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PERSUASION IN A MEDIATED ENVIRONMENT:  
LINKS AS ENDORSEMENTS

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## ABSTRACT

This study seeks to advance understanding of hyperlinks, specifically whether or not users are construing hyperlinks as implicit endorsements. A foundational, theoretical framework, Social Responses to Communication Technologies (SRCT), predicts that communicative norms are not necessarily abandoned when mediated. A receiver's interpretation of endorsement is particularly linear in an unmediated setting; however, online, in an increasingly networked environment, fewer critical user assessments (source attribution, source credibility) are as simple as they once were. The results of a 2 (source credibility: low vs. high) x 2 (source proximity: proximate vs. distal) experiment ( $N = 864$ ) reveal that participants may in fact be construing links as implicit endorsements. Implications for future research are discussed.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	iii
Introduction.....	1
Chapter 1 Literature Review .....	3
Source Attribution.....	4
Credibility .....	6
Credibility Then .....	6
Credibility Today .....	7
Proximate and Distal Source Cues.....	8
Chapter 2 Method .....	10
Design Overview.....	10
Table 1 Final Condition Distribution by Source .....	11
Table 2 Final Condition Distribution by Source Credibility .....	11
Pretest.....	11
Participants.....	12
Stimulus Materials .....	12
Procedure .....	13
Dependent Measures .....	13
Credibility Perception .....	13
Content Perception .....	14
Index Construction.....	14
Data Analysis .....	15
Chapter 3 Results.....	16
Trustworthiness .....	16
Interest Value .....	18
Newsworthiness .....	18
Chapter 4 Discussion .....	21
Limitations .....	24
Future Studies .....	24
Bibliography .....	25

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## Introduction

Rapid proliferation of web 2.0 environments and increasingly interlinked traditional web presences continue to make hyperlinks a topic for communication scholar's inquiry (e.g. Park & Thelwall, 2003). For an author, there are a number of valuable functions that links perform. They can function as "matter-of-fact" links, merely to prove to the user that the target exists. "Non-original location" links direct the user to an alternate location where the original content is replicated (i.e. a cached Google page). Advertising links generate revenue for the host site and provide marketing for products. "Related information" links provide additional resources to help users explore. "Quotation-in-context" links direct the user to the source of a direct quotation. "For more information" links allow authors to avoid retelling existing details. Action links allow the user to perform an action (i.e. sign up for a newsletter). It is clear that authors are indeed using links for a variety of functions yet there is some ambiguity implicit in creating links as an author's intent is only (necessarily) embedded in the link contextually.

Hyperlinks have been used to imply endorsement. This issue manifested itself in 2002 when Washington Post writer, Ellen Sorokin, wrote a scathing review of the National Education Association's (NEA) "official" position regarding lesson planning for America's youth on the anniversary of September 11<sup>th</sup>. In fact, the lesson plan she critiqued as the basis for her argument was on a completely different website—a site to which the NEA had merely posted a hyperlink. If users can construe hyperlinks as endorsements they may implicitly function as endorsements. SRCT (Reeves & Nass, 2003) suggests that users are often governed by the same social norms—even in a mediated environment. If a news media outlet embeds a hyperlink to another source of information the user's perceptions of the original source may in fact valence the user's perceptions of the linked source and its content. The critical considerations (source attribution,

source credibility) message receivers make regarding information senders present to them are increasingly complicated when mediated. The current study investigates how users handle these considerations online to answer the simple question, “Are links endorsements?” The following research question will guide the current study’s inquiry:

RQ1: How will perceptions of the proximate (hyperlinking) source’s credibility and that source’s content influence perceptions of the distal (linked) source and its content?

## Chapter 1

### Literature Review

In as little as twenty years, the internet has evolved from a niche tool reserved for industry users or technology enthusiasts into a ubiquitous information and communication superhighway. With increased reliance on the internet, users must constantly assess the veracity of the information to which they are exposed (Sundar, 2008). In this intricately networked, information rich, and deregulated media environment critical assessments (source attribution, source credibility) are left up to the user. This, coupled with the brain's tendency to be frugal with cognitive resources, renders traditional sender-receiver based credibility assessments moot because a centralized authority is often hard to identify (Metzger, Flanagin, & Medders, 2010). While navigating websites (primarily using hyperlinks) users are repeatedly forced to orient to a number of cognitively distinct sources, including "visible" sources, "technological" sources, and "receiver" sources (Sundar & Nass, 2001). Thus, credibility assessments are based upon source credibility, as well as message and medium credibility. Often these serve as ostensible cues that afford users mental shortcuts for constantly assessing and reassessing the extent that the content to which they are exposed is believable (Sundar, 2008). These shortcuts, known as cognitive heuristics, are often employed involuntarily (Bargh & Chartrand, 1999) and usually lead to direct acceptance or rejection of a message. Attributes that prompt heuristic processing are generally embedded within a message, appear in the context of message presentation (e.g. news aggregator versus a traditional online article), or the user themselves (Chen & Chaiken, 1999). Given the rise and popularity of news aggregators (e.g. Google news) many users process content displayed by a non-original source with a variety of source labels. Traditional news media sites are beginning to follow suit in an effort to aggregate news within their own online presence. The

BBC.com now includes hyperlinks at the bottom of their articles that direct users to a different news media outlet's take on the same story—simultaneously functioning as aggregator and content provider. The current study is concerned with how media consumers will interpret content accessed in this fashion. When users are consuming content from a second source they accessed through the original proximate content provider, will their perceptions of the proximate source permeate their perceptions of the second, distal source and that source's content? If this is indeed the case, hyperlinks are in fact functional endorsements.

Before an accurate credibility assessment can be made by the user, they must first attribute content to a source—an increasingly nebulous process in today's online media environment.

### **Source Attribution**

It has long been understood that receivers give more credence to messages that originate from identifiable sources. Message credibility is influenced (e.g. Gunther, 1988) by the user's perception of the identified source's credibility. Thus, in order to evaluate a message a receiver must attribute the message to a source. This is a particularly linear process in traditional media, which tend to feature one readily identifiable source; however, this is not the case in online content. Users seek information on a variety of different platforms, including Web-sites from traditional news media companies (e.g. nytimes.com), news aggregators (e.g. Google news), news portals (e.g. Yahoo!News), social-bookmarking sites (e.g. stumbleupon.com), social-networking sites (e.g. Facebook), microblogs (e.g. Twitter), and personal blogs. As a story disseminates through these variably networked platforms it acquires a number of source tags. This is why so many germane issues in the 21<sup>st</sup> century media environment stem from complexities surrounding correct evaluations of content's source. Consider an Associated Press story published by the



nytimes.com that is emailed to a user by their coworker. It is possible that the email recipient might attribute the content to “a reporter”, “*The New York Times*”, “the internet”, or even “my coworker”. Clearly there is considerable ambiguity associated with source attribution online. Sundar & Nass (2001) recognized this dilemma and succeeded in developing a typology of new media sources to enhance understanding of the source attribution process. They demonstrated that any of the elements of traditional communication models (Sender/Presenter, Medium/Channel, and Receiver/Audience) can function as a cognitively distinct source. In the context of mass communication, the sender/presenter takes on the role of the gatekeeper. Gatekeepers select and visibly present content for consumption; in so doing, they supplant the original source, causing the receiver/audience to orient towards the gatekeeper as the source of the content. This phenomenon is readily observed in traditional media. For instance, in television news, audience credibility assessments are primarily influenced by the news anchor’s credibility (Newhagen & Nass, 1989). The audience often ignores the fact that a team prepared the news and orients towards the most proximate source, the anchor. This is also observed online where news aggregators, portals, and traditional news media company websites all function as presenters and thus as “visible” sources. Each of these sources is cognitively distinct, that is to say, once a user attributes content to a source “...particular cognitive heuristics are likely to be triggered about their presumptive abilities to serve as the source, which, in turn, affect the perceived credibility of the information provided by that source” (Sundar, 2008, pp. 83). The manner in which the *authority heuristic* becomes salient will have a large impact on how users process messages linked from visible source websites. The *authority heuristic* derives its power from the notion of endorsement.

If endorsement is implicit in linking the *authority heuristic* should account for much of the deviation in the valence of the user’s content evaluation. A receiver’s message processing is effected by this heuristic whenever the message’s source is identifiable as an official authority or

an expert (e.g. consider a patient processing a medical doctor's recommendation). This heuristic operates upon arguably the most important criterion for assigning credibility, the extent to which the source is perceived to be an official authority (Eysenbach & Köhler, 2002). If a site is deemed an authority this is likely "...to directly confer importance, believability, and pedigree to the content provided by that source..." (Sundar, 2008, pp. 84). The extent to which these characteristics are subsequently conferred upon the distal source and its content through the hyperlink will provide insight regarding the extent to which hyperlinks function as endorsements. Source attribution and orientation (and the accompanying heuristic processing) are vital considerations when users are making credibility assessments.

## **Credibility**

### **Credibility Then**

As the media environment has evolved so have the theories that attempt to explain it. The construct of credibility is no exception. The historical concepts that would ultimately lead to the study of communicator credibility developed as early as the 1930's. For the next five decades academic inquiry refined the concept of credibility into a nuanced, central aspect of communication theory. The earliest work attempted to operationalize and gauge a concept known as communicator "prestige" (Sherif, 1935; Lewis, 1941; Asch, 1948) and sought to catalogue the level of accuracy in newspaper publications (Charnley, 1936). Borne out of these studies was the first research on credibility. Initially, credibility was operationalized as the extent to which the source was "trustworthy" (Hovland & Weiss, 1951). After further investigation another publication by Hovland, Janis, and Kelley (1953) introduced expertise as the second major

constituent of credibility. Increasing television use provoked additional interest in the topic of credibility, as scholars began to contrast mediums (e.g. Roper, 1985).

### **Credibility Today**

Today most scholars agree on two central tenets of credibility that account for the construct's increasingly dynamic nature in the 21<sup>st</sup> century media environment (Fogg & Tseng, 1999). First, credibility is a perceived quality. It is not inherent but rather it is something users interpret from various cues. This distinction is especially salient in the context of internet usage. As consumers utilize social networking tools and employ a number of cognitive shortcuts (known as heuristics) these credibility perceptions and the very rules that guide their formation are in flux (Sundar, 2008). It is quite possible that traditional methods of credibility evaluation (i.e. source credibility equals message credibility) are antiquated. As source becomes an increasingly nebulous entity credibility evaluations shift from an independent process to a social or collective assessment (Metzger, Flanagin, & Medders, 2010).

The second important aspect of credibility is its multi-dimensional nature (Buller & Burgoon, 1996; Gatignon & Roberston, 1991; Petty & Cacioppo, 1981; Self, 1996; and Stiff, 1994). Users form their overall credibility perception based upon simultaneous evaluations of various conditions such as accuracy, believability, the presence of bias, objectivity, and the presence of sensationalism (Sundar, 1999). These factors, as well as others, lead to overall perceptions of the source's trustworthiness and expertise which in turn form the user's perception of source credibility. Once the user has attributed content to a source and assessed the source's credibility the user can make a complete judgment about the content provided by the source. When a communicator delivers a message to the audience the audience automatically assumes the communicator agrees, or endorses, the message. This effect persists even if the audience is aware

that the sender was arbitrarily chosen to advocate a particular stance on an issue (Brockner & Nova, 1979). Thus intent is of little concern for the audience. When the BBC.com aggregator automatically presents links to related articles this may in fact be enough to imply the BBC's endorsement of the linked content. The durability of the user's orientation to the BBC (the proximate source) after using their hyperlink is vitally important. Studies concerned with proximate and distal source cues inform discussion regarding variability in source orientation as a function of message presentation.

### **Proximate and Distal Source Cues**

Humans have a natural tendency to focus on the most proximate source because it is cognitively effortful to deliberately focus on additional sources that are removed from the immediate source-user interaction (Nass & Sundar, 1996). This distinction is ostensible in unmediated communication but quickly becomes more complicated online—especially when proximate and distal sources are often presented to the user simultaneously within the content-displaying interface (e.g. when the proximate Google news displays a story from the distal USA Today.com). Kang, Bae, & Zhang (2009) investigated source attribution (and subsequent content perception) as a function of messages presented with both proximate and distal source cues. Low involvement user content perceptions were primarily valenced by the proximate source—that is to say, the news aggregator. Users, then, are not only capable of orienting to the proximate source but may in fact ignore the distal source. What would happen if the proximate source linked them to the Webpage of the distal source instead of displaying it within a native interface? It is unclear to what extent a user's orientation to the proximate source and their perceptions of that source's content will remain salient after using a hyperlink to access the distal source and its content. If user evaluations of proximate source credibility and content influence

their perceptions of the distal source and/or its content, then hyperlinks are functioning as implicit endorsements. The current study was designed to inform understanding of hyperlinks and endorsement by testing the following hypothesis:

H1: Linking (proximate) source credibility will be positively related to the evaluations of the linked (distal) source's credibility.

H2: Content perception of the proximate content will be positively related to the content perception of the distal content.

The independent variables manipulated in a 2x2 experiment to test these hypotheses are source proximity (proximate and distal) and source credibility (high and low). The dependent variables are user's perceptions of source credibility (Credibility Perception—which also functioned as a manipulation check) and user's perceptions of sources' content (Content Perception).

## Chapter 2

### Method

#### Design Overview

To examine the hypothesis and research question, a 2 (source proximity: proximate vs. distal) by 2 (source credibility: low vs. high) fully-crossed factorial experiment was performed. Participants were exposed to stimuli and completed questionnaires online from the personal computer of their choosing. All participants were randomly assigned to one of four conditions: high credibility proximate source linking to high credibility distal source (e.g. *The New York Times* to *The Washington Post*), high credibility proximate source linking to low credibility distal source (e.g. *The New York Times* to the *National Enquirer*), low credibility proximate source linking to low credibility distal source (e.g. the *National Enquirer* to the *Star*), and low credibility proximate source linking to high credibility distal source (e.g. the *National Enquirer* to *The New York Times*). The four conditions were fully counter-balanced by source (e.g. *The New York Times* linked to *The Washington Post*, the *Star*, and the *National Enquirer*). The participants (initial  $N = 864$ ) were randomly assigned to one of twelve questionnaires. Because of this design, the resultant data had disproportionate ratios by source (e.g. roughly two-thirds of the participants who viewed *The New York Times* as proximate were linked to a low credibility source—this is because two of the other three sources were low-credibility sources). In order to compensate for this, the full data set was stratified and reduced. Every other result from the conditions that had disproportionate cell counts was removed from the final analyses (final  $N = 572$ ) such that each condition had roughly the same distribution of high and low credibility sources (see Table 1 & 2).

**Table 1 Final Condition Distribution by Source**

Distal Source	Proximate Source					
	Count	Nat EQ	NYT	Star	WP	Total
Nat EQ		0	33	73	35	141
NYT		33	0	39	69	141
Star		69	38	0	38	145
WP		36	70	39	0	145
Total		138	141	151	142	572

**Table 2 Final Condition Distribution by Source Credibility**

Distal Source Credibility	Proximate Source Credibility			
	Count	High	Low	Total
High		139	147	286
Low		144	142	286
Total		283	289	572

### Pretest

To ensure successful credibility manipulation a pretest was conducted with 54 participants from two undergraduate communication classes at the same university with very similar demographics as the population sampled for the study. Participants were shown 10 mastheads (6 high circulation news media organizations and 4 tabloids) and asked to rank order them 1-10, 1 being the most credible and 10 being the least. The data indicated that participants perceived *The New York Times* (lowest average) and *The Washington Post* (the second lowest

average) as being highest and second-highest on credibility. The *National Enquirer* (highest average) and the *Star* (second highest average) were perceived to be the least two credible sources.

### **Participants**

Participants were recruited from a research participant pool at a large Eastern state university. All students enrolled in a particular entry-level communication class are automatically part of the participant pool. Research participation accounts for 2% of the course grade (alternate means for earning this credit were stipulated in the course syllabus). Participants were recruited via email for a study regarding “Health Topic Articles in a Mediated Environment”. We made no mention of linking or endorsement in recruitment materials to avoid sensitization to the purpose of the study.

### **Stimulus Materials**

Webpages from *The New York Times*, *The Washington Post*, the *National Enquirer*, and the *Star* were modified for use in the study. All advertisements and particular site elements that might disproportionately influence participants’ credibility or content evaluations (e.g. “Breaking News” banners) were removed. As many elements as possible were left unchanged to preserve ecological validity, including navigation bars, mastheads, and style sheets. Article images were controlled with one proximate site image and one distal site image across conditions. Proximate site content, including the headline, body, and embedded link were identical. The same was true for the distal site. All hyperlinks (except the embedded one) were disabled. The articles



themselves were devoid of other sources (i.e. quotations, author bylines). All of the source cues participants encountered or needed revolved around the sites themselves.

### **Procedure**

Participants were notified that their research study was active via an email. They were instructed to log into the research participation website. They were randomly assigned a condition by the research participation system and asked to fill out basic demographic information. Upon completion of this brief questionnaire, they were provided a link to the study. The first page of the study was a digital informed consent form which instructed them to print a copy for their records. The next page contained the proximate source's webpage with an embedded link to the distal source's webpage. Upon reading both components of the stimulus, the participants advanced to the questionnaire portion of the survey. First, the participants were asked to identify the source of the second news article and summarize both articles' main points. Then, they were asked to rate the content of each site (the proximate site then the distal site) and provide their perception of each site's (proximate then distal) credibility. They were thanked, debriefed, and provided with a link to a separate survey (so their results were not personally identifiable) to submit basic identifying information for participation credit.

### **Dependent Measures**

#### **Credibility Perception**

In order to check for successful manipulation of source credibility and test H1, participants' perceptions of both the proximate and distal source's credibility were measured with

a 7-point Likert type scale adapted from Metzger (2007) and Rubin, Palmgreen, & Sypher (1994). The following adjectives were adjacent to the 7-point scale anchored at each end by (1) *describes very poorly* and (7) *describes very well*: Reliable, Biased, Credible, Unqualified, Trustworthy, Attractive, Poorly Organized, Reputable, Accurate, Interactive, Comprehensive, Valuable, and Professional.

### **Content Perception**

The dependent variable used to test H2 was Content Perception. Participants' perception of the content provided by both the proximate and distal source was measured with a 22-item Likert type scale adapted from Sundar (1999). The adjectival scale gauges four broad constructs including credibility, liking, quality, and representativeness. The scale included the following items: Reliable, Believable, Biased, Boring, Clear, Coherent, Comprehensive, Concise, Disturbing, Enjoyable, Fair, Important, Informative, Insightful, Interesting, Lively, Objective, Pleasing, Relevant, Sensationalistic, Timely, and Well-written. These adjectives were placed adjacent a 7-point scale anchored at each end by (1) *describes very poorly* and (7) *describes very well*.

### **Index Construction**

The thirteen Credibility Perception items, designed to verify successful manipulation and test H1, were amalgamated into two separate indices labeled Proximate Credibility (Cronbach's  $\alpha = .96$ ) and Distal Credibility (Cronbach's  $\alpha = .96$ ).

The data resulting from the 22 Content Perception items was subjected to a factor analysis. Factors were identified by eigenvalues exceeding one and items were assigned to

factors by their highest loading. A principal components analysis revealed four eigenvalues greater than one that accounted for 60.39% of the variance. Upon varimax rotation, the fourth factor, with highest loadings from the items Bias and Boring, was dropped from the analysis (Cronbach  $\alpha = .38$ ). The remaining three factors (accounting for 55.46% of the variance) had highest loadings from 8, 6, and 6 items respectively. These items were averaged to create proximate and distal indices for: “Trustworthiness” including Reliable, Believable, Comprehensive, Fair, Informative, Insightful, Objective, and Well-written (Cronbach’s  $\alpha = .89$ ); “Interest Value” including Disturbing, Enjoyable, Interesting, Lively, Pleasing, and Sensationalistic (Cronbach’s  $\alpha = .78$ ); and “Newsworthiness” including Clear, Coherent, Concise, Important, Relevant, and Timely (Cronbach’s  $\alpha = .83$ ).

In all, four indices about distal source (Credibility) and distal content (Trustworthiness, Interest Value, and Newsworthiness) became the dependent variables of interest for the current study.

### **Data Analysis**

To gauge the level of endorsement implicit in hyperlinking, it was necessary to consider the independent variables (proximity & source credibility) in conjunction with perceptions of the proximate content. The data were subjected to a general linear model analysis with the two independent variables and each proximate index as a moderator upon its corresponding distal dimension index. Results of these analyses were examined for significant differences in perceptions of the distal source and its content as a function of proximate content perceptions as well as proximate and distal source credibility.

## Chapter 3

### Results

The credibility manipulation was successful. For both proximate,  $F(1, 568) = 682.41, p < .0001$ , and distal,  $F(1, 568) = 534.36, p < .0001$ , levels of proximity, high credibility sources were perceived to be significantly higher in credibility than low credibility sources. Proximate high credibility ( $M = 5.44$ ) and distal high credibility ( $M = 5.51$ ) were perceived to be significantly higher in credibility than proximate low credibility ( $M = 3.12$ ) and distal low credibility ( $M = 3.39$ ) sources.

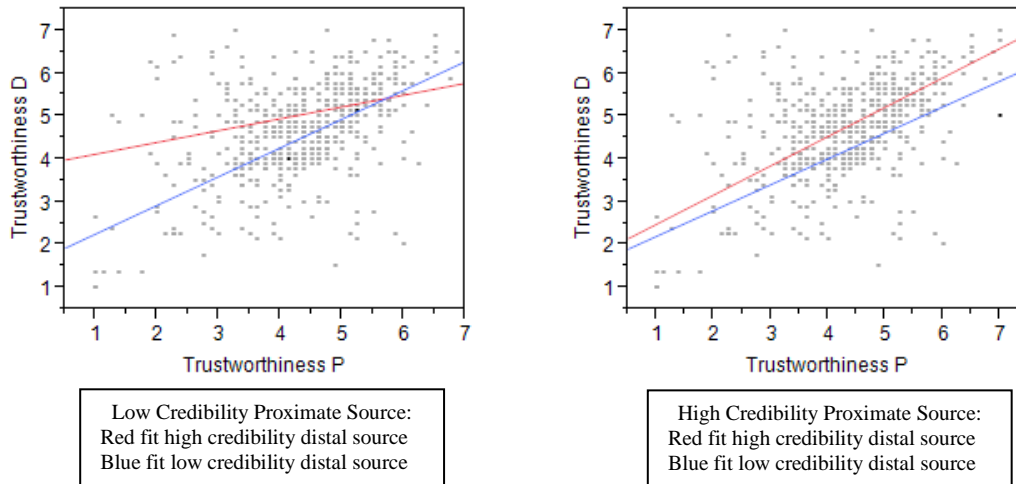
#### Trustworthiness

General linear model analysis revealed that perceptions of proximate Trustworthiness had a significant main effect,  $F(1, 564) = 233.41, p < .0001$ , on perceptions of distal Trustworthiness. Additionally, there was a significant interaction effect between proximate source credibility and perceived Trustworthiness of the proximate content upon perceived Trustworthiness of the distal story,  $F(1, 564) = 5.09, p < .05$ , such that the relationship between Trustworthiness of the proximate content and the distal content is stronger when the proximate source is high, rather than low, in credibility. On the other hand, the significant interaction effect between distal source credibility and perceived Trustworthiness of the proximate content upon the perceived Trustworthiness of the distal story,  $F(1, 564) = 4.33, p < .03$ , revealed that the relationship between Trustworthiness of the proximate story and that of the distal content was stronger when the distal source was low credibility. Consequently, when distal source credibility

is low, user's perceptions of their content are more related to their proximate Trustworthiness perceptions, even when the proximate source is a low credibility source.

Moreover, there is a highly significant three-way interaction between source proximity, source credibility, and Trustworthiness,  $F(1, 564) = 11.26, p < .001$ . When the credibility of the distal source is low, the positive relationship between perceived Trustworthiness of the proximate content and that of the distal content is attenuated at the high end by the credibility of the proximate source, such that, overall, the relationship is stronger when the credibility of the proximate source is low, rather than high. When the credibility of the distal source is high, the positive relationship between trustworthiness of proximate and distal content is stronger when the credibility of the proximate source is high, rather than low. The highly significant three-way interaction is moderated negatively by a high credibility proximate source when distal source is of low credibility and moderated positively by a high credibility proximate source when the distal source is also high credibility. A high credibility proximate source serves to diminish the effect of perceived Trustworthiness of the proximate story on perceived Trustworthiness of the distal story when the distal story comes from a low credibility source. A low credibility proximate source serves to diminish the effect of proximate content perceptions on perceptions of distal content provided by a high credibility distal source. Thus, the relationship is strongest when the proximate and distal sources are either both high or low credibility. In sum, user's Trustworthiness perceptions of the initial content are less predictive of their perceptions of the distal content when they are exposed to sources that are discordant ( $H \rightarrow L$  or  $L \rightarrow H$ ) in credibility.

Figure 1: Proximate Perceptions of Trustworthiness Effect on Distal Perceptions, Distal Fit



### Interest Value

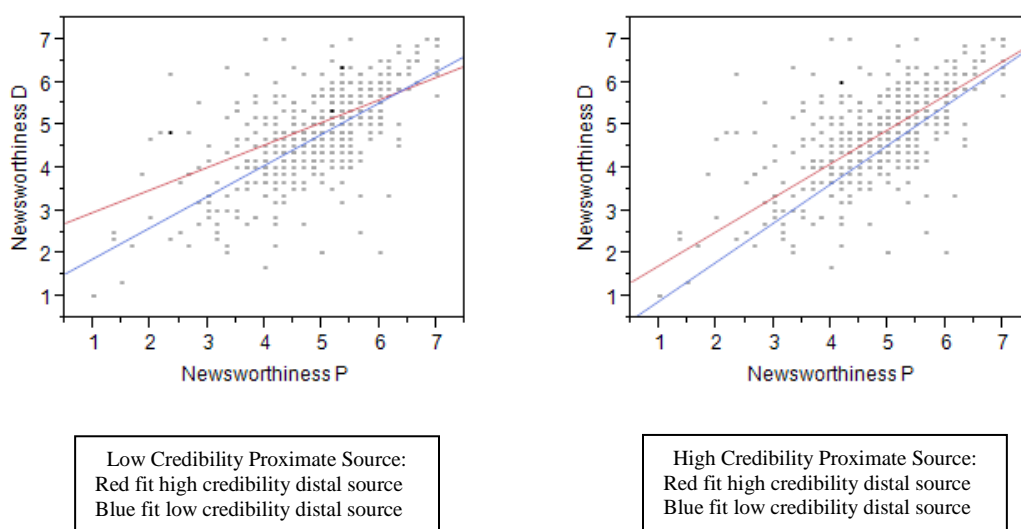
Participants' perceptions of proximate content Interest Value had a significant main effect on their perceptions of distal content Interest Value,  $F(1, 564) = 487.55, p < .0001$ . There were no interaction effects between source proximity, credibility, and interest value.

### Newsworthiness

General linear model analysis revealed that proximate perceptions of Newsworthiness had a significant main effect,  $F(1, 564) = 496.47, p < .0001$ , on distal perceptions of Newsworthiness. Additionally, there was a significant interaction effect between proximate source credibility and perceived Newsworthiness of the proximate content upon perceived Newsworthiness of the distal content,  $F(1, 564) = 11.27, p < .001$ . The relationship between Newsworthiness of the proximate content and that of the distal content is stronger when the proximate source has high, rather than low, credibility. Moreover, the significant interaction

between distal source credibility and perceived Newsworthiness of the proximate content upon perceived Newsworthiness of the distal content,  $F(1, 564) = 5.57, p < .05$ , revealed that the relationship between Newsworthiness of the proximate content and that of the distal content is stronger when the distal source has low, rather than high, credibility. When the credibility of the distal source is low, user perceptions of the newsworthiness of the content attributed to that source are more strongly driven by their perceptions of the newsworthiness of the proximate content. When the distal source has high credibility, then reader judgments of the newsworthiness of the distal content are less dependent on the perceived newsworthiness of the proximate content.

**Figure 2: Proximate Perceptions of Newsworthiness Effect on Distal Perceptions, Distal Fit**



In sum, the results of the current study suggest that a participant's ultimate perceptions of the distal content were not simply the result of their perceptions of that content or that content's source. Their perceptions of the proximate content were also quite salient, especially (but not necessarily) when the two sources had similar levels of credibility. Participants' evaluations

about sources and their content were sensitive to sources that were presented in sequence; however, they were not sensitive to the point where they made cognitively unrelated evaluations.



## Chapter 4

### Discussion

The results of the current study support SRCT (Reeves & Nass, 2003). Links are in fact functional endorsements—the communicative tendency to associate messages with the characteristics (e.g. credibility) of those that present them is not abandoned when mediated. The first and third dimensions resulting from the Content Perception data, Trustworthiness and Newsworthiness, reveal similar talking points.

The relationship between proximate content perceptions and distal content perceptions for both dimensions was stronger when both proximate and distal news sources were of similar credibility (i.e., either both high or both low) rather than dissimilar (low proximate linking to high distal, and vice-versa). This shows that the general tendency for proximate perceptions to permeate distal perceptions is diminished when there is a discrepancy in the relative credibility levels of the proximate and distal sources. Of particular interest is the fact that when a high credibility proximate source linked to content provided by a low credibility distal source, the transfer of perceptions from proximate to distal content was not as strong as when a high credibility proximate source linked to content provided by another high credibility distal source. This implies that readers do in fact pay attention to sequences of sources online and that the various layers of sourcing do not go unnoticed. The significant three-way interaction between source proximity, source credibility, and perceptions of source credibility further corroborates this finding—sources with different levels of credibility had no influence on perceptions of the linked source's credibility. However, user's cognitive awareness of the layered sources did not prevent proximate content perceptions of Trustworthiness and Newsworthiness from having a significant impact on distal perceptions, even if the credibility levels of the sources were discrepant. Thus, links can function as implicit endorsements of source (source credibility must

be comparable); yet they more readily function as implicit endorsements of the content they connect (perceptions transfer regardless of discrepant source credibility)—which raises serious concerns about the blind transfer of content perceptions from the initial content to linked content.

Two competing models, the elaboration likelihood model (ELM) (Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM) (Chaiken, 1980), inform discussion about source processing and content evaluation. The ELM states that there are two routes to processing a message, the peripheral and the central. When users base their perceptions of the content on superficial aspects (e.g. site layout), they are relying on a peripheral cue. Their processing (and subsequent evaluation) is said to have taken (and originated from) the peripheral route. The peripheral route generally leads to less critical evaluations of content. The central route is cognitively effortful and involves careful consideration of judgment-relevant information. Similarly, the HSM distinguishes between heuristic processing, relying on mental shortcuts that are stored in memory (e.g. length implies strength), and systematic processing, which requires analytical processing of key information.

With the proliferation of social media, the internet has made it extremely easy to disseminate unregulated content; the navigability and multimodal nature of such content reinforces the human tendency to be frugal with cognitive resources. This promotes the use of cognitive shortcuts, known as heuristics (Sundar, 2008), and the reliance on peripheral cues.

If a distal source of disparate credibility is leading to a more critical evaluation of that source's content, the ELM/HSM postulates that this discordance is most likely interfering with the user's ability to peripherally/heuristically process the content. The HSM describes this phenomenon as the sufficiency principle, which describes a continuum of judgmental confidence. The gap between user's actual confidence and their desired (sufficient) confidence level can only be closed through a cognitive expenditure (Chen & Chaiken, 1999). When encountering discordant source credibility the user no longer invokes the automatic rules they rely on when

evaluating the proximate content. They must orient to a source that is significantly different. Such a decline in source credibility perhaps forces the user to centrally/systematically process the distal source's message—which leads to increased scrutiny of content, resulting in evaluations that are less correlated with their evaluations of the proximate source's content. The three-way relationship between source proximity, source credibility, and source credibility perceptions may inform discussions of how to instantiate central/systematic processing. Users were cognitively aware of the particular source in the string of disparate credibility sources. Moreover, the relationship between proximate content perception and distal content perception was weaker for sources that were disparate in credibility. This suggests that orienting to a source of disparate credibility caused participants to rely more on central/systematic processing of the source, and the content that the source provided. If this is in fact the case, further investigation may yield other methods of instantiating a similar effect and preventing blind transfer of content perceptions.

The results concerning the Interest Value of the content warn of even more deleterious consequences of blind transfer. Perceptions of proximate content Interest Value had a significant impact (significant main effect) on perceptions of distal content Interest Value—regardless of credibility. In our current media environment, the content that is most likely to “go viral” is high in Interest Value (and often low on Trustworthiness and Newsworthiness). Blind transfer of content perceptions across hyperlinked content could cause the user to transfer their content perceptions of viral content upon the truly newsworthy, important information. This could have serious implications on user's media and current event literacy, especially in interfaces like social bookmarking sites (e.g. Digg.com) where both viral content and breaking news is displayed together. Given the existence of aggregation within sources (e.g. BBC.com) the results of this study may also inform web design decisions. Due to the power of endorsement, even in a mediated setting, news media companies, especially those that are deemed high in credibility, need to “hyperlink” responsibly.

### **Limitations**

The results of this study have external validity issues derived from the population the participants were sampled from. This particular demographic may have unique media consumption habits and preconceived notions about the sources. Internal validity could also have been compromised in some cases as participants completed the questionnaires online from a PC of their choosing, rendering it impossible to completely control the environment. This may, however, enhance ecological validity. Enabling the participants to engage in other activities concurrently makes it a much more realistic environment to consume media in.

### **Future Studies**

The current study examined the notion of mediated endorsement using online text with graphic media stimuli on a sample of college students studying communication. Future studies could investigate different populations of media consumers. In today's digital age different modalities (and many combinations of them) including text, aural, and audiovisual are becoming increasingly popular. Moreover, each of them triggers particular cognitive responses (Sundar, 2008). The design could be replicated to account for the prevalence of multimedia. The design is also rather scalable. This examination of two source layers (proximate and distal) could be expanded. Source cues could be introduced (e.g. add author bylines) or reduced (e.g. by using a fictitious publication). The content could be varied across conditions to see if content attributes influence these findings. All of these iterations would further contribute to understanding of users' media literacy and inform media design decisions.

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- **Manuscripts in Progress**

**DiMuzio, E & Sundar, S. S.** (in prep). Persuasion in a mediated environment: Links as endorsements. Manuscript to be submitted for publication.

### *Community Service*

PSU Dance MaraTHON, THON Chairmen, Alpha Tau Omega, 2010-2011