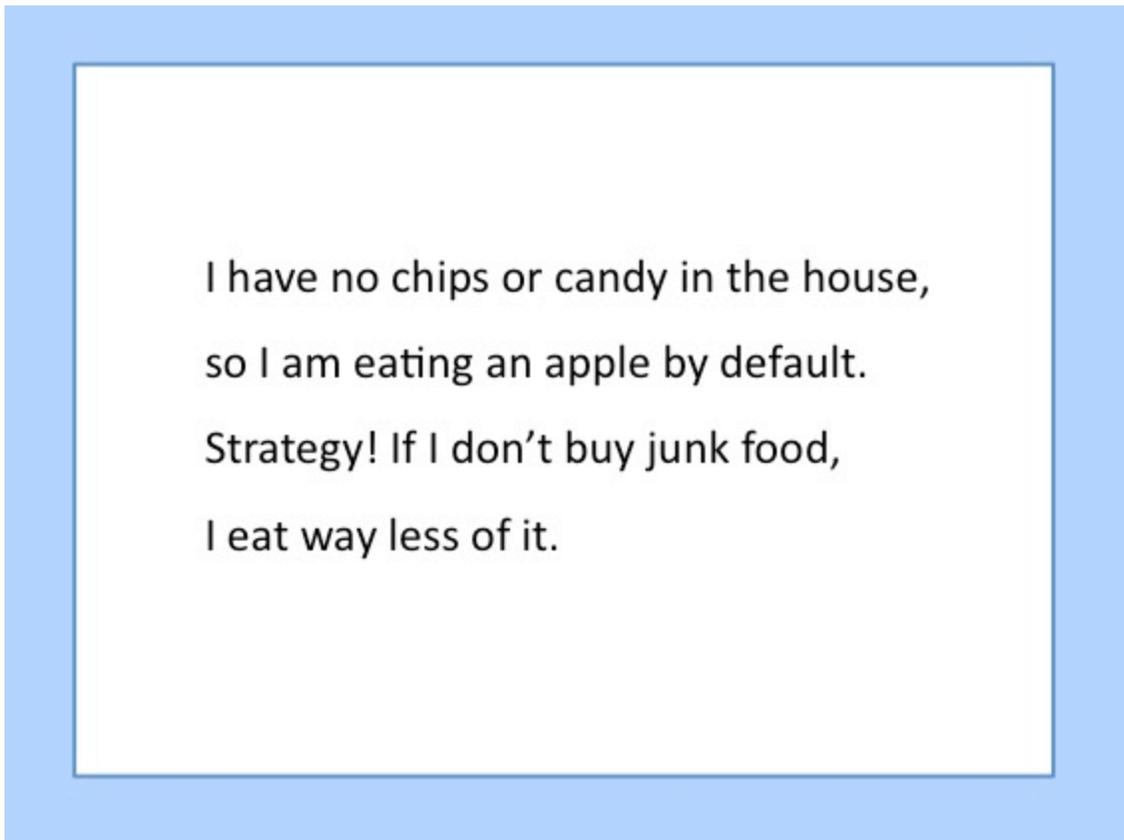
Figure 7. Example health message.

Dependent Variables: Message Attributes. Information credibility, an attribute of the message, is differentiated from source credibility, an attribute of the source. After viewing each health message, participants were asked to "Rate the message you just read on the following scales," from 1 to 7: Unbelievable …

Believable, Accurate … Inaccurate, Untrustworthy … Trustworthy. The reliability values (Cronbach's α) for each health topic were as follows: exercise = 0.85, stress reduction = 0.85, and healthy eating = 0.89. When responses for all three health topics were pooled, the reliability for the scale remained within the acceptable range (Cronbach's α = 0.85). The overall mean information credibility score was 5.31 (SD = 1.00, range = 2.44-7.00).

The next variable was message relevance. Participants rated the messages they'd just read on the following three semantic differential scales: Involving … Not at all involving, Relevant … Not at all relevant, and Not at all applicable … applicable (reverse coded). The reliability values (Cronbach's α) for the information credibility scale for each health topic were as follows: exercise = 0.84, stress reduction = 0.86, and healthy eating = 0.89. When responses for all three health topics were pooled, the reliability for the scale remained within the acceptable range (Cronbach's α = 0.83). The overall mean information credibility score was 5.26 (SD = 0.97, range = 1.78-7.00).

Dependent Variables: Construal Level Theory. The next set of dependent variables relates to construal level theory. Construal level theory suggests that differences in psychological distance affect how objects or actions are construed (Liberman, 2008). An action at close psychological distance is construed concretely, in terms of "how" it is performed, while an action at far psychological distance is construed abstractly, in terms of "why" it is performed. To assess whether psychological distance influenced construal of source health-related actions, I asked participants to describe how and why these actions were performed. Participants read the following instructions: "You've just read health

messages written by another participant. In their survey responses, this participant reported that he or she recently met goals set for exercise, healthy eating, and stress reduction. We would like you to provide your thoughts about WHY or HOW this participant met health goals. There are no right or wrong answers. We're only interested in your opinion." Participants were then given five spaces to record thoughts and were told they did not have to use all spaces.

Three research assistants (two undergraduate journalism students and one MPH graduate) blinded to condition read and coded each thought as "why," "how," or "other." Why referred to the function of behavior (e.g., "to get healthy") and how to the mechanisms or procedure (e.g.,, "ate more fruits and vegetables"). Detailed descriptions of each category and the codebook used to train coders are provided in Appendix C. All three coders participated in a training session during which results from five participants were coded as a group. Coders than completed a random sample of 32 responses on their own. The intercoder reliability for this variable was calculated using Krippendorff's α for ratio-level variables and three coders, which is available through the free online ReCal intercoder reliability program (http://dfreelon.org/utils/recalfront/). The α level was 0.61, which is low but near the .667 level suggested by Krippendorff (2004) as acceptable for drawing tentative conclusions. In a follow-up training session disagreements were discussed and resolved. The random sample of responses was folded back in to the data set and re-coded. Each coder was randomly assigned a third of the responses.

I also assessed decision making at different temporal and psychological distances by asking people to report how many health messages they would be

willing to write at that moment (present self) and next semester (future self) as well as how many messages the participant referred to in the independent variable manipulation should write (other person). Responses were entirely open-ended. To maximize potential variance, no parameters were given for determining the number of messages. The prompt for present self was as follows: "The brief health messages used in this study were written by other study participants. We would like to ask you to also write health messages for the study. The topic and content of the messages is up to you. You will write the messages when you have answered the rest of the questions in the study." The prompt for future self substituted references to health messages being written "next semester" and the prompt for other person substituted references to the other study participant but did not mention time. The mean number of self-written messages in the present was 1.67 (SD = 1.02, range = 0.5), in the future was 1.17 (mean = 1.15, range = 0-5), and for the other participant was 1.77 (SD = 1.46, range = 0-10). Two responses for other participants were two standard deviations from the mean and were deleted from the analysis (i.e., 100 and 25).

Participants responded to open-ended belief elicitation questions for related to each health behavior. The text introducing this task was adapted from Luchyn and Yzer (2011) and Cacioppo, von Hippel, and Ernst (1997): "We are now interested in all the thoughts that come to your mind about [exercise, healthy eating, or stress reduction]. Please list these thoughts, whether they are positive, neutral, and/or negative. Any case is fine. Ignore spelling, grammar, and punctuation. We have deliberately provided more spaces than we think people will need, to ensure that everyone will have plenty of room. Please be completely

honest. Your answers will be anonymous."

The same three research assistants blinded to condition read and coded each thought according to feasibility, desirability, and other categories, using the coding protocol of Luchyn and Yzer (2011). Feasibility beliefs referred to barriers (e.g., "too busy to exercise") and facilitators (e.g., "of the behavior being discussed. Desirability beliefs referred to outcomes of a behavior (e.g., "Exercise strengthens muscles"), a referent important to the behavior (e.g., "the gym" or "a workout partner"), and a reason for performing the behavior or not (e.g., "If I exercise, I'll have more energy"). All beliefs were also coded as positive, negative, ambivalent, or neutral.

To distinguish among beliefs, I used the criteria described by Luchyn and Yzer (2011). Beliefs that referred to a single referent individual or group, outcome, or facilitating or impeding factor were considered distinct. Abstract and concrete thoughts with the same referent were considered to be distinct beliefs, because abstract and concrete thoughts represent construals at different levels. The coding protocol is provided in Appendix C.

As with the action characterization variable, all three coders participated in a training session during which results from five participants were coded as a group. Coders than completed a random sample of 32 responses on their own. The intercoder reliability for this variable was calculated using Krippendorff's α for ratio-level variables and three coders, which is available through the free online ReCal intercoder reliability program (http://dfreelon.org/utils/recalfront/). The α levels were within the acceptable range (alpha = 0.78 for pro/con/neutral and α = 0.77 for

desirability/feasibility/other) for exploratory analyses (Krippendorff, 2004). Disagreements were discussed and resolved during a second training session. Then participants were randomly assigned to code one third of the data.

I measured behavioral intention relative to all three topic areas using a scale adapted from Rise, Kovac, Kraft, and Moan (2008). Construal level theory suggests that psychological distance influences the level at which people construe events or decisions and that one form of psychological distance, such as social distance, can influence another, such as temporal distance. Therefore, I separately measured current and future behavioral intentions to test for how differences in psychological distance influenced behavior at different levels of temporal distance. Current intentions were elicited with the prompt, "Please answer the following questions about your intentions to engage in health behaviors THIS WEEK." Future intentions replaced THIS WEEK with IN FIVE YEARS. For both current and future intentions, participants rated their agreement with the statements: "I will try to [increase the amount I exercise, eat healthier foods, or reduce stress]" and "I plan to [increase the amount I exercise, eat healthier foods, or reduce stress]" (1 = Strongly Disagree, 7 = Strongly Agree).

Item responses from the three health topics were combined into two scales, one for present and one for future intentions. The reliability value for present intentions was 0.89 and for future intentions was 0.92 (both Cronbach's α). The mean score for present health behavior intention was 5.44 (SD = 1.03, range = 2.0-7.0) and for future intentions was 5.81 (2.0-7.0). The intention to engage in health promoting behavior in the future was significantly greater than for the present (t(293) = 7.28, p <.001).

Covariate. I measured issue involvement using the scale developed by Quick and Stephenson (2007). Issue involvement was assessed for the three target issues and for two additional issues used as distracters, soda consumption and sun protection. For each issue, participants indicated their level of agreement with eight items, including "I think about [health issue] a great deal," "When [health issue] comes up in conversation, I tune in," "[Health issue] is a personally relevant topic to me," and "[Health issue] is never at the top of my mind [reversed]." The reliability for all involvement measures (addressing all three health topics) was high (Cronbach's α = .92), so involvement items related to each of three health topics were combined to make a single scale of health issue involvement (mean = 5.26, SD = 0.83, range = 2.13-6.96). Involvement was included as a covariate in all analyses.

Study Procedure. Participants were emailed a link to the online experiment through the Qualtrics survey web site. Panels of participants were created using email addresses and first and last names. Participants who did not complete the survey were automatically emailed up to three reminders. Each email included an option to opt-out of future mailings. Participants completed the survey on any computer and at any time convenient to them.

After clicking on the link, participants read the informed consent script approved by the University of Missouri Institutional Review Board. Next, they read the following introduction, the purpose of which was to introduce the idea that they'd be reading messages from another participant:

- There are different versions of this study.
- Other participants in this study have written messages about various health topics.
- You will view some information about one of the past participants in the study.
- Then, you will read messages written by this participant on health topics.
- You'll be asked to answer questions about the profile and the messages you read.
- Please read carefully and answer honestly. Your thoughts and opinions are extremely important to us.

Participants then answered questions assessing their baseline involvement with three target health issues and two foils: soda consumption and sun protection. The order for issue involvement scales on all five topics was randomized to control for order effects.

Next, participants answered the demographic and attitudinal questions that were used to suggest source proximity. After answering these 15 questions, they saw the following message: "The survey program has randomly matched you with another study participant. You will now view some information about that participant." Participants were then assigned to one of the six conditions: (1) high source expertise, socially proximal; (2) high source expertise, socially distal; (3) low source expertise, socially proximal; (4) low source expertise, socially distal; (5) no source expertise, socially proximal; and (6) no source expertise, socially distal. Participants in the first four groups saw four total screens, one text and one image screen for each level of the independent variable, and participants in the no source expertise cues condition saw only the screens manipulating social proximity or distance. Participants assigned to that level did not see any information related to source expertise. Order of presentation of expertise and

social proximity cues was randomized to control for order effects. After viewing the source cues, participants completed questions assessing the source: the manipulation check for social proximity, the expert credibility scale, and the social similarity scale, in that order.

Participants were then reminded that they would read health messages written by the other participant to whom they were randomly assigned. Participants then saw one message from the two selected for each health topic: stress, exercise, and healthy eating. The order in which topics were presented was randomized. After viewing each messages, participants answered questions related to message credibility and message relevance.

Participants were then asked to describe why or how the other participant had met their health goals for the previous week. They were given five spaces in which to enter open-ended text and told they did not have to use all spaces. Next, participants were asked to indicate how many health messages they would write now, how many they would write next semester, and how many more the other participant should write.

Participants then completed the belief elicitation task for each of the three health topics. After answering questions related to a distracter print ad, participants then rated their current behavioral intentions related to each of the three health topics. After an additional distracter print ad, participants rated their future behavioral intentions for the three health topics. After responding to all study measures, participants were told they would not be asked to write any health messages. They provided identifying information to ensure they received extra credit. Participants were then thanked warmly for their participation and

told they would receive a debriefing email once data collection was complete and data were analyzed.

       Data Analysis. Direct effects were analyzed using ANOVA and multiple linear regression in SPSS, version 19. Indirect and conditional direct effects were tested using the PROCESS macro designed by Hayes (2013) (http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html). Mediation analysis was conducted using the bootstrapping procedure developed by Hayes and Preacher (2011). Bootstrapping resamples the original sample, with replacement, to produce a specified number (in this case, 5000) of estimates of the indirect effect. As opposed to the causal steps approach, bootstrapping also allows for estimation of indirect effects even in the absence of observed direct effects.

RESULTS

Effect of Source Cues on Source Assessments

The first aim of this study was to test whether perceived interpersonally similarity could be successfully manipulated via provision of cues to source social proximity. H1 predicted that socially proximal sources would be considered more interpersonally similar than were socially distal sources. H1 was supported. The mean value for perceived interpersonal similarity was higher among participants who saw cues stating the source was socially proximal (mean = 3.85, SD = 0.69, n = 150) than among participants who saw cues indicating the source was socially distal (mean = 3.21, SD = 0.84, n = 145) ($F(1,294) = 51.97$, p <.001, partial η^2 = 0.15).

The following research questions are designed to more clearly delineate the relationship between interpersonal similarity and source medical expertise. RQ1 asked whether level of expert source cues (high, low, or none) influenced perceived interpersonal similarity. Expertise cues alone did not influence perception of interpersonal similarity to a source. There was no difference in perceived similarity among participants who saw cues indicating high levels of expertise vs. those who saw cues indicating low expertise or those who saw no source expertise cues ($F(2,294) = 0.07$, $p = 0.93$). In addition, there was no interaction between source expertise and source social proximity cues on perceived interpersonal similarity ($F(2,294 = 0.59$, $p = .23$) (RQ2). Viewing high vs. low vs. no expert source cues did not alter participant perceptions that a

source was interpersonally similar, either directly or via interactions with cues to source social proximity.

H2 stated that sources identified as experts would be considered more credible than both sources identified as nonexperts and sources with no cues indicating expertise. H2 was supported. All three levels of expertise cues (high vs. low vs. no) were significantly different than each other (F(2,294) = 73.18, p <.001, partial η^2 = .33). Participants who saw cues indicating a source was an expert considered the source most credible (mean = 5.34, SD = 1.07) followed by those who saw no cues indicating expertise (mean = 4.15, SD = 0.99) and those who saw cues indicating a lack of or low expertise (mean = 3.47, SD = 1.20). Post hoc analysis indicated that all three pairs had significantly different ratings of mean source credibility at the p <.001 level. Of particular interest, participants who saw no cues indicating expertise ranked sources as having a greater amount of expert credibility than participants who saw cues stating a source was not considered a medical expert but less than participants who saw cues stating a source was a medical expert.

The next hypothesis and research question assess the contribution of source social proximity cues to evaluations of source credibility. H3 predicted that source social proximity cues would increase perception of source credibility, compared with socially distal source cues. H3 was supported. Overall, participants who saw cues indicating a source was socially proximal rated that source as having higher expert credibility than did participants who saw cues indicating sources were socially distal (mean = 4.48, SD = 1.26 for socially proximal sources and mean = 4.14, SD = 1.38 for socially distal sources) (F(1,294)

= 4.51, p = .03, partial η^2 = .02). In addition, there was a significant interaction between source social proximity and source expertise cues on the perception of expert source credibility (RQ3) (F(2,294 = 4.82, p = .009, partial η^2 = .03). If participants saw no cues to source expertise, socially proximal sources were perceived as more credible than socially distal sources (mean = 4.41, SD = 1.01 for socially proximal sources and mean = 3.84, SD = 0.87 for socially distal sources) (t(98) = 3.33, p = .001). The opposite pattern was true for high expertise sources, and the difference approached significance. Socially proximal, high expertise sources (mean = 5.46, SD = 1.41) were rated as less credible than socially distal, high expertise sources (mean = 5.96, SD = 1.27, t(97) = 1.84, p = .07). For the low expertise groups, there was no interaction between source proximity and expertise cues on expert credibility (t(96) = .57, p = .57). (Figure 8).
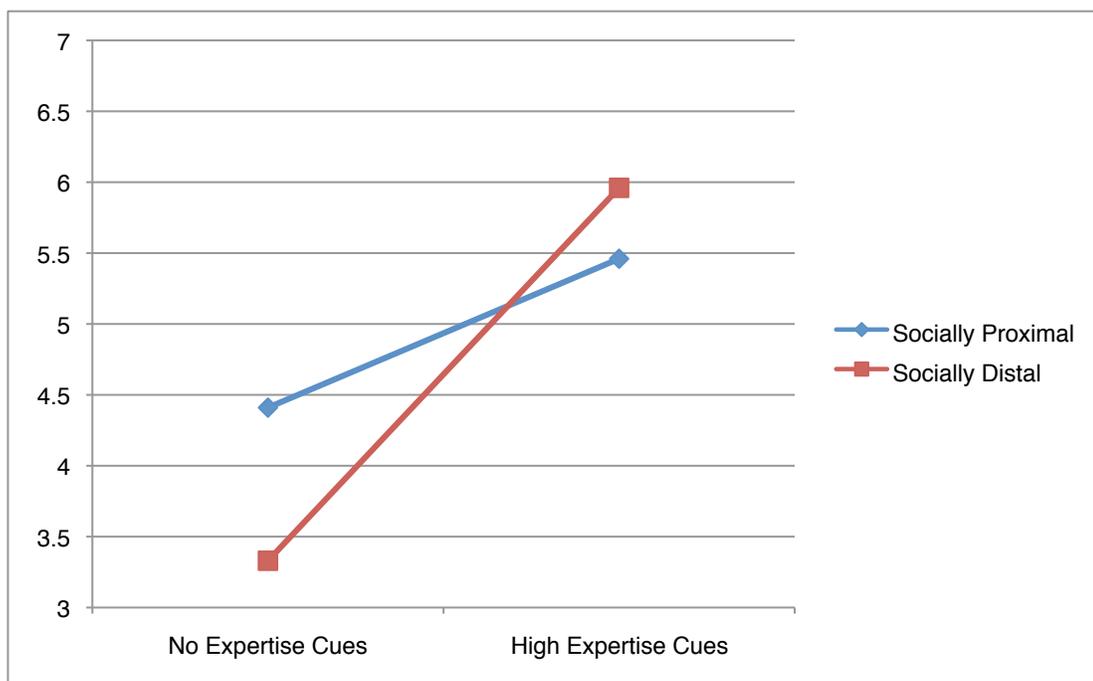

Figure 8. Interaction between source expertise cues and social proximity cues on perceived source credibility (1 = not at all credible; 7 = highly credible).

The next two research questions assess the nature of the relationship between source cues and perceived attributes of sources at different levels of perceived credibility or interpersonal similarity. The PROCESS macro in SPSS (Hayes, 2013) was used to determine whether level of perceived credibility moderated the effect of social proximity source cues on perceived interpersonal similarity (RQ4a). The first moderation model showed that the effect of source proximity cues did not differ at three levels of expert credibility, selected as the mean and plus and minus one standard deviation from the mean (total model R^2 = .18, F(3,295) = 22.13, p <.001). The effect of source social proximity cues on interpersonal similarity was significant (B = .32, SE = .15, t = 2.14, p = .03) but the effect of proximity cues on perceived expertise was not (B = .09, SE = .07, t = 1.19, p = .23). There was no change in the predictive value of the model due to the source proximity cues × source credibility interaction (R^2 change = .000, F(1, 295) = .002, p = .97).

The second moderation model (RQ4b) further explores the source expertise × source proximity cues interaction described in RQ4a. The effect of source expertise cues on source credibility varied by level of perceived interpersonal similarity (R^2 = .18, F(3,295) = 21.55, p <.001). The effect of expert source cues condition on source credibility was significant (B = 1.62, SE = .40, t = 4.05, p <.001) but the effect on interpersonal similarity was not (B = .33, SE = .25, t = 1.33, p = .19). The predictive values of the model increased significantly due to the source expertise cues × interpersonal similarity interaction (R^2 change = .02, F(1,295) = 7.10, p = .008). Figure 9 presents the predicted values of expert

credibility (range, 1-7) based on high, mean, and low values of perceived similarity (values are centered, and high represents mean +1 SD, low mean –1SD) for each expertise cues condition. The conditional effect of interpersonal similarity on expert credibility was significant at all three levels for both high and low expert source cues conditions (p <.001 for all comparisons). For the no expert source cues condition, the conditional effect of interpersonal similarity on expert credibility was only significant at the lowest level for similarity (mean – 1 SD) (β = −0.15, SE = .08, t = −2.10, p = .04).
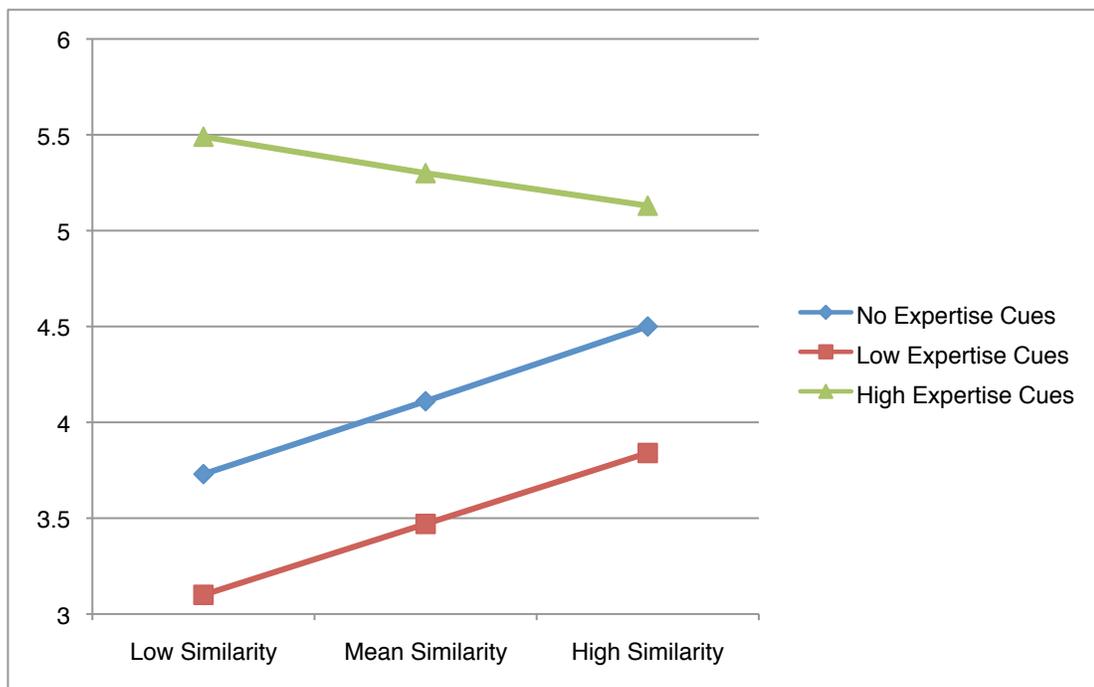
Figure 9. Moderating effects on expertise source cues at high (mean + 1 SD), mean, and low levels (mean − 1 SD) of interpersonal similarity with regard to assessment of source credibility (1 = not at all credible; 7 = highly credible).

The Effect of Source Cues on Message Assessments

The next set of research questions (RQs 5 and 6) investigates the main and interaction effects of source cues conditions on message credibility and message

relevance. I performed a series of univariate ANOVAs to examine the influence of source social proximity cues on the three message variables. There was no significant difference between the source proximal and distal source cues conditions in terms of assessed message credibility ($F(1,303) = 0.03$, $p = .86$) or message relevance ($F(1,301) = 0.67$, $p = .42$). In addition, there were no significant differences among the three source expertise cues conditions (high vs. low vs. no) in terms of message credibility ($F(1,303) = 0.18$, $p = .83$) and message relevance ($F(1,301) = 0.08$, $p = .92$).

There was no interaction between source expertise cues condition and source social proximity cues condition on message relevance ($F(2,301) = 1.20$, $p = .30$). However, there was a borderline significant interaction between expertise cues condition and social proximity cues condition on message credibility (RQ5c) ($F(2,303) = 2.53$, $p = .08$). Independent samples t tests were conducted to assess pairwise relationships between conditions receiving high and low vs. no expertise cues. There was a significant difference in perceived message credibility between the two groups that received social proximity cues but no cues to source expertise. Messages from sources identified with socially distal cues were considered to be significantly more credible (mean = 5.53, SD =0.93) than were messages from sources identified with socially proximal source cues (mean = 5.14, SD = 1.04, $t(100) = -1.04$, $p = .04$). There was a related marginally significant relationship between the low expertise cues, socially distal cues condition and the no expertise cues, socially distal cues condition. Participants who saw socially distal and low expertise cues rated messages as less credible (mean = 5.18, SD = 0.94) than did participants who saw socially distal cues and

no information related to source expertise (mean = 5.53, SD = 0.93, $t(100)$ = -1.89, p = .06). Post hoc tests revealed no additional significant or borderline significant differences in message credibility between groups. In sum, only perceived message credibility was influenced by any combination of source cue conditions, and only when sources were identified as low expertise or in the absence of any expert source cues.

Perceptions of the Source Predict Message Assessments and Behavioral

Intentions

The next series of research questions (RQ7 and RQ8) investigated the contribution of source interpersonal similarity, source credibility, and the similarity × credibility interaction on message credibility and message relevance. The overall model was a significant predictor of message credibility (RQ7) (adjusted R^2 = .03, F(3,297) = 4.44, p = .005). Expert credibility was a significant positive predictor of message credibility (p = .01), as was the expert credibility × social similarity interaction (p = .002). If sources were perceived as both more similar and as having more medical credibility, messages were also perceived as more credible. Interpersonal similarity alone did not predict message credibility. In reference to RQ8, the overall model was not a significant predictor of message relevance (adjusted R^2 = .01, F(3,295) = 2.04, p = .11). However, the expert credibility × social similarity interaction did positively predict message relevance (p = .04). β weights and p values for all three models are presented in Table 1.

Table 1. Regression models for source variables predicting message variables.

	β	*t*	Df	*p* Value
Message Credibility				
Source credibility	.151	2.53	294	.01*
Interpersonal similarity	.05	0.80	294	.42
Source credibility × similarity	.18	3.05	294	.002**
Message Relevance				
Source credibility	0.10	1.66	295	.10
Interpersonal similarity	−.03	−0.44	295	.66
Source credibility × similarity	.13	2.09	295	.04*
Notes: message credibility adj. R2 = .03, p = .005; message relevance, adj. R2 = .01, p = .11. *p <.05. **p <.01 (n = 300)				

RQ9 assessed whether source credibility, source interpersonal similarity, and the credibility × similarity interaction predicted intentions to engage in health-promoting behavior either in the next week (present behavioral intentions). The regression model did not significantly predict present behavioral intentions (adjusted R^2 = .005, F(3,294) = 1.48, p = .22). However the model did predict future behavioral intentions (adjusted R^2 = .02, F(3,298) = 2.75, p = .04). Both source credibility (p = .01) and similarity × credibility interaction (p = .05) were significant positive predictors of intention to engage in health-promoting behaviors in the future (Table 2).

Table 2. Regression models for source variables predicting present and future behavioral intentions

	β	*t*	Df	*p* Value
Present Behavioral intentions				
Source credibility	.06	1.05	294	.30
Interpersonal similarity	−.05	−0.90	294	.37
Source credibility × similarity	.10	1.69	294	.09
Notes: present intentions adj. R^2 = .005, p = .22. *p <.05. **p <.01 (n = 300)				

RQ10 asked whether a regression model including all source and message variables significantly predicted current behavioral intention. The model was significant (adjusted R^2= .26, F(6,290) = 17.83, p <.001) (Table 3). Message relevance also had a marginally significant effect on present intentions (p = .08). RQ14 tested the same model with regard to future behavioral intentions. Once again the model was significant (adjusted R^2 = .13, F(6,291) = 8.37, p <.001), primarily due to message relevance (p <.005). When message variables were entered into the model, source variables were no longer significant predictors of present or future behavioral intentions (Table 3).

Table 3. Regression models for source and message variables predicting present and future behavioral intentions.				
	β	t	Df	p Value
	Present Behavioral intentions			
Message credibility	.23	1.63	290	.10
Message relevance	.13	2.85	290	.005**
Source credibility	.02	0.37	290	.71
Interpersonal similarity	−.05	−0.91	290	.36
Source credibility × similarity	.05	.86	290	.39
Notes: present intentions adj. R^2 = .12, p <.001. *p <.05. **p <.01 (n = 300)				

Interpersonal Similarity as a Moderator of Source Cues

To address RQ18, I used a quartile split for social similarity to create two groups at the highest and lowest ends of the distribution. Figures 10 and 11 depict the relationship between source cues conditions and rating interpersonal similarity in the highest or lowest quartile. Participants who saw no expertise

cues but only socially proximal or distal source cues constitute the greatest proportion of participants in the highest and lowest quartile for interpersonal similarity, respectively.
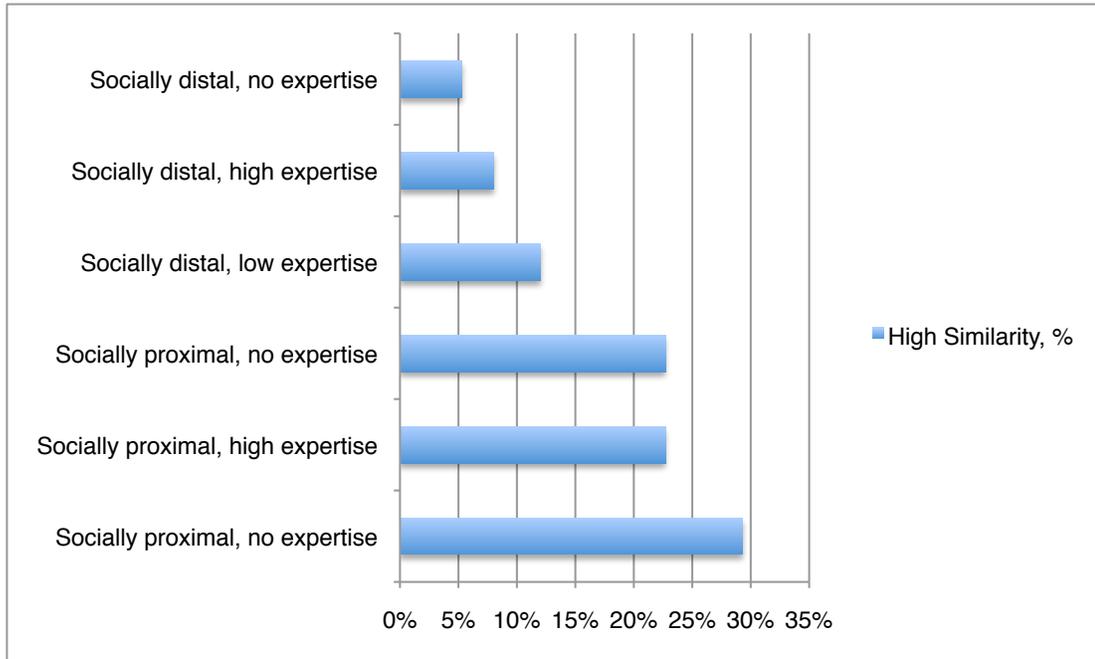
Figure 10. Highest quartile for interpersonal similarity, percentage of participants from each condition.
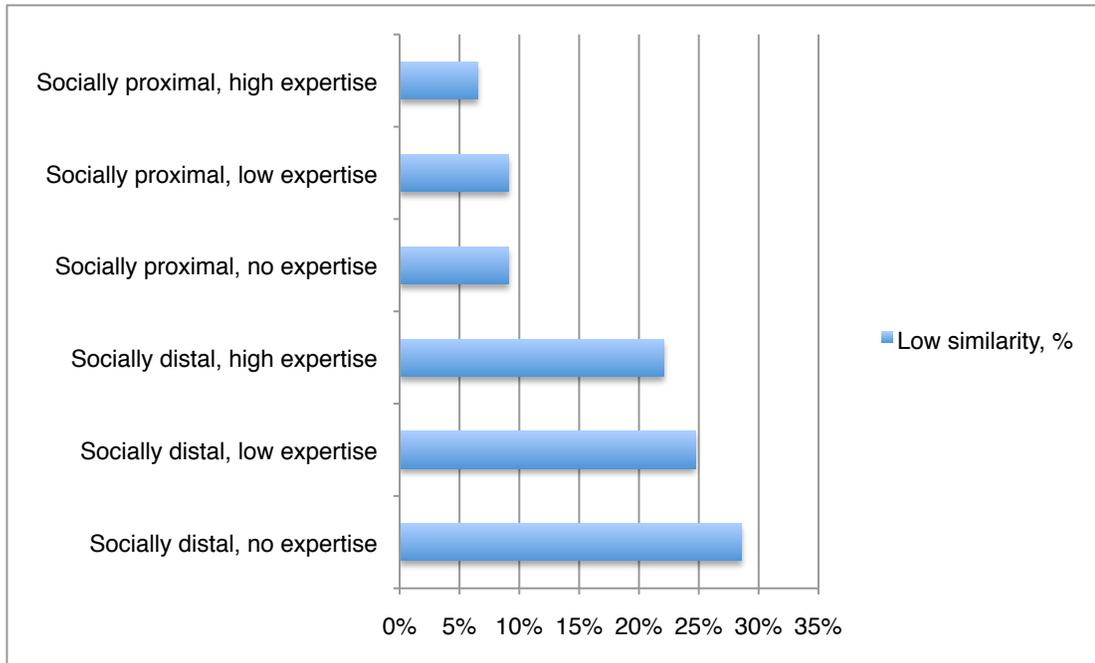
Figure 11. Lowest quartile for interpersonal similarity, percentage of participants by condition.

Correlation tables for the split file demonstrate differences in the strength and direction of relationships between interpersonal similarity, message processing variables and behavioral intentions (Tables 5 and 6). For participants in the lowest quartile for perceived source interpersonal similarity, perceived interpersonal similarity does not correlate with any source or message variables nor behavioral intentions. However, for participants in the highest quartile for perceived interpersonal similarity, assessment of a source as interpersonally similar is significant correlated with message credibility and message relevance as well as with intentions to engage in health-promoting behavior in the next week.

Table 5. Correlations among source, message, and behavioral variables for the lowest quartile for perceived interpersonal similarity.

	Source Similarity	Source Credibility	Message Credibility	Message Relevance	Present Intentions
Source Similarity	1	0.215	−0.105	−0.111	−0.070
Source Credibility	0.215	1	−0.036	−0.041	0.013
Message Credibility	−0.105	−0.036	1	0.707**	0.236**
Message Relevance	−0.111	−0.041	0.707**	1	0.218
Present Intentions	−0.070	0.013	0.236**	0.218	1

Notes: *p <.05. **p <.01 (n = 74)

Table 6. Correlations among source, message, and behavioral variables for the highest quartile for perceived interpersonal similarity.

	Source Similarity	Source Credibility	Message Credibility	Message Relevance	Present Intentions
Source Similarity	1	−0.014	0.400**	0.391**	0.250*
Source Credibility	−0.014	1	0.316**	0.246*	0.194
Message Credibility	0.400**	0.316**	1	0.773**	0.435**
Message Relevance	0.391**	0.246*	0.773**	1	0.328**
Present Intentions	0.250*	0.194	0.435**	0.328**	1

Notes: *p <.05. **p <.01 (n = 74)

The next set of analysis examined whether the relationships between source and message variables differed at different levels of perceived interpersonal similarity: high and low. Among participants who rated sources in the highest quartile for interpersonal similarity, source credibility and perceived

similarity both positively predicted perceived information credibility (adjusted R^2 = .24, F(3,72) = 8.60, p <.001). However, among participants who rated sources in the lowest quartile for interpersonal similarity, the model was not significant, and neither perceived similarity nor expert credibility predicted message credibility (adjusted R^2 = .002, F(3,75) = 0.94, p = .45). Perceived interpersonal similarity was also a significant predictor of message relevance among participants in the highest quartile for interpersonal similarity (adjusted R^2 = .20, F(3,72) = 6.94, p <.001). Again, the model predicting message relevance among those in the lowest quartile for interpersonal similarity was not significant (adjusted R^2 = .001, F(3,75) = .96, p = .42). Standardized regression coefficients for both quartiles of interpersonal similarity are presented in Table 7.

Table 7. Regression coefficients for source variables predicting message variables for the lowest and highest quartile for perceived interpersonal similarity.				
	Lowest Quartile for Similarity		Highest Quartile for Similarity	
	β	p Value	β	p Value
Message Credibility				
Source credibility	.31	.23	.51	.02
Interpersonal similarity	−.02	.86	.40	<.001**
Source credibility × similarity	.39	.16	−.21	.44
Message Relevance				
Source credibility	.31	.23	.42	.07
Interpersonal similarity	−.02	.87	.40	<.001**
Source credibility × similarity	.39	.15	−.19	.41
Notes: *p <.05. **p <.01 (n = 77)				

RQ12a and 12b ask whether perceived interpersonal similarity moderates the effects of source cues on behavioral intentions through assessments of message credibility and relevance. As previously stated, there was no direct effect of source social proximity cues on intentions to engage in health-promoting behavior in the next week. However, the moderated mediation model proposed in RQ12 was significant, indicating that there were conditional indirect effects of source cues on behavioral intentions (model stats). There was a significant direct effect of source social proximity cues on message relevance. Participants who saw cues indicating that sources were socially distal ranked user-generated health messages as more relevant than did participants who saw source cues indicating that sources overlapped with them on several demographic and attitudinal dimensions. This same pattern of results was seen for perceived interpersonal similarity. Independent of source cues condition, perception of message relevance was negatively related to perceived source interpersonal similarity. Messages from sources perceived as more interpersonally similar were considered to be less relevant than messages from sources perceived as more interpersonally similar.

For the interaction between the manipulated source cue and the psychological variable perceived interpersonal similarity, message relevance increased when socially proximal sources were also assessed as similar. So, if participant assessment of sources was consistent with the social proximity source cue manipulation, messages were considered more relevant. The reverse was true for socially distal source cues and perceived interpersonal similarity. If a source described as socially distal was also perceived as less interpersonally

similar, the message was considered less relevant than if participant assessments

of sources diverged directionally from source social proximity cues.

This interaction influenced the relationship of social proximity sources

cues on behavioral intention through message relevance. In the moderated

mediation model proposed in Figure 12, the effect of social cues condition on

intentions through perceived message relevance depends on the level of

perceived interpersonal similarity (Table 8).
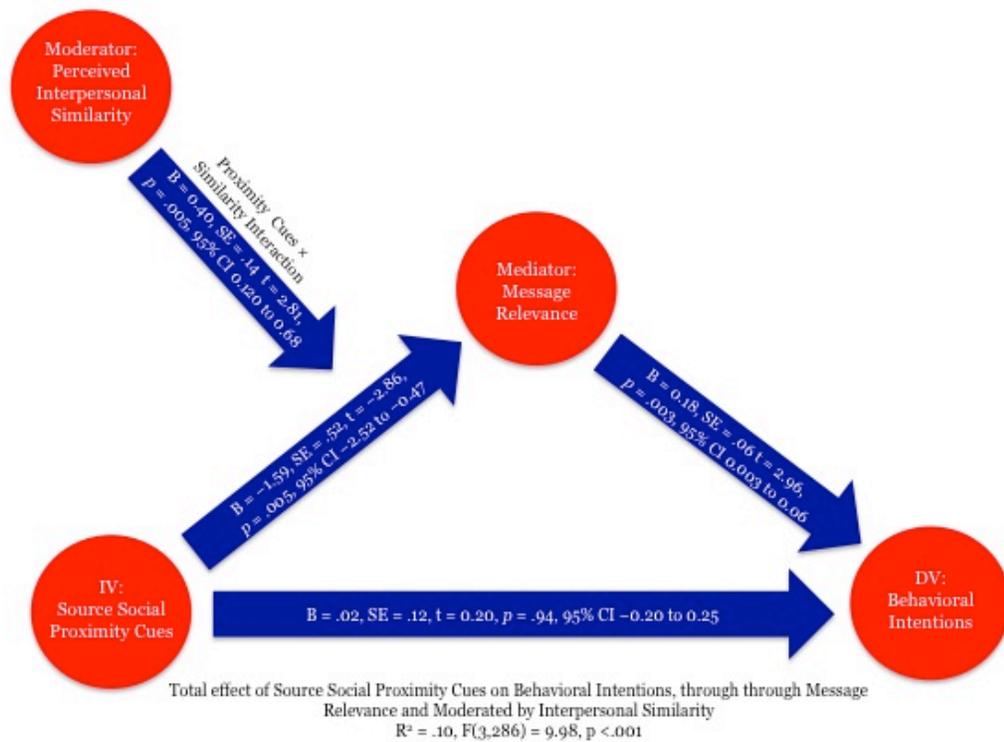
Figure 12. Moderated mediation model depicting the effect of source social proximity cues on behavioral intentions through the mediator message relevance and moderated by perceived interpersonal similarity.

Table 8. Effect of Source Proximity Cues on Behavioral Intentions through Message Relevance at Levels of the Moderator, Perceived Interpersonal Similarity (n = 286)			
Perceived Interpersonal Similarity	**B**	**SE**	**95% CI**
10th Percentile – 2.30	−0.10	−0.10	−0.27 to −0.02
25th Percentile – 3.00	−0.05	−0.05	−0.15 to −0.01
50th Percentile – 3.60	−0.009	−0.009	−0.06 to 0.03
75th Percentile – 4.00	0.02	0.02	−0.02 to 0.09
90th Percentile – 4.50	0.06	0.07	0.001 to 0.17
Notes: 1 = low interpersonal similarity; 7 = high interpersonal similarity			

The same pattern of results was seen for an additional message assessment mediator, perceived message credibility (RQ12b). The moderated mediation model accounted for more variance than with message relevance (R^2 = 0.26, $F(3,284)$ = 33.37, p <.001). The model, with direct and total effects, is depicted in Figure 13, and Table 9 depicts the mediated effect of source proximity cues on behavioral intention through perceived message credibility at different levels of the moderator, perceived interpersonal similarity.
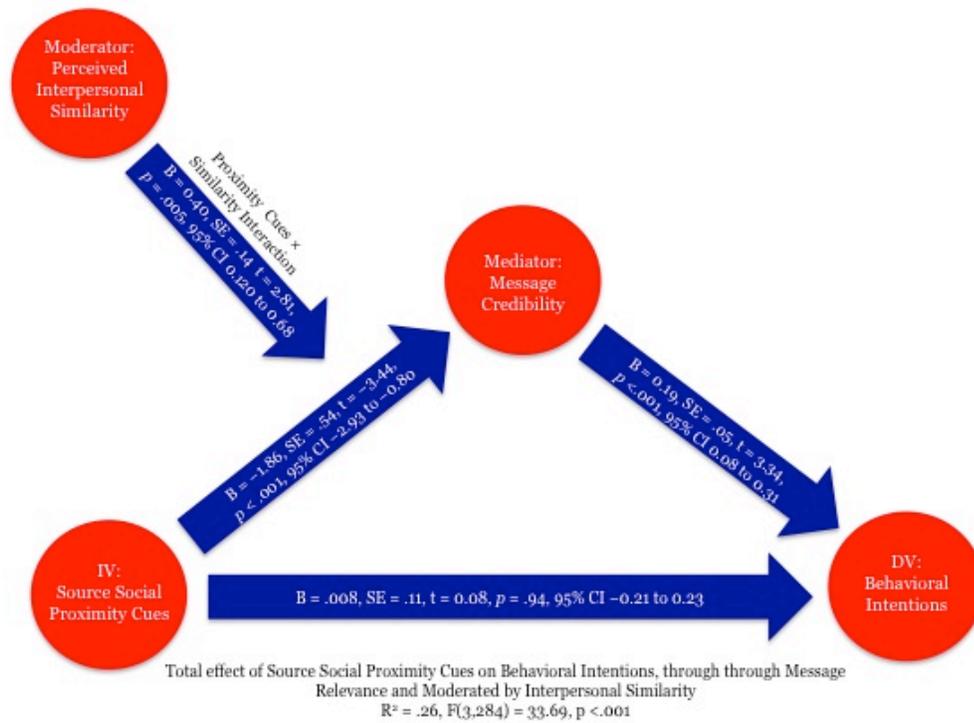
Figure 13. Moderated mediation model depicting the effect of source social proximity cues on behavioral intentions through the mediator message relevance and moderated by perceived interpersonal similarity.

Table 9. Effect of Source Proximity Cues on Behavioral Intentions through Message Credibility at Levels of the Moderator, Perceived Interpersonal Similarity (n = 288)			
Perceived Interpersonal Similarity	**B**	**SE**	**95% CI**
10th Percentile – 2.30	−0.14	−0.13	−0.30 to −0.03
25th Percentile – 3.00	−0.07	−0.07	−0.17 to −0.01
50th Percentile – 3.60	−0.01	−0.01	−0.07 to 0.03
75th Percentile – 4.00	0.03	0.03	−0.01 to 0.11
90th Percentile – 4.50	0.08	0.05	0.01 to 0.20
Notes: 1 = low interpersonal similarity; 7 = high interpersonal similarity			

Tests of the Construal Level Theory of Social Distance

The next set of hypotheses addresses whether actions are characterized differently when performed by sources perceived as socially proximal. In line with previous research suggesting that perceived similarity rather than actual similarity is the variable of interest, the independent variable source proximity is operationalized as the highest vs. the lowest quartile for perceived similarity. Table 10 presents means and mean comparisons for all categories for the high and low similarity groups.

Table 10. Mean values for source characterization and message relevant beliefs and mean comparisons for the high and low quartiles of interpersonal similarity.				
	Mean (SD) Beliefs			
	High Similarity	**Low Similarity**	**_t_ (df = 150)**	**_p_ value**
Mean Feasibility	1.31 (1.56)	1.06 (1.43)	−1.0	.32
Mean Desirability	1.04 (1.11)	1.54 (1.47)	2.35	.02*
Mean Positive	1.60 (1.61)	2.23 (1.93)	2.19	.03*
Mean Negative	0.76 (1.00)	0.55 (0.75)	−1.37	.17
Mean How	1.92 (1.59)	1.78 (1.39)	−0.58	.56
Mean Why	0.43 (0.90)	0.53 (0.84)	0.75	.45
Notes: *p <.05. **p <.01 (n = 77)				

The following hypotheses address proportional differences in types of statements made. H4 predicted that individuals who read health messages from sources perceived as similar would characterize sources' actions with more "how" statements, as a proportion of total statements (examples of "how" and "why"

statements presented in Table 11). H4 was supported. Participants who read

messages from socially proximal sources made more statements about how

sources had achieved health goals vs. participants who read messages from

socially distal sources (F(1,137) = 4.02, p = .04, partial η^2 = .03). H5 predicted

that participants who read health messages from sources perceived as less similar

would make more "why" statements, as a proportion of total statements, than

participants who read health messages from socially proximal sources. This

hypothesis was not supported (p = .72).

Table 11. Examples of statements describing why or how participants met health goals.
Why Statements
They had a pretty positive attitude about a pretty dreary subject. Most people don't like to think about changing their lifestyle, so the fact that this participant was looking at the bright side may have really positively influenced their overall results.
They are focused and persistent.
How Statements
This person took advantage of social support in order to meet exercise goals.
I thought that they met health goals because they exercise, eat healthy, and does their best to decrease stress.

The next set of hypotheses addressed message-relevant health beliefs. H6

stated that participants who read messages from sources perceived as more

similar would offer more thoughts about the feasibility of the health behavior

than would participants who read messages from sources perceived as less

similar (examples of feasibility and desirability presented in Table 12). H6 was

supported. Participants who read messages from socially proximal beliefs listed

more feasibility-related beliefs, as a proportion of total beliefs, than did

participants who read messages from socially distal sources (F(1,147 = 5.22, p =

.02, partial η^2 = .04). Among participants who rated sources as socially proximal,

11.4% of thoughts were coded as feasibility beliefs, compared with 8.1% for participants who rated sources as socially distal (Figure 14). H7 stated that participants who read messages from sources perceived as socially distal would offer more thoughts about the desirability of health behaviors than did participants from sources perceived as socially proximal. The difference was marginally significant (F(1,147) = 3.56, p = .06, partial η^2 = .02). For participants who rated sources as socially distal, 13.2% of thoughts were coded as desirability beliefs, compared with 10.4% of thoughts for those who rated sources as socially proximal.

Table 12. Examples of beliefs coded as desirability and feasibility.
Desirability Beliefs
Good exercise habits are good to develop now because they will pay off later in life.
Exercise is one of the most important tenants of my life. I have been a competitive athlete since I was 5 and still compete at college. It keeps my body and my mind healthy.
I understand that a healthy diet is crucial to a person's overall well-being. I have felt the effects of eating poorly vs. eating well.
Feasibility Beliefs
Eliminate all the distractions around you. Set a time everyday to just spend on exercise and have a support group to help you get motivated.
I reduce stress in my life by getting plenty of sleep and planning out what has to be done for the week. I try to exercise to relieve stress as well.
Healthy eating was never a problem for me or my family. We almost never eat out and my mom always prepared fresh, healthy food at home.

H8 and H9 addressed differences in the number of negative and positive beliefs listed, as a proportion of total beliefs. Both were supported. Participants in the lowest quartile for source similarity listed more positive beliefs (19.1%) than did participants in the highest quartile for source similarity (15.8%) (F(1,148) = 4.61, p = .03, partial η^2 = .03). The reverse pattern was true for proportion of negative beliefs. Participants in the highest quartile for similarity listed more

negative beliefs (6.4%) than did participants in the lowest quartile for similarity (4.1%) (F(1,147) = 4.56, p = .03, partial η^2 = .03).
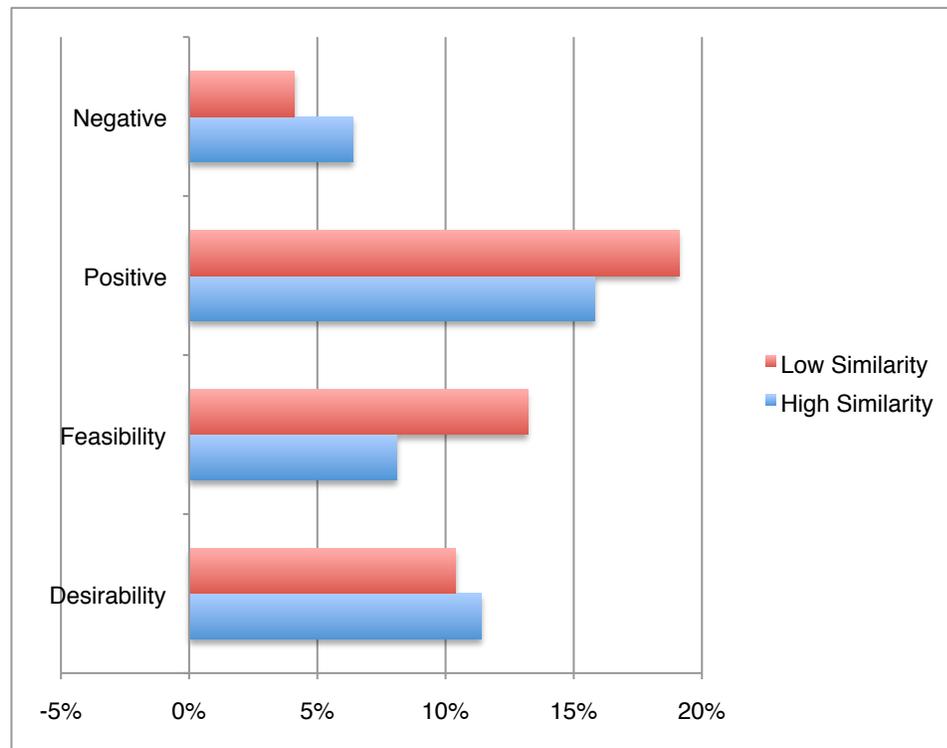
Figure 14. Source characterizations and message-relevant beliefs as a proportion of total beliefs for the highest and lowest quartiles for interpersonal similarity.

The next set of hypotheses addressed whether perceived social similarity to a message source would influence present behavior, future behavior, and behavior ascribed to a target individual. H10 was supported. Participants who read messages from sources perceived as socially proximal agreed to write significantly fewer messages in the present (mean = 1.5, SD = 1.0) than did participants who read messages from sources perceived as socially distal (mean = 2.0, SD = 1.1), F(1,144) = 7.25, p = .008, partial η^2 = .05). There were no

significant differences in number of messages written in the future or by the target other, so H11 and H12 were not supported.

H13 was not supported. There was no difference in intentions to engage in health-promoting behaviors in the present (F(1,149) = 2.39, p = .12) or in the future (F(1,148) = 1.53, =p = .22) based on perceived interpersonal similarity to sources.

The final research question (RQ13) addressed whether participant characterization of sources' actions or statements of health-related beliefs predicted present or future behavioral intentions among participants who perceived sources as more or less interpersonally similar. Among participants who considered sources to be more interpersonally similar, no single variable in the model, other than issue involvement, significantly predicted present intentions to engage in health-promoting behavior (total model including involvement: adjusted R^2 = 0.29, F(6,73) = 5.14, p <.001). The model was significant for participants in the lowest quartile for source interpersonal similarity (total model including involvement: adjusted R^2 = .32, F(7,75) = 5.87, p <.001). Total positive health-related beliefs (β = .85, t = 2.13, p = .03) and total thoughts describing how a participant reached goals (β = .26, t = 2.58, p = .01) both positively predicted present behavioral intentions. The model for future intentions was significant among participants rating sources in the lowest quartile for interpersonal similarity, but the only variable significant predicting intentions was issue involvement (total model including issue involvement: adjusted R^2 = .10, F(7,76) = 2.19, p = .05). Among participants in the highest quartile for interpersonal similarity, the total number of thoughts describing why

a participant reached his or her health goal significantly predicted future intentions (β = .25, t = 2.34, p = .02) (total model including issue involvement: adjusted R^2 = .27, F(7,72) = 4.79, p <.001).

DISCUSSION

This study explores how source cues indicating expertise and social proximity affect assessment of interpersonal similarity, source credibility, and cognitions related to user-generated health content. A 2 × 3 between-subjects online experiment (n = 305) demonstrates that social proximity cues prompt assessment of sources as more similar but do not directly affect assessments of user-generated health messages or behavioral intentions. In addition, the power of interpersonal similarity to predict assessments of messages and behavioral intentions greatly increases at the end of the distribution, when sources are perceived as highly similar. Results also show that psychological proximity to message sources influences how readers construe the actions depicted in those messages and how they describe beliefs related to message topics. The findings from this study make a significant contribution to the literature on perceived similarity as a variable relevant to health communication and identify mediated interpersonal health content as a domain ripe for further study. They also extend the application of construal level theory by demonstrating how psychological distance from sources influences reactions to messages produced by those sources. I first describe the significance of the findings and their contribution to theory. I then address the applications of this research to health communication practice.

Interpretation of Results

As with other source assessments like credibility, the variable of interest to communication research is not actual social proximity, or the distance between attributes of a source and a message recipient, but the perception of social similarity that actual proximity can engender (Ames, 2004). The goal of the social proximity source cues manipulation was to elicit a range of responses on the interpersonal similarity scale. The manipulation was successful in demonstrating mean difference between socially proximal and socially distal source cues conditions. However, the magnitude of the difference between the two levels of the independent variable was much smaller than that for expert souce cues. While there was a mean difference of 1.85 between the high expertise cues and no expertise cues conditions, the mean difference for interpersonal similarity was 0.66. In addition, assessment of similarity was normally distributed, but the range of values did not encompass the highest end of the scale (range = 1.0-5.8 on a 7-point scale). The truncated range of values for interpersonal similarity contrasts with expert source credibility, which had a range of values spanning the entire scale and served more as a constant in relation to the independent variable manipulation (range = 1.0-7.0, mean 4.29, SD = 1.34). These findings echoes Ames' (2004) contention that assessment of similarity is "idiosyncratic" and suggest that people are loathe to strongly agree that someone is similar to them in all the ways enumerated in the interpersonal similarity scale. One explanation for this finding could be that our need for uniqueness disallows us to describe someone as extremely similar, particularly if that person is as yet unknown (Comello, 2011). Both SIDE and the hyperpersonal theory of computer mediated

communication predict increased perceptions of interpersonal similarity based on group affiliation or social proximity in an environment devoid of visual cues (Spears & Lea, 1992; Walther, 1996), but both theories also assume some basis of interaction from which perception of similarity accrues. In this study, participants assessed the similarity of a person they had not yet heard from. Provision of messages before or concurrent with provision of cues would be a more ecologically valid manipulation, but it would also make it more difficult to distinguish source assessments from message assessments.

Participants were more willing to assign expertise to a source based on minimal but explicit source cues. In tandem with the manipulation, participants ranked sources with cues to expertise the highest, those with cues stating no expertise the lowest, and those with no cues addressing expertise in the middle. Although expertise cues alone did not influence perceived similarity, there were significant interactions between expertise and proximity cues on assessment of a source as credible. Overall, sources who were socially proximal were considered more credible than sources who were socially distal. However, socially proximal sources who were also high in expertise were considered less credible than high expertise, socially distal sources. In line with the idea of "optimal heterophily" (Rogers & Shoemaker, 1971), this finding echoes the contention that the ideal source is highly similar in ways that are salient to the message recipient and a bit of an expert in the relevant, though too much expertise might in fact counter perception of similarity (McCroskey et al., 1974). Indications that a source was too similar seemed to call into question the veracity of that source's expertise. Because a source was socially closer, our college student participants may have

assumed that any expertise assigned to the source was within their realm of experience—a CPR class as opposed to a medical degree. Socially distal sources, on the other hand, could feasibly be considered expert in ways not bound by what a college student could reasonably accomplish. This finding suggests areas for future research into what constitutes optimal source heterophily for delivery of health information to an audience of emerging adults.

In initial tests of the predictive effects of source variables on message variables, only expert credibility and the credibility × similarity interaction significantly predicted positive assessment of a message as credible and relevant. When considering the whole sample, and the range of similarity assessments, interpersonal similarity was not a significant predictor of message credibilty or relevance. However, results were different for those who considered sources most similar, operationalized as the highest quartile for similarity. Participants in this group ranked sources somewhere within the range of 4.0 to 5.8 on a 7-point scale, slightly above the mean to somewhat similar. If participants thought someone was similar to them, then greater perceptions of similarity predicted assessing a message more positively as well. In the high similarity group, interpersonal similarity was strongly and positively correlated with all message variables as well as behavioral intentions—a stark contrast to intervariable correlations when the whole sample was considered. For the whole sample, similarity—representing values just above to well below the midpoint for similarity—was correlated only with source credibility. Also in contrast with the whole sample, and the lowest quartile for simiarlity in particular, perceived similarity for this group was a significant, positive predictor of message

assessments; among those in the highest quartile for similarity, credibility, either alone or as an interaction term with similarity, was not. Similarity predicted both assessment of a message as credible and assessment of a message as relevant. These results suggest that similarity is more important as a perceived quality of a message source if that source is likely to be highly similair, whereas credibility is a more important source attribute if sources are ranked as less similar than the average. Message relevance had the stronger relationship to interpersonal similarity. Future research could develop more sophisticated measures of relevance than the brief semantic differential scale used in this study to explore in more detail the relationship between the approval or imprint of a similar source and the perception of a message as relevant to the recipient. As a messages assessment variable, relevance might thus be more appropriate than the traditional notion of credibility for this class of content. In this study, relevance was assessed generally, but the variable could be interpreted to mean relevance to a specific information goal or relevance to a message recipient's interests or priorities. Both message relevance and credibility mediated the effects of source social proximity cues condition on behavioral intention, at different levels of the moderating variable, perceived interpersonal similarity. This moderated mediation model reinforces the idea that perceived interpersonal similarity operates as a moderator of source cue effects on message assessments rather than as a mediator.

Again, among the whole sample—most of whom assessed sources at below the midpoint for similarity—expert source credibility and an interaction between source credbility and similarity were significant for predicting how participants

113

assessed a message, in contrast with participants in the highest quartile for similarity, for whom interpersonal similarity was the only significant predictor in regression models. These results suggest that similarity might differ conceptually at high and low levels, or for sources perceived as more similar or quite dissimilar. For participants who rated sources as not very similar, operationalized as those in the lowest quartile for interpersonal simialarity, the perceived similarity variable did not predict any of the three message variables. Participants in this group ranked sources from a low of 1.0 to a high of 3.0 on a 7-point scale. The idea that the relationship of source similarity to message assessment is not linear but rather varies at different ends of the distribution is worthy of being examined in future studies.

Construal level theory predicts that psychological distance from an object or event affects the mental representation. For the most part, the predictions of construal level theory were supported in this study. Participants who were asked to write health messages (though not asked to follow through) agreed to write fewer health messages in the present if they'd read a message from a source perceived as socially proximal. The endeavor perhaps seemed too close to home. As construal level theory predicts, a closer view is more concrete and gives rise to greater ambivalence and less likelihood of generosity at personal cost, such as helping out a doctoral student researcher by writing health messages one may not have an interest in writing (Pronin et al., 2008).

In addition, results assessing characterization of sources demonstrated that actions performed by sources characterized as more similar were more frequently described in terms of how a behavior was accomplished. For socially

similar sources, message recipients were more likely to report on the context for behavior or the steps through which a goal was met. This trend is echoed in the distinction between feasibility and desirability beliefs. Participants who read a message from a source perceived as socially similar were more likely to list beliefs related to the feasibility of performing health behaviors. Feasibility addresses potential barriers or faciliators to the health behaviors in question: healthy eating, physical activity, and stress reduction. According to construal level theory, feasilbity beliefs are more concrete, and as such are closer to the nuanced view of a behavior that one is close to performing, vs. an idealization. The idealized version of why a behavior should or should not be performed is captured by the desirability variable, which encompasses both attitudes toward a behavior and normative beliefs. Participants who read messages from a souce they considered to be less similar were more likely to list positive beliefs and to list beliefs reated to the desirability of performing a health behavior. Although the feasibility beliefs that are related with processing of a message from a socially proximal source might be more negative, they are also more realistic predictors of the complicated path from intention to actual behavior.

Characterizations of how a source peformed a superordinate behavior or met a goal are also concrete and have much in common with feasibility concerns (Luchyn & Yzer, 2011). In this study, how construals address the past tense and represent beliefs about the steps taken to reach a goal, whereas feasibility beliefs were less likely to describe a specific situation but to represent known facilitators of or impediments to behavior. Results related to "how" construals of source actions were in the direction predicted. Participants who perceived sources as

socially proximal listed more "how" thoughts, as a proportion of total thoughts listed. These results should be interpreted with caution, because of the low intercoder reliability and the nature of the writing prompt, which participant responses seem to indicate was more directive than is ideal for a thought-listing exercise. However, the fact that the trend was in the direction predicted by construal level theory is justification for future research that takes into account lessons learned. This source characterization exercise in particular represents an interesting extension of construal level theory to mediated communciation, because participants were assessing sources of varying social distance not directly but through provision of a message supposedly written by that source.

A final, intriguing finding related to construal level theory was that producing writing in opposite direction than predicted was positively linked to behavioral intention in regression models. Participants in the lowest quartile for source interpersonal similarity were more likely to indicate intentions to engage in health-promoting behavior if that characterized the source with more how statements. In contrast, participants who ranked sources in the highest quartile for similarity were more likely to indicate positive behavioral intentions if they listed more why statements. It could be that participants who contributed more nuanced beliefs, i.e., not only in the direction intended, more fully processed messages and took their implied instructions to heart. Though this experiment was not designed to examine the salutory effects of writing about health, the potential effects of writing primed by proximal or distal source communication on behavioral intention is another potentially fruitful area for future research.

Theoretical Significance of Findings

This study draws on a range of theories from mass communciation and social psychology, and it contributes to several both directly and by raising interesting avenues for future research. As predicted by Ames (2004), it was not the source cues themselves that influenced assessment of the message, it was the perception the cues triggered. Expert cues triggered the expertise heuristic reliably, and sources identified as experts were considered more credible according to the dimensions traditionally used to assess expertise. Assesssments of similarity were more idiosyncratic. Though the source cues plainly identified a source as not at all or very similar to a participant on several demographic and attitudinal dimensions, participants were loath to assess a source as highly similar. Cognitively, the relationship bewteen cue and heuristic may map differently for expert source credibility than for similarity. In this sample, few participants had claim to medical expertise, and thus assessment of a source as expert was not complicated by its relationship to one's self-concept. However, an assumption of construal level theory is that distance from is an egocentric construction, and thus interpersonal similarity or dissimilarity to a source directly involved social comparison, or assessment of distance between the self and the purported source. Lacking concrete information about which commonalities participants shared and without the ability to browse identifying information, ability to assess perceived similarity based on actual similarity was limited and involved uncritical acceptance of the source manipulation. Results suggest an interesting area for future research: as "layperson" sources of mediated communication are assessed, which source dimensions are significant

to assessments of similarity and how do those dimensions map to the cues generally available on popular participatory web platforms? Do certain types of cues trigger assessments of similarity more reliably? Because many people who interact in participatory web platforms might be known to each other offline, how does provision of source cues in a social media environment alter existing perceptions of similarity? Also, do certain classes of cues trigger assessment of similarity more reliably than others?

Several past studies of perceived similarity in online health communication do not vary source cues or do not offer any source cues at alll (e.g., Wang et al., 2008). Inferences of similarity occur after messages are read and are thus inseparable from message content. This study contributes to research on perceived similarity by manipulating sources cues and assessing similarity in advance of message reception. Thus, results demonstrate a link between assessment of similarity at the highest quartile and how a message was assessed for credibility and relevance. Although the assessment of similarity as occuring in tandem with message reception has ecological validity, separating source from message assesssments provides additional possibilites for experimental work that explores the link between assessment of sources and reception of user-generated messages. As determination of similarity is assumed to be both idiosyncratic and mutable, additional studies could consider the iterative nature of similarity assessment in relation to user-generated messages by assessing similarity longitudinally and both before and after provision of messages. This study held message content constant, but variance in content

would also be expected to alter assessment of similarity after message reception in systematic ways.

The variance in information sources as more or less trustworthy is captured in the concept of credibility. This study also contributes to the complex discussion about the credibility variable—how it is defined and how relevant it is to more novel forms of mediated communication online. The variance in information sources as more or less trustworthy is captured in the concept of credibility. As has been stated previously, in this study, cues indicating a source was an expert prompted participants to consider that source more credible, with regard to the dimensions traditionally used to demarcate a source's ability to provide believable information within a particular domain. Also, this assessment of source crediblity predicted assessment of a message as credible. However, although cues indicating a source was proximal prompted judgment of a source as credible, source credibility did not predict message credibility nor did message credibility predict intention when sources were perceived as highly similar. This finding echoes the assertion of Wang et al. (2008) that credibility as traditionally measured may not be the most appropriate determination of heatlh message effectiveness when messages are written by sources perceived as more similiar. More broadly, Walther et al. (2011) argue that the affordances of the internet allowing users to produce and alter content are not consistent with the belief that credibility, defined as source expertise and trustworthiness, is the variable most predictive of message acceptance (Chaffee, 1986). This contention echoes the predictions of construal level theory, in which future intentions represent more abstract construals (Luchyn & Yzer, 2011). These results align with the view of

credibility as situational, or of information as relevant to the goal for use. The fact that a source of information is trustworthy or the message itself is believable is important to the relatively abstract or idealized determination of what you may want to do in the future, but not to informing what actions should be taken in the concrete present.

In sum, abstract ideas about whether a behavior should or should not be performed may thus be more likely to be influenced by the opinion of an expert or highly credible source, whereas concrete ideas about whether a behavior will be performed in the near future are more likely to be influenced by a source perceived as highly similar and a message perceieved as relevant. If credibility is to be defined as utility of a source or of information for a particular individual and information goal (e.g., Hilligoss & Rieh, 2008), then this research demonstrates that the dimensions of credibility also vary according to the goal for use. If credibility is to be defined as an attribute of sources who are sanctioned to deliver medical information, i.e., medical experts, this research demonstrates that tradtional measures of credibility as expertise and trustworthiness may predict assessment of a message but not necessarily how that information will be used in decision making.

This study also demonstrated the utility and relevance of construal level theory to mediated communication. The theory has the advantage of being both parisomious and malleable, and the concept of psychological distance and the ability of the psychological distance concept to predict mental representations in a range of contexts and scenarios has already been demonstrated in several works, most notably in two as-yet-unpublished papers (Katz, 2013; Katz & Byrne,

2012). Both studies integrate construal level theory predictions with other theories more commonly applied to mass communicaiton research. In one study, messages designed to demonstrate proximity on several psychological distance dimensions were more likely to activate reactance reactions among message recipients (Katz, 2013). This study explores another communciation domain to which construal level theory can be applied: processing of user-generated content or of any other content type in which social proximity to a source is relevant. Social proximity is a variable that is highly valid to web platforms that allow for user participation, either via the production of original comment, forwarding content, or commenting on content produced by a more traditional mass media source. Within this domain, the study demonstrates that finding a source socially proximal, operationalized as perceiving a source as more similar relative to the rest of the sample, influences both characterization of that source and reaction to messages delivered by that source, in the form of topic-relevant beliefs primed by exposure to health messages. Though it is just an initial step in this direction, this study also introduces the idea that characterization of a source as psychologically more or less distant influences the construal level at which messages are processed. A match between construal level of a message and the processing orientation was found to increase message salience (Katz, 2013). Future studies should explore the effects of a disconnect between the level at which a source is construed—as socially proximal or socially distal, for example—and processing of a message at different levels of construal, i.e., that present abstract vs. concrete information relate to health topics.

This study also explores health communication at the level of the mediated interpersonal encounter (Cathcart & Gumpert, 1986). Because it explores narrative communciation from peers that implicitly addresses peer behavior, it can also be considered relevant to research in norms-based health communication or the purposeful use of exemplars in persuasive health communication or entertainment education. One criticism of norms-based health communication has been that it often presents group-based descriptive norms, which are not theorized to be as salient to an individual as the specific normative behaviors of socially proximal peers (Campo, 2003). Because the example of a single salient individual can contribute to normative beliefs (Zillmann, 2002; Zillmann, 2006), additional research could examine whether communication from a single socially proximal source contributes to beliefs about descriptive and injunctive norms among message recipients. This study is also an intital step in exploring how perceived similarity to a source affects how influential messages from that source may be in reinforcing or altering beliefs and behaviors, a finding that echoes research on how perceived similarity of an exemplar affects the influence of stories in which that exemplar is a character (e.g., Brosius. 1999). The parallels between user-generated comunication, which is likely first-person and narrative rather than didactic, and exemplars, who serve as the primary actors in narratives that are delivered within the context of news stories, are intriguing and should be explored in future theoretical or empirical work.

Significance of Findings to Health Communication

Recent research in health communication resarch addresses mental processes that impede reception of persuasive messages as well as forms for communicating health messages with a specific behavioral intent beyond explicitly persuasive messages. One example is the resurgence of interest in reactance theory, which seeks to explain how a persuasive message can have the opposite effect as intended (e.g., Quick & Stephenson, 2007). Another example is research related to the form is which information is delivered, such as the potential of entertainment media to trasmit prosocial messages (Moyer-Gusé, 2008) and work contrasting narrative or conversational delivery of information with the didactic delivery of information often seen in health PSAs (Slater et al., 2003). The current study also addresses alternatives to explicitly persuasive health communication by examining how source proximity alters source characterizations and message reception.

The concept of a source as more or less psychologically distant is especially relevant to communication via social network sites. Social network site users represent a vast potential audience for health promotion and education. However, the rules of use and the mechanics of sites such as Facebook are not suited to mass-mediated health campaigns because users must opt in to receive messages. Health organizations have capitalized on the connections among networked users by designing Facebook applications that enable message forwarding or take advantage of the linked-network affordance in persuasive communication. One example from the New York City Department of Health and Mental Hygeine is the e-condom app allowing Facebook users to forward friends

an image of a condom with a message promoting protection (Chan, 2009).

Cervical Cancer-Free Kentucky created the Cause the Movement campaign that

involved message forwarding as well as a graphic that used images from a specific

friend network to illutrate potential deaths from cervical cancer

(http://www.cervicalcancerfreeky.org/ctm). These innovative campaigns harness

our tendency to give more credence to sources we already know to attract

attention to their behavior goal: condom use or HPV vaccination.

This study suggests it may also be fruitful to consider ways in which health

communication campaigns or interventions may more actively engage with the

affordances of the participatory web, which allow users to forward messages but

also to interact with and alter content and to create their own messages. The idea

of harnessing the audiences of internet users to influence those within their social

networks has an analog in public health practice, the use of peer health

counselors or community health workers. Community health workers are

individuals from a community who work within a community to promote

individual and community health (Witmer, Seifer, Finocchio, Leslie, & O'Neil,

1995). The community may be defined spatially, as in a neighborhood;

economically; by age; or by national, racial, or ethnic background. In one view,

community health workers are frontline health care professionals who serve as

bridges between a community and the health care system and the cultures

associated with each (Love, Gardner, & Legion, 1997). Other definitions

emphasize the role of community health workers in community and individual

empowerment (Parker, Schulz, Israel, & Hollis, 1998).

Individuals within communities have always

informally served health promotion roles, but this role has been concretely

defined as "community health worker" since approximately the 1960s (Swider,

2002). This model began with the goal of providing basic health care in

underserved area (Haines, et al., 2007). In the late 1980s and early 1990s, there

was renewed interest in the community health worker model in the United States

due to an increased focus on prevention within the health care system and the

move toward managed care, as well as the increasing diversity of the population

(Swider, 2002; Love et al., 2002). However, because many interventions are only

marginally theoretical, there is little clarity about the mechanism by which

community health workers exert their influence. Understanding the individual

encounter or communication event will assist with development of theoretically

sound health communication interventions that involve peer communication.

Community health workers operating online would already be equipped with an

audience, those within their social network. While recent descriptive and

qualitative reseach suggests that relatively few people currently write about

health online as original posters (Fox, 2011a; Vitak & Ellison, 2012), there is a

broader audience of potential readers and commenters on interpersonal

mediated health content.

More specifically, construal level theory can be used to predict reactions to

messages from socially proximal others, which can aid in developing strategies

for communication or in constructing specific messages. People seeking to reach

a goal or change a behavior encounter roadblocks and develop strategies to

address them. In the goal-setting literature, the a priori performance of this

process, anticipating roadblocks and developing solutions in advance, is called implementation intention. Messages from socially proximal others might be one way to spark consideration of feasiblity concerns that can be addressed through implementation intention or other theoretically based faciliations. Implementation intentions are plans made when goal intentions are expressed, to address the many reasons why a goal may not be met. The process includes describing potential barriers and then proposing solutions, so that when these barriers are encountered, a plan has already been made. With physical activity, for example, a barrier may be being busy at work, and the solution, exercising at the lunch hour. Meta-analyses have shown this strategy to be effective in promoting goal achievement (Gollwitzer & Sheeran, 2006). Interactions that address feasibility concerns are also a hallmark of patient-led counseling tactics, such as motivational interviewing (Naar-King, Outlaw, Green-Jones, Write, & Parsons, 2009). Overall, more work should be done to address how existing online peer networks can serve as a tool in health education and promotion and how content produced and disseminated by peers online differs in its effects from health content produced and disseminated by a central mass-mediated source. Health communication practice will benefit from efforts to integrate interpersonal and mass communication theory in a way that is uniquely relevant to the internet and its affordances (Walther et al., 2011).

Limitations and Future Reseach

      This study has several limitations. First, the intercoder reliability for the source characterization variables suggest that the concepts were not sufficiently clear. The lack of conceptual clarity leads to variables that are unreliable and calls into question the validity and reliability of the findings. The use of open-ended questions yields data that are richer than the results from Likert scales, yet to be interpreted this qualitative data must be codified. The open-ended responses in this study were particularly difficult to interpret due to the nuanced nature of the variables and because participants were coding instances of an occurrence, resulting in ratio-level data, rather than identifying whether a variable was present or absent, resulting in categorical data. Though conclusions drawn from the low reliability data are necessarily tentative, the study can serve as a pilot for future instances in which the same "how" vs. "why" source characterizations are to be used.

      Second, the variables related to messages assessment, particularly message relevance, were subject to a ceiling effect, which limits the ability of analyses to demostrate significant differences between conditions. The health topics selected for this story were both familiar to participants and highly relevant. Topics were in fact selected for their relevance, so that messages about health topics would seem more likely to have come from a socially proximal source. Selection of health topics without such strong baseline relevance would likely have altered the magnitude, if not the direction, of the results. Though issue involvement was measured and did not moderate assessment of sources in my analyses, choosing topics that were more novel might have allowed for greater

differences relative to source conditions to emerge and fewer potential confounds from preexisting beliefs or experiences.

Third, the source cues presented to participants were simplistic when compared to the cues availble in a real social network site environment, and the online survey tool did not allow for interaction with source cues or messages. These simpliciations limit the ecological validity of the study, but they were considered necessary to isolate the effects of source cues without the potential confounding effets of a social network site platform.

The preceding sections suggest several potential areas for future research, and I make additional suggestions here. First, in-depth interview studies about attitudes toward and interactions with user-generated health content could provide much-needed context and could inform application of these study results to health communication practice. Qualitative work could also explore how similarity is constituted online and the contribution of different characteristics of a source or a message to considering someone similar or dissimilar. In addition, interpersonal mediated communication procesess produce a reservoir of health content online that is persistant and searchable (Boyd, 2010). Descriptive studies can explore the range of health topics explored on social network sites and help characterize what user-generated health content often sounds like and the kinds of responses in engenders. These baseline studies will inform future studies on the application of construal level theory of social distance to communication online and on the processing of health content generated in interpersonal mediated communication.

Conclusion

Communication with socially proximal others contributes to the array of knowledge and beliefs that inform health decisions. The affordances of the internet, particularly as manifest in social network site platforms, allow for interpersonal mediated communication with socially proximal sources. In surveys, a quarter of internet users report having followed someone's health story or read user-generated health messages on social network sites (Fox, 2011a), but this type of content has not been studied frequently in health communication. My study addresses a defining feature of user-generated content, the potential social proximity of the source and the related assessment of that source as interpersonally similar. I manipulated source cues to examine how variation in social proximity affected assessment of perceived similarity, source expert credibility, and the health messages written by other users. I also used construal level theory as a framework to test the effects of varying source similarity on characterizations of actions depicted in that source's written messages and on expression of beliefs about the health topics addressed in those messages.

Results demonstrate that interpersonal source similarity is a significant predictor of message credibility and relevance if a source is perceived as highly similar. In contrast, assessment of a source as having expert credibility and the interaction between credibility and similarity are more important predictors of message credibility and relevance if a source is perceived as less interpersonally similar. The emphasis in health communication is often on increasing the

credibility of online health information (Wang et al., 2012), according to the traditional dimensions of expertise and trustworthiness. This study suggests that the significance of credibility to determining whether a message is considered relevant and useful may depend on the type of message and the goal of information for use. For information produced by nonexpert users, such as that available on health discussion boards or social media sites, other credibility dimensions or other message variables might be more predictive of whether information is considered believable. In addition, in seeking to promote health behaviors online, practitioners should revisit the concept of optimal heterophily. Sources who are highly similar but expert in the domain relevant to a particular health goal or health question are theorized to be the most influential, something the results of this study also suggest to be true. This contention is an assumption of public health interventions that capitalize on the community credentials of peer health workers, and it is also relevant to mediated health communication. Findings predicted from construal level theory, namely the influence of source characteristics on construal of behavior as more concrete or more abstract, can be used in construction of persuasive health communication messages, which generally seek to influence or reinforce health behaviors.

In sum, this work suggests the importance of studies that integrate perspectives from both interpersonal and mass communication (Walther et al., 2011). Health communication online often occupies a middle territory between public and private, and theories from both disciplines are necessary to gain a better understanding of communication processes, effects, and applications to public health practice. In addition, assessments of health information, online and

elsewhere, should take into account that a prime motivation in seeking

information or in attending to information encountered incidentally is as a guide

to directing behavior (Atkin, 1973). Information is important not just absolutely

but also relative to the goal for its use. Acknowledging the relativity inherent in

this perspective will allow health communicators to resolve the false dichotomy

between sources of information worthy of being believed and sources likely of

being believed (Flanagin & Metzger, 2007). Embracing the potential validity and

social relevance of nontraditional source of health information will also enable

novel partnerships with online networks to disseminate information, offer

support, and encourage behaviors aligned with public health priorities.

APPENDIX A. HYPOTHESES AND RESEARCH QUESTIONS

H1: Socially proximal sources will be considered more interpersonally similar than are socially distal sources

RQ1: What is the contribution of source expertise cues to perceived similarity?

RQ2: Is there an interaction between source expertise and social proximity cues on assessments of interpersonal similarity?

H2: Sources identified as experts will be considered more credible than both sources identified as nonexperts and sources with no cues indicating expertise

H3: Source social proximity cues increase perception of source expert credibility.

RQ3: Is there an interaction between source social proximity and expertise cues on assessment of source expert credibility?

RQ4a: Does perceived expert credibility moderate the effects of social proximity source cues condition on perception of interpersonal similarity?

RQ4b: Does perceived interpersonal similarity moderate the effects of expertise source cues condition on perception of expert credibility?

RQ5a: Do source expertise cues influence assessment of the credibility of user-generated health messages?

RQ5b: Do source proximity cues influence assessment of message credibility?

RQ5c: Is there an interaction between source expertise cues and social proximity cues on assessment of message credibility?

RQ6a: Do source proximity cues influence assessment of message relevance?

RQ6b: Do source expertise cues influence assessment of message relevance?

RQ6c: Is there an interaction between source expertise cues and social proximity cues on assessment of message relevance?

RQ7: Do interpersonal similarity, expert credibility, and the perceived credibility × similarity interaction predict message credibility?

RQ8: Do interpersonal similarity, expert credibility, and the perceived credibility × similarity interaction predict message relevance?

RQ9: Do interpersonal similarity, expert credibility, and the perceived credibility × similarity interaction predict behavioral intentions?

RQ10: Does a regression model including all source and message variables significantly predict behavioral?

RQ11: Do relationships among the variables in the regression model differ when the file is split between high and low perception of interpersonal similarity?

RQ12a: Does perceived interpersonal similarity moderate the effects of source cues on behavioral intentions through message relevance?

RQ12b: Does perceived interpersonal similarity moderate the effects of source cues on behavioral intentions through message credibility?

H4: Participants who view messages from a source perceived as more interpersonally similar will be more likely to describe *how* a source reached a health goal, as a proportion of total thoughts, compared with participants who viewed messages from a source viewed as less interpersonally similar.

H5: Participants who view messages from a source perceived as less interpersonally similar will be more likely to describe *why* a source reached a health goal, as a proportion of total thoughts, compared with participants who viewed messages from a source viewed as more interpersonally similar.

H6: Participants who view messages from a source perceived as more interpersonally similar will list more feasibility-related health beliefs, as a proportion of total beliefs, compared with participants who viewed messages from a source viewed as less interpersonally similar.

H7: Participants who view messages from a source perceived as less interpersonally similar will list more desirability-related health beliefs, as a proportion of total beliefs, compared with participants who viewed messages from a source viewed as more interpersonally similar.

H8: Participants who view messages from a source perceived as more interpersonally similar will list more negative health beliefs, as a proportion of total beliefs.

H9: Participants who view messages from a source perceived as less interpersonally similar will list more positive health beliefs, as a proportion of total beliefs.

H10: Participants who view messages from sources perceived as more interpersonally similar will agree to write fewer messages in the present.

H11: Participants who view messages from sources perceived as less interpersonally similar will agree to write more messages in the future.

H12. Sources perceived as less similar will be assigned fewer messages than sources perceived as more similar.

H13: Participants who view messages from a source perceived as less similar will have greater current intentions to engage in the behaviors depicted in the messages.

RQ13: Does participant characterization of sources' actions or statements of health-related beliefs predicted present or future behavioral intentions among participants who perceived sources as more or less interpersonally similar?

APPENDIX B. HEALTH MESSAGES

The survey design program randomly selected one each of the two messages from each category. Each participant saw three messages, one from each category.

Exercise

1. The silver lining to living so far from work is that it gives me more time to ride my bike. Having time to be outside and clear my head in the morning is so much better than waiting at red lights.

2. Scheduling workouts with a friend is key. Meeting someone means I am so much more likely to actually show up at the gym. I might be lazy on my own, but I won't let someone else down.

Healthy Eating

1. I have no chips or candy in the house, so I am eating an apple by default. Strategy! If I don't buy junk food, I eat way less of it.

2. Here's what I had for lunch: tuna, beets, yellow peppers, spinach. This Paleo diet is the best. I feel great, and my food is so nice and colorful.

Stress Reduction

1. Learning how to cope with stress is a daily struggle. I keep reminding myself: Dorito-eating = bad. Mediation and yoga = good. I had a meditation class recently, and I was amazed at how well it worked to keep me focused and calm.

   I just read that having a hobby reduces stress and boosts creativity. The hobbies I've seen people doing so far today are (A) jogging, (B) knitting, (C)

hula hoops! Not sure yet which one I'll try.

APPENDIX C. CONTENT ANALYSIS CODEBOOK

The first section to be coded is a section on why or how the source in the experiment met health goals. Participants saw some information about a source and then read some messages they believed to be from that source. They were then told the participant had set some goals for health behavior and were asked to describe why or how. Here's the exact text they read:

> You've just read health messages written by another participant. In their survey responses, this participant reported that he or she recently met goals set for exercise, healthy eating, and stress reduction. We would like you to provide your thoughts about WHY or HOW this participant met health goals. There are no right or wrong answers. We're only interested in your opinion.

It's important to note that:

Each belief/reason will be coded separately.

To decided what constitutes a belief, we'll use this description from a previous study (Luchyn & Yzer, 2011): "A belief was considered as distinct or unique when it referred to a single outcome, impeding or facilitating factor, and one particular person or a reference group. Abstract (general) and concrete (specific) thoughts, even if related, were considered unique because they represent construals of different levels and correspond to different levels in the goal hierarchy. For example, in a statement "fruits provide vitamins, and are good for my overall health," having vitamins and being good for health were counted as two unique beliefs."

Therefore, the first thing you'll code after each cell is the number of distinct beliefs you've identified.

Next, you will code each distinct belief as expressing one of the following characterizations of the source's goal behavior:

- Why
- How
- Other

In this context, "why" refers to more abstract beliefs about why that behavior is desirable or about certain personality traits that allowed the person to be successful. An example of a reason "why" someone reached the health goal of exercise "Exercise reduces stress" or "This person has tenacity." **In sum, why beliefs refer to the reasons why the behavior is desirable to perform or reasons why a person is successful.**

"How" refers to the specific actions or operations that led to accomplishing those goals. These beliefs are more concrete and refer to the steps a person would take to reach a goal. Examples of "how" someone reached the health goal of eating better would be "cooked at home instead of eating out" or "ate smaller portions." **In sum, how beliefs refer to the steps taken to perform a behavior or achieve a goal.**

Other statements express neither why or now, but other beliefs related or unrelated to the topic that express a personal experience or opinion.

The next section to be coded includes the three belief elicitation tasks. I asked participants to write out their thoughts related to the three health topics: exercise, healthy eating, and stress relief. Participants were prompted with the following text:

We are now interested in all the thoughts that come to your mind about [exercise, healthy eating, or stress reduction]. Please list these thoughts, whether they are positive, neutral, and/or negative. Any case is fine. Ignore spelling, grammar, and punctuation. We have deliberately provided more spaces than we think people will need to ensure that everyone will have plenty of room. Please be completely honest. Your answers will be anonymous.

Participants were provided with five spaces to list thoughts. Some participants used a space for each thought, and some ran all their thoughts together in a paragraph form.

It's important to note that:

Each belief will be coded separately.

Therefore, the first thing you'll code after each cell is the number of distinct beliefs you've identified.

Next, you will code each distinct belief as expressing one of the following aspects of the health behavior:

- Desirability/Why
- Feasibility/How
- Other

In this context, the **desirability** of an outcome refers to whether something is worth doing, whether in general it's a good thing to do. An example of a desirability belief might be: "Exercise reduces stress." Or "I look much better when I exercise" Desirability beliefs are usually fairly simple statements of fact. They could also be described as reasons for engaging in a behavior like exercise or healthy eating—or reasons for not engaging in a behavior. **In sum, desirability beliefs will refer to reasons for or against performing a behavior or**

**will describe the outcomes of the behavior—why I would (or would
not) perform the behavior.**

The **feasibility** aspect of a behavior refers to any roadblocks or difficulties
in performing a behavior, as well as the perceived capability of performing the
behavior (often called self-efficacy). An example of a feasibility belief would be
"the pool is right next door" or "too busy to cook" or "don't have a gym
membership." **In sum, feasibility beliefs will refer to barriers to and
facilitators for performing a behavior.**

Other statements related to behavior express neither the how nor the
why, but other thoughts such as statements of opinion like "I love fruit."

We will also code each distinct belief as:

- Pro
- Con
- Neutral

These categories are more self-explanatory. A **pro** describes a positive belief
about why the behavior is worth doing and why it is feasible. A **con** describes a
negative belief about why a behavior is not worth doing or what the barriers are
to performing the behavior. **Neutral** statements have no charge. They express no
positivity or negativity.

If a statement is **ambivalent**, meaning *both* pro and con, you can place a
mark in each column: pro and con. So, there is no separate column for
ambivalent/both. Rather an ambivalent statement gets a mark for both pro and

con. This is because ambivalent statements will usually express two distinct

beliefs, and we are coding each belief separately.

REFERENCES

Abel, T. (2008). Cultural capital and social inequality in health. *Journal of Epidemiology and Community Health, 62*(7), e13.

Ames, D. R. (2004). Strategies for social inference: a similarity contingency model of projection and stereotyping in attribute prevalence estimates. *Journal of Personality and Social Psychology, 87*(5), 573-585.

Andsager, J. L., Bemker, V., Choi, H.-L., & Torwel, V. (2006). Perceived similarity of exemplar traits and behavior: Effects on message evaluation. *Communication Research, 33*, 3-18.

Atkin, C. K. (1973). Instrumental utilities and information-seeking. In P. Clarke (Ed.), New models for communication research (pp. 205–242). Beverly Hills, CA: Sage.

Austin, E. W., Miller, A. C., Silva, J., Guerra, P., Geisler, N., Gamboa, L., et al. (2002). The effects of increased cognitive involvement on college students' interpretations of magazine advertisements for alcohol. *Communication Research, 29,* 155-179.

Austin, E. W., Roberts, D. F., & Nass, C. (1990). Influences of family communication on children's television-interpretation processes. *Communication Research, 17*(4), 545-564.

Austin, E. W., & Meili, H. K. (1994). Effects of interpretations on televised alcohol portrayals on children's alcohol beliefs. *Journal of Broadcasting & Electronic Media, 38,* 417-435.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9), 1175-1184.

Bandura, A. (1997). *Self- efficacy: The exercise of control.* New York: W.H. Freeman and Company.

Bandura, A. (2002). Social cognitive theory of mass communication. In J. Bryant and D. Zillmann, *Media effects: Advances in theory and research* (pp. 121-153). Mahwah, NJ: Lawrence Erlbaum.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bar-Anan, Y., Liberman, N., Trope, Y., & Algom, D. (2007). Automatic processing of psychological distance: evidence from a Stroop task. *Journal of Experimental Psychology, 136*, 610-622.

Baym, N., Campbell, S. W., Horst, H., Kalyanaraman, S., Oliver, M. B., Rothenbuhler, E., Weber, R., & Miller, K. (2012). Communication theory and research in the age of new media: A conversation from the *CM Café*. *Communication Monographs, 79*(2), 256-267.

Beisecker, A. E. (1990). Patient power in doctor-patient communication: What do we know? *Health Communication, 2*(2), 105-122.

Bergami, M., & Bagozzi, R. P. (2000). Self-categorization, affective commitment and group self-esteem as distinct aspects of social identity in the organization. *British Journal of Social Psychology, 39*, 555-577.

Berger, C. R., & Chaffee, S. H. (1989). Levels of analysis: An introduction. In C. R. Berger & S. H. Chaffee (Eds.), Handbook of communication science (pp. 143–145). Newbury Park, CA: Sage.

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine, 51,* 843–857.

Boyd, D. (2010). Social network sites as networked publics: Affordances, dynamics, and implications. In Papacharissi, Z. (Ed.). *Networked Self: Identity, Community, and Culture on Social Network Sites* (pp. 39-58). New York: Routledge.

Boyd, D., & Ellison, N. B. (2007). Social network sites: definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210-230.

Brashers, D. E., Goldsmith, D. J., & Hsieh, E. (2002). Information seeking and avoiding in health contexts. *Human Communication Research, 28*, 258–272.

Braverman, J. (2008). Testimonials versus informational persuasive messages: the moderating effect of delivery mode and personal involvement. *Communication Research, 35*(5), 666-694.

Brosius, H.-B. (1999). The influence of exemplars on recipients' judgments: The part played by similarity between exemplar and recipient. *European Journal of Communication, 14,* 213-224.

Brosius, H.-B., & Bathelt, A. (1994). The utility of exemplars in persuasive communications. *Communication Research, 21,* 48-78.

Cacioppo, J. T., von Hippel, W., & Ernst, J. M. (1997). Mapping cognitive structures and processes through verbal content: the thought-listing technique. *Journal of Consulting and Clinical Psychology, 65*(6), 928-940.

Campo, S., Brossard, D., Frazer, M. S., Marchell, T., Lewis, D., & Talbot, J. (2003). Are social norms campaigns really magic bullets? Assessing the effects of students' misperceptions on drinking behavior. *Health Communication, 15,* 481-497.

Campo, S., Cameron, K. A., Brossard, D., & Frazer, M. S. (2004). Social norms and expectancy violation theories: assessing the effectiveness of health communication campaigns. *Communication Monographs, 71*(4), 448-470.

Cathcart, R., & Gumpert, G. (1986). Mediated interpersonal communication: Toward a new typology. In G. Gumpert & R. Cathcart (Eds.), Inter/media: Interpersonal communication in a media world (3rd ed., pp. 26–40). New York, NY: Oxford University Press.

Chaffee, S. H. (1986). Mass media and interpersonal channels: Competitive, convergent, or complementary? In G. Gumpert & R. Cathcart (Eds.), *Inter-media: Interpersonal communication in a media world* (pp. 57–77). New York: Oxford University Press.

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology, 39*(5), 752-766.

Chaiken, S., & Eagly, A. (1983). Communication modality as a determinant of persuasion: The role of communicator salience. *Journal of Personality and Social Psychology, 45,* 241-256.

Chan, S. (2009). City unveils Facebook page to encourage condom use. *New York Times*. Retrieved from http://www.nytimes.com/2009/02/12/nyregion/12econdom.html.

Christensen, P. N., Rothgerber, H., Wood, W., & Matz, D. C. (2004). Social norms and identity relevance: A motivational approach to normative behavior. *Personality and Social Psychology Bulletin, 30,* 1295–1309.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* (1), 155-159.

Comello, M. L. (2011). Characterizing drug non-users as distinctive in prevention messages: implications of optimal distinctiveness theory. *Health Communication, 26*(4), 313-322.

David, C., Cappella, J. N., & Fishbein, M. (2006). The social diffusion of influence among adolescents: Group interaction in a chat room environment about antidrug advertisements. *Communication Theory, 16,* 118–140.

Day, S. B., & Bartels, D. (2008). Representation over time: The effects of temporal distance on similarity, *Cognition, 106,* 1504-1513.

Duggan, M. & Brenner, J. (2013). The demographics of social media users—2012. Pew Internet and American Life Project Retrieved from http://www.pewinternet.org/Reports/2013/Social-media-users/The-State-of-Social-Media-Users.aspx.

Dutta-Bergman, M. J. (2005). Theory and practice in health communication campaigns: a critical interrogation. *Health Communication, 18*(2), 103-122.

Eastin, M. S. (2001). Credibility assessments of online health information: The effects of source expertise and knowledge of content. *Journal of Computer-Mediated Communication, 6*(4). Retrieved from http://www.ascusc.org/jcmc/vol6/issue4/eastin.html

Eysenbach, G. (2008). Credibility of health information and digital media: new perspectives and implications for youth. In M. J. Metzger & A. J. Flanagin (Eds.), *Digital Media, Youth, and Credibility* (pp. 123-154). Cambridge, Massachusetts: MIT Press.

Eysenbach, G. et al. (2004). Health-related virtual communities and electronic support groups: Systematic review of the effects of online peer to peer interaction. *BMJ, 328,* 1166.

Eysenbach, G., & Köhler, C. (2002). How do consumers search for and appraise health information on the world wide web? Qualitative study using focus groups, usability tests, and in-depth interviews. *British Medical Journal, 324,* 573–577.

Flanagin, A. J., & Metzger, M. J. (2010). *Kids and credibility: An empirical examination of youth, digital media use, and information credibility.* Cambridge: MIT Press.

Flanagin, A. J., & Metzger, M. J. (2007). Digital media and youth: Unparalleled opportunity and unprecedented responsibility. In M. Metzger & A. Flanagin (Eds.), Digital media, youth, and credibility. MacArthur foundation series on digital media and learning (pp. 5–28). Cambridge, MA: The MIT Press.

Fogg, B. J. (2003). *Persuasive technology: Using computers to change what we think and do.* San Francisco: Morgan Kaufmann.

Förster, J., Friedman, R., & Liberman, N. (2004). Temporal construal effects on abstract and concrete thinking: Consequences for insight and creative cognition. *Journal of Personality and Social Psychology, 87,* 177-189.

Fox, S. (2011a). Peer-to-peer healthcare. Pew Internet & American Life Project. Retrieved from http://www.pewinternet.org/Reports/2013/Health-online/Part-Two/~/link.aspx?_id=7195DA815EA54420B0A56D72906C0F51&_z=z.

Fox, S. (2011b). The social life of health information. Pew Internet & American Life Project. Retrieved from http://www.pewinternet.org/Reports/2011/Social-Life-of-Health-Info.aspx.

Fujita, K., Eyal, T., Chaiken, S., Trope, Y., & Liberman, N. (2008). Influencing attitudes toward near and distant objects. *Journal of Experimental Social Psychology, 227*(21), 9044-9062.

Galegher, J., Sproull, L., & Kiesler, S. (1998). Legitimacy, authority, and community in electronic support groups. *Written Communication, 15,* 493–530.

Gibson, J. J. (1977). The theory of affordances. In: Shaw, R., & Bransford, J. (Eds.). *Perceiving, acting, and knowing: Toward an ecological psychology.* Mahwah, NJ: Lawrence Erlbaum.

Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions in goal achievement: a meta-analysis of effects and processes. *Advances in Experimental Social Psychology, 38,* 69-117.

Grabe, M. E., & Westley, B. H. (2003). The controlled experiment. In G. H. Stempel, III, D. H. Weaver, & G. C. Wilhoit, *Mass Communication Research and Theory* (Pp. 267-298). Boston, MA: Allyn and Bacon.

Guerin, B. (2003). Language use as a social strategy. A review and an analytic framework for the social sciences. *Review of General Psychology, 7,* 251–298.

Hardey, M. (2001). "E-health": The Internet and the transformation of patients into consumers and producers of health knowledge. *Information, Communication, and Society, 4*, 388-405.

Haines, A., Sanders, D., Lehmann, U., Rowe, A. K., Lawn, J. E., Jan, S., et al. (2007). Achieving child survival goals: potential contribution of community health workers. *The Lancet, 369*(9579), 2121-2131.

Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: Guilford Press.

Hayes, A. F., & Preacher, K. J. (2011). Indirect and direct effects of a multicategorical causal agent in statistical mediation analysis. (Unpublished manuscript). Retrieved from http://www.afhayes.com/public/hp2011.pdf.

Henderson, M. D., & Wakslak, C. J. (2010). Psychological distance and priming: when do semantic primes impact social evaluations? *Personality and Social Psychology Bulletin, 36*(7), 975-985.

Hilligoss, B., & Rieh, S. Y. (2008). Developing a unifying framework of credibility assessment: Constructs, heuristics, and interaction in context. *Information processing & management. 44*, 1467-1484.

Hogg, M. A., & Reid, S. A. (2006). Social identity, self-categorization, and the communication of group norms. *Communication Theory, 16*, 7-30.

Hornik, R. C. (1989). Channel effectiveness in development communication programs. In R. E. Rice & C. K. Atkin (Eds.), Public communication campaigns (pp. 309–330). Newbury Park, CA: Sage.

Hovland, C. I., Janis, I. L., & Kelley, J. J. (1953). *Communication and persuasion: Psychological studies of opinion change*. New Haven, CT: Yale University Press.

Hovland, C. I., & Weiss, W. (1951). The influence of source credibility on communication effectiveness. *The Public Opinion Quarterly, 15*(4), 635-650.

Hu, Y., & Shyam Sundar, S. (2010). Effects of online health sources on credibility and behavioral intentions. *Communication Research, 37*(1), 105-132.

Jones, E. E., & Nisbett, R. E. (1972). The actor and the observer: divergent perceptions of the causes of the behavior In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valines, & B. Weiner (Eds.). *Attribution: Perceiving the causes of behavior* (pp. 79-94). Morristown, NJ: General Learning Press.

Kalyanaraman, S., & Sundar, S. S. (2006). The psychological appeal of personalized online content in Web portals: does customization affect attitudes and behavior? *Journal of Communication, 56,* 110-132.

Katz, S. J. (2013, June). Construal level theory and psychological reactance theory: theoretical interactions, message salience, and message effectiveness. Paper to be presented at the International Communication

Association Annual Conference, London, England.

Katz, S. J. & Byrne, S. (2012, May). Construal level theory of mobile persuasion. Paper presented at the International Communication Association Annual Conference, Phoenix, AZ.

Kelly, B. J., Niederdeppe, J., & Hornik, R. C. (2009). Validating measures of scanned information exposure in the context of cancer prevention and screening behaviors. *Journal of Health Communication, 14*, 721-740.

Kim, H., Rao, A. R., & Lee, A. Y. (2009). It's time to vote: the effect of matching message orientation and temporal frame on political persuasion. *Journal of Consumer Research, 35*(6), 877-889.

Kreuter, M. W., & McClure, S. M. (2004). The role of culture in health communication. *Annual Review of Public Health, 25*, 439-455.

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.

Krueger, J. (2000). The projective perception of the social world. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 323–351). New York: Kluwer Academic/Plenum.

Lazarsfeld PF, & Merton RK. (1954). Friendship as a social process: a substantive and methodological analysis. In Berger, M. (Ed.). *Freedom and Control in Modern Society* (pp. 18-66). New York, NY: Van Nostrand.

Lea, M., Spears, R., Watt, S. E., & Rogers, P. (2000). The inside story: social psychological processes affecting on-line groups. In T. Postmes, R. Spears, M. Lea, & S. D. Reicher (Eds.). *Side-issues centre-stage: recent developments in studies of de-individuation in groups* (pp. 283-301). Amsterdam: KNAW.

Lederman, L. C., Stewart, L. P., Goodhart, F. W., & Laitman, L. (2003). A case against "binge" as the term of choice: convincing college students to personalize messages about dangerous drinking. *Journal of Health Communication, 8,* 79-91.

Lee, C.-J. (2009). The interplay between media use and interpersonal communication in the context of healthy lifestyle behaviors: reinforcing or substituting? *Mass Communication and Society, 13*, 48-66.

Lee, J. Y., & Sundar, S. S. (2012). To Tweet or to reTweet? That is the question for health professionals on Twitter. *Health Communication*. Epub ahead of print. DOI: 10.1080/10410236.2012.700391.

Lea, M., & Spears, R. (1992). Paralanguage and social perception in computer-mediated communication. *Journal of Organizational Computing, 2,* 321–341.

Liberman, N., & Förster, J. (2009). Distancing from experienced self: how global-versus-local perception affects estimation of psychological distance. *Journal of Personality and Social Psychology, 97*(2), 203-216.

Liberman, N, & Trope, Y. (2008). The psychology of transcending the here and now. *Science, 322*(5905), 1201-1205.

Lieberman, M. A., Wizlenberg, A., Golant, M., & Di Minno, M. (2005). The impact of group composition on Internet support groups: homogeneous versus heterogeneous Parkinson's groups. *Group Dynamics: Theory, Research, and Practice, 9,* 239–250.

Liviatan, I., Trope, Y., & Liberman, N. (2008). Interpersonal similarity as a social distance dimension: implications for perception of others' actions. *Journal of Experimental Social Psychology, 44,* 1256-1269.

Love, M. B., Gardner, K., & Legion, V. (1997). Community Health Workers: who they are and what they do. *Health Education & Behavior, 24*(4), 510-522.

Lutchyn, Y., & Yzer, M. (2011). Construal level theory and theory of planned behavior: time frame effects on salient belief generation. *Journal of Health Communication, 16*(6), 595-606.

McCroskey, J. C., Hamilton, P. R., & Weiner, A. N. (1974). The effects of interaction behavior on source credibility, homophily, and personal attraction. *Human Communication Research, 1*(1), 42-52.

McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of the measurement of interpersonal attraction and homophily. *Communication Quarterly, 54*(1), 1-31.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: homophily in social networks. *Annual Review of Sociology, 27,* 415-444.

Media Life Magazine. (2013). Study: most online time spent on Facebook. *Media Life*. Retrieved from http://www.medialifemagazine.com/study-most-online-time-spent-on-facebook/.

Medin, D. L., Goldstone, R. L., & Gentner, D. (1993). Respects for similarity. *Psychological Review, 100*(2), 254–278.

Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and heuristic approaches to credibility evaluation online. *Journal of Communication, 60*(3), 413-439.

Moyer-Gusé, E. (2008). Toward a theory of entertainment persuasion: Explaining the persuasive effects of entertainment-education messages. *Communicaty Theory, 18*(3), 407-425.

Naar-King, S., Outlaw, A., Green-Jones, M., Wright, K., & Parsons, J. T. (2009). Motivational interviewing by peer outreach workers: a pilot randomized clinical trial to retain adolescents and young adults in HIV care. *AIDS Care, 21*(7), 868-873.

Nan, X. (2007). Social distance, framing, and judgment: a construal level perspective. *Human Communication Research, 33*(4), 489-514.

Nass, C. I., & Mason, L. (1990). On the study of technology and task: A variable-based approach. In Fulk, J. & Steinfeld, C. (eds.), *Organizations and communication technology* (pp. 46-67), Newbury Park, CA: Sage Publications.

Newhagan, J., & Nass, C. (1989). Differential criteria for evaluating credibility of newspapers and TV news. *Journalism Quarterly, 66*, 277-284.

Niederdeppe, J., Hornik, R., Kelly, B., Frosch, D., Romantan, A., Stevens, R., Barg, F., Weiner, J., & Schwarz, S. (2007). Examining the dimensions of cancer-related information scanning and seeking behavior. *Health Communication, 22*, 153–167.

NM Incite. (2011). Friends & frenemies: why we add and remain Facebook friends. NM Incite web page. Retrieved from http://nmincite.com/friends-frenemies-why-we-add-and-remove-facebook-friends/.

O'Keefe, D. J. (2003). Message properties, mediating states, and manipulation checks: Claims, evidence, and data analysis in experiment persuasive message effects research. *Communication Theory, 13*(3), 251-274.

Parker, E. A., Schulz, A. J., Israel, B. A., & Hollis, R. (1998). Detroit's East Side Village Health Worker Parternship: community-based lay health advisor intervention in an urban area. *Health Education and Behavior, 25*(1), 24-45.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: central and peripheral routes to attitude change.* New York: Springer-Verlag.

Preece, J. (1999). Empathetic communities: Balancing emotional and factual communication. *Interacting With Computers, The Interdisciplinary*

Journal of Human-Computer Interaction, 12, 63–77.

Prior, L. (2003). Belief, knowledge, and expertise: the emergence of the lay expert in medical sociology. *Sociology of Health & Illness, 25*(3), 41-57.

Pronin, E., Olivola, C. Y., & Kennedy, K. A. (2008). Do unto future selves as you would do unto others: psychological distance and decision making. *Personality and Social Psychology Bulletin, 34*(2), 224-236.

Quick, B. L., Scott, A. M., & Ledbetter, A. M. (2011). A close examination of trait reactance and issue involvement as moderators of psychological reactance theory. *Journal of Health Communication, 16*(6), 660-679.

Quick, B. L., & Stephenson, M. T. (2007). Authoritative parenting and isuse involvement as indicators of ad recall: an empirical investigation of anti-drug ads for parents. *Health Communication, 22,* 25-35.

Reeves, B. & Geiger, S. (1994). Designing experiments that assess psychological responses. In A. Lang (Ed.), *Measuring Psychological Responses to Media* (pp. 165-180). Hillsdale, NJ: LEA.

Rieh, S. Y. (2002). Judgment of information quality and cognitive authority in the Web. *Journal of the American Society of Information Science and Technology, 53*(2), 145–161.

Rieh, S. Y. & Danielson, D. R. (2007). Credibility: A multidisciplinary framework. In B. Cronin (Ed.), *Annual Review of Information Science and Technology* (Vol. 41, pp. 307-364). Medford, NJ: Information Today.

Rimal, R. N., & Real, K. (2003). Understanding the influence of perceived norms on behaviors. *Communication Theory, 13,* 184–203.

Rise, J., Kovac, V., Kraft, P., & Moan, I. S. (2008). Predicting the intention to quit smoking and quitting behaviour: Extending the theory of planned behaviour. *British Journal of Health Psychology, 13(2), 291-310.*

Rogers, E. M., & Bhowmik, D. K. (1971). Homophily/heterophily: relational concepts for communication research. *Public Opinion Quarterly, 34,* 523-538.

Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of innovations: A cross-cultural approach* (2nd ed. of *Diffusion of innovations*). New York: Free Press.

Semin, G.R., & Fiedler, K. (1989). Relocating attributional phenomena within a language-cognition interface: The case of actors' and observers' perspectives. *European Journal of Social Psychology, 19,* 491–508.

Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. In W. Stroebe and M. Hewstone (Eds.), *European Review of Social Psychology* (Vol. 12, pp. 1-30). New York: Wiley.

Shim, M., Kelly, B., & Hornik, R. (2006). Cancer-related seeking and scanning behavior is associated with cancer knowledge, lifestyle and screening behaviors. *Journal of Health Communication, 11*(Suppl 2): 157–172.

Slater, M. D., Buller, D. B., Waters, E., Archibeque, M., & LeBlanc, M. (2003). A test of conversational and testimonial messages versus didactic presentations of nutrition information. *Journal of Nutrition Education and Behavior, 35*(5), 255-259.

Slater, M. D. (2006). Specification and misspecification of theoretical foundations and logic models for health communication campaigns. *Health Communication, 20*(2), 149-157.

Spears, R., & Lea, M. (1992). Social influence and the influence of the "social" in computer mediated communication. In M. Lea (Ed.), Contexts of computer-mediated communication (pp. 30–65). London: Harvester Wheatsheaf.

Stanford, J., Tauber, E. R., Fogg, B. J., & Marable, L. (2002, October 29). How do people evaluate a Web site's credibility? *Consumer Reports WebWatch Research Report.* Retrieved from http://www.consumerwebwatch.org/dynamic/web-credibility-report-evaluate.cfm

Sundar, S. S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. In M. J. Metzger & A. J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 73-100). Cambridge, MA: The MIT Press.

Sundar, S. S., & Nass, C. (2001). Conceptualizing sources in online news. *Journal of Communication,* 52-72.

Sundar, S. S., & Nass, C. (2000). Source orientation in human-computer interaction: Programmer, networker, or independent social actor. *Communication Research, 27*(6), 683-703.

Sundar, S. S., Xu, Q., & Oeldorf-Hirsch, A. (2009). Authority vs. peer: How interface cues influence users. *Proceedings of the 27th International Conference Extended Abstracts on Human Factors in Computing Systems (CHI'09),* 27, 4231–4236.

Swider, S. M. (2002). Outcome effectiveness of community health workers: an integrative literature review. *Public Health Nursing, 19*(1), 11-20.

Tajfel, H. & Turner, J. C. (1986). The social identity theory of inter-group behavior. In S. Worchel & L. W. Austin (Eds.), *Psychology of Intergroup Relations*. Chicago, IL: Nelson-Hall.

Tao, C.-C., & Bucy, E. P. (2007). Conceptualizing media stimuli in experimental research: psychological versus attribute-based definitions. *Human Communication Research, 33*, 397-426,

Thackeray, R., Crookston, B., & West, J. H. (2013). Correlates of health-related social media use among adults. *Journal of Medical Internet Research, 15*(1), e21. doi:10.2196/jmir.2297.

Tian, Y., & Robinson, J. D. (2009). Incidental health information use on the internet. *Health Communication, 24*(1), 41-49.

Trope, Y. & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychology Review. 117*(2), 440-463.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review, 110*(3), 403-421.

Turner, J. C. (1982). Towards a cognitive redefinition of the social group. In: Tafjel, H. (Ed.), *Social identity and intergroup relations* (pp. 15-40). Cambridge, England: Cambridge University Press.

Viswanath, K. (2005). The communications revolution and cancer control. *Nature Reviews, 5,* 828–835.

Viswanath, K. & Emmons, K. M. (2006). Message effects and social determinants of health: Its application to cancer disparities. *Journal of Communication, 56*(S1), S238-S264.

Vitak, J., & Ellison, N. B. (2012). 'There's a network out there you might as well tap': exploring the benefits of and barriers to exchanging informational and support-based resources on Facebook. *New Media & Society,* published online ahead of print. DOI: 10.1177/1461444812451566.

Walther, J. B. (1996). Computer-mediated communication: impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*(1), 3-43.

Walther, J. B., & Boyd, S. (2002). Attraction to computer-mediated social support. In C. A. Lin & D. Atkin (Eds.), *Communication technology and society: Audience adoption and uses* (pp. 153–188). Cresskill, NJ:

Hampton Press.

Walther, J. B., Carr, C. T., Choi, S. S. W., DeAndrea, D. C., Kim, J., Tong, S. T., & Van Der Heider, B. (2011). Interaction of interpersonal, peer, and media influence sources online. In Papacharissi, Z. (Ed.). *Networked Self: Identity, Community, and Culture on Social Network Sites* (pp. 17-38). New York: Routledge.

Walther, J. B., DeAndrew, D., Kim, J., Anthony, J. C. (2010). The influence of online comments on perceptions of antimarijuana public service announcements on YouTube. *Human Communication Research, 36*, 469-492.

Walther, J. B., Wang, Z., & Loh, T. (2004). The effect of top-level domains and advertisements on health Web-site credibility. *Journal of Medical Internet Research, 6*(3). Retrieved from http://www.jmir.org/2004/3/e24/.

Wang, Z., Walther, J. B., & Hancock, J. T. (2009). Social identification and interpersonal communication in computer-mediated communication: what you do versus who you are in virtual groups. *Human Communication Research, 35*, 59-85.

Wang, Z., Walther, J. B., Pingree, S., & Hawkins, R. P. (2008). Health information, credibility, homophily, and influence on the internet: web sites versus discussion groups. *Health Communication, 23*, 358-368.

Weis, R., Stamm, K., Smith, C., Nilan, M., Clark, F., Weis, J., et al. (2003). Communities of care and caring: The case of MSWatch.com. *Journal of Health Psychology, 8*, 135–148.

Wicklund, R. A. (1974). *Freedom and Reactance.* Potomac, MD: Lawrence Erlbaum Associates, Publishers.

Winzelberg, A. (1997). The analysis of an electronic support group for individuals with eating disorders. *Computers in Human Behavior, 1*, 393–407.

Witmer, A., Seifer, S. D., Finocchio, L., Leslie, J., & O'Neil, E. H. (1995). Community health workers: integral members of the health care work force. *Am J Public Health, 85*(8_Pt_1), 1055-1058.

Xu, Q., Schmierbach, M., Bellur, S., Ash, E., Oeldorf-Hirsch, A., & Kegerise, A. (2012). The effects of "friend" characteristics on evaluations of an activist group in a social networking context. *Mass Communication and Society, 15*(3), 432-453.

Zhang, J. (2010). Self-enhancement on a self-categorization leash: evidence for a dual-process model of first- and third-person perceptions. *Human Communication Research. 36*(2), 190-215.

Zillmann, D. (2006). Exemplification effects in the promotion of safety and health. *Journal of Communication, 56*, S221-S237.

Zillmann, D. (2002). Exemplification theory of media influence. In J. Bryant and D. Zillmann, *Media effects: Advances in theory and research* (pp. 19-41). Mahwah, NJ: Lawrence Erlbaum.

Zillmann, D., & Brosius, H.-B. (2000). *Exemplification in communication: The influence of case reports on the perception of issues.* Mahwah, NJ: Lawrence Erlbaum.

VITA

Rachel Young is originally from Columbia, Missouri. In 1992, she received a bachelor's degree with majors in Anthropology and English from Beloit College in Beloit, Wisconsin. She graduated *summa cum laude* and with honors in both majors. Her undergraduate honors thesis examined narrative construction in the oral histories of Lakota women.

After graduating, she worked as an environmental educator on an organic farm, compiled reference databases for environmental scientists at the U. S. Geological Survey, substitute taught in the Columbia Public Schools, and spent six months in northern Italy before finally returning to school. She studied science writing and magazine editing as a master's student at the University of Missouri School of Journalism. During this time, she wrote stories on science and environmental topics, including a feature on the last remnant of tallgrass prairie in central Missouri. For her master's project, she worked as an editor at *The Sciences*, the sadly defunct magazine of the New York Academy of Sciences, and interviewed science magazine editors about their efforts editing scientists' work for a mainstream audience, focusing on conflicts in narrative structure and the use of language.

Rachel received her master's degree in journalism in 2001. She then acted out the lessons learned in her master's research as a manuscript editor at the American Medical Association. She edited articles by medical researchers to be published in journals such as *JAMA Internal Medicine* and *JAMA Pediatrics*. She

then moved to Cricket Magazine Group, where she edited for three different science and nature magazines aimed at readers from ages 3 through 17: *Click*, *Ask*, and *Muse*. She spent five years working full-time for Cricket and then freelancing as a contributing editor.

In 2009, she returned to school to pursue an interest in public health communication and social science research born of her time at the American Medical Association and her academic background in anthropology. She concurrently pursued a master's of public health and a doctorate in journalism from the University of Missouri. As a doctoral student, she conducted health communication research using varied methods and on different health communication sources, channels, and audiences. Work published or presented at professional conferences explores reactions to antiobesity advertisements emphasizing individual vs. social determinants of health, differences in the health news agenda as set by local public health practitioners and local journalists, patient acceptance of and attitudes toward electronic medical records, and journalists' use of exemplars in health news stories. Current work, including her dissertation, focuses on production and processing of user-generated health content with the goal of informing health campaigns and interventions delivered via mediated interpersonal channels.