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Continuing to Advance Warranting Theory: Weight, Time, and Testing the Warranting Value Scale

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CONTINUING TO ADVANCE WARRANTING THEORY: WEIGHT, TIME, AND TESTING
THE WARRANTING VALUE SCALE

by

Maura R. Cherney

A Dissertation Submitted in
Partial Fulfillment of the
Requirements for the Degree of

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ABSTRACT

CONTINUING TO ADVANCE WARRANTING THEORY: WEIGHT, TIME, AND TESTING THE WARRANTING VALUE SCALE

by

Maura R. Cherney

The University of Wisconsin-Milwaukee, 2018
Under the Supervision of Professor Erin Ruppel, Ph.D.

Warranting theory asserts that individuals are likely to form impressions of others based on information found online that is not easily manipulated by the target of the information. Because existing literature has found inconsistent support for warranting theory, this dissertation conducted a study of warranting theory both through using traditional warranting theory ideas and through testing the possibility of other variables playing a role in the impression formation process. Participants ($N = 330$) viewed mock websites with information about a professor and then reported on their impressions of the website and the instructor. About 18 days later, participants completed a delayed questionnaire about their impressions of the instructor. Modeling the first set of hypotheses after traditional tests of warranting theory, this dissertation found support for warranting theory. Other-generated content was associated with higher perceived warranting value than self-generated content; a connection that was assumed, but never explicitly tested in existing literature. The role of perceived warranting value in the relationship between source and impression was partially supported, while support was not found for the weight, or importance, of information within the relationship between source and impression. Over time, impressions converged, consistent with sleeper effect literature.

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Introduction

Early in the study of computer-mediated communication (CMC), important differences between face-to-face and mediated communication became evident (Walther, 1992). CMC lacks many of the nonverbal cues communicated in face-to-face interactions. Interactions occurring in a mediated environment are often more asynchronous and allow interactants to be more anonymous than face-to-face communication. The combination of the lack of nonverbal cues, asynchrony, and increased anonymity allows for amplified selective self-presentation in a mediated environment (Walther, 1996). Selective self-presentation becomes especially important to acknowledge when seeking information about another person online. Warranting theory explains what information found online is most valuable when forming impressions about others, especially considering the ability to present oneself selectively in a mediated environment (Walther & Parks, 2002).

Although warranting theory seems to offer explanatory utility for an observable phenomenon in impression formation through CMC, its predictive utility is questionable. Since the development of warranting theory, the theory has received mixed empirical support. Many studies reference warranting theory, but fail to directly test impressions formed through reliance on easily manipulated information and information not easily manipulated by the subject of the information (e.g., Bokek-Cohen, 2015; Gibbs, Ellison, & Lai, 2011; Lane, Piercy, & Carr, 2016; Walther, Van Der Heide, Kim, Westerman, & Tong, 2008). Some studies provide direct tests of impression formation, but many only provide mixed support for the theory (e.g., Antheunis & Schouten, 2011; Utz, 2010; Walther, Van Der Heide, Hamel, & Shulman, 2009). Even when studies directly test impression formation based on conditions of information that can or cannot be easily manipulated, they often fail to directly test information's warranting value (DeAndrea, 2014), leaving room for other potential explanations for impression formation, such as a

negativity or additivity effect (Walther et al., 2009). When deductively testing theories, if results of tests and experiments coincide with the theory, the theory is considered supported or verified (Popper, 1959). Mixed support for a theory in existing literature does not necessarily permit a rejection of the theory, but instead, consideration should take place for potential additions or modifications to the theory (Sunnafrank, 1986).

Boundary conditions, also called scope conditions, explain the scope and limitations of an existing theory (Foschi, 1997). It is worthwhile for researchers to continue to test theories after their development, not only to seek continued support for the theory, but also to test boundary conditions. Testing boundary conditions can further clarify circumstances in which the theory holds true and contexts in which a theory no longer applies. Walther (2010) urges for the continual testing of boundary conditions to progress development of computer-mediated communication theories, and other researchers have previously pursued boundary conditions of warranting theory (Parks, 2011). Because Walther et al. (2009) found conflicting support for warranting theory in considering aspects of personality and physical appearance, they assert that, “there may be domains of impressions for which warranting is heuristically useful and others where it is not” (p. 247), indicating the value of continuing to test boundary conditions of the theory.

This dissertation first acknowledges that warranting value is not explicitly tested in empirical studies of warranting theory, making the testing of perceived warranting value an important mediating variable that needs attention. Second, the present study argues that warranting value is, itself, a cognitive bias that can be better explained and supported as part of an integrated information model (Anderson, 1981). Information integration theory says that cognitive processes are, overall, too complex to be explained by a single tendency of humans to

think or behave in a certain way. A potential boundary condition of warranting theory, the impact of weight, or importance of the information presented in the particular context, for making impressions could be understood using an information integration model. Finally, the present study points out the possibility for a sleeper effect within warranting theory. This dissertation reviews existing literature about warranting theory, information integration theory, and the impact of time on judgments and provides rationale for the connections among the concepts. Then, the data collection and analysis methods are discussed, followed by a description and discussion of results and implications.

Review of Literature

Warranting Theory

Warranting theory (Walther & Parks, 2002) addresses how information accessed in a mediated format impacts impressions of another person. More specifically, online information that is not easily manipulated by the target of the information is considered of higher warranting value, and thus impacts impressions of an individual more than information that is easily manipulated by the target of the information (Walther & Parks, 2002). Warranting theory stems from Stone's (1995) earlier idea of the "true" self. Stone's (1995) ideas state that each individual's self is a product of one's physical self, which is considered the only "true self." Portrayal of the self is not always in line with one's "true self," so warranting theory acknowledges the unique ability to selectively self-present in a mediated format (Walther & Parks, 2002). Online, different sources of information might allow differing opportunities for validation with the "true self," and warranting theory says that information that is not easily manipulated by the target of information is a good indication of one's "true self" (Walther & Parks, 2002). The term "warrant" is a noun meaning any indication of the information being authenticated or legitimized (DeAndrea, 2014). The term "warranting value" addresses the

degree to which information found in a mediated environment influences perceptions of another person. To be clear, a “warrant” is a term often used in argumentation and public speaking to explain the connection between a claim and evidence (Toulmin, 1969). While Toulmin’s (1969) definition of warrant has similarities to the warranting value of information (i.e. the connection between the true self and the presentation online), in this dissertation, any reference to the “warrant” of information is distinct from Toulmin’s (1969) use of “warrant.”

A classic design for studies testing warranting theory involves creating hypothetical stimuli of internet content about an individual, collecting data about judgments of the individual, and paying special attention to conflicting information (e.g., positive self-generated and negative other-generated content about personality traits) and how it impacts impressions of the person. Warranting theory researchers often point to the source of information posted in a mediated environment as the indication of whether or not the information can easily be manipulated by the target of the information (e.g., Walther et al., 2009). The ability to manipulate information is often operationalized as either self-generated content (i.e., high ability to manipulate), other-generated content, or system-generated content (i.e., low ability to manipulate). A small number of studies explicitly use warranting theory as the theoretical framework and directly test the theory (e.g., Utz, 2010; Walther et al., 2009). In conditions where participants are exposed to conflicting information, warranting theory is considered supported if participants’ impressions are based more heavily on other-generated information than on self-generated information because the former is not as easily manipulated by the target of the information.

Empirical support of warranting theory. Many studies of warranting theory tend to focus on other-generated cues, assuming that information coming from a third party would not be as easily manipulated as information coming directly from the subject (Antheunis &

Schouten, 2011; Ballantine, Lin, & Veer, 2015; Bokek-Cohen, 2015; Cherney, Davis, & Metts, 2017; DeAndrea, Van Der Heide, & Easley, 2015; Lane et al., 2016; Utz, 2010; Walther et al., 2008; Walther et al., 2009; Walther, Jang, & Edwards, 2016). Operationalizing other-generated cues as less easily manipulated than self-generated cues, researchers have been able to find support for warranting theory in studies of perceptions of physical attractiveness (Antheunis & Schouten, 2011; Walther et al., 2008), communal orientation personality traits (i.e., honesty, friendliness, and reliability; Utz, 2010), task (Walther et al., 2008), social attractiveness (Antheunis & Schouten, 2011), and credibility (Walther et al., 2008) in the context of social networking sites.

Although most studies of warranting theory focus on the warranting value of information coming from a third party, some researchers acknowledge the ability for information from the system itself to have high warranting value (Antheunis & Schouten, 2011; DeAndrea et al., 2015; Hayes & Carr, 2015; Tong, Van Der Heide, Langwell, & Walther, 2008; Utz, 2010). Information calculated and displayed by computer systems, rather than individuals, may have more warranting value than self-generated information because it is not easily manipulated by the subject (DeAndrea, 2014). One system-generated cue receiving attention in warranting theory research is the number of connections, or “friends,” displayed on users’ SNS profiles (Antheunis & Schouten, 2011; Tong et al., 2008; Utz, 2010). The number of connections an individual has on a SNS is associated with greater perceptions of extroversion (Antheunis & Schouten, 2011). Similarly, Utz (2010) found that other-generated and system-generated information informed impressions of social attractiveness more than self-generated information. Beyond connections, other system-generated cues have been found in empirical tests of warranting theory. For example, DeAndrea et al. (2015) considered the warranting value of

other-generated information in a website meant to allow students to evaluate their group members. Some manipulations of the group member evaluation website indicated that it allowed others to edit content, meaning that the subject of the evaluation could edit the entry about themselves. Other manipulations did not allow editing. Results indicated that merely having the ability to edit content makes information of lower warranting value. Similarly, if self-generated information is presented in a context that allows for commenting or refuting, it is granted higher warranting value (Hayes & Carr, 2015; Lane et al., 2016). For example, in their study of Facebook relationship status changes, Lane et al. (2016) found that the ability for others to comment on the changed relationship status afforded the self-generated cue of the relationship status high warranting value.

Beyond other-generated and system-generated cues, some empirical tests of warranting theory have found that some self-generated content (e.g., user-generated photos vs. stock photos, specific content vs. vague content) can have a high degree of warranting value (Gibbs et al., 2011; Johnson, Vang, & Van Der Heide, 2015; Scott, Sinclair, Short, & Bruce, 2014; Wotipka & High, 2016). For example, one study testing the warranting value of items for sale on an online auctioning website found that user-generated photos of the product resulted in more bidders and more sold products than stock photos of the product (Johnson et al., 2015). Johnston et al. (2015) conclude that the user-generated cues connect the offline reality to the online representation better than stock photos, making user-generated photos higher in warranting value. In online dating contexts, especially, self-generated cues are often the only cues available, since third party information is typically not included in online dating profiles (Gibbs et al., 2011; Wotipka & High, 2016). In the case of online dating profiles, different types of information presented by the subject are considered of differing warranting value. Wotipka and High (2016), for example,

manipulated self-generated information in an online dating profile as either low warranting value (i.e., vague claims) or high warranting value (e.g., specific, or verifiable information). An example of a low warranting value cue in online dating is a vague mention that a person runs a blog. On the other hand, an example of high warranting value information was the inclusion of specific details about the blog the online dating participant writes, such as the specific title and encouragement for viewers to seek out the blog, further legitimizing it. Including more specific, verifiable information is said to be of higher warranting value because it cannot be easily manipulated by the target of the information and viewers could easily verify the information by seeking out the blog. Overall, Wotipka and High (2016) found that information high in warranting value is associated with a greater likelihood the viewer will contact, and desire to date, the online dating participant.

Although several studies have found empirical support for aspects of warranting theory, claiming that the theory is widely proven would be an overstatement. Throughout warranting theory's short lifespan, it has received minimal support and much criticism. Studies often find mixed support, or partial support, for warranting theory, meaning some operationalized impressions are in line with warranting theory, while other impressions work against warranting theory (Antheunis & Schouten, 2011; Ballantine et al., 2015; Hayes & Carr, 2015; Utz, 2010; Walther et al., 2008; Walther et al., 2009; Wotipka & High, 2016). One example of partial support for warranting theory is a study by Utz (2010). Utz (2010) found empirical support for warranting theory when participants were asked to form impressions about both communal orientation personality traits and social attractiveness. However, support was not found for the impressions formed about the trait of popularity. In fact, self-generated claims (i.e., low warranting value claims) affected perceptions of popularity more than other-generated claims

(i.e., high warranting value claims), which does not support the basic ideas of warranting theory. Walther et al. (2009) found support for warranting theory when measuring physical attractiveness perceptions, but not when measuring perceptions of extroversion. Impressions of extroversion were, again, more strongly linked to low warranting value cues than to high warranting value cues.

Criticisms of warranting theory. Beyond questionable empirical support for warranting theory, design of warranting theory studies has sometimes been flawed, and conclusions about warranting theory have often ignored or failed to thoroughly examine other possible explanations, such as other cognitive biases (e.g., negativity effect, additivity effect). While a handful of warranting theory studies directly test impressions based on manipulations of the warranting value of information presented, many tests only mention warranting theory as a possible explanation for results in a discussion section of an empirical study. These afterthoughts considering warranting theory do little to empirically test the theory. For example, Walther et al. (2008) did not explicitly compare other-generated content (i.e., high warranting value content) to self-generated content (i.e., low warranting value content) in separate conditions. Instead, Walther et al. (2008) created social networking site profile stimuli using neutral photos to represent the profile owner, while connections posting on the profile were either attractive or unattractive. The study also manipulated connections' posts on the target's profile as either positive or negative. Although Walther et al. (2008) found support for their hypothesis that other-generated information would impact impressions of the target, it is difficult to say that the study tested warranting theory. A clearer test of warranting theory would have manipulated both the source's information and the connection's information positively and negatively to see which source of information most impacted impressions of the target.

Manipulation of self-generated and other-generated content as either positive or negative allows for an examination of conditions involving inconsistent valence of information (i.e., those conditions with positive self-generated and negative other-generated content or negative self-generated and positive other-generated content) to determine which information had a greater impact on impressions formed. Walther et al.'s (2008) design increases understanding of the impact of other-generated content overall, but does not support the idea that other-generated content is more impactful to impression formation than is self-generated content, simply because self-generated content was not manipulated.

Finally, a major criticism of existing literature about warranting theory points out that tests of warranting theory do not explicitly measure warranting value (DeAndrea, 2014). Because the classic warranting value studies manipulate content (usually the source of the content) and then test impressions of the target (e.g., attractiveness, credibility, personality traits), warranting value of information is assumed to fall within the connection between stimuli and impressions. It is possible, however, that another explanation could clarify the connection between stimuli and impression. As warranting theory is, at a basic level, a cognitive processing issue, it is possible that other cognitive processing issues or cognitive biases could explain findings within warranting literature. Alternative hypotheses, such as the negativity effect and additivity effect, have been considered in studies manipulating warranting value of information (e.g., Walther et al., 2009). The negativity effect has the potential to take place when forming judgments about others because negative information has informative value (Kellermann, 1984). When presented with conflicting information, individuals may place more focus on the valence of the information than on the source of the information, so the negativity effect might serve as an alternative explanation for findings considering warranting theory (Ballentine et al., 2015; Walther et al.,

2009). Because receiving negative information about another person is not typical, receiving negative information tends to be perceived as especially informative (Kellermann, 1984). For example, in a study of Facebook relationship status updates, when both were accompanied by negative comments, a negative relationship status (i.e., termination of a relationship) was associated with a more positive attitude about the relationship status than a positive relationship status (i.e., beginning of a relationship; Ballantine et al., 2015). Although this is not the expected pattern to support warranting theory, negative comments seem to have a greater effect than positive or negative self-generated information. The valence of the impression based on the negative nature of the comments support a negativity effect more so than warranting theory.

Similarly, the additivity effect takes into consideration the emphasis placed on certain information about another individual. The more pieces of information suggesting a particular trait, the more that trait is reflected in impressions of a person (Walther et al., 2009). Depending on research design, either or both effects may contribute to findings. Although, to be clear, additivity and negativity effects are different phenomena that tend to contradict one another, it is possible that either processing issue, individually, could explain findings in some warranting theory literature (e.g., Walther et al., 2009). It is also important to understand that warranting theory does not attempt to reconcile the contradiction between the two processing issues. Future warranting theory studies should, however, attempt to distinguish conditions that support warranting theory from conditions that support either a negativity effect or additivity effect.

Whether warranting value or another cognitive bias is responsible for the connection between stimuli and impression, cognitive biases are not explicitly measured. To combat this issue, DeAndrea and Carpenter (2016) developed a measure of warranting value to consider some of the additional factors affecting impression formation. The General Warranting Value

Scale tests the warranting value of information and perceptions of modification control (i.e., the ability to edit), dissemination control (i.e., the ability to control who sees the content), and source obfuscation (i.e., the perceptions that the source of information has not been tampered with). DeAndrea and Carpenter (2016) encourage researchers to explicitly measure warranting value using the General Warranting Value Scale instead of assuming that differences in perceptions are due to warranting value of the information. Alternative explanations, such as a negativity or additivity effect, have explained some findings about impression formation based on information found online (Ballantine et al., 2015; Walther et al., 2009). Because of the possibility for alternative explanation, simply assuming that warranting theory explains differences in perception due to manipulations of information is potentially ignoring other processes at play within impression formation.

DeAndrea (2014) has published the strongest argument for advancing warranting theory, and urges for the explicit measurement of warranting value and the establishment of boundary conditions for the theory. Unfortunately, other than the initial tests to determine the validity of the scale, no empirical studies have tested warranting theory by explicitly measuring warranting value using the General Warranting Value Scale. As a first step, the present study tests the validity of warranting theory using a typical study design and analysis (e.g., Walther et al, 2009). The present study, then, seeks to determine if source (i.e., self-generated or other-generated information) has an impact on perceptions of warranting value, followed by testing whether the valence of information impacts perceptions of warranting value. It is possible that the valence of information could impact impressions of warranting value, like it has been found to impact impressions of honesty (Walther et al., 2009), so the present study seeks to determine if valence

has any impact on warranting value. Finally, perceptions of warranting value will be tested as a moderator variable within the impression formation process, connecting source to impression.

In information integration theory research, Anderson (1981) explains that the reliability of sources is hypothesized as being associated with more extreme judgments. A moderator variable answers the question of “when” in a model, or as Hayes (2013) describes it, a relationship is considered moderated when it “depends on the circumstance” (p. 85). Moderator variables help produce a clear picture of an effect by identifying certain circumstances or people for which the effect differs in valence or degree (Hayes, 2013). In the context of the present study, information perceived as high in warranting value will have a more extreme (either positive or negative) impact on impressions of a person. Measuring perceived warranting value will confirm the relationship between sources that are manipulated to be of high or low warranting value and the impressions formed. See Appendix A for a visual representation of regression models. The following hypotheses and research questions are proposed:

H1: Impressions of an instructor’s affect (H1a), task attraction (H1b), and social attraction (H1c) are more heavily influenced by other-generated content than by self-generated content.

H2: Other-generated content is perceived as having higher warranting value than self-generated content.

RQ1: Does valence of content impact perceptions of warranting value?

RQ2: Does an interaction between source and valence impact perceptions of warranting value?

H3: The combination of valence of self-generated content and the valence of other-generated content impacts impressions of instructor affect (H3a), task attraction (H3b), and social attraction (H3c), and will be moderated by perceptions of warranting value.

Information Integration Theory

Literature concerning cognitive processes such as decisions, judgments, and attitude change have long been the focus of psychological research, and little progress has been made in understanding or gaining the ability to accurately predict cognitive processes in individuals (Anderson, 1981). Several cognitive biases have been pointed to as explanations for the seemingly irrational nature of cognition (Hilbert, 2012; Tversky & Kahneman, 1974), but a more general theory was needed to carry the work of previous cognitive process researchers forward (Anderson, 1981). Information integration theory is a unified, general perspective that combines several ideas, including the possibility for cognitive biases, individual perceptions of importance, and other individual differences, into an understanding of human response to stimuli (Anderson, 1981). Instead of focusing on one cognitive bias to understand cognitive processes, the flexibility and inclusivity of information integration theory allows for a much more general, all-encompassing perspective to understand cognitive processes. Information integration theory emphasizes the role of consciousness in responses to stimuli (Anderson, 1996).

The basic premise of information integration theory is that between the introduction of stimuli and an observable reaction, individuals go through several unobservable cognitive processes, including scale valuation and weighing of the importance of content, which influence their responses (Anderson, 1981). For example, interpretation of information and judgment are goal-driven processes; this idea is called purposiveness in information integration literature (Anderson, 1996). Individuals will find meaning and assign importance to information

depending on how the information contributes to achieving a goal. The idea of meaning and importance driving cognitive response is demonstrated in information integration theory as valuation, including scale value and weight, which are considered in a process called cognitive algebra (Anderson, 1996).

Responses to stimuli studied range from person perceptions (e.g., Oden & Anderson, 1971) to attitude change (e.g., Sawyers & Anderson, 1971), among other examples of outcomes. For the purposes of this dissertation, the response, or outcome, will be referred to as judgment. An argument can be made that judgment is a form of other types of cognitive outcomes, such as attitude change because they, “both involve the integration of information into evaluative judgments that have social relevance” (Anderson 1971, p. 172-173). For simplicity sake, the term judgment will replace any further discussion of cognitive response within information integration theory. In addition to judgment, major aspects of information integration theory include multiple causation, valuation, and cognitive algebra, which will all be discussed next.

Multiple causation. Attempts to simplify human behavior by pointing to a single stimulus have been ineffective in understanding and predicting behavior (Anderson, 1981; 1996). Attempted creation and support of theories pointing to a single predictor of thought and behavior have often failed (Anderson, 1981). Instead, a central concept of information integration theory is the idea of multiple causation. Simply put, individuals’ thoughts and behaviors have a variety of causes, and any attempt to simplify a single cause and effect relationship is inadequate because, “multiple causation is the rule” (Anderson, 1981, p. 2).

Cognitive processes require individuals to interpret and make meaning from a variety of inputs. Outcomes of all cognitive processes—such as decisions, judgments, and attitude change—are a result of several co-acting factors, a complex processing of available information

(Anderson, 1981). Factors influencing cognitive responses include historical contexts of stimulus information and existing individual ideas and biases, among other possible factors (Anderson, 1981). Anderson (1971) explains the importance of considering multiple factors in judgments because, “Informational stimuli continually impinge on the person, in life or in the laboratory, and he must integrate them with one another as well as with his prior opinions and attitudes” (p. 171). These informational stimuli include, “factual and hearsay evidence, rumors, prestige associations, gesture, and appearance” (Anderson, 1971, p. 171). Beyond the myriad of possible factors influencing cognitive processes are the intricate ways the factors interact, depending on individual differences (Anderson, 1981).

Valuation. Valuation is the process that connects the stimulus to the cognitive interpretation of that stimulus (Anderson, 1981). Valuation involves the internal, unobservable factors included in information integration theory, and includes both scale value and weight. Within the information integration model, each stimulus has scale value and weight, which both contribute to the outcome of the judgment. Scale value is often operationalized as the dependent variable in tests of effects of factors on judgment (Anderson, 1971). For example, in a study concerned with the effect of descriptions of United States presidents on judgments of statesmanship, the scale value was the judgment of statesmanship of the past presidents (Sawyers & Anderson, 1971).

Weight of information refers to the varying degrees of psychological importance of certain information in making judgments (Anderson, 1971; 1981). While multiple factors might play a role in judgments, each of the factors is not necessarily equally weighted. Like value, weight depends on both the individual and the dimension of judgment (Anderson, 1971). Based on individual differences, some information might be deemed more important, and thus impact

the judgment more than other information (Anderson, 1971). Based on the dimension of judgment, or the particular context operationalized in the study, some information might also be deemed more important to the particular context than other information (Anderson, 1971). A unique aspect of information integration theory is its allowance for varying importance of factors in developing judgments. Studies exploring the weight parameter of information integration theory tend to measure initial beliefs before introducing participants to stimuli. For example, Chung, Fink, Waks, Meffert, and Xie (2012) operationalized weight by measuring participants' political party identification before exposing them to information about a hypothetical political candidate and then measuring evaluations of the candidate. In another example, Anderson and Lopes (1974) asked participants to make judgments about another person, and results pointed to the context of the person's occupation as being important in judgment. In other words, people tend to consider the context when forming impressions of another person. Anderson (1996) stresses the importance of measuring scale value and weight to gain a holistic understanding of judgment, using a process called cognitive algebra.

Cognitive algebra. Because information integration theory acknowledges the contributions of both multiple stimuli and weight of the stimuli, determining the complex result of judgment relies on simple algebraic ideas (Anderson, 1981). Integration of multiple stimuli, especially through multiple causation, seems to follow simple rules of mathematics, such as adding, subtracting, multiplying, and averaging factors contributing to the judgment response (Anderson, 1981). The information integration model includes adding and multiplying functions (Anderson, 1971). More specifically, the scale value and weight for each individual stimulus is considered through multiplication, creating a weighted value, and then added to the weighted

value of other stimuli, creating a weighted sum (Anderson, 1971; 1981). Each input is weighted according to the importance of the information to the respondent.

In judgments of people, in particular, the averaging model of information integration theory has received much support (e.g., Chung et al., 2012; Oden & Anderson, 1971; Simms, 1978). The averaging model asserts that when individuals encounter new information about a topic, they average the new information with existing information and attitudes about that same topic, possibly producing a slight attitude change (Simms, 1978). Instead of new information simply adding to a judgment, the averaging model allows for consideration of importance of information to the impression (Chung et al., 2012). Especially in considering the importance of initial beliefs in how new information is interpreted (Chung et al., 2012), the averaging model encourages a more holistic understanding of judgment processes.

Information Integration, Warranting, and Weight

This dissertation argues that warranting should be considered as a type of cognitive bias, which can be more generally understood under the umbrella of information integration theory. Information integration theory is, by design, a general theory, allowing for it to absorb other existing ideas about cognitive processes (Anderson, 1981), and this dissertation argues that warranting theory should fall within information integration theory. The present section provides a rationale for the connection between information integration theory and warranting theory, followed by a potentially missing, but integral component to warranting theory based on its connection to information integration theory.

Warranting as an information integration theory. Now that the basics of each theory have been covered, the present section will focus on the connections between the two theories. Rationale for why warranting theory should be considered within the context of information

integration theory is based on four basic ideas: (1) attempts have been made to acknowledge source reliability, which is a key feature of warranting theory, as a factor contributing to judgments in information integration, (2) attempts have been made to acknowledge the possibility of multiple causation, which is a key feature of information integration theory, in warranting theory, (3) warranting is, in itself, an example of a cognitive bias typically covered under information integration theory, and (4) warranting theory often is used to understand impression formation, which is similar to information integration theory's focus on judgments, including person perceptions.

First, some information integration literature has hinted toward the importance of source reliability as an important factor in the valuation process of forming judgments. This is an important factor connecting information integration to warranting theory because warranting theory focuses on the source of information, specifically how likely the information is to be manipulated by the target. Anderson (1971) specifically mentions the possibility that the source of information can contribute to judgments. Like other factors considered when forming judgments, Anderson (1971; 1981) acknowledges that the source of information and communication parameters could be considered factors affecting judgment. Anderson (1971) points out that information integration studies often do not provide participants with the source of the information, but when sources are explicit, the sources may be, "an integral part of the communication" (p. 196), just like the importance of the demeanor of a speaker in a public speaking context. In addition, Anderson (1981) explains that source reliability can be manipulated in a study of information integration by specifying the length of the relationship or explicitly stating the expertise of the source. Reliability of sources is hypothesized in existing information integration literature as being positively correlated with a more extreme judgment

response (Anderson, 1981). However, no specific evidence for this idea was found in the literature. Overall, information integration theory already hints toward the possibility that the source could be considered as another factor, among many, influencing judgments.

Second, within warranting theory literature, DeAndrea (2014), especially, has pointed to the possibility of multiple causation, which is a key feature of information integration theory. While classic studies of warranting theory have pointed to the source of information to indicate whether or not the information is easily manipulated, DeAndrea (2014) and DeAndrea and Carpenter (2016) attempt to advance warranting theory by pointing toward other notable factors they argue fall within warranting theory. Although it may be too early to find evidence in empirical studies outside of the publication of the scale, DeAndrea and Carpenter (2016) developed a measure of warranting value to consider some of the additional factors affecting impression formation. The General Warranting Value Scale includes three sub-scales testing receiver perceptions of modification control (i.e., the ability for the target to edit content), dissemination control (i.e., the ability for the target to control who sees the content), and source obfuscation (i.e., receiver perceptions that the source of information has not been tampered with; DeAndrea & Carpenter, 2016). DeAndrea and Carpenter (2016) test impressions by providing a manipulated stimulus (e.g., a mock website), followed by the scale, which asks questions having to do with the participants' perceptions that the information has been manipulated or tampered with by the target of the information. The inclusion of these three sub-factors within warranting theory hint toward warranting theory acknowledging multiple causation. In other words, recent developments in warranting theory have theorized that impressions of others are formed by not just determining how easily manipulated the information could be, but also including how easily the target could modify information, how much control the target has to disseminate information,

and how much the information could have been tampered with. These ideas already point to warranting theory being an information integration theory, and this dissertation urges for continued consideration of warranting theory as falling within information integration theory.

Third, warranting is an example of a cognitive bias. Cognitive biases are predictive, documented tendencies for people to make a particular judgment when presented with certain evidence (Hilbert, 2012). Warranting is a cognitive bias because perceptions of the ease of manipulation, often an inference made based on the source of the information, has an impact on judgments. Information integration theory is no stranger to cognitive biases. Instead of separating cognitive biases to test independently, information integration is purposely a general theory meant to envelop whatever factors contribute to a judgment through multiple causation (Anderson, 1981). Other cognitive biases that have been covered under information integration theory include a recency effect (Anderson, 1971) and a primacy effect (Anderson & Hubert, 1963), among others (Anderson, 1971). Beyond defined cognitive biases, because of the inclusive nature of information integration, several factors have been included in the idea of multiple causation, including existing party identification (Chung et al., 2012) and ideas about importance of characteristics for particular occupations (Anderson & Lopes, 1974). Warranting is simply a cognitive bias, a factor that should be included in the multiple causation of a judgment, concerning the source of information that can easily be absorbed into information integration theory.

The final reason warranting theory should be considered within information integration theory is the theories' shared focus on judgments; judgments of people more specifically. Person perceptions are typically based on a variety of informative cues (Anderson, 1971), and whereas some empirical evidence suggests that the more information available about an individual the

less the individual is to be liked by an observer (the “less is more” hypothesis), Ullrich, Krueger, Brod, and Groschupf (2013) found more support for an information integration approach; participants tend to average information when forming impressions about others. Information integration theory has tested person perceptions in studies considering perceptions of U.S. presidents (Anderson, 1973; Sawyers & Anderson, 1971), political candidates (Chung et al., 2012), criminals (Oden & Anderson, 1971), notable American women (Simms, 1978), leaders (Singh, Bohra, & Dalal, 1979), and people in certain occupations (Anderson & Lopes, 1974; Oden & Anderson, 1971). Warranting theory has tested person perceptions in studies considering peers in online communities (Antheunis & Schouten, 2011; Tong et al., 2008; Utz, 2010; Walther et al., 2008; Walther et al., 2009), people in certain occupations (Carr & Stefaniak, 2012), sperm donors (Bokek-Cohen, 2015), contributors to blogs and forums (Hayes & Carr, 2015; Walther et al., 2016), and online dating participants (Wotipka & High, 2016). Tests of person perception in both theories often use descriptions of hypothetical people about which participants form impressions (Anderson, 1981; 1996). Descriptions involve a set of stimuli in the form of trait adjectives and nouns (Anderson & Lopes, 1974; Anderson, 1981; Kaplan & Anderson, 1973). The stimuli in warranting theory are, of course, portrayed in a mediated environment (e.g., Antheunis & Schouten; Walther et al., 2009). While studies of both warranting theory and information integration theory require participants to form impressions of others based on informative cues, warranting theory places focus on the source of the message (Walther & Parks, 2002) and information integration theory focuses little on any one factor, instead considering the complex way several factors are integrated into an overall impression (Anderson, 1981). In fact, Anderson (1971; 1981) admits that the reliability of the source of information should be considered in multiple causation and integration of information as

important aspects of impression formation. Because of both theories' focus on person perception and impression formation, information integration is a reasonable place for warranting theory to fall within.

Weight and warranting. Weight, or the importance placed on each stimulus within the context of the judgment, is a contributing factor in judgment, according to information integration theory (Anderson, 1981). From a functional perspective, individuals approach thoughts and behaviors in a goal-driven sense; humans are consciously purposive (Anderson, 1996). Because of individual goals, weight is assigned to each informative stimulus, thus impacting how much that particular stimulus will contribute to an overall judgment. Manipulations of weight in information integration research tend to target relevance, salience, reliability, and quantity of information provided to participants (Anderson, 1981).

A defining aspect of weight within information integration theory is that individual differences impact how important informative cues are determined to be to the judgment (Anderson, 1981). In studies of information integration, even when individuals are presented with the same information from which to judge a person, individual needs, perceptions, and values cause individual participants to react differently to the same stimuli (Anderson, 1981). Anderson (1981) explained the individual nature of judgment when he stated:

If two persons hear the same message, they may disagree about what was actually said. If they agree about what was actually said, they may still disagree about the implications.

And even if they agree about the implications, they may nevertheless disagree about their desirability” (p. 7).

For example, if two people are car shopping, they might view the specifics of the same car (i.e., the stimuli), but might form different impressions of a car (i.e., judgment), overall, because of

the amount of value placed upon a specific criterion (i.e., weight). One person might value a particular type of engine, while another might find the body style most important. Valuation, and weight in particular, allows information integration theory to account for individual differences when making judgment decisions.

Another important aspect of weight in information integration theory is to consider the context of the judgment decision. The same information might be considered important in one context and irrelevant or completely unimportant in another context. Several empirical tests of information integration theory have acknowledged the importance of context within the idea of weight. Different leadership styles were more or less desirable, depending on the important problems of a country at a given time (Singh et al., 1979). Certain traits, such as mechanical, musical, and persuasive, were seen as important depending on the occupation of the person (Anderson & Lopes, 1974). For example, trait descriptions of “mechanical” and “musical” were not seen as important for a lawyer, while “persuasive” was seen as an important trait of a lawyer. Hypothetical naval officers were described in a variety of ways and participants were asked to make judgments of liking, command effectiveness, and how much the officer’s men would respect him (Oden & Anderson, 1971). Results indicated less importance placed on liking of a naval officer than on the other two outcomes. Although it seems like common sense, the importance of information presented within the context of a study (i.e., how a judgment is operationalized) can impact the overall judgment because information deemed as having greater importance will also weigh more on judgment impressions.

Because of the logical fit of warranting theory under the more general theory of information integration, weight is an aspect of information integration that should be considered within warranting theory. Warranting theory can be viewed from two perspectives, the sender

perspective and the receiver perspective (DeAndrea, 2014). Through the sender perspective, individuals may engage in selective self-presentation, using affordances of the online environments, and may also consider constraints on their selective self-presentation by the anonymity the technology affords and the role of the audience. Through the receiver perspective individuals rely on some information, and disregard other information, when forming impressions about others. It is possible that other factors, such as the weight receivers place on information, also impact the perceptions formed by certain information in an online setting.

The proposed consideration of weight within warranting theory would not be the first to consider importance, weight, or motivation toward information in early stages of relationships. For example, several additions or modifications have been added to uncertainty reduction theory having to do with the motivation to reduce uncertainty. Uncertainty reduction theory (Berger & Calbrese, 1975) theorizes about the role of uncertainty in initial interactions between strangers. The theory seeks to both explain and predict the behavior of interactants in the entry phase of a relationship. Uncertainty reduction theory explains that during an initial interaction, participants' main priority is to reduce the uncertainty they are experiencing through methods such as information-seeking (Berger & Calbrese, 1975). Citing inconsistent findings within studies of uncertainty reduction theory, the theory was expanded upon by Sunnafrank (1986) to consider the value placed on the potential relationship in the theory of predicted outcome value. Sunnafrank (1986) argues that uncertainty reduction theory is missing the necessary variable of interactants' desire for future interaction and proposes considering the relationship between uncertainty reduction and the perceived costs and rewards of the relationship. The idea of uncertainty continued to develop within different contexts and considering the predictive utility of the theory in empirical research. Not all uncertainty, it was found, leads individuals to seek

additional information. Motivation to reduce uncertainty (later termed theory of managing uncertainty) posits that several factors influence whether an individual will be compelled to seek information to reduce uncertainty (Kramer, 1999, 2004). Factors such as individual differences and contexts producing uncertainty may result in a tolerance for uncertainty (Kramer, 1999).

Like other past theories considering the variable of weight and Anderson and Lopes' (1974) study considering weight of information within the context of the person's occupation, the present study tests weight of information as a potential addition to warranting theory. Within a variety of contexts, such as online dating profiles or SNS, studies of warranting theory typically ask participants to express their impressions of a subject by completing scales of specific outcome variable perceptions. Studies have measured perceptions of a large variety of traits as outcome variables, including popularity (Utz, 2010), communal orientation (Utz, 2010), physical attractiveness (Antheunis & Schouten, 2011; Scott et al., 2014; Tong et al., 2008; Walther et al., 2008; Walther et al., 2009), social attractiveness (Antheunis & Schouten, 2011; Scott et al., 2014; Tong et al., 2008; Utz, 2010; Wotipka & High, 2016), task attractiveness (Scott et al., 2014), extroversion (Antheunis & Schouten, 2011; Tong et al., 2008; Walther et al., 2009), credibility (Carr & Stefaniak, 2012; Hayes & Carr, 2015; Walther et al., 2008), expertise (Hayes & Carr, 2015), employability (Scott et al., 2014), trust (Cherney et al., 2017), and other outcome variables. It is possible that inconclusive findings in existing literature using warranting theory were due to lack of weight of certain outcome trait variables to the overall impression of an individual within a particular context. For example, Walther et al. (2009) did not find support for warranting theory when manipulating SNS profiles to evoke perceptions of peers' extroversion. Walther et al. (2009) offer an explanation for ambiguous support of warranting theory, and suggests that the rewards for presenting oneself to peers as introverted or extroverted

are unclear. To add to Walther et al.'s (2009) ideas, Utz (2010) offers an explanation and suggests that mass media does not place as much value on the trait of extraversion as it does for other traits, like physical attractiveness. If social desirability of a trait is unclear, especially within a particular context, viewers of the information might be just as likely to believe self-generated content. Alternatively, it is also possible that if viewers of a SNS profile do not care about whether an individual is extroverted, the source of the information is no longer important to forming impressions. It is possible that the weight placed on information can supersede the source of the information, meaning weight should be considered within warranting theory like it is within information integration theory.

The only example of the idea of weight of information within a context is considered in existing literature is in DeAndrea's (2014) attempt to advance warranting theory. DeAndrea (2014), referencing signaling theory, suggests that potential costs of believing information online may impact the perceived warranting value of information. This perspective encourages researchers to consider the weight a receiver might place on information when costs might be encountered if they place trust in inaccurate information. DeAndrea (2014) uses the example of an online pharmacy and the enhanced motivation to scrutinize credibility of information because of the dire costs of a mistake (i.e., taking inaccurate medication). Like the extreme example of the weight someone might place on information coming from an online pharmacy, the negligence of the factor of weight when determining the warranting value of information in other online contexts may explain the inconsistent support for warranting theory in existing literature. In the present study, weight, or importance of traits within the context of a student-instructor relationship, is tested along with perceived warranting value as a moderator variable between the valence of self- and other-generated sources of information and impression. As a moderator

variable, more extreme positive or negative impression would be expected when the traits are considered of high weight within the context. Higher weight will strengthen the relationship between source and impression. See Appendix A for a visual representation of regression models. This dissertation aims to determine the role of weight in warranting theory through the following hypotheses:

H4: The combination of valence of self-generated content and valence of other-generated content predicts impressions of instructor affect (H4a), task attraction (H4b), and social attraction (H4c), and these effects are moderated by weight of instructor affect, weight of task attraction, and weight of social attraction, respectively.

While the factor of weight might help explain when and why certain information is relied upon when forming impressions of others, impressions formed may be temporary. The variable of time should be considered within warranting theory to understand the persistence of impressions formed based on differing sources of information.

Time

Another cognitive process that fits neatly with information integration and warranting theories is the function of memory over time. Information integration theory literature often explores topics such as order-effects when information is presented in a list (e.g., Anderson & Hubert, 1963; Anderson, 1981; Anderson, 1982; Anderson, 1991; Anderson, 1996; Zalinski & Anderson, 1977). Early in information integration, the verbal memory hypothesis was widely accepted as truth (Anderson & Hubert, 1963). The verbal memory hypothesis says that when forming judgments about another person based on information presented, a person is likely to only remember some of the information presented, and the remembered information is what will contribute to one's person perception. In the case of experimental studies presenting a list of

adjectives to participants from which they are asked to form an impression of the person being described, a verbal memory hypothesis would find similarities between recall of specific adjectives and person perceptions. The verbal memory hypothesis was not supported in tests of person perception (Anderson & Hubert, 1963).

Anderson and Hubert (1963) presented a list of adjectives to participants, from which participants were asked to form judgments about the person being described. In some conditions, participants were told they would also need to recall as many of the adjectives presented to them as possible, while in other conditions participants were not warned about the recall task, but their recall was still evaluated. Some conditions involved positive, or favorable, adjectives presented before negative, or unfavorable, adjectives, while other conditions reversed the order. Findings indicated a small primacy effect of person perception in that adjectives presented first had a stronger effect on the perception than adjectives presented last. When positive information was presented first and followed by negative information, participants were likely to have a more positive impression of the person than when negative information was followed by positive information. The researchers explained that the primacy was likely due to a decrease in attention participants paid to adjectives presented later in the list. Other explanations for similar findings include the possibility for person perception to develop through “step-wise integration” (Anderson, 1996, p. 367) in that each new piece of information is evaluated and integrated into the overall judgment of the person.

Contrary to the verbal memory hypothesis, a recency effect was found for the recall of adjectives, in that participants were better able to correctly remember adjectives presented later in the list (Anderson & Hubert, 1963). The findings call for a rejection of the verbal memory hypothesis. Adjectives that are remembered should have made the largest impact on the person

perception to support the verbal memory hypothesis, but the findings did not support this idea. Because of this rejection of the verbal memory hypothesis, Anderson and Hubert (1963) state that a different explanation could better explain person perception in that, the memory process to remember words for recall might be different from the memory process required to form an impression of another person, an explanation later described as the two-memory hypothesis (Anderson, 1996).

While information integration approaches judgment with a multiple causation lens, information integration also argues that memories are integrated, often in a two-memory model (Anderson, 1996). In the two-memory hypothesis, Anderson (1996) explains that when a receiver is presented with stimuli from which to make a judgment, such as adjectives describing a person, the receiver will assign it a value and integrate the information into their overall judgment of the person. Once the adjective has been integrated into the receiver's cognition, the adjective itself is not committed to memory (a process called cognitive economy), but the valuation of the adjective is committed to memory. The general takeaway from the idea of a two-memory hypothesis is that the judgments or attitudes formed from information can persist long after the information has been forgotten (Anderson, 1981). In fact, more recent information integration literature explains that although many studies of memory test recall, the more realistic use of memory in everyday life is called functional memory (Anderson, 1996). Functional memory involves incorporation of all past experiences and existing knowledge when forming judgments meant to be acted upon. Realistic use of memory rarely involves memorizing lists of words to reproduce the words accurately, making the two-memory hypothesis of primary concern in understanding person perceptions through information integration theory.

One key element to understanding the exploration of memory within information integration theory is to observe how time is operationalized in studies testing person perceptions and the two-memory hypothesis. Many tests of time within information integration theory test primacy effects and recency effects (e.g., Anderson & Hubert, 1963). These tests typically involve presenting participants with a list of adjectives manipulated to either present positive adjectives first and negatives adjectives last, or vice versa, from which their recall and person perceptions are tested. Recall and person perceptions are typically tested immediately after presentation of adjectives, operationalizing time between stimulus and judgment as only a matter of seconds. Other study designs required participants to complete a task between exposure to the stimulus and judgment, such as counting backward by threes for either zero, 15 or 30 seconds (Anderson, 1981). Even studies claiming to test basal-surface representation, or the difference between short-term and long-term memory, operationalized long-term memory as a primacy effect, or the information presented in the beginning of a 12-item series of information (Anderson, 1991). In fact, Anderson (1996) points out the possibility that studies of passage of time within information integration theory might actually be testing stimulus interference (e.g., primacy or recency effects), rather than testing the change in attitude over time. Although these studies considered different types of memory, they did not test realistic memory involved with person perceptions. Often, person perceptions are used within functional memory, or the realistic recall of information to achieve goals in everyday life.

To increase the practicality of information integration theory, Simms (1978) urges researchers to apply an information integration approach to a more natural setting involving attitude change. While an experimental study taking place in a laboratory asks participants to form judgments immediately, Simms (1978) argues that natural judgments are made over time

and in more natural settings. Because more longitudinal, realistic data is not available concerning information integration theory and memory, looking to sleeper effect literature might provide some explanation for the role of time on impressions.

Originating with early studies of media effects (Hovland et al., 1949) and continuing in later studies (Hovland & Weiss, 1951; Kelman & Hovland, 1953; Weiss, 1953), the sleeper effect occurs when a message increases in persuasiveness over time. More specifically, when a persuasive message is determined to come from a non-credible or untrustworthy source, using some sort of discounting cue, over time the message will be disassociated from the source of the message and will show an increase in persuasion (Gruder, Cook, Hennigan, & Flay, 1978; Hovland et al., 1949; Hovland & Weiss, 1951; Kelman & Hovland, 1953). In other words, the sleeper effect happens when a message is found to be more persuasive over time than it is initially. On the other hand, when information comes from a highly credible source, disassociation might also occur, causing a decrease in persuasion over time. It is assumed that for messages of high credibility, the receiver is distracted from the message initially, looking to other reasons to believe a message, including source credibility. Over time, however, disassociation between the message and the source occurs, causing a decrease in persuasion (Allen & Stiff, 1989). A discounting cue is any cue signaling that the information should not be trusted (Gruder et al., 1978). At a basic level, the sleeper effect considers the connection between content factors (i.e., message) and acceptance factors (i.e., credibility) over time, and argues that over time memories of a message are separated from memories of a source (Kelman & Hovland, 1953).

The sleeper effect has been hypothesized to work in several ways (Allen & Stiff, 1989). The traditional hypothesis, for example, predicts a larger initial attitude change for a high

credibility than for a low credibility message, but over time persuasion decreases in the high credibility condition and increases in the low credibility condition, causing greater long-term attitude change for low credibility message. The forgetting hypothesis is another option for how the sleeper effect works. In the forgetting hypothesis an initial attitude change is greater for high credibility messages, and over time all messages decrease in persuasiveness, leading to decreases in attitude change for both high and low credibility messages. Finally, the dissociation hypothesis is similar to the traditional hypothesis except that both high and low credibility messages will, over time, be not significantly different from one another in attitude change. In a meta-analysis of the three sleeper effect hypotheses, the most promising of the three was the disassociation hypothesis, although the authors warn against relying completely on the disassociation model to explain all sleeper effect data (Allen & Stiff, 1989). While the meta-analysis clarified that a sleeper effect does, in fact, exist, the findings are inconclusive and leave room for future research.

In comparing time-oriented information integration literature and sleeper effect literature, one important commonality exists – the endurance of attitudes. Information integration theory's basal component says that once attitudes are formed, they are resistant to change (Anderson, 1996). Information integration literature says that this resistance to change explains why after exposure to a persuasive message people are often initially persuaded, but over time return to their previous attitude toward the topic. Similarly, the disassociation model of the sleeper effect says that although attitude change might initially be observed as a result of the credibility of new information, over time the attitudes will converge again. The present study will address the variable of time and whether attitudes truly are persistent.

To be clear, the present study is not an explicit test of the sleeper effect. According to Gruder et al (1978) and Cook, Gruder, Hennigan, and Flay (1979), several requirements exist for a true test of an absolute sleeper effect: (1) the message must have a large initial impact on receivers' attitudes; (2) a discounting cue must be present to reduce perceptions of credibility, at least in some conditions; (3) Enough time must be allowed before a delayed post-test for the message and source to be disassociated from one another; (4) a post-test must occur after the message and source have been disassociated from one another, but while the message still has an impact on the attitude change. The proposed study does not have the capability of testing an absolute sleeper effect, but is interested in determining if attitude change is altered in a delayed post-test. In addition, Foos, Keeling, and Keeling (2015) have urged future researchers to consider a sleeper effect in online environments. Other studies have applied the sleeper effect loosely to determine delayed post-test attitude changes (Johnson & Van Der Heide, 2015), and the proposed study does the same.

No studies of long-term effects of warranting theory are found in existing literature. Large implications for warranting theory exist if, over time, the credibility of a source is forgotten, but the information presented by a source is persistent. Warranting theory works under the general assumption that self-generated information is less credible than other-generated information because it is more easily manipulated by the target of the information. In the present study, impressions would vary as a result of combinations of self-generated and other-generated content during initial data collection and delayed data collection. More specifically, the following hypothesis regarding time is proposed:

H5: Other-generated information will have a greater initial impact on impressions of instructor affect (H5a), task attraction (H5b), and social attraction (H5c) than will self-generated information, but impressions will converge over time.

Methods

The present set of hypotheses and research questions contain five variables that deserve definition. First, the independent variable, source, is the manipulated source of information (i.e., self-generated or other-generated content). Other-generated information is likely not easily manipulated by the target of the information, and self-generated information should be perceived as easily manipulated by the target of the information. Second is perceived warranting value. Perceptions of warranting value were measured to determine the degree to which warranting value is placed in the information acquired. Third, weight is the perceived importance of the traits studied within the context of a student-instructor relationship. Fourth, the variable of time was placed in the model to test the persistence of impressions. Hypotheses concerning the described variables are discussed next. Finally, impression is the dependent variable, or outcome of perceptions of several personality traits.

Participants

Participants ($N = 330$) were recruited from undergraduate communication courses at both a large, public university and a small, private college in the Midwest. The number of participants exceeded the minimum number of participants required (i.e., 107) for achieving power of .80 for a medium effect size in a multiple regression with eight independent variables and $\alpha = .05$, the significance test used in this dissertation with the strictest sample requirements (Cohen, 1992). Participants were an average age of 21.95 ($SD = 7.11$) and 36.1% were male ($n = 118$), 63.6% were female ($n = 208$), and 0.3% ($n = 1$) chose to not identify as either male or female. Students

who participated were largely university juniors ($n = 98$) and seniors ($n = 106$), but several participants identified as freshmen ($n = 64$), sophomores ($n = 59$), and graduate students ($n = 3$). The sample was 73.1% White ($n = 239$), 6.7% Hispanic/Latino ($n = 22$) and Black/African American ($n = 22$), 5.5% Asian/Pacific Islander ($n = 18$), 4.9% mixed race ($n = 16$), and 10 participants did not disclose their ethnicity information.

The study followed a repeated-measures design, requiring participants in the study to complete an initial online questionnaire, followed by a delayed questionnaire about 18 days after the original. In exchange for participants' involvement, they were awarded a small amount of extra credit in a communication course offering the opportunity. An alternative extra credit opportunity was offered for students who choose not to participate in the study. All procedures and data collection materials were approved by both data collection sites' Institutional Review Boards (Appendix B).

Procedure

Participants were invited to participate in the study and were provided with a link to the online questionnaire from their communication course instructor. After viewing and accepting an informed consent document, participants were asked to enter their university-affiliated email address so they could be contacted for the delayed questionnaire and to pair each participant's initial questionnaire with their delayed questionnaire.

To determine individual perceptions of weight, or importance, of college instructor traits, participants completed several measures reporting on individual perceptions of the ideal personality traits of an instructor. This procedure is similar to other information integration literature interested in determining a baseline weight, or importance, of a trait before participants encounter stimuli (e.g., Chung et al., 2012). After completion of scales to determine the

importance of traits within the context of a university instructor, the online questionnaire informed participants that they would be presented with website screenshots containing information about an instructor at their university. Participants were instructed to carefully view and consider the information from the website screenshots as if they were considering taking a course next semester with the instructor in question. Online interactants are more likely to carefully view information about others when they anticipate future interactions (Walther, 1994). To identify how engaged participants were with the content of the websites, time spent on the questionnaire was tracked as a proxy variable for engagement with content, with the intention of controlling for engagement with content within significance tests. Duration was not found to be a significant covariate within any of the significant tests, so it was eliminated from final analyses. After viewing the website screenshots, participants responded to scales concerning their perceptions of the instructor. Finally, participants responded to questions collecting demographic and background information.

Delayed data collection. The present study was interested in exploring the variable of time in person perceptions in a more longitudinal way than what existed in information integration literature (Anderson & Hubert, 1963; Anderson, 1981; Anderson, 1991). Because of this, the timeframe between initial and delayed measurement of attitude was modeled after sleeper effect literature. In existing tests of a sleeper effect, the timeframe between the initial measurement of attitude change and the delayed measurement of attitude change ranges from hours to days to weeks. To observe an effect, the timeframe must be long enough for the source and message to be disassociated from one another and short enough for the message to still impact attitude (Foos et al., 2015). Researchers should avoid waiting too long for the delayed measurement because of the possibility for an inverted U in attitude change, resulting in the

attitude eventually falling back to its baseline level, a phenomenon observed by Lariscy and Tinkham (1999). Foos et al. (2015) noted a pattern in the literature of the timing of delayed measurements and found that in the 1950s and 1960s researchers tended to complete the delayed measurement in about 4-6 weeks. In the 1980s researchers tended to complete the delayed measurement in about 1-10 days. In the review of existing literature for this dissertation, researchers tended to operationalize the delay as anywhere from seven days (Johnson & Van Der Heide, 2015; Priester, Wegener, Petty, & Fabrigar, 1999) to six weeks (Pratkanis, Greenwald, Leippe, & Baumgardner, 1988; Weiss, 1953) and everything in between (Foos et al., 2015; Gruder et al., 1978; Hovland & Weiss, 1951; Kelman & Hovland, 1953; Lariscy & Tinkham, 1999; Underwood & Pezdek). A meta-analysis of sleeper effect literature revealed that the mean timeframe between the initial post-test and the delayed post-test was 18 days, although the time interval was not found to be a significant moderator in persuasion, comparing discounting-cue conditions with high credibility conditions (Kumkale & Albarracin, 2004). Because of this finding, the present study invited participants to complete a delayed post-test at about 18 days after the viewing of stimuli and initial post-test. Following the protocol by Johnson and Van Der Heide (2015), a reminder was sent out after 72 hours in case participants had not yet completed the delayed post-test. In the present study, participants completed the delayed questionnaire an average of 19.33 ($SD = 3.28$) days after completion of the initial questionnaire. The post-test included similar materials as the initial test to gather impression formation from participants of the source (i.e., warranting value scale) and the hypothetical instructor (i.e., instructor affect and attraction), but did not include weight scale items, stimuli, or demographic information; these items were retained from the initial test and connected using participants' university email address.

Materials

To test the warranting effect, Walther et al. (2009) suggests presenting individuals with conflicting valenced information about a target from both seemingly self-generated and seemingly other-generated sources. To accomplish this, several mock-up websites were created as stimuli for participants to view. Self-generated information was operationalized as a university faculty profile page containing information seemingly written by the instructor about her own teaching philosophy and behaviors. Other-generated information was operationalized as an instructor review website, similar to ratemyprofessors.com, the largest collection of online instructor reviews (Rate My Professors, 2017), containing reviews written by past students evaluating the instructor. This type of website was chosen as an operationalization of other-generated content because 77.5% of students claim that, at least sometimes, they base their decisions for class enrollment on ratings of professors on ratemyprofessors.com (Field, Bergiel, & Viosca, 2008). For both types of websites, participants were randomly selected to view either positively- or negatively-valenced stimuli. This resulted in a 2 (valence of university website) X 2 (valence of instructor review site) X 2 (initial vs. delayed impression) factorial design.

Some aspects of the two websites remained consistent across conditions. The format of the faculty profile screenshot closely resembled the university's faculty profiles, and the student rating website was formatted similarly to a widely-used instructor rating website. The name of the instructor, Joan Smith, remained consistent among stimuli. Neither website displayed a photograph, and instead used the default placeholder image of a silhouette to avoid any confounding variables associated with appearance. Education levels of the instructor also remained consistent across conditions so perceptions were based on the self- or other-generated information in question.

The only information varying between stimuli was the content of the self- and other-generated information. All information “posted” within the stimuli was based on existing literature about important and unimportant characteristics in university faculty. Existing literature shows that students prefer university instructors who have strong teaching ability (e.g., organized and clear with classroom content; Sanchez et al., 2011; Martinez-Pecino, & Rodriguez, 2011; Subkoviak & Levin, 1974), have strong interpersonal skills (Sanchez et al., 2011; Subkoviak & Levin, 1974), and collaborate with students in research endeavors (Subkoviak & Levin, 1974). Traits identified consistently as being unimportant to students are intellectual characteristics of a university instructor, such as intelligence (Sanchez et al., 2011). In accordance with literature identifying characteristics of ideal instructors, positively-valenced stimuli were designed to identify characteristics such as clarity, organization, and interpersonal skills, while negatively-valenced stimuli were designed to identify a lack of clarity, organization, and interpersonal skills.

Self-generated content. The faculty profile website contained a teaching philosophy. For the condition designed to evoke a positive perception of the instructor, the teaching philosophy (85 words) focused on the instructor’s passion for teaching, organization, clarity, and interpersonal skills. The teaching philosophy cites her passion for connecting with students on a personal level. The conditions designed to encourage negative judgment about the instructor (85 words) were carefully created to evoke a negative impression, while also remaining a realistic self-generated statement. The negatively-valenced faculty profile was meant to evoke an impression of the instructor’s inflexibility and disregard for interpersonal skills. See Appendix C for both positively-valenced and negatively-valenced faculty profile stimuli.

To test the effectiveness of the manipulation, participants were asked to respond on a 7-point Likert-type scale with responses ranging from *strongly disagree* (1) to *strongly agree* (7) the degree to which they agree with two statements including, “The instructor presents herself positively on the faculty profile website,” and, “The instructor includes negative information on the faculty profile website” (reverse coded). A pilot study was first conducted with 26 participants to test the effectiveness of the manipulation. The pilot study’s manipulation check revealed that the manipulation of stimuli was effective in producing the expected result, $F(1, 24) = 42.35, p < .001$. Because the manipulation was successful and the stimuli and questionnaire were not revised as a result of the pilot study, the pilot study participant data was included in the larger data collection pool. The manipulation check on the two faculty profiles with all participants ($N = 330$) was effective in producing the expected result of significant between-group differences between positively- and negatively-valenced faculty profile websites, $F(1, 327) = 860.39, p < .001$. In other words, those exposed to a positively-valenced faculty profile ($M = 6.16, SD = 1.09$) reported greater positivity in the profile than those exposed to a negatively-valenced faculty profile ($M = 2.93, SD = 1.23$).

Other-generated content. Similarly, the student rating website stimuli were designed to evoke either positive or negative perceptions about the instructor through other-generated content. The content of three student ratings were manipulated, while all other information remained identical across conditions. While creating the stimuli, in addition to basing mock student reviews on traits existing literature has found to be preferred by students, the researcher viewed many student reviews of instructors to find common praises and complaints about instructors to make the reviews believable. The positively-valenced student rating website (58 total words) about the instructor in question contained content about the instructor’s positive

attitude, interpersonal skills, clarity, and organization. The negatively-valenced reviews (63 total words), however, contained criticisms about the instructor's lack of interpersonal skills, organization, and clarity. Participants were randomly assigned to view either the positively or negatively-valenced student-authored reviews of the instructor. Please see Appendix C to view positively-valenced and negatively-valenced student review website stimuli.

As a manipulation check, participants were asked to respond to two statements using a 7-point Likert-type scale with responses ranging from *strongly disagree* (1) to *strongly agree* (7), indicating the degree to which they agree to statements about the webpage screenshots. The two statements included, "The instructor is presented positively by past students on the instructor rating website," and, "The instructor rating website includes negative information about the instructor" (reverse coded). A pilot study including 26 participants tested the effectiveness of the manipulation. Results of the pilot study indicated a successful manipulation, $F(1, 24) = 238.35$, $p < .001$. Again, because the manipulation was successful and the stimuli and questionnaire were not revised as a result of the pilot study, the pilot study participant data were included in the larger data collection pool. The manipulation check on the positive and negative faculty profiles with all participants ($N = 330$) was effective in producing the expected result of significant between-group differences between the two stimuli, $F(1, 326) = 1665.00$, $p < .001$. Participants exposed to positively-valenced student ratings ($M = 6.26$, $SD = 1.06$) reported greater positivity in the ratings than those exposed to a negatively-valenced student ratings ($M = 1.75$, $SD = 1.07$).

Measures

Please see Appendices D and E for the initial (Time 1) and delayed (Time 2) questionnaires.

To test the moderating effect of **weight** on the impression formation of instructors based on the source and valence of information, the importance, or weight, of traits within the context needed to be measured. Other tests of weight within information integration theory (e.g., Zalinski & Anderson, 1977) explicitly ask participants to rate the importance of items within a context. For example, Zalinski and Anderson (1977) list four dimensions, or aspects of a job including management, co-worker, pay-promotion, and work enjoyment, and asked participants to rate the importance of each dimension within the context of an employment situation. One method used in existing information integration research regarding weight is to ask participants to judge, or rate, each attribute on a 0-20 scale of importance (Anderson & Zalinski, 1991). Another method is to ask participants to allocate a limited number of points (e.g., 100) to a list of attributes within a context to force participants to evaluate each attribute alongside each other attribute.

The present study used methods more similar to the first method, asking participants to rate attributes on a scale. Instead of posing each trait (e.g., instructor affect) to the participants as one item, the present study asked participants to complete an adapted version of the impression scales (i.e., instructor affect, task attraction, and social attraction). Participants were asked to complete each scale while considering what traits are important in a college-level instructor. See below for specifics about how each individual scale was adapted to measure weight.

Instructor affect was measured both in the beginning of the questionnaire to determine the importance of instructor affect to each individual participant and as a perception of instructor affect after viewing the stimuli. McCroskey's (1994) attitude toward instructor items were taken from the overall Instructional Affect Assessment Instrument. To determine weight of instructor affect items, the initial scale included an adapted version of McCroskey's (1994) attitude toward instructor items, and prompted participants, "How important are the following characteristics in a

college instructor?” and responses ranged from *very unimportant* (1) to *very important* (7) on a 7-point Likert-type scale. The measure included items, such as “Good” “Valuable,” “Fair,” and “Positive” (p. 68). This adapted version differed from the original because the original uses semantic differential items (e.g., Good/Bad) within a 7-point Likert-type scale and asks about perceptions of an individual instructor, rather than the importance of traits in an instructor. After viewing the manipulated stimuli, participants responded to the original Instructional Affect Assessment Instrument, but this time in response to the stimuli. The prompt read, “My attitude about the instructor is.” Previous research has found acceptable reliability of the overall Instructional Affect Assessment Instrument ($\alpha = .93$; Banfield, Richmond, & McCroskey, 2006), but the reliability for only instructor affect items remains unclear. In the present study, acceptable reliability was also found for the adapted version of the scale to determine weight of instructor affect items ($\alpha = .89$) and in the impression of instructor affect scale during both post-tests (initial questionnaire $\alpha = .90$; delayed questionnaire $\alpha = .90$).

To measure both importance of and perceptions of **task and social attraction** toward the instructor, participants completed the task and social attraction portions of McCroskey and McCain’s (1974) measurement of interpersonal attraction. The scale was adapted to measure the weight of task and social attraction items before exposing participants to stimuli. Like the instructor affect scale, the prompt asked participants, “How important are the following characteristics in a college instructor?” and responses ranged from *very unimportant* (1) to *very important* (7) on a 7-point Likert-type scale. Each item in McCroskey and McCain’s (1974) original scale describes a short scenario (e.g., “If I wanted to get things done I could probably depend on her”), which for the purposes of measuring weight, were altered to get at a particular, positively-valenced trait having to do with both task and social attraction. For example, the task

attraction item, “If I wanted to get things done I could probably depend on her” was changed to “Dependable” to allow participants to reflect on the importance of that particular trait in a university instructor. Similarly, for social attraction, the item, “It would be difficult to meet and talk with her” was revised to ask participants about the positively valenced trait of being “Available to talk.” After viewing the manipulated stimuli, participants responded to the original task and social attraction items of McCroskey and McCain’s (1974) Interpersonal Attraction scale, but this time in response to the stimuli. Items required participants to react on a seven-item Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (7) their agreement with phrases about the instructor in question. McCroskey and McCain (1974) found acceptable reliabilities for the original task and social attraction scales ($\alpha = .86$ and $.75$, respectively). The present study found acceptable reliability for the adapted scale to measure weight of task and social attraction ($\alpha = .90$ and $\alpha = .79$, respectively) and the non-adapted scales to measure impression at Time 1 ($\alpha = .88$ and $\alpha = .88$, respectively) and at Time 2 ($\alpha = .85$ and $\alpha = .87$, respectively).

To measure **warranting value** of each source, participants completed DeAndrea and Carpenter’s (2016) General Warranting Value Scale. Items in the General Warranting Value Scale include, “(The target) manipulated the information that appeared on (the site) about (the target)” and “(The target) controlled the (information) appearing on (the site) about (the target)” (DeAndrea & Carpenter, 2016, p. 17). Each term in parentheses was revised to point to the particular source of information the participant should consider. For example, the first item appeared after the student review website stimulus as, “The instructor manipulated the information that appeared on the student rating website about herself.” Participants were asked to respond to each item with the degree to which they agree on a 7-point Likert-type scale ranging

from *strongly disagree* (1) to *strongly agree* (7). Although the scale has limited use in empirical studies, DeAndrea and Carpenter's (2016) three initial tests of the scale have shown acceptable reliabilities ($\alpha = .91$, $\alpha = .91$, $\alpha = .95$). The present study also found acceptable scale reliability for the General Warranting Value Scale for each of the four conditions at Time 1 ($\alpha = .70$ -.84) and at Time 2 for both self-generated content ($\alpha = .83$) and other-generated content ($\alpha = .82$).

Data Analysis

To test the first set of hypotheses placing perceptions of warranting value within the connection between source and impression, first a traditional test of warranting theory was conducted. Data analysis for the traditional test of warranting theory was based on Walther et al.'s (2009) test of warranting theory using mean pattern observations and contrast coding across four conditions of varying valences and sources of information. A successful test of warranting theory typically results in the highest mean when both self-generated and other-generated content are positive and the lowest mean when both self-generated and other-generated content are manipulated to be negative. Where warranting theory can be observed best is in further exploring the conditions with conflicting findings (i.e., positive self-generated content with negative other-generated content or negative self-generated content with positive other-generated content). If warranting theory is supported, the condition with negative self-generated and positive other-generated content would produce a higher mean score (i.e., more positive impression) than the condition with positive self-generated and negative other-generated content.

Traditional tests of warranting theory (e.g., Walther et al., 2009) also sometimes use contrast coding to perform significance tests comparing impressions within each condition. Orthogonal contrast coding was conducted, requiring all codes to add up to zero (Rosenthal, Rosnow, & Rubin, 2000). Diverting slightly from other tests of warranting theory using contrast

coding, this dissertation acknowledges that warranting theory would say that both self-generated content and other-generated content have some effect on impressions, even though other-generated content has more of an impact than self-generated content. Based on the idea that both self-generated and other-generated content have an impact on impressions and that other-generated content has more of an impact on impressions, the following weights were assigned for each condition. For the condition involving both positively-valenced self-generated and other-generated content, a weight of +3 was assigned. In the conflicting condition involving negative self-generated information and positive other-generated information, a weight of +1 was assigned. A weight of -1 was assigned to the condition with positive self-generated information and negative other-generated information, and a weight of -3 was assigned when both self-generated and other-generated information was negatively valenced. An analysis of variance (ANOVA) was conducted with the contrast codes to determine whether other-generated content was more impactful to impressions of instructor affect, task attraction, and social attraction than self-generated content.

In addition to testing warranting theory through a priori contrast analysis, the present study also used contrast coding to test for presence of a negativity or additivity effect; both cognitive biases are commonly cited as offering additional explanation for findings of warranting theory studies (e.g., Walther et al., 2009). To test for a negativity effect, conditions in which negatively-valenced information was presented, whether it came from self-generated information or other-generated information, were assigned a weight of -1. For the condition that did not include any negative information, a weight of +3 was assigned. To test for an additivity effect, an expected result would involve the lowest mean coming from negative self- and other-generated content, conflicting conditions producing the next lowest mean (i.e., positive self-generated and

negative other-generated content or negative self-generated and positive other-generated content), and the condition with positive self- and other-generated content resulting in the highest mean. In other words, an additivity effect would appear if a more extreme effect is observed when information is not contradictory. To test for an additivity effect, the consistently positive condition was assigned a weight of +1, the consistently negative condition was assigned a weight of -1, and both inconsistent conditions were assigned a weight of 0. See Table E1 in Appendix F for a presentation of contrast codes to test warranting theory, negativity effect, and additivity effect. An ANOVA was conducted to determine significance of condition in forming impressions of instructor affect, task attraction, and social attraction.

To test the connections between source and perceived warranting value and between valence and perceived warranting value, multilevel modeling (MLM) was conducted. The source of information was considered a factor because each participant was exposed to both self-generated content and other-generated content. The valence of information was also considered a factor, since for each source participants were exposed to positively-valenced or negatively-valenced content.

H3 predicts that the relationship between the valence of self-generated and other-generated content and the impression formed will be moderated by warranting value. The best way to test this model was to use a multiple regression analysis, which required an assumption that independent variables are not highly correlated with one another. The warranting value of self-generated content and other-generated content was mean-centered to avoid problems with multicollinearity (Hayes, Glynn, & Huges, 2012) and to produce more meaningful interpretations among variables (McClelland, Irwin, Disatnik, & Sivan, 2017). Testing for multicollinearity was conducted through observing indicators such as variance inflation factors (VIF) and tolerance

(Daoud, 2017). Because several variables had a VIF indicator of 10 or above tolerance levels were at .10 or below, multicollinearity was found in the present model. Although variables included in the model were highly correlated, a multicollinearity problem does not exist because the correlations are between independent variables and their interaction terms (Disatnik & Sivan, 2014). When running a moderated multiple regression including multiple variables and interactions among those variables, multicollinearity is expected (McClelland et al., 2017). However, a problem with multicollinearity only exists when high correlations exist among independent variables themselves (Disatnik & Sivan, 2014). Because a problem with multicollinearity does not exist in the present model, regression results were analyzed for a model of impression formation involving both valences of sources of information and their respective perceived warranting values.

Similarly, H4 predicted that the relationship between the valence of self-generated content and the valence of other-generated content and impressions of instructor affect (H4a), task attraction (H4b), and social attraction (H4c) would be moderated by weight of instructor affect, weight of task attraction, and weight of social attraction, respectively. Weights of each impression variable were mean-centered to avoid multicollinearity (Hayes et al., 2012) and to allow for more power in the analysis. Again, independent variables were highly correlated with interactions among variables indicating that multicollinearity exists, but a problem with multicollinearity did not exist (Disatnik & Sivan, 2014; McClelland et al., 2017).

Finally, to test the persistence of attitudes over time, a repeated measures ANOVA was conducted to compare impressions at Time 1 and impressions at Time 2. The impression of instructor affect, task attraction, and social attraction at Time 1 and at Time 2 were considered within-subjects factors because each participant completed the impression scales both during the

initial questionnaire and the delayed questionnaire. Condition was considered a between-subjects factor, since each participant fell into one of four conditions. Because this repeated measures ANOVA only includes two repeated measures, sphericity is assumed. The time between the initial and delayed questionnaires was tested within each impression model for significance, but was eliminated from final analysis because it did not significantly contribute to the model.

Results

Traditional Test of Warranting

The first set of hypotheses was meant to test warranting theory using both traditional methods of testing the presence of warranting theory and by directly testing whether source and valence predict perceived warranting value. First, for the traditional test of warranting theory, mean patterns of impressions were observed as following the expected mean patterns for a test of warranting theory for two of the three impression variables. More specifically, for the impression variable of instructor affect, the highest mean score came from the condition exposed to positive self-generated and other-generated content and the lowest mean score came from the condition exposed to negative self-generated and other-generated content. The condition with negatively-valenced self-generated content and positively-valenced other-generated content had a higher mean score than the other condition involving inconsistent information. This pattern supports the idea that other-generated content more heavily impacts impressions than self-generated content. The same pattern was visible for the impression variable of social attraction. Interestingly, the mean patterns observed were not as expected for the impression variable of task attraction. For task attraction, the highest mean came from the positive self-generated and other-generated condition, and the lowest mean score came from the conflicting condition with positively-valence self-generated content and negatively-valenced other-generated content. The score for

this conflicting condition was even lower than the condition in which participants were exposed to negative self-generated and other-generated content. See Appendix G for a table presenting mean patterns and standard deviations for each condition and impression variable.

A more robust, traditional test of warranting theory was also conducted using a priori contrast coding. The test of warranting theory assigned positive values to conditions with positive other-generated content (+3 when both sources of information were positive and +1 when other-generated content was positive, but self-generated content was negative) and negative values to conditions with negative other-generated content (-1 when other-generated information as negative, but self-generated information as positive and -3 when both sources of information were negative). For the impression variable of instructor affect, a significant difference between the conditions was found, $t(317) = 17.34, p < .001$. Using the same test on the impression variable of task attraction, another significant difference between the conditions was observed, $t(318) = 14.31, p < .001$. Finally, a significant difference was also found for the impression variable of social attraction, $t(321) = 12.32, p < .001$. To summarize, other-generated positive content had a significantly more positive impact on impressions of instructor affect, task attraction, and social attraction than other-generated negative content. H1a, H1b, and H1c were all supported.

To determine whether other potential cognitive biases could be used to explain impressions, the present study conducted a priori contrast analyses to further explore the possibility of a negativity effect and an additivity effect. The negativity effect assigned values of -1 to all conditions including negatively-valenced content, while a value of +3 was assigned to the condition not including any negatively-valenced content. A significant negativity effect was observed for instructor affect, $t(317) = 14.55, p < .001$; task attraction, $t(318) = 11.60, p < .001$;

and social attraction, $t(321) = 10.70, p < .001$. To test for an additivity effect, consistently positive content was assigned a value of +1, consistently negative content was assigned a value of -1, and inconsistent content was assigned a value of 0. A significant additivity effect was observed for instructor affect, $t(317) = 15.83, p < .001$; task attraction, $t(318) = 11.92, p < .001$; and social attraction, $t(321) = 12.39, p < .001$. To summarize, while a warranting effect was observed, other cognitive biases in impression formation were also observed.

Warranting Value

H2 hypothesized that other-generated content would be perceived as having higher warranting value than self-generated content. Results of an MLM indicate a significant main effect of source on impressions of warranting value ($b = -1.93, SE = .13, p < .001$). Other-generated content ($M = 4.89, SD = 1.48$) was perceived as higher in warranting value than self-generated content ($M = 3.65, SD = 1.14$). H2 was supported.

The first set of research question was meant to determine whether valence of content impacts impressions of warranting value and whether an interaction between source and valence impact perceptions of warranting value. A significant main effect was not found for the effect of valence of content on impressions of warranting value ($b = 0.12, SE = .13, p > .05$). Positively-valenced content was seen as having higher warranting value ($M = 4.67, SD = 1.19$) than negatively-valenced self-generated content ($M = 3.87, SD = 1.59$), but the difference was not significant. Finally, the second research question was meant to determine if an interaction effect between source and valence was observed. A significant interaction effect was found for the effects of source and valence on perceptions of warranting value, ($b = 1.38, SE = .19, p < .001$). When the valence of information is positive, other-generated content is considered to be of higher warranting value than self-generated content, $b = -0.55, SE = .13, t(327) = -4.32, p <$

.001. Similarly, but to a greater extent, when the valence of information is negative, other-generated content is considered of higher warranting value than self-generated content, $b = -1.93$, $SE = .14$, $t(326) = -13.61$, $p < .001$. Although source significantly impacts perceptions of warranting value, the difference between self-generated and other-generated information is larger for negatively-valenced information than it is for positive-valenced information.

To test the model of other-generated and self-generated content on impressions as moderated by perceived warranting value, a regression analysis was conducted. H3a predicted that the valence of self-generated and other-generated content would predict the impression of instructor affect, both moderated by the perception of warranting value. The equation produced a significant multiple correlation with a large effect size (Cohen, 1992), $R^2 = .49$, $F(6, 312) = 50.83$, $p < .001$. Instructor affect was predicted by a combination of the valence of self-generated content, $b = -0.61$, $SE = .17$, $t(312) = -3.51$, $p < .001$, valence of other-generated content, $b = -2.07$, $SE = .13$, $t(312) = -16.07$, $p < .001$, and the mean-centered warranting value of other-generated content, $b = 0.30$, $SE = .14$, $t(312) = 2.13$, $p < .05$. Instructor affect was higher when self-generated and other-generated content were positive and when the warranting value of other-generated content was higher. The mean-centered warranting value of self-generated content and interactions between the valence of self-generated content and warranting value of self-generated content and valence of other-generated content and warranting value of other-generated content did not significantly contribute to the model. H3a was partially supported.

H3b predicted that a combination of the valence of self-generated and other-generated content would predict the impression of the instructor's task attraction, and that the model would be moderated by perceptions of warranting value. The equation produced a significant multiple correlation and a large effect size (Cohen, 1992), $R^2 = .43$, $F(6, 313) = 40.03$, $p < .001$. The task

attraction of the instructor was predicted by the valence of other-generated content, $b = -1.72$, $SE = .12$, $t(313) = -14.90$, $p < .001$; the mean-centered warranting value of self-generated content, $b = 0.59$, $SE = .24$, $t(313) = 2.48$, $p < .05$, and the mean-centered warranting value of other-generated content, $b = 0.28$, $SE = .13$, $t(313) = 2.23$, $p < .05$; the interaction between the valence of the self-generated content and the perceived warranting value of the self-generated content $b = -0.32$, $SE = .14$, $t(313) = -2.29$, $p < .05$; and the interaction between the valence of the other-generated content and the perceived warranting value of the other-generated content, $b = -0.17$, $SE = .08$, $t(313) = -2.13$, $p < .05$. Impressions of the instructor's task attraction was higher when other-generated and self-generated content were more positive and when the warranting value of other-generated content was higher. Similarly, the interactions between positive and high warranting value self-generated and other-generated content resulted in more positive impressions of task attraction. The valence of self-generated content did not significantly contribute to the model. H3b was partially supported.

H3c proposed the same model as H3a and H3b, but with the dependent variable of social attraction. The equation produced a significant multiple correlation and a medium effect size (Cohen, 1992), $R^2 = 0.33$, $F(6, 316) = 26.24$, $p < .001$. Both the valence of self-generated content, $b = -0.77$, $SE = .17$, $t = -4.43$, $p < .001$, and the valence of other-generated content, $b = -1.27$, $SE = .13$, $t(316) = -9.83$, $p < .001$ contributed significantly to the impression of social attraction. Positive self-generated and other-generated content contributed to a more positive impression of the instructor's social attraction. The warranting values of self-generated and other-generated content and the interactions among valence of self-generated and other-generated content and warranting value did not significantly contribute to the model. H3c was not supported.

Weight

Participants were asked to rate the importance, or weight, of items having to do with instructor affect, task attraction, and social attraction, and simple means for the importance of each trait within the context of a student-instructor relationship can be informative by themselves. Both instructor affect ($M = 6.08$, $SD = 1.12$) and task attraction ($M = 6.17$, $SD = .94$) received notably high mean scores, indicating that participants found these traits to be important in the student-instructor relationship. Social attraction ($M = 4.13$, $SD = 1.13$) was rated noticeably lower than the other traits, meaning it is less important to participants than instructor affect and task attraction within the context of a student-instructor relationship.

To test the model involving the impact of a combination of self-generated content and other-generated content on impressions moderated by weight, multiple regression analyses were conducted. H4a predicts that a combination of self-generated content and other-generated content would predict impressions of instructor affect, and would be moderated by weight of instructor affect. In other words, the relationship between content and impression is moderated by how important participants find the trait of instructor affect in the context of a student-instructor relationship. The equation produced a significant multiple correlation and a large effect size (Cohen, 1992), $R^2 = .46$, $F(5, 285) = 48.16$, $p < .001$. However, the only significant coefficients in the model were the valence of self-generated content, $b = -0.73$, $SE = .14$, $t(285) = -5.22$, $p < .001$, and the valence of other-generated content, $b = -2.04$, $SE = .14$, $t(285) = -14.58$, $p < .001$. Higher impressions of instructor affect were found with positive self-generated and other-generated content. The weight of instructor affect did not significantly contribute to the model individually or within interactions with the valence of self-generated and other-generated content. H4a was not supported.

H4b predicted that the valence of self-generated content and the valence of other-generated content would predict task attraction impressions, and would be moderated by the weight of task attraction. Again, the equation produced a significant multiple correlation and a large effect size (Cohen, 1992), $R^2 = .42$, $F(5, 310) = 45.68$, $p < .001$. However, the only significant contribution to the model came from the valence of the other-generated content, $b = -1.76$, $SE = .12$, $t(310) = -14.86$, $p < .001$. More positive other-generated content was associated with a higher impression of task attraction. The valence of self-generated content, weight of task attraction, and interactions among the valence of self-generated and other-generated content and weight did not significantly contribute to the model, failing to support H4b.

H4c predicted a similar model, but included social attraction as the dependent variable and the weight of social attraction as the moderator variable. The equation produced a significant multiple correlation and a medium effect size (Cohen, 1992), $R^2 = .33$, $F(5, 318) = 31.96$, $p < .001$. Both the valence of self-generated content, $b = -0.97$, $SE = .13$, $t(318) = -7.48$, $p < .001$, and the valence of other-generated content, $b = -1.29$, $SE = .13$, $t(318) = -10.00$, $p < .001$, contributed significantly to the model. Impressions of social attraction were higher when self-generated and other-generated content were positive. The weight of social attraction, interaction between valence of self-generated content and weight of social attraction, and interaction between valence of other-generated content and weight of social attraction did not contribute significantly to the model. H4c was not supported.

Time

The first hypothesis having to do with time, H5a, says that other-generated information will have a greater impact on impressions of instructor affect, consistent with warranting theory, but that the initial impact will diminish over time, consistent with sleeper effect literature. A

repeated measures ANOVA was conducted. Results indicated no significant differences of impression of instructor affect over time alone. A significant effect on instructor affect impression was found for the interaction between time and condition, $F(3, 228) = 8.81, p < .001$. The significant interaction between time and condition shows that the effects of time depend on condition. The condition that was exposed to positive self-generated and other-generated content saw a significant decrease in perceptions of instructor affect between Time 1 ($M = 6.03, SD = 1.06$) than at Time 2 ($M = 5.60, SD = 1.04, CI [5.31, 5.89]$). When participants were exposed to negatively-valenced self-generated information and positively-valenced other-generated information, their impressions also significantly decreased between Time 1 ($M = 4.93, SD = 1.11$) and Time 2 ($M = 4.50, SD = 1.07, CI [4.21, 4.79]$). Finally, the condition involving positive self-generated and negative other-generated content resulted in a significant increase in impression of instructor affect between Time 1 ($M = 3.55, SD = 1.13$) and Time 2 ($M = 4.13, SD = 1.19, CI [3.82, 4.43]$). The change between Time 1 and Time 2 was not significantly different for the condition involving both negatively-valenced self-generated and other-generated content. Consideration of changes in means over time show a convergence of mean impression of instructor affect. See Figure G1 in Appendix H for a line graph representing means, standard deviations, and trends of instructor affect for each condition at Time 1 and at Time 2.

H5b hypothesized that the large initial impact of other-generated content on impressions of task attraction would diminish over time. Time was not found to have a significant impact on impressions of task attraction overall. However, the interaction between time and condition was found to significantly impact impressions of task attraction, $F(3, 233) = 12.54, p < .001$. When participants were exposed to negatively-valenced self-generated content and positively-valenced other-generated content, impressions decreased between Time 1 ($M = 5.28, SD = 1.01$) and Time

2 ($M = 4.93$, $SD = 0.97$, $CI [4.67, 5.18]$). For the other conflicting condition in which participants were exposed to negatively-valenced self-generated content and positively-valenced other-generated content, impressions of task attraction improved between Time 1 ($M = 3.90$, $SD = 1.06$) and Time 2 ($M = 4.27$, $SD = 1.14$, $CI [3.86, 4.39]$). Finally, impressions also improved between Time 1 ($M = 3.55$, $SD = 1.08$) and Time 2 ($M = 4.13$, $SD = 1.10$, $CI [4.01, 4.53]$) when participants were exposed to both self-generated and other-generated content that was negatively-valenced. Again, the means for Time 2 were more concentrated toward the middle than at Time 1, as evidenced in Figure G2 in Appendix H. Means, standard deviations, and trends for task attraction impressions for each condition at each time are presented graphically in Figure G2.

Similarly, a repeated measures ANOVA was conducted to determine if impressions of social attraction changed over time within each condition. Again, time alone did not have a significant impact on impressions of social attraction, although results did approach significance, $F(1, 235) = 3.57$, $p = .06$. In the conflicting condition involving participants being exposed to positively-valenced self-generated content and negatively-valenced other-generated content, their impressions improved between the initial questionnaire ($M = 3.17$, $SD = 1.16$) and the delayed questionnaire ($M = 3.59$, $SD = 1.10$, $CI [3.28, 3.89]$). Also, in the condition involving negatively-valenced self-generated and other-generated content, participants' impressions improved between Time 1 ($M = 2.32$, $SD = 1.18$) and Time 2 ($M = 2.76$, $SD = 1.34$, $CI [2.48, 3.05]$). The conditions involving both positively-valenced sources of information and negatively-generated self-generated and positively-valenced other-generated content did not significantly change over time. Observation of means for each condition at Time 1 and Time 2 indicate convergence. Interestingly, the two conditions involving contradictory information (i.e., negative

self-generated and positive other-generated content and positive self-generated and negative other-generated content) actually switched positions in mean patterns. While in the initial test of impressions of social attraction, the condition with negative self-generated and positive other-generated information had a higher mean than the condition with positive self-generated and negative other-generated content. At Time 2, however, the positive self-generated and negative other-generated content condition had a slightly higher mean than the condition with negative self-generated and positive other-generated content. See Figure G3 in Appendix H for means, standard deviations, and trends for impression of social attraction at each time for each condition. H5 was supported.

Discussion

The present study explored warranting theory and some possible explanations for its inconsistent support in existing literature, including testing the warranting value scale, the variable of weight, and the persistence of impressions over time. Overall, the present study found support for warranting theory, partial support for the role of warranting value in impression formation, and support for the idea that time impacts impressions. The present study did not find clear support for the role of weight in impression formation. The present chapter will summarize and explain findings, identify theoretical and practical implications of findings, and discuss limitations to the present study and future directions for similar research.

Findings

The present section summarizes and explains the findings in the present study.

Warranting theory. First, the present study replicated the design and analysis common within warranting theory literature (e.g., Walther et al., 2009). H1 predicted that other-generated content would more heavily influence impressions of instructor affect (H1a), task attraction

(H1b), and social attraction (H1c) than self-generated content. For impressions of instructor affect and social attraction, observed mean patterns were as predicted, with consistently positive self-generated and other-generated content producing the highest means and consistently negative self-generated and other-generated content producing the lowest means. Mean patterns of conflicting information allow for an observation of warranting theory at play in that conditions with negative self-generated content and positive other-generated content had higher means than positive self-generated content and negative other-generated content. Observing mean patterns for conflicting conditions shows the impact of other-generated content over self-generated content.

Interestingly, the same mean patterns were not observed for task attraction impressions. The conflicting condition of positive self-generated content and negative other-generated content was actually lower than the condition involving consistent negative information coming from both the target and the third-party source. When the hypothetical instructor portrayed herself positively, but students' reviews did not support this positive description, the instructor was evaluated lower than if both sources portrayed the instructor negatively. One potential explanation for this unexpected mean pattern is the possibility that consistency is seen more positively than what might be perceived as dishonesty, or at the very least, selective self-presentation. Especially for the impression of task attraction, which includes particularly important aspects of a student-instructor relationship (Sanchez et al., 2011; Martinez-Pecino, & Rodriguez, 2011; Subkoviak & Levin, 1974), the indication that an instructor might have inflated her positive approach to tasks might be considered a large violation. On the other hand, the instructor being upfront about her undesirable approach to tasks was viewed negatively, but may have been viewed more positively than the apparently dishonest self-presentation.

A priori contrast coding was used to test the predicted, or planned, patterns of each condition in its impression formation of the hypothetical instructor. Contrast coding allowed for significance tests of predicted mean patterns, and all were supported. Overall, H1, or the traditional test of warranting theory, was supported.

Because existing literature has considered other cognitive biases as possible explanations for findings, a negativity effect and an additivity effect were tested for using contrast coding. Both a significant negativity effect and a significant additivity effect were found. This means that the relationship between the conditions and the impressions could be explained by warranting theory, a negativity effect, or an additivity effect, which is consistent with existing warranting theory literature (e.g., Walther et al., 2009). Because results could be explained by pointing to a variety of cognitive biases, explicit exploration of the role of perceived warranting value becomes necessary to determine if other-generated content really is perceived as having higher warranting value by participants.

Warranting value. As a first step, H2 predicted that other-generated content would be perceived as having higher warranting value than self-generated content, and H2 was supported. Other-generated content was perceived as having higher warranting value than self-generated content. This finding is important because past warranting value literature made an assumption that the difference in impressions was due to warranting theory, but the assumption was never supported. The present study is the first to use the General Warranting Value scale outside of the initial tests and development of the scale for publication. Although other cognitive biases could explain the impressions formed through contrast coding and significance tests, the support for H2 provides support for the explanation that perceptions of warranting value are what impacted impressions.

The present study posed RQ1 to determine if the valence of content would have an impact on perceptions of warranting value. While warranting theory more explicitly supports H2, that the source of information would more impact perceptions of warranting value, it was also possible that positively-valenced information would be perceived as having different warranting value than negatively-valenced information. However, a clear main effect was not found for the role of valence on warranting value. A significant interaction effect was found between source and valence on warranting value in that especially for negatively-valenced information, other-generated content was perceived a significantly higher in warranting value than self-generated content. In a study of warranting value, Walther et al. (2009) found that profile owners were perceived to be more honest when they claimed to be unattractive, compared to when they claimed to be attractive. In other words, negatively-valenced information was seen as more honest than positively-valenced information. Although a clear connection between honesty and warranting value was not made, it would make sense that honest information is perceived as having higher warranting value. The interaction of source and valence on perceptions of warranting value found in this dissertation support the importance of warranting value on negatively-valenced information.

Finally, to more clearly test the role of warranting value in impression formation, a regression model was tested including the valence of self-generated and other-generated content, warranting value of self-generated and other-generated content, and each impression variable, including instructor affect (H3a), task attraction (H3b), and social attraction (H3c). H3a was partially supported in that the perceived warranting value of other-generated content significantly contributed to the model, but the perceived warranting value of self-generated content did not significantly contribute to the model. H3b was mostly supported in that all variables and

interactions among variables significantly contributed to the model except for the valence of self-generated content. H3c were not supported; perceptions of warranting value did not significantly contribute to the impression formed. Like other traditional tests of warranting theory where warranting value was assumed between observation of stimuli and impression, H3 received mixed support. These findings further call into question the assumptions made by traditional tests of warranting theory. While traditional tests of warranting theory manipulated stimuli and then tested impressions, they made an assumption that the difference in impression was due to differing perceptions of warranting value. While support for H2 supported the idea that other-generated content is perceived as higher in warranting value, the mixed support for the larger model including warranting value as a contributing coefficient to the model questions the connection between perceived warranting value and impression. Because cognitive tasks like forming impressions are complex and include multiple causation (Anderson, 1981), it is possible that impression formation cannot be simplified into determinations of warranting value. It is possible that other factors within the complex process of impression formation are at play outside of perceived warranting value. To test this, the next set of hypotheses addresses the contribution of weight, or importance, to the model.

Weight. H4 predicted that the relationship between the valence of self-generated content and the valence of other-generated content and impressions of instructor affect (H4a), task attraction (H4b), and social attraction (H4c) would be moderated by weight of instructor affect, weight of task attraction, and weight of social attraction, respectively. While the regression models were all significant, the valence of other-generated, and sometimes the valence of self-generated, content was what contributed significantly to the model. Weight, or importance, of instructor affect, task attraction, and social attraction did not significant contribute to any of their

respective models of impression formation, and no interactions among source and weight significantly contributed to the model. H4 was not supported. Weight, or importance, of a trait did not contribute to the impression formed.

The results of H4 are surprising given the emphasis placed on weight within person judgments within information integration theory (Anderson, 1971; 1981). The averaging model of cognitive algebra, in particular, says that each aspect contributing to an impression of a person is weighted based on the importance of that trait within the context (Anderson, 1981). However, the present study did not find support for the impact of weight on impressions when forming impressions about an instructor in a mediated environment.

One possible explanation for the lack of support for H4 is that participants did not accurately evaluate their own importance placed on each trait within the context of a student-instructor relationship. Generally, people do not have accurate insight into what is of importance when forming impressions about another person (Anderson, 1982). Similarly, Anderson and Zalinski (1991) state that researchers are often unsuccessful at measuring weight of traits within person perceptions, and they explain, “A difficult problem, noted by a number of writers, is that the term importance may not be psychologically unitary or well-defined. Judges may interpret instructions to judge importance in various ways” (p. 174). One possible way Anderson and Zalinski (1991) suggest encouraging participants to clarify their vague understandings of importance is to ask participants to rate importance of attributes in relation to one another. One tactic for more clearly identifying weight is to give participants 100 points, meant to be distributed among attributes. With the limited number of points, participants are forced to evaluate each trait relative to each other trait, resulting in a more clear, accurate understanding of

weight, or importance, placed on each trait. Overall, it is possible that weight did not significantly contribute to models of impressions because weight was not accurately measured.

Also, the present study is the first time warranting theory and information integration theory have been merged. Past research has not necessarily indicated that weight plays a role in warranting theory. Hypotheses were formed around the idea, however, because of the inconsistent support for warranting theory in existing literature. Information integration theory says that cognitive processes like judgments and person perceptions are complex processes, and it is difficult to point to explanations for how these cognitive processes occur because of multiple causation (Anderson, 1981). It is possible that the present study simplified the process of person perceptions too much by focusing on weight within the valence/source-impression relationship. Perhaps weight plays a role in person perception, but the process is far too complex to show that any given element within the process is a significant contributor to final impressions.

Time. Finally, the last set of hypotheses tested persistence of impressions over time. H5 predicted that impressions, although vastly different initially, would converge over time. In models of impressions for each condition during Time 1 and Time 2, significant decreases in impressions were seen in conditions involving both positively-valenced self-generated and other-generated content and negatively-valenced self-generated content and positively-valenced other-generated content. Significant increases in impressions were seen in conditions involving both negatively-valenced self-generated and other-generated content and the condition involving positively-valenced self-generated content and negatively-valenced other-generated content. In observing mean patterns and comparing means with confidence intervals between Time 1 and Time 2, convergence was observed for all three impression variables.

This convergence of impressions aligns with the dissociation hypothesis approach to the sleeper effect, the most well-supported of the three approaches to the sleeper effect. The dissociation hypothesis says that, while high credibility information may have a larger initial impact on impressions, over time, the impressions become no longer significantly different from one another (Allen & Stiff, 1989). In other words, impressions converge. Although the present study was not a formal test of sleeper effect, it is possible to see a decrease in variability between source and impression over time.

Another interesting finding was the effect of time on impressions of social attraction. Initially, the condition involving negatively-valenced self-generated content and positively-valenced other-generated content reported higher mean scores of social attraction than the condition involving positively-valenced self-generated content and negatively-valenced other-generated content. Over time, however, the mean patterns switched positions. At Time 2 the impressions of social attraction were higher for the condition involving positively-valenced self-generated content and negatively-valenced other-generated content than the impressions coming from the condition with negatively-valenced self-generated content and positively-valenced other-generated content. It is important to note that the difference between the two conflicting conditions was not significant at Time 2. It is simply an interesting change to the mean pattern for the impression. No other impressions or conditions altered the observed mean patterns between Time 1 and Time 2. Again, sleeper effect literature can explain this as simple convergence of impressions over time. The source of the content has a large impact on initial impressions of social attraction, but over time the source of the information is forgotten, while the information presented remains. While the condition involving negatively-valenced self-generated content and positively-valenced other-generated content was view more positively

initially, the credibility, or perhaps warranting value, of the source was lost over time, causing the impressions from the two conditions to converge so much that the means were no longer significantly different from one another and were in a different order than before.

Theoretical Implications

Of primary concern, theoretically, is the status of warranting theory. The rationale for conducting the present study was to further explore reasons why warranting theory has not been consistently supported in existing literature. Traditional tests of warranting theory often involve some manipulated stimuli from which participants are asked to form impressions. An assumption is made that the varying impressions are due to warranting theory, but perceptions of warranting value are typically not tested. To better understand this mixed support, the present study broke down warranting theory into smaller steps. First, the study tested warranting theory the way existing studies have tested warranting theory in the past. Then, explicit tests of perceptions of warranting value were conducted to determine if other-generated content was really perceived as having higher warranting value than self-generated content and whether perceptions of warranting value played a significant role in the impressions formed. The traditional test of warranting theory supported warranting theory.

The present study also found support for the fact that other-generated content was perceived as higher in warranting value than self-generated content. However, in testing impressions, perceptions of warranting value had mixed significant effect on impressions formed. These findings have significant implications for the status of warranting theory. The assumptions made in traditional tests of warranting theory are not necessarily supported by evidence. The present study is the first to test the General Warranting Value Scale outside of the initial tests of the scale in the publication of the measure. This present study finally bridges the

assumption between source and impression that existed in traditional tests of warranting theory and clarifies that other-generated content really is perceived as having greater warranting value than self-generated content, rather than some other indication or cognitive bias. Because the model connecting warranting value to impression was not always significant, it is possible that other processes are at play in the complex task of impression formation. Researchers should continue to scrutinize warranting theory and look for other contributions to impression formation at play.

Acknowledging the possibility for other cognitive processes playing a role in impression formation, the present study tested weight, or importance, as another possible piece in the warranting theory puzzle. It was predicted that impressions might be significantly impacted by importance participants place on the specific trait within the context or a combination of warranting value and weight. Because weight itself and the interaction between warranting value and weight did not significantly impact impressions, it rules out a possible cognitive process happening within warranting theory.

Another theoretical implication of the present study was the application of information integration theory into a mediated context for the first time. Although information integration theory has a long, robust history within cognitive psychology, the ideas behind information integration theory found in existing literature show no indication of it being tested in a mediated environment. It is well documented that certain defining features of mediated environments impact the communication that occurs through technology, including the lack of nonverbal cues, the possibility for increased anonymity, and the asynchrony of many communication technologies (Walther 1992; 1996). What is acknowledged as being a complex theory of cognitive processes (Anderson, 1981) may become even more complex in a mediated

environment. The present study applied information integration theory to a mediated environment, but did not find support for a primary component of the theory, weight. It is possible that the present application of information integration theory did not thoroughly enough test multiple aspects of information integration theory. It is also possible that information integration theory does not complement warranting theory well, whether it is because warranting theory is a CMC theory or not.

Practical Implications

Practically, the findings from the present study are also useful. Simply put, warranting theory attempts to better understand how impressions are formed in a mediated environment. In a time when quarterly e-commerce sales rise to 119 billion (U.S. Census Bureau, 2018), 77.5% of students are using ratemyprofessors.com to make enrollment decisions (Field, Bergiel, & Viosca, 2008), and even sperm recipients can choose their donor based on an online profile (Almeling, 2006), the need to be informed about how people form impressions when navigating the internet is imperative. If it is understood that third-party content (i.e., other-generated content) is regarded as having higher warranting value and often (although not always) has a greater impact on impressions formed than information created by the target, websites, business owners, and search engines can better understand the importance of third-party information.

Within a university context, specifically, the importance of review-style information could be practically included into the enrollment process for students when considering new instructors or courses. Although faculty profile websites might provide needed objective information about faculty, students do not rely heavily on that information when seeking information about instructors. Universities could train students and encourage use of sites like ratemyprofessor.com for students to both contribute to and use as a source of information about

instructors. To get even more involved in informing students meaningfully, universities could develop their own system from releasing aggregate teaching evaluation results for students to view. Releasing third-party information other than student ratings on websites like ratemyprofessor.com might allow for a more representative sample of reviews from which students can form impressions about instructors.

Beyond the university setting, other commerce or Web 2.0 settings online could harness the understanding of the importance of third-party information. Websites like Yelp and TripAdvisor exist and allow consumers to share their experiences about services like hotels and restaurants. Numerous websites exist for the sole purpose of allowing patients to review their physicians, dentists, and other healthcare professionals (Lee, 2013). Even market-place websites like Amazon and eBay often include a section for customers to rate and/or review the seller or product (Van Der Heide et al., 2013). Acknowledging the importance of third-party content, search engines may use this information to optimize websites that provide third-party information considered of higher warranting value. E-commerce sites may improve their user experience by making product and seller reviews easily accessible or located in a more prime location on the web page.

Beyond simply placing emphasis on third-party content is the issue of weight within reviews. Because the present study found that weight does not impact impressions formed, it is possible that even information that is not determined to be important to the receivers of information will still impact impressions. If, for example, a traveler is reviewing information online to decide which hotel to reserve, the poor review of a hotel's fitness center may negatively impact impressions of the hotel, even if the fitness center is not of importance to the traveler. Similarly, the positive review of the penthouse suite might positively impact impressions, even if

the traveler is staying in a standard room and the quality of the penthouse suite is not of importance to him or her. Industries that rely heavily on third-party content should avoid dismissing a negative review over the idea that nobody will care about what is discussed in the review.

Finally, findings associated with time allow us to understand that although variability in impressions can be observed initially, the variability shrinks over time, meaning attitudes tend to even out. Industries and e-commerce sites that rely upon information online should understand that attitudes formed from information online are likely to converge over time. Many industries might rely on quick turnaround between information-seeking and making a purchasing decision. For example, if a patron turns to Yelp to decide where they will have dinner that night, the warranting value of the source of the information is likely to play a role in decisions about at which restaurant to dine. On the other hand, third party information circulating on social networking sites that is not acted upon immediately might lose its impact over time. For example, if a friend on Facebook writes something negatively about a restaurant and three weeks later a person is looking for a place to dine, the information from the Facebook friend would have less impact on the impression of the restaurant than it did initially.

Limitations

Although the present study contributed significant, much needed, understanding to the study of warranting theory and how impressions are formed in a mediated environment, like all studies, the present study has some limitations. First, a limitation of the present study was the failure to randomize the order in which stimuli were presented to participants. All participants were first exposed to the faculty profile website, the self-generated content, followed by the student review website, the other-generated content. The reason this is problematic is because

information integration literature has thoroughly documented the presence of a primacy effect in impression formation, due to a decrease in attention over time. In tests of person perception involving a list of adjectives, the adjectives presented early in the list have a larger effect on overall impressions than the adjectives presented later in the list (Anderson, 1981), even if the list is only made up of four to six adjectives (Anderson, 1982). To test the presence of a primacy effect in the present study, a one-way ANOVA was conducted using contrast coding. To account for a primacy effect, participants who were first exposed to a positive faculty profile website were assigned a code of +1, while those exposed to a negative faculty profile website were assigned a code of -1. For all three impression variables, a significant primacy effect was found, including instructor affect, $F(3, 320) = 104.26, p < .001$, task attraction, $F(3, 321) = 81.27, p < .001$, and social attraction $F(3, 324) = 52.60, p < .001$. Varying or randomizing the order participants were exposed to content would have randomized the primacy effect, distributing it evenly to all conditions. Instead, it is possible that a primacy effect could explain impressions formed alongside the other cognitive biases tested, including warranting value, negative effect, and additivity effect.

A second limitation of the present study is that it only covers one aspect of information integration theory, weight. Information integration theory says that cognitive processes, such as impression formation, are complex and are often a result of multiple causation. While the present study attempted to acknowledge the complexity of impression formation by adding some additional elements to warranting theory, a well-developed, understood model of impression formation based on information found online still does not exist. It is possible that manipulation and testing of other elements of information integration theory would create a more robust explanation for how impressions are formed. Accepting warranting value as is ignores other

possible cognitive biases and processes that contribute to impression formation, oversimplifying a complex process in favor of creating a mathematical model (Hayes, 2013). Future researchers need to remain aware of the complex nature of impression formation and should not attempt to oversimplify the process.

A third limitation of the present study is the small, but significant dropout rate in the time between the initial and delayed questionnaire. Initial data analysis used an *N* of 330. Analysis of delayed responses used an *N* of 244, a loss of 86 (26%) of the initial sample. In the initial analysis with the full sample of 330, 24.8% were in the conditions where both other-generated and self-generated content was positive or where self-generated content was negative, but other-generated content was positive. 25.2% were in conditions where either both self-generated and other-generated content was negative or where self-generated content was positive and other-generated content was negative. Significant differences between those who dropped out and those who stayed were not found for any perceptions of warranting value or impression variable. Although significant differences were not found and the retention rate wasn't terrible, it still is worthwhile to note the loss of a portion of the sample.

Another limitation of the present study is its narrow context. Focusing on the student-instructor relationship allowed the study to explore realistic websites that the sample of university students might use in everyday life to form an impression relevant to their position as students. However, it is possible that the unique relationship between students and instructors, and the unique affordances of the websites modeled in the experiment's stimuli do not translate to other relationships and other websites. Future studies of warranting theory should make an effort to expand the types of websites and contexts of impression formation.

Finally, another limitation of the present dissertation is its use of a convenience sample. Like many other warranting theory studies (e.g., Carr & Stefaniak, 2012; DeAndrea & Carpenter, 2016; DeAndrea et al., 2015; Lane et al., 2016; Walther et al., 2009), the present study used a convenience sample of college students. All participants were university students, and most ($n = 327$) were undergraduate students, while only three were graduate students. All participants were recruited from communication courses. It is possible that findings generated from this dissertation, while valid for understanding how college students taking communication courses, might not be entirely generalizable. The general population may not form impressions or use information in the same way as the sample in the present study. Because of this, future researchers pursuing warranting theory should make an effort to study a more generalizable sample to determine the generalizability of results.

Future Directions

Based on the findings and limitations of this dissertation, future researchers exploring similar topics should consider the following areas. First, one major missing piece to the present study is how perceptions students form of instructor affect, task, and social attraction translate into behavior. Upon considering online sources of information, it should be determined what perceptions of the instructor affect a student's likelihood to enroll in the instructor's course, rather than simply stopping at measuring the impression. In other words, how much value is placed on the dependent variables when taking action? A potential theoretical framework to explore these questions is predicted outcome value theory, which considers the valence of initial perceptions based on information-seeking and the following likely relational behavior, such as relational pursuit or termination (Sunnafrank, 1986).

Future research should continue to explore warranting theory within a variety of contexts. Interestingly, no existing literature has tested warranting theory within the context of finding information online about hotels or restaurants. Because websites like Yelp and TripAdvisor offer valuable, third-party information and because restaurants and hotels could benefit from practical information about what information online is impacting patron's impressions of establishments, research in this area would be valuable. Another context for future research, especially for studying the role of weight in warranting theory, is studying impressions formed about physicians based on information online. Patients can leave reviews online about physicians and other medical professionals, while physicians also can create personal websites, hospital-affiliated web pages, and even introductory videos to market their services to patients. In such a high-stakes environment as healthcare, weight, or importance, might take a stronger role in impression formation.

A final direction for future research is to continue to test the connection between warranting theory and a sleeper effect. Although the present study was not a formal test of sleeper effect, some characteristics of a sleeper effect were observed in findings. While source had a significant impact on initial impressions, over time the variance in impressions lessened. Perhaps the decrease in variance in impressions is due to a loss of impact of source and a persistence of memory of content consumed. Sleeper effect literature tests the impact of credible sources of information on impressions compared to less credible sources of information (Gruder, Cook, Hennigan, & Flay, 1978; Hovland et al., 1949; Hovland & Weiss, 1951; Kelman & Hovland, 1953). A sleeper effect is observed when, over time, credibility of the source of information no longer has an impact on impressions. It is possible that warranting value of a source could be associated with credibility of the source. Both constructs have to do with the

believability of a source. Future researchers should conduct a formal test of the sleeper effect within a test of warranting theory to determine if a sleeper effect can be observed in impressions formed from sources of differing warranting values. Exploration of the sleeper effect and warranting theory could test impressions at several points in time to determine if variability continues to shrink and if the trends observed are linear, for example. Future researchers should also consider extending the time between initial and delayed questionnaire to be more longitudinal.

Conclusion

In response to identifying that much warranting theory literature provides inconsistent support to the theory, the present study explicitly tested the assumptions typically made in warranting theory literature. Instead of manipulating stimuli and testing the effect on impression, the present study tested whether other-generated content really is perceived as having higher warranting value than self-generated content. Then, the present study tested the impact of perception of warranting value, using results from the General Warranting Value Scale, on impressions formed. The present study also considered the possibility that weight, or importance of information within the context, impacted impressions alongside perceptions of warranting value. Finally, the persistence of these impressions was tested by asking participants to complete a delayed questionnaire.

The present study found support for warranting theory using traditional methods and data analysis tools. Other-generated information was found to be perceived as higher in warranting value than self-generated information. However, mixed support was found for the idea that perceived warranting value impacts the connection between the valence of self-generated and the

valence of other-generated content on impression. Similarly, weight did not contribute to impressions. Over time, a trend toward shrinking variability was observed.

These findings add some much-needed clarity to warranting theory. While existing studies of warranting theory find inconsistent support, the present study warns that traditional studies of warranting theory might have oversimplified the complex process of impression formation. Perceptions of warranting value do not necessarily always impact impressions formed, like what has traditionally been assumed in warranting theory literature. The present study attempted to add some elements to acknowledge the complex nature of impression formation, such as weight, but weight was not found to significantly impact impressions. Future research needs to continue to challenge warranting theory by testing the theory more explicitly and testing other cognitive processes and biases that may be playing a role in varying impressions.

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Appendix A

Regression Models

Figure A1: H3 Regression Model for the Role of Perceptions of Warranting Value in the Impression Formation Process

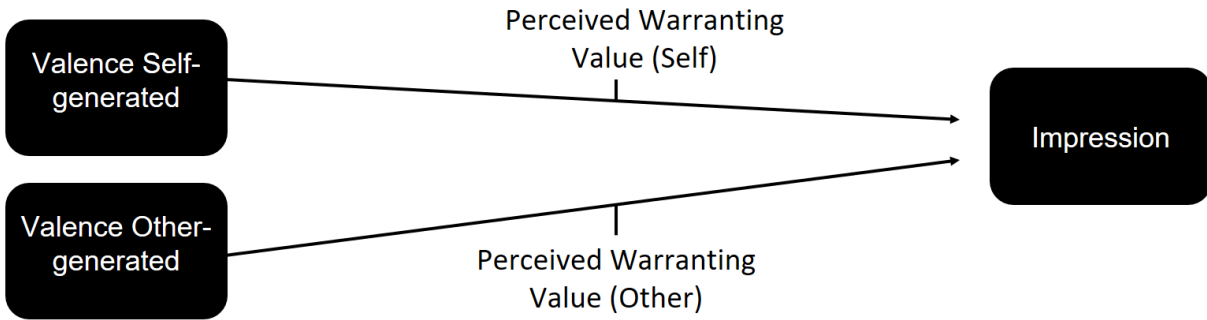
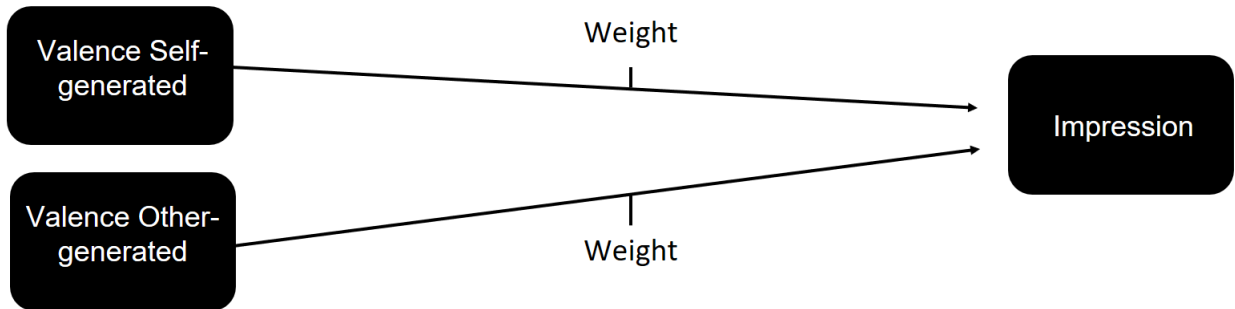


Figure A2: H4 Regression Model for the Role of Weight in the Impression Formation Process



Appendix B
IRB Approval Letters



Department of University Safety & Assurances

New Study - Notice of IRB Exempt Status

Melissa Spadanuda
IRB Manager
Institutional Review Board
Engelmann 270
P. O. Box 413
Milwaukee, WI 53201-0413
(414) 229-3173 phone
(414) 229-6729 fax

<http://www.irb.uwm.edu>
spadaud@uwm.edu

Date: February 2, 2018

To: Erin Ruppel, PhD
Dept: Communication

Cc: Maura Chemey

IRB #: 18.176

Title: Continuing to Advance Warranting Theory

After review of your research protocol by the University of Wisconsin – Milwaukee Institutional Review Board, your protocol has been granted Exempt Status under **Category 2** as governed by 45 CFR 46.101(b).

This protocol has been approved as exempt for three years and IRB approval will expire on **February 1, 2021**. If you plan to continue any research related activities (e.g., enrollment of subjects, study interventions, data analysis, etc.) past the date of IRB expiration, please respond to the IRB's status request that will be sent by email approximately two weeks before the expiration date. If the study is closed or completed before the IRB expiration date, you may notify the IRB by sending an email to irbinfo@uwm.edu with the study number and the status, so we can keep our study records accurate.

Any proposed changes to the protocol must be reviewed by the IRB before implementation, unless the change is specifically necessary to eliminate apparent immediate hazards to the subjects. The principal investigator is responsible for adhering to the policies and guidelines set forth by the UWM IRB, maintaining proper documentation of study records and promptly reporting to the IRB any adverse events which require reporting. The principal investigator is also responsible for ensuring that all study staff receive appropriate training in the ethical guidelines of conducting human subjects research.

As Principal Investigator, it is also your responsibility to adhere to UWM and UW System Policies, and any applicable state and federal laws governing activities which are independent of IRB review/approval (e.g., [FERPA](#), [Radiation Safety](#), [UWM Data Security](#), [UW System policy on Prizes, Awards and Gifts](#), state gambling laws, etc.). When conducting research at institutions outside of UWM, be sure to obtain permission and/or approval as required by their policies.

Contact the IRB office if you have any further questions. Thank you for your cooperation and best wishes for a successful project

Respectfully,

Melissa C. Spadanuda
IRB Manager



DATE: February 18, 2018

TO: Maura Cherney
FROM: Carthage College IRB

PROJECT TITLE: [1193446-1] Continuing to Advance Warranting Theory
REFERENCE #:
SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS - DEFERRED
DECISION DATE: February 18, 2018

Thank you for your submission of New Project materials for this project. **The Carthage College Institutional Review Board defers to the University of Wisconsin - Milwaukee's Institutional Review Board's determination of EXEMPT status for this project.**

We will retain a copy of this correspondence within our records.

If you have any questions, please contact Leslie Cameron at 262-551-5843 or lcameron@carthage.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been issued in accordance with all applicable regulations, and a copy is retained within Carthage College IRB's records.

Appendix C

Stimuli

Positively-valenced faculty profile

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Dr. Joan Smith

Education

PhD, Communication, University of Iowa
MA, Communication, Illinois State University
BA, University of the Pacific

Teaching Philosophy

Communication and teaching are my passions. I pride myself on organized, interesting courses and emphasize clarity in the classroom.

In addition to the academic side of teaching, I also take a personal interest in my students' success. I strive to learn about my students' goals and do my best to help them achieve their goals. I am also the kind of professor you can expect to see getting involved on campus outside of class. I am always on campus and in my office to chat!



Communication and Digital Media

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- Meet Our Alumni
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Faculty



Dr. Joan Smith

Education

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 MA, Communication, Illinois State University
 BA, University of the Pacific

Teaching Philosophy



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Negatively-valenced faculty profile

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Education

PhD, Communication, University of Iowa
MA, Communication, Illinois State University
BA, University of the Pacific

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Communication and Digital Media

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Faculty



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Positively-valenced student review site



Joan Smith

Professor in the Communication department
at [University of Wisconsin - Milwaukee](#), Milwaukee, WI

3 Reviews

December
2017

Fantastic!

July
2016

I love Dr. Smith as a person. She has a great attitude and it's obvious that she really cares about her students. There's a real connection between her and students.

December
2015

Her lectures were interesting and helpful! The course syllabus helped clarify what was expected out of me to succeed in the course, and each lesson was extremely organized.



Joan Smith

Professor in the Communication and Digital Media department
at [Carthage College](#), Kenosha, WI

3 Reviews

December
2017

Fantastic!

July
2016

I love Dr. Smith as a person. She has a great attitude and it's obvious that she really cares about her students. There's a real connection between her and students.

December
2015

Her lectures were interesting and helpful! The course syllabus helped clarify what was expected out of me to succeed in the course, and each lesson was extremely organized.

Negatively-valenced student review site



Joan Smith

Professor in the Communication department
at [University of Wisconsin - Milwaukee](#), Milwaukee, WI

3 Reviews

December 2017	Terrible!
July 2016	I have no complaints about the class, but I didn't really like Dr. Smith as a person. She didn't seem to care much about her students. There wasn't really a connection.
December 2015	She seemed to get off topic and go on rants quite a bit. Each lesson seemed extremely disorganized. The syllabus was unclear, so I wasn't sure how to succeed in the class.



Joan Smith

Professor in the Communication and Digital Media department
at [Carthage College](#), Kenosha, WI

3 Reviews

December
2017

Terrible!

July
2016

I have no complaints about the class, but I didn't really like Dr. Smith as a person. She didn't seem to care much about her students. There wasn't really a connection.

December
2015

She seemed to get off topic and go on rants quite a bit. Each lesson seemed extremely disorganized. The syllabus was unclear, so I wasn't sure how to succeed in the class.

Appendix D

Time 1 (Initial) Questionnaire

* = reverse-coded

Please enter your UWM/Carthage College email address. Please confirm that the email address you enter is correct because this email address will be used to contact you for the follow-up questionnaire. The only way to obtain extra credit points is to complete both questionnaires. (text box – required question)

Please confirm your UWM/Carthage College email address (text box – required question)

Determining weight of characteristics within a context

In this section of the questionnaire, you will be asked to reflect on what is important to you in a university instructor. Please respond to the following scales based on your preferences of traits of a university instructor.

McCroskey (1994) attitude toward instructor (instructor affect)

Indicate by selecting a number (1-7) the response that best describes your feelings about how a university instructor should be.

How important are the following characteristics in a college instructor?

Very Unimportant 1 2 3 4 5 6 7 Very Important

Good

Valuable

Fair

Positive

McCroskey and McCain’s Interpersonal Attraction (1974)

(Task Attraction)

Indicate by selecting a number (1 = Strongly Disagree, 5 = Strongly Agree) the extent to which you agree with the following statements about how a university instructor should be.

How important are the following characteristics in a college instructor?

Very Unimportant 1 2 3 4 5 6 7 Very Important

1. On-task

2. Diligent

3. Follows through with tasks
4. Dependable
5. Skilled problem-solver

(Social Attraction)

6. A good friend
7. Easy to talk to
8. Available to talk
9. Someone I could see as a friend
10. Someone who would fit in well with my friends

Stimuli Viewing

Imagine you are making decisions about which classes you want to register for next semester. A class that you are interested in is offered by an instructor you have never met, Joan Smith. You want to learn a little bit more about the instructor before you register for her class, so you access both her faculty profile on the university website and her page on an instructor rating website. You will be presented with screenshots of both the faculty profile and the instructor rating webpage. Please thoroughly read the content about the instructor and answer questions about your perceptions of the webpages and the instructor.

(View faculty profile stimulus)

Manipulation Check

Indicate by selecting a number (1-5) the response that best describes your interpretation of this website (1 = Strongly Disagree, 5 = Strongly Agree)

1. The instructor presents herself (valence - positively/negatively) on the faculty profile website.
2. The instructor includes negative information on the faculty profile website *

Warranting Value (after each manipulation check)

General Warranting Value Scale

1. The instructor manipulated the information that appeared on the faculty profile website about herself.*
2. The instructor influenced what information appeared on the faculty profile website about herself.*

3. The instructor controlled the information appearing on the faculty profile website about herself.*
4. The instructor shaped the information about herself appearing on the faculty profile website.*

(View instructor rating website stimulus)

Manipulation Check

Indicate by selecting a number (1-5) the response that best describes your interpretation of this website (1 = Strongly Disagree, 5 = Strongly Agree)

1. The instructor is presented (valence – positively/negatively) by past students on the instructor rating website.
2. The instructor rating website includes negative information about the instructor *

Warranting Value (after each manipulation check)

General Warranting Value Scale

5. The instructor manipulated the information that appeared on the instructor review website about herself.*
6. The instructor influenced what information appeared on the instructor review website about herself.*
7. The instructor controlled the information appearing on instructor review website about herself.*
8. The instructor shaped the information about herself appearing on the instructor review website.*

Impressions of the Instructor

McCroskey (1994) attitude toward instructor (instructor affect)

Indicate by selecting a number (1-7) the response that best describes your feelings toward the instructor you read about online.

In my opinion, the instructor is:

Good	1	2	3	4	5	6	7	Bad *
Worthless	1	2	3	4	5	6	7	Valuable
Fair	1	2	3	4	5	6	7	Unfair *
Negative	1	2	3	4	5	6	7	Positive

McCroskey and McCain's Interpersonal Attraction (1974)

(Task Attraction)

Indicate by selecting a number (1 = Strongly Disagree, 5 = Strongly Agree) the extent to which you agree with the following statements about the instructor you read about online.

11. I couldn't get anything accomplished with her*
12. She is a typical goof-off when assigned a job to do*
13. I have confidence in her ability to get the job done
14. If I wanted to get things done I could probably depend on her
15. She would be a poor problem solver*

(Social Attraction)

16. I think she could be a friend of mine
17. I would like to have a friendly chat with her
18. It would be difficult to meet and talk with her*
19. We could never establish a personal friendship with each other*
20. She just wouldn't fit into my circle of friends*

Demographics

Please answer the following questions about your personal demographics and background information.

1. What is your age? _____

2. What is your sex?

Male

Female

I choose not to identify/Non-binary

3. What is your year in school?

Freshman

Sophomore

Junior

Senior

Graduate Student

4. What ethnicity do you most identify with?

White

Hispanic/Latino

Black/African American

Asian/Pacific Islander

Mixed

Unsure/I choose not to identify

5. When seeking information about instructors, what sources do you rely on most heavily?

Word of mouth

Faculty profiles

Instructor rating websites (e.g., ratemyprofessor.com)

General searches using the instructor's name (e.g., Google)

Other (text box)

Thank you for your participation in the initial questionnaire. You will be contacted through the email address you provided to participate in the follow-up questionnaire in several weeks. Completion of both the initial and follow-up questionnaires is necessary to earn extra credit.

Appendix E

Time 2 (Delayed) Questionnaire

Please enter your UWM/Carthage College email address. Please confirm that the email address you enter is correct because this email address will be used to track whether you previously completed the initial questionnaire. The only way to obtain extra credit points is to complete both questionnaires. (text box – required question)

Please confirm your UWM/Carthage College email address (text box – required question)

Several weeks ago, you viewed webpages containing information about a university instructor. You were asked to consider the information as if you are trying to learn more about the college instructor because you are considering registering for her class. Please complete the following questionnaire about your impressions of the website information and the university instructor.

Warranting Value

Think back to the faculty profile website you viewed several weeks ago. Indicate by selecting a number (1-5) the response that best describes your interpretation of this website (1 = Strongly Disagree, 5 = Strongly Agree)

General Warranting Value Scale

9. The instructor manipulated the information that appeared on the faculty profile website about herself.*
10. The instructor influenced what information appeared on the faculty profile website about herself.*
11. The instructor controlled the information appearing on the faculty profile website about herself.*
12. The instructor shaped the information about herself appearing on the faculty profile website.*

Think back to the instructor review website you viewed several weeks ago. Indicate by selecting a number (1-5) the response that best describes your interpretation of this website (1 = Strongly Disagree, 5 = Strongly Agree)

General Warranting Value Scale

1. The instructor manipulated the information that appeared on the instructor review website about herself.*
2. The instructor influenced what information appeared on the instructor review website about herself.*

3. The instructor controlled the information appearing on instructor review website about herself.*
4. The instructor shaped the information about herself appearing on the instructor review website.*

McCroskey (1994) attitude toward instructor (instructor affect)

Indicate by selecting a number (1-7) the response that best describes your feelings toward the instructor you read about online.

In my opinion, the instructor is:

Good	1	2	3	4	5	6	7	Bad*
Worthless	1	2	3	4	5	6	7	Valuable
Fair	1	2	3	4	5	6	7	Unfair*
Negative	1	2	3	4	5	6	7	Positive

McCroskey and McCain's Interpersonal Attraction (1974)

(Task Attraction)

Indicate by selecting a number (1 = Strongly Disagree, 5 = Strongly Agree) the extent to which you agree with the following statements about the instructor you read about online.

21. I couldn't get anything accomplished with her*
22. She is a typical goof-off when assigned a job to do*
23. I have confidence in her ability to get the job done
24. If I wanted to get things done I could probably depend on her
25. She would be a poor problem solver*

(Social Attraction)

26. I think she could be a friend of mine
27. I would like to have a friendly chat with her
28. It would be difficult to meet and talk with her*
29. We could never establish a personal friendship with each other*
30. She just wouldn't fit into my circle of friends*

Thank you again for your participation in this study. If you participated in this study to earn extra credit in a course, please provide your name and instructor's name. Your instructor will be directly notified of your participation and eligibility for extra credit. If your course has both a course director and lab instructor, please provide the lab instructor's name.

First Name (text box)

Last Name (text box)

School (choose one)

- UW- Milwaukee
- Carthage College

Course (text box)

Instructor's Name (text box)

Appendix F

Table F1: Contrast Weights for Analyses of Warranting, Negativity, and Additivity Effects

<u>Self-Generated Information</u>	<u>Positive</u>	<u>Negative</u>	<u>Positive</u>	<u>Negative</u>
<u>Other-Generated Information</u>	Positive	Positive	Negative	Negative
Warranting	+3	+1	-1	-3
Negativity	+3	-1	-1	-1
Additivity	+1	0	0	-1

Appendix G

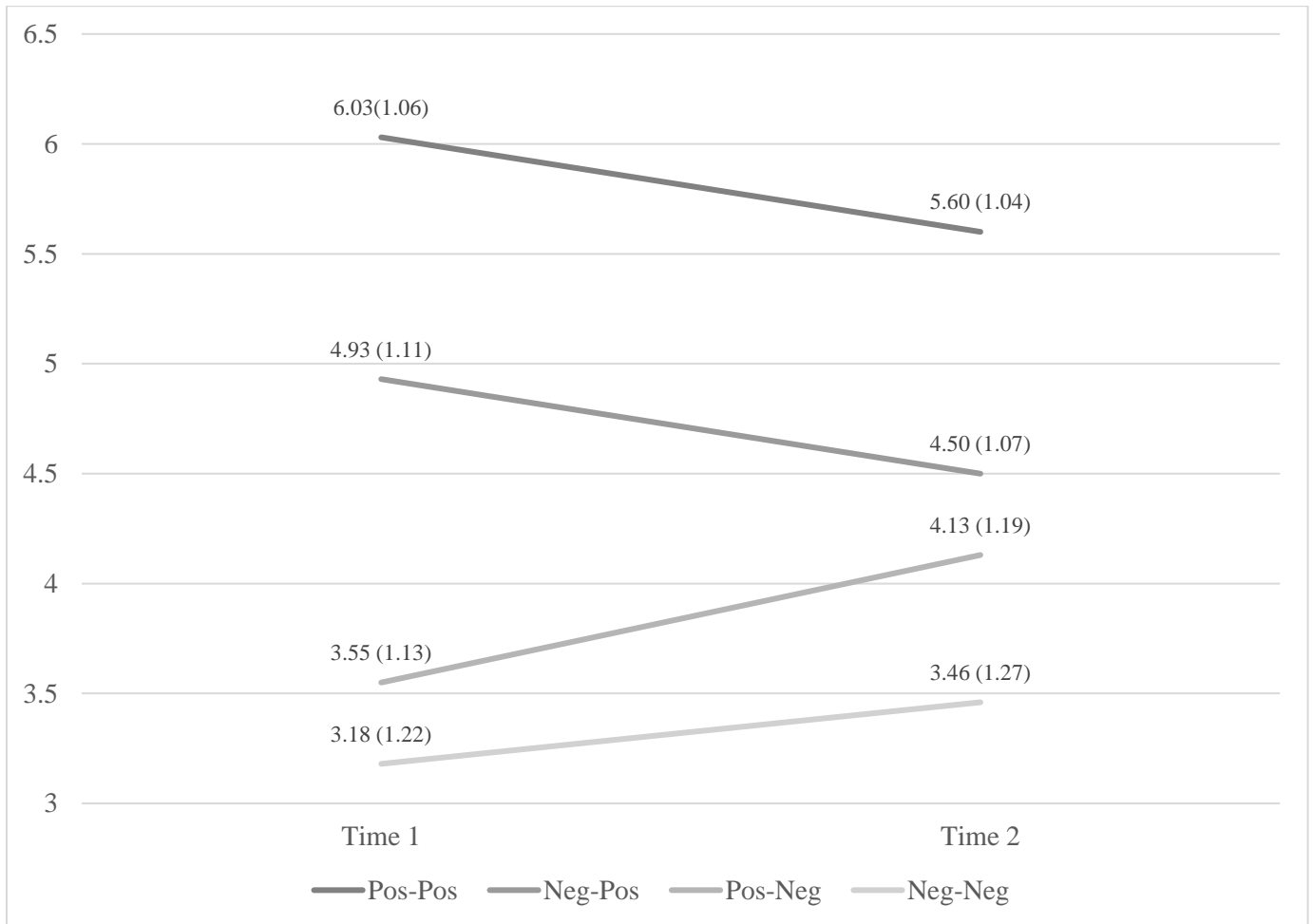
Table G1: Means, Standard Deviations, and Sample Sizes for Impressions from Self-Generated
and Other-Generated Content

		Self-Generated Content			
		Positively-valenced		Negatively-valenced	
Other-Generated content		<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Instructor	Positively-valenced	6.07 (1.09)	81	4.94 (1.09)	79
Affect	Negatively-valenced	3.61 (1.27)	81	3.19 (1.15)	80
Task	Positively-valenced	5.81 (.93)	79	5.23 (1.00)	81
Attraction	Negatively-valenced	3.68 (1.19)	82	3.86 (.99)	80
Social	Positively-valenced	4.65 (1.10)	81	3.55 (1.19)	81
Attraction	Negatively-valenced	3.21 (1.17)	81	2.39 (1.19)	82

Appendix H
Initial and Delayed Line Graphs

Figure H1

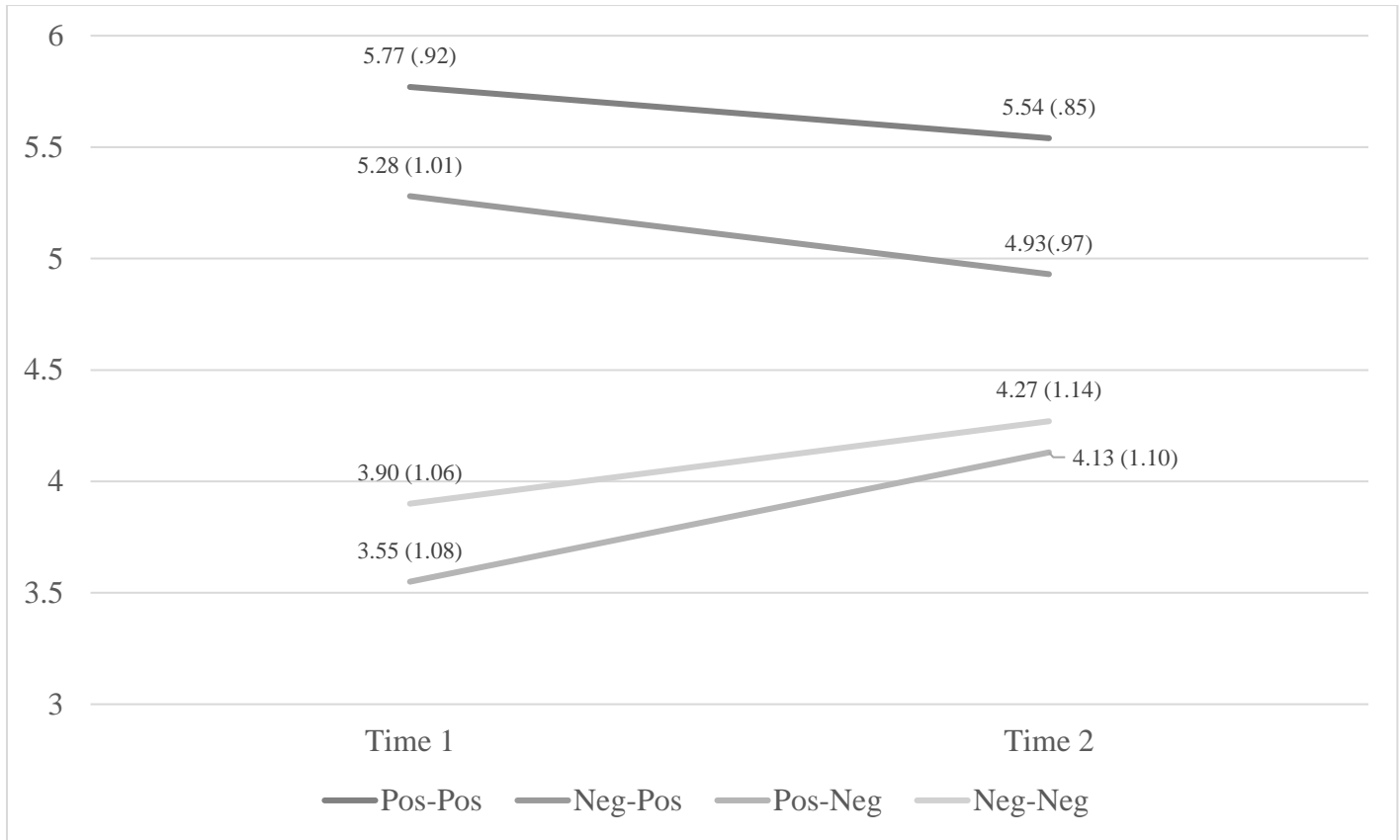
Instructor Affect Means for Each Condition at Time 1 and at Time 2



Note: Self-generated content is identified first and other-generated content is identified second in the explanation of each condition. Neg-Pos, for example, is negatively-valenced self-generated content and positively-valenced other-generated content.

Figure H2

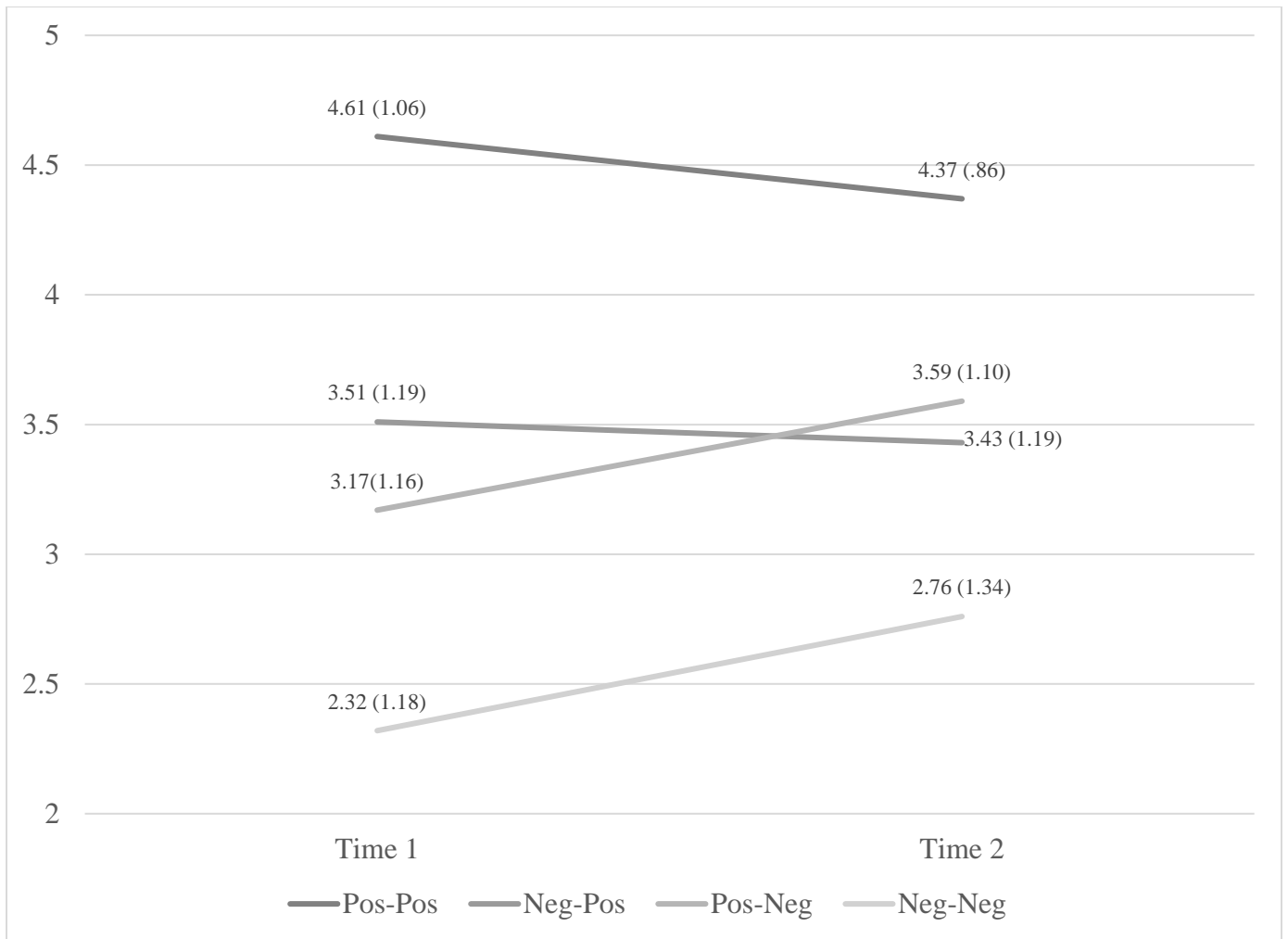
Task Attraction Means for Each Condition at Time 1 and at Time 2



Note: Self-generated content is identified first and other-generated content is identified second in the explanation of each condition. Neg-Pos, for example, is negatively-valenced self-generated content and positively-valenced other-generated content.

Figure H3

Social Attraction Means for Each Condition at Time 1 and at Time 2



Note: Self-generated content is identified first and other-generated content is identified second in the explanation of each condition. Neg-Pos, for example, is negatively-valenced self-generated content and positively-valenced other-generated content

Maura R. Cherney
Curriculum Vitae – May 2018

Education

- Ph.D. University of Wisconsin- Milwaukee: May 2018**
Communication
GPA: 4.0
Dissertation: *Continuing to Advance Warranting Theory: Weight, Time, and Testing the Warranting Value Scale*
Advisor: Dr. Erin Ruppel
Graduate Certificate in Teaching and Learning in Higher Education: December 2016
- M.S. Illinois State University: May 2014**
Communication
GPA: 4.0/4.0
Thesis: *Surf's Up: Communicative Aspects of Online Trust-Building Via Reducing Uncertainty in Couchsurfing*
Co-Advisors: Dr. Cochece Davis and Dr. Sandra Metts
- B.A. St. Norbert College: December 2011**
Communication, Leadership Studies
GPA: 3.83/4.0
Academic Advisor: Dr. Kevin Hutchinson
Graduate of the St. Norbert College Honors Program, Magna Cum Laude

Academic Employment

- Adjunct Instructor Communication and Digital Media Fall 2017-present**
Carthage College
CDM 1200: Public Speaking
CDM 3400: Communication and Technology
- Research Assistant Department of Communication Summer 2016-present**
University of Wisconsin- Milwaukee
Mediated and face-to-face conflict in romantic relationships
- Teaching Assistant Department of Communication Fall 2014-present**
University of Wisconsin- Milwaukee
Communication 103: Introduction to Public Speaking (undergraduate)
Communication 313: Human Communication and Technology (undergraduate, stand alone, online)
Communication 323: Small Group and Team Communication (undergraduate, stand alone, active learning classroom)
- Instructor The Psychology of Personality and Communication March 2015-present**
Prague University of Life Sciences
I teach an annual "block course" for international students taking courses in English in Prague.
- General Education Assistant School of Communication Basic Course Summer 2013-Spring 2014**
Illinois State University
In this position I was the graduate student course director for the basic communication course. Responsibilities included helping with facilitation of summer training for incoming first year GTAs, scheduling of GTAs in teaching

assignments, and recruitment of master's students and GTAs for the School of Communication.

Teaching Assistant **School of Communication** **Fall 2012-Spring 2014**
Illinois State University
 Communication 110: Communication as Critical Inquiry (undergraduate, stand alone)
 Communication 111: Introduction to Communication Theories (undergraduate, large lecture)

Lab Attendant **Communication Resource Center** **Fall 2012**
Illinois State University
 I aided students who came in for extra help with their speeches for COM 110 classes by giving positive and constructive feedback to improve their speeches before delivering them for a grade.

Professional Employment

Instructional Designer **Property Management Department** **May 2015-September 2017**
Mandel Group, Inc.
 Responsibilities include developing new and revising existing corporate training materials for leasing agents, property managers, and maintenance staff. I implemented new technologies into the training programs, making in-person training more interactive and distance education more accessible.

Instructional Design Intern **Agency Training and Design** **January 2013-May 2014**
COUNTRY Financial
 I was responsible for assisting in the designing of training programs for new insurance and financial representatives, including virtual instructor-led training.

Scholarship

Publications

Ruppel, E. K., Blight, M. G., Cherney, M. R., & Fyelling, S. Q. (2015). An exploratory investigation of communication technologies to alleviate communicative difficulties and depression in older adults. *Journal of Aging and Health*. <http://dx.doi.org/10.1177/0898264315599942>

Cherney, M. R. (2017). Measures of variability. In M. Allen (Ed.), *The SAGE Encyclopedia of Communication Research Methods* (pp. 953-957). Thousand Oaks, CA: SAGE Publications.

Cherney, M. R., Davis, D. C., & Metts, S. (2017). Surf's up: Communitive aspects of online trust-building among Couchsurfing hosts. In M. Folk & S. Apostel (Eds.), *Establishing and Evaluating Digital Ethos and Online Credibility*. Hershey, PA: IGI Global. <http://dx.doi.org/10.4018/978-1-5225-1072-7>

Cole, A. W., Nicolini, K. M., Anderson, C., Bunton, T. E., Cherney, M. R., Cronin Fisher, V., Draeger Jr., R., Fetherston, M., Motel, L., Peck, B., & Allen, M. (2017). Student predisposition to instructor feedback and perceptions of teaching presence predict motivation toward online courses. *Online Learning*, 21, 245-262. <http://doi.org/10.24059/olj.v21i4.966>

- Fetherston, M., Cherney, M. R., & Bunton, T. (2017). Uncertainty, technology use, and career preparation self-efficacy. *Western Journal of Communication*, 1-20. <http://dx.doi.org/10.1080-10570314.2017.1294704>
- Ruppel, E. K., Burke, T. J., & Cherney, M. R. (2017). Channel complementarity and multiplexity in long-distance friends' patterns of communication technology use. *New Media and Society*, 1-15. <http://dx.doi.org/10.1177/1461444817699995>
- Ruppel, E. K., Burke, T. J., Cherney, M. R., & Dinsmore, D. (2018). Social compensation and enhancement via mediated communication in the transition to college. *Human Communication Research*, 44, 58-79. <http://doi.org/10.1093/hcr/hqx003>
- Cherney, M. R., Fetherston, M., & Johnsen, L. J. (2018). Online course group literature: A review and critique. *Small Group Communication*, 49, 98-128. <http://doi.org/10.1177/1046496417721627>

Works in Progress

- Baker, B., Peck, B., Motel, L., Jagiello, K., Cherney, M. R., & Allen, M. Head orientation during confrontations in presidential primary debates. Under review at *Communication Research Reports*
- Bourhis, J., Benedict, B., Adebayo, C. T., Cherney, M. R., Langston, D., Peck, B. S., Quinn, S. F., Richards, R. J., & Burrell, N. A. (in press). Evaluation of master's programs[s] on the basis of Google citations. Under review at *Journal of the Association for Communication Administration*.
- Quinn, S. F., Cherney, M. R., & Ruppel, E. K. Facebook displays of affection: Relational Facebook posts and relationship quality in romantic dyads.

Conference Presentations

- Cherney, M. (2013). *Frame of reference: A classroom activity example*. Presented at the annual meeting of the Illinois Communication and Theatre Association, Bloomington, IL.
- Cherney, M. (2013). *A review of literature involving uncertainty reduction in the mixed medium behavior associated with CouchSurfing.org*. Presented at the annual meeting of the National Communication Association, Washington DC.
- Cherney, M., & LeRose, N. (2014). An In-Depth Examination of Host's Use of the Reference Feature of Couchsurfing.org to Reduce Uncertainty and Build Trust. Presented at the annual meeting of the National Communication Association, Chicago, IL.
- Ruppel, E., Blight, M., Cherney, M. R., & Fylling, S. (2014). An Exploratory Investigation of Communication Technologies to Alleviate Communication Difficulties and Depression in Older Adults. Presented at the annual meeting of the International Association for Relationship Research on "Relationships, Health, and Wellness", New Brunswick, NJ.
- Fylling, S. Q., & Cherney, M. R. (2015). "He's just so wonderful": Facebook affection, negativity and relationship quality. Presented at the annual meeting of the National Communication Association, Las Vegas, NV.
- Ruppel, E. K., Burke, T., & Cherney, M. (2015). Long-distance friends' patterns of communication technology use: Channel complementarity and multiplexity. Presented at the annual meeting of the National Communication Association, Las Vegas, NV.
- Fetherston, M., Cherney, M. R., & Bunton, T. (2016). Experience with technology for career exploration. Presented at the annual meeting of the Central States Communication Association, Grand Rapids, MI.
- Ruppel, E. K., Burke, T. J., Cherney, M. R. & Dinsmore, D. P. (2016). Social competence and communication with parents in the transition to college. Presented at the annual meeting of the International Association for Relationship Research, Toronto, Ontario, Canada.

- Ruppel, E. K., Fylling, S. Q., Cherney, M. R., & Alvarez, S. (2016). "They call me": Older adults' use and perceptions of mediated communication in close relationships. Presented at the annual meeting of the International Association for Relationship Research, Toronto, Ontario, Canada.
- Cherney, M. R., Fetherston, M., & Johnsen, L. J. (2016). Online course group literature: A review and critique. Presented at the annual meeting of the National Communication Association, Philadelphia, PA.
- Allen, M., Baker, B., Cherney, M. R., Jagiello, K., Motel, L., Peck, B. (2017). Head orientation during confrontations during the presidential primary debates. Presented at the annual meeting of the Central States Communication Association, Minneapolis, MN.
- Cherney, M. R. (2017). Nonverbal email communication between instructors and students: A test of communication accommodation theory. Presented at the annual meeting of the National Communication Association, Dallas, TX.
- Cherney, M. R., & Benedict, B. (2017). To pause or not to pause: A meta-analysis exploring the effects of segmenting learning. Presented at the annual meeting of the National Communication Association, Dallas, TX.
- Cherney, M. R. (2017). The warranting value of self-generated and other-generated content in students' impression formation of instructors. Presented at the annual meeting of the National Communication Association, Dallas, TX.
- Cherney, M. R. (2018). Chocolate milk comes from where? An activity in information literacy. G.I.F.T. presented at the annual meeting of the Central States Communication Association, Milwaukee, WI.
- Cherney, M. R., Fisher, V., & Sparrow, D. (2018). Communicative cues of emotion in text-based CMC. Presented at the annual meeting of the Central States Communication Association, Milwaukee, WI.
- Ruppel, E. K., Cherney, M. R., Quinn, S., & Yurashevich, Y. (2018). Effects of mediated communication on relational conflict behavior, physiological arousal, and mood. Presented at the annual meeting of the International Association of Relationship Research, Fort Collins, CO.

Teacher Training Presentations

- Cherney, M. (2013, August). *Chapter 13: Delivery*. Requested by Dr. Cheri J. Simonds and Dr. John F. Hooker, School of Communication, Illinois State University. Guest speaker for the graduate teaching assistant summer training program, Illinois State University.
- Cherney, M. R., Nickell, J., McGraw, E., Lucht, K., Davidson, M., & Pineda, A. (2013, August). *Classroom management: How to deal with a student who...* Requested by Dr. Cheri J. Simonds and Dr. John F. Hooker, School of Communication, Illinois State University. Guest speaker for graduate teaching assistant summer training program, Illinois State University.

Academic Presentations

- Cherney, M. (2013). Attachment Theory. Requested by Dr. Sandra Metts and Lisa Martin, School of Communication, Illinois State University. Guest lecturer for COM 123 – Interpersonal Communication.
- Cherney, M. (2013). Delivering an academic conference presentation. Requested by Anna Wright, School of Communication, Illinois State University. Guest lecturer for COM 291- Undergraduate Teaching Experience in Communication.
- Cherney, M., & LeRose, N. (2014). An in-depth examination of hosts' use of the reference feature of Couchsurfing.org to reduce uncertainty and build trust. Requested by Kathryn

Fonner, Department of Communication, University of Wisconsin- Milwaukee. Participant presenter for Professional Development Practice NCA Presentations.

Cherney, M. (2015). Communicating sexually: Non-normative sexual relationships. Requested by Dr. Erin Ruppel, Department of Communication, University of Wisconsin- Milwaukee. Guest lecturer for Commun 301 – Interpersonal Communication.

Fylling, S. Q., & Cherney, M. R. (2015). “He’s just so wonderful”: Facebook affection, negativity and relationship quality. Requested by Tae-Seop Lim, Department of Communication, University of Wisconsin- Milwaukee. Participant presenter for Professional Development Practice NCA Presentations.

Cherney, M. (2016). The role of nonverbal communication in a mediated environment. Requested by Dr. Anna Herrman, Communication and Media Studies, St. Norbert College. Guest lecturer for Communication 323 - Nonverbal Communication

Cherney, M. (2017). Current research in family communication and CTs. Requested by Dr. Anna Herrman, Communication and Media Studies, St. Norbert College. Guest lecturer for Communication 328 – Family Communication

Service

Discipline

NCA Annual Convention National Communication Association, registration volunteer	2014, 2016, 2017
NCA Annual Convention Human Communication Technology Division, reviewer	2016
NCA Annual Convention National Communication Association, panel chair	2015
NCA Annual Convention National Communication Association, short course usher	2015

University

Public Speaking Showcase University of Wisconsin- Milwaukee, coordinator	2015-2017
Public Speaking Showcase University of Wisconsin- Milwaukee, volunteer judge	2015-2017
Committee on Critical Inquiry Illinois State University, Critical Inquiry Ambassador	2013, 2014
St. Norbert Times St. Norbert College, copy editor	2010-2011

Department

CSCA Undergraduate Honors Conference University of Wisconsin- Milwaukee, mentor	2017
Communication Graduate Student Council University of Wisconsin- Milwaukee, PhD mentorship coordinator	2016-2017
Lambda Pi Eta University of Wisconsin- Milwaukee, graduate student advisor	2016-2018
Communication 103 Public Speaking Improvement University of Wisconsin- Milwaukee	2015

Recruitment for Department of Communication University of Wisconsin- Milwaukee	2014
Peer Mentor Program Illinois State University School of Communication, mentor	2013
<i>Other Service</i>	
Milwaukee Rescue Mission Season of Giving, volunteer	2016
Volunteer Programs Bali Tianyar, Bali, Indonesia, Volunteer English teacher	2014
TRANSFORMERS Illinois State University outreach, mentor	2012-2014
Intern Outreach Program COUNTRY Financial, volunteer	2013
Big Brothers Big Sisters Green Bay, Wisconsin, mentor	2010-2012

Memberships

National Communication Association	2012 – present
Central States Communication Association	2017 - present
Illinois Communication and Theatre Association	2013

Certifications

Graduate Certificate in Teaching and Learning in Higher Education. (2016). University of Wisconsin- Milwaukee.

Online and Blended Teaching Certification. (2017). University of Wisconsin- Milwaukee Center for Excellence in Teaching and Learning.

Safe Space Advocate Certification. (2017). University of Wisconsin- Milwaukee LGBT Resource Center.

Awards and Honors

Melvin H. Miller Award for Service. (2017). Awarded by UWM's Department of Communication

CSCA Undergraduate Research Mentor Award. (2017). Awarded by UWM's Department of Communication

Graduate Student Travel Award. (2014, 2015, 2016). Awarded by UWM Graduate School

Travel Funding Award. (2014, 2015). Awarded by UWM's Department of Communication

Top Master's Thesis, Social Science Division. (2014). Awarded by the Master's Education Section of the National Communication Association

Chancellor's Fellowship Award. (2014). Awarded by University of Wisconsin - Milwaukee

Outstanding University Graduate Teaching Assistant Award (Level I-Masters student with sole responsibility for instruction in a course). (2013-2014). Awarded by the Center for Teaching and Learning at Illinois State University. Nominated by the School of Communication, then by the College of Arts and Sciences, and finally awarded by Illinois State University

Magna Cum Laude. (2011). Awarded by St. Norbert College

NCAA Midwest Conference All Conference Academic Award. (2009). Awarded by the NCAA Midwest Conference

Trustee Distinguished Scholarship. (2008). Awarded by St. Norbert College