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# Multiformat Communication Strategies: A Conceptual Framework and Empirical Investigation of Video Formats

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# MULTIFORMAT COMMUNICATION STRATEGIES: A CONCEPTUAL FRAMEWORK AND EMPIRICAL INVESTIGATION OF VIDEO FORMATS

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# ABSTRACT

Essay One was conducted to build a more complete view of bilateral, multiformat customer–firm communication. A review of communication theory builds a foundation for effective multiformat strategies across different exchange contexts (e.g., message complexity) and timing factors (e.g., relationship duration), while accounting for both positive and negative aspects of communication richness. Four perspectives on multiformat communication during exchange events suggest pertinent propositions and produce three parsimonious tenets. First, the authors propose a communication theory foundation for relationship marketing; second, they compile and synthesize extant research. Third, they identify six fundamental communication characteristics associated with different formats. Finally, they integrate insights from the previous perspectives into a single conceptual model to provide a more comprehensive view of multiformat communication. This conceptual framework can serve as a platform that academics and managers can use to develop effective communication strategies and thereby optimize customer experiences while simultaneously reducing firm costs and enhancing customer profitability and relationships.

Essays Two and Three apply the characteristic-level insights derived in Essay One to a unilateral communication context, investigating whether, when and how the video format impacts performance, with four experimental studies. Consumers are increasingly watching online product videos without sound (no audio narration). Yet, managers have few insights into developing effective video marketing strategies, in the presence of this trend. In Essay Two, the authors first identify two distinct advantages of a video watched with sound, richness (greater message understanding) and vividness (greater message visualization), both of which have a positive impact on performance (Study 1). Next, the authors uncover that the vividness effect is important for consumers with hedonic shopping goals but not for those with utilitarian shopping goals (Studies 2a and 2b). In Essay Three, the authors find the richness effect is important for consumers with utilitarian shopping goals when they are visually distracted (Study 3). Finally, the authors find that adding text captions to the video, a frequently employed strategy, can backfire (Study 4). Adding text captions to a product video lowers message understanding and purchase intentions, when the video is still watched with sound. These findings have important theoretical and managerial implications.

# ESSAY ONE. A THEORETICAL FRAMEWORK FOR MULTIFORMAT COMMUNICATION STRATEGIES

## Introduction

Customer–firm communication is a critical strategy for effective relationship marketing (Palmatier et al. 2008; Verma, Sharma, and Sheth 2016), though recent changes in technology and business practice have changed the nature of communication practices (Bitner, Zeithaml, and Gremler 2010), through the introduction of multiple new formats (e.g., videoconference, live chat). Managing customers' experiences across multiple communication formats represents a critical marketing research priority (Ostrom et al. 2015). Yet existing research provides little guidance about the most effective multiformat communication strategies; insights from one format (face-to-face) often get applied to others (videoconference, email) without sufficient acknowledgment of their underlying differences (Antioco et al. 2008). Discussions of the varying levels of richness of communication formats also tend to focus on positive aspects (e.g., greater mutual understanding) and ignore negative aspects (e.g., greater communication costs). However, the trade-off between mutual understanding and communication costs is highly pertinent to the design and implementation of effective multiformat communication strategies.

The complexity of designing communication strategies in this new multi-format industry increases even more when we consider managers' ability to vary the format according to relationship stages, exchange contexts, or customer preference (Banerjee 2014; Morgan 2015). According to one study, for difficult customer inquiries, 46% of customers prefer telephone contacts; only 30% prefer face-to-face communication (Clark 2014). In a different survey, customers expressed their expectations that firms offer six different communication formats and rated email as the most important (Peterson 2014). Noting these conflicting results and confusing implications, we seek to apply communication theory to build a more complete understanding of customer–firm communication and thereby provide insights into the most effective multiformat communication strategies across different exchange contexts (e.g., message complexity) and timing factors (e.g., relationship duration) while taking into account both positive and negative aspects of communication richness.

We take four perspectives on multiformat communication in customer–firm exchange events; this four perspective process is summarized in Figure 1. First, we build a communication theory foundation that can apply to marketing by undertaking a comprehensive, multidisciplinary review of the key logics, predictions and criticisms of popular communication theories (Table 1). From this foundation, we identify two categories of moderators that determine the effectiveness of communication formats in exchange events: exchange and timing. Historically, marketing has not explicitly integrated communication theory, so this review identifies multiple constructs that have not been considered previously in the marketing domain. Thus, we offer a definitional foundation for communication theory and research in our review (Table 2).

Second, we compile and synthesize previous customer–firm communication research, (Table 3). With this synthesis, we uncover insights into customer–firm communication and communication strategies for exchange events, as well as identify gaps and limitations for advancing the field. The moderating factors that emerge from this review also reflect the

previously established categories (exchange and timing) from Perspective 1. The identified gaps in the literature pertain to the individual communication format characteristics driving performance and the underlying mechanisms (i.e., mutual understanding and communication costs) that might explain these effects.

Third and in turn, we apply communication theory to customer–firm exchange events to identify underlying fundamental communication characteristics associated with each format. This critical step for developing theoretical communication strategies in a multiformat marketing environment reflects the argument that the influence of underlying format characteristics should be the primary focus, rather than the format itself (Dennis, Fuller, and Valacich 2008; Yadav and Varadarajan 2005). For example, rather than considering whether email or telephone is preferable for customer complaints (Charlton 2013), we evaluate the underlying cue and channel characteristics across formats to understand why one format might be more effective. By decomposing each communication format—defined as any channel or medium through which the firm can communicate with customers (Neslin et al. 2006; Sousa and Voss 2006)—into its component cue and channel characteristics, we isolate the most critical aspect(s) that drive performance in different exchange contexts. Cue characteristics (proximal, visual, verbal, textual) refer to the ways the communication format allows the message to be encoded (Te'eni 2001); channel characteristics (synchronicity, revisability) are the ways the communication format allows the message to be processed. Thus we can decompose communication formats into six underlying characteristics, with theoretically relevant, critical differences and overlaps (Table 4). For example, face-to-face communication offers proximal, visual and verbal cues; videoconferencing offers visual and verbal cues; telephone conversations offer verbal cues; and all three have synchronicity. These formats overlap on verbal cues and synchronicity, but videoconferencing is unlike telephone communication due to its visual cues and face-to-face unlike videoconferencing due to its proximal cues.

Fourth, we integrate insights from communication theory (Perspective 1), past research (Perspective 2) and the underlying characteristics of communication formats (Perspective 3) in a single conceptual model to provide a platform for developing effective customer–firm communication strategies across the range of communication formats and thus optimizing the customer experience and exchange performance (Figure 1).

We conclude with a general discussion that offers three overarching, parsimonious tenets for multiformat communication practices at the cue and channel characteristic level. The three tenets encapsulate and simplify various customer–firm communication insights provided across the four perspectives and provide managerial guidance in the form of cue and channel characteristic effectiveness requirements (effectiveness tenet), targeting and adapting effective requirements to the specific message content and environment (matching tenet) and building customer–firm relationships (relationship tenet). We also discuss limitations and avenues for research related to multiformat communication.

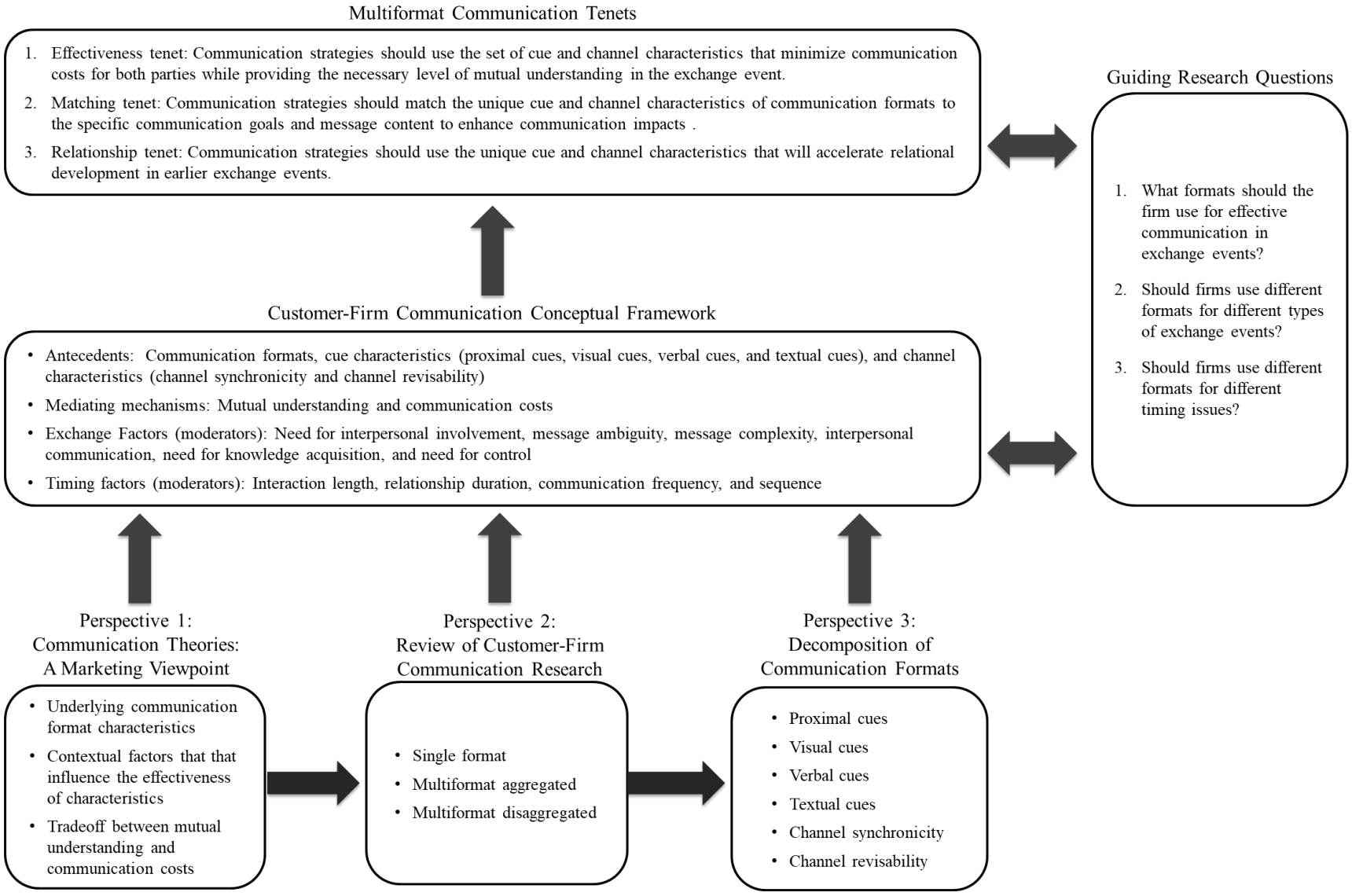



Figure 1. Visual Summary of Essay One: Four Perspective Process

## Communication Theory: A Marketing Viewpoint

Researchers in various disciplines use communication theories to investigate communication formats, ranging from social psychology (Davis, Bagozzi, and Warshaw 1992) and management (Kahai and Cooper 2003) to information systems (Venkatesh et al. 2003) and communications (Walther 2002). Few marketing studies employ communication theories though, despite the clear importance of customer–firm communication in exchange events (Hoffman and Novak 1996; Kumar and Benbasat 2002). In this section, we review prevalent communication theories from a marketing viewpoint (Table 1), to build a foundation that can be applied to marketing. We recognize that multiformat communication strategies are designed at the firm level but implemented at the employee level. In addition, for precision and clarity, we also establish foundational definitions (Table 2). In particular, four general communication terms are key to our framework: (1) communication format is any medium through which the service provider and the customer interact (i.e., exchange messages) (Neslin et al. 2006); (2) communication format characteristics are the underlying, fundamental building blocks that constitute each format and represent how messages are encoded, transferred and processed (Te'eni 2001). (3) communication format profile is the bundle of characteristics associated with a particular format; and (4) message is the content of the conversation (i.e., what is said) (Mohr and Nevin 1990).

### Communication Theories

Communication theorists and marketing scholars agree that the goal of bilateral communication is to reach mutual understanding, defined in this context as a shared perspective by the customer and the firm on the messages sent and received during an exchange event (Mohr and Bitner 1991). Greater mutual understanding between the customer and firm is necessary for effective communication. Miscommunication, or a lack of mutual understanding, inhibits both the customer and the firm from achieving the specific goals of the exchange event. Accordingly, communication theories explain the effectiveness of communication formats with regard to their influence on mutual understanding.

Social presence and media richness theory focus on the functionality of the communication format, which depends on the exchange context. Face-to-face is considered the best format, because any other format filters out critical non-verbal or verbal cues, with adverse impacts on relationships and performance outcomes (Walther and Parks 2002). Social information processing theory instead focuses on timing issues, recognizing that face-to-face is not always the best format and arguing that people adapt to other formats that offer fewer cues over time (Walther and Parks 2002). Media synchronicity theory adds to the complexity of these arguments by identifying characteristics that are unique to computer-mediated formats, which are beneficial for certain exchange contexts.

#### *Social Presence Theory*

Social presence theory suggests that the need for interpersonal involvement, or the degree to which people seek warm and personal communication in exchange events, determines the effectiveness of a communication format (De Wulf, Oderkerken-Schröder, and Iacobucci 2001;

Table 1. Communication Theory: A Marketing Viewpoint

| Theories | Descriptions | Key Predictions | Format Characteristics | References |
|---|---|---|---|---|
| Social presence | Communication formats differ by social presence, which is determined by the perceived intimacy and immediacy in the communication interaction. | When there is a need for interpersonal involvement, a communication format with a higher degree of social presence leads to more relational communication. | Communication characteristics that enhance social presence: proximal cues, verbal cues, and visual cues | Short, Williams, and Christie (1976); Fonner and Roloff (2012) |
| Media richness | Communication formats differ by richness, which is determined by the cue characteristics, immediacy of feedback, personalization, and language variety. | When there is high message ambiguity, a format with a higher degree of richness leads to more effective communication.<br><br>When there is low message ambiguity, any format leads to effective communication, but a leaner format leads to more efficient communication. | Communication format characteristics that enhance media richness: proximal cues, visual cues, verbal cues,and channel synchronicity | Daft and Lengel (1986); Iyer, Velu, and Mumit (2014) |
| Social information processing | Communication formats differ by the rate of social information exchange, which is determined by the cue characteristics. | The amount of time allocated to the communication interaction (i.e., interaction length) enhances the effect of communication. | Communication format characteristics that enhance the rate at which social information can be exchanged: proximal cues and visual cues | Walther (1992); Tidwell and Walther (2002) |
| Media synchronicity | Communication formats differ by media synchronicity, which is determined by the cue characteristics, parallelism, channel synchronicity, rehearsability (-), and reprocessability (-). | When there is a need for coordinated behavior and a shared focus, a format with a higher degree of media synchronicity leads to more effective communication.<br><br>When more time is needed for message encoding and decoding, a format with a lower degree of media synchronicity leads to more effective communication. | Communication format characteristics that enhance (suppress) behavioral coordination: proximal cues, visual cues, verbal cues, and channel synchronicity (textual cues and channel revisability) | Dennis, Fuller, and Valacich (2008); Brown, Dennis, and Venkatesh (2010) |

Table 2. Definitional Foundation for Communication Theory and Research

| Terminology | Definitions | Other Terms | Sources |
|---|---|---|---|
| Communication format | Any communication channel or medium through which the firm can communicate with customers | Channel; media; modality | Neslin et al. (2006) |
| Cue characteristics | Ways the communication format allows the message to be encoded | Verbal and nonverbal cues | Te'eni (2001) |
| Channel characteristics | Ways the communication format allows the message to be processed | Transmission capabilities | Dennis, Fuller, and Valacich (2008) |
| Computer-mediated format | Any mediated format, including all communication formats other than traditional face-to-face, telephone, letter, and fax | Virtual channel | Walther (1996) |
| Mutual understanding | Shared perspective by the customer and firm on the messages sent and received in the communication interaction | Shared understanding | Mohr and Bitner (1991) |
| Need for interpersonal involvement | Degree to which people seek warm and personal communication in exchange events | | Rice (1993) |
| Social presence | Degree of actual or perceived psychological awareness of the other communicating party | Virtual presence | Rice (1993) |
| Message ambiguity | Messages with multiple and potentially conflicting interpretations | Message equivocality | Cable and Yu (2006) |
| Information richness | Ability of information to change understanding within a time interval | Media richness | Daft and Lengel (1986) |
| Communication costs | Time, effort, and resources applied by the customer and firm to the communication interaction | | Palmatier et al. (2008) |
| Social information exchange | Rate at which personal information beyond that needed to create the exchange can be exchanged with a given communication format | | Walther (1992) |
| Hyperpersonal relationships | Heightened personal relationships and exchanges taking place in computer-mediated formats | | Walther (1996) |
| Interaction length | Period of time over which the exchange event takes place | | Walther, Loh, and Granka (2005) |
| Rehearsability | Degree to which the communication format allows messages to be edited during encoding | Editability | Treem and Leonardi (2012) |
| Reprocessability | Degree to which the communication format allows messages to be re-examined during and after decoding | | Dennis and Valacich (2008) |
| Message complexity | Degree to which message contains a variety of language such as words, numbers, statistics, and math models | | |
| Exchange factors | Factors that pertain to the conversation or interaction taking place in the exchange event | | |

(table cont'd)

| Terminology | Definitions | Other Terms | Sources |
|---|---|---|---|
| Timing factors | Factors that relate to timing issues | | |
| Interpersonal communication | Factors, including personalization and social self-disclosures, that signal warm and personal communication | | De Wulf, Oderkerken-Schröder, and Iacobucci (2001) |
| Personalization | Social content in the interaction between employees and their customers | | Mittal and Lassar (1996) |
| Social self-disclosures | Disclosures incidental rather than essential to the exchange event | | Jacobs, Hyman, and McQuitty (2001) |
| Relationship duration | Length of time that the relationship between the customer and firm has existed | Relationship age; length | Doney and Cannon (1997) |
| Customer perceived control | Degree to which the customer perceives he or she has control over the decisions, process, and information in the exchange event | | Guo et al. (2016) |
| Need for control | Degree to which the customer feels the need to predict and control communication within the service encounter | | |
| Communication frequency | Number of total communication interactions or communication interactions per unit of time between the customer and firm | Contacts; interaction intensity | Doney and Cannon (1997) |
| Need for knowledge acquisition | Degree to which there is a need to acquire information directly relevant to the exchange event | Customer learning | Ganesan, Malter, and Rindfleisch (2005) |
| Proximal cues | Cues available from the customer and the employee's copresence in a servicescape | Environmental; spatial | Wilson et al. (2012) |
| Visual cues | Cues available from physical appearance, facial expressions, eye contact, gestures, body language, and body orientation | Nonverbal cues | Sia, Tan, and Wei (2002) |
| Verbal cues | Cues available from the vocal features of spoken language, such as tone, pitch, inflection, and accent | Auditory cues | Agrawal and Schmidt (2003) |
| Textual cues | Cues made available from written or typed language, including spelling, grammar, sentence structure, and vocabulary | | Sia, Tan, and Wei (2002) |
| Channel synchronicity | Communication that is temporally consistent, occurring at the same time and together | Synchronicity | Berger and Iyengar (2013) |
| Channel revisability | Communication that allows messages to be edited during encoding and repeatedly reviewed during and after decoding | Reprocessability; permanence | Dennis and Valacich (1999) |
| Sequence | Order of communication formats used by the firm to communicate with the customer | | |
| Exchange performance | Firm's relational, service, and financial performance | | |

Miranda and Saunders 2003; Short, Williams, and Christie 1976). Exchange events that requiremore interpersonal involvement should be paired with communication formats that offer more social presence, to promote relationship development and enhance social and emotional relationships (Kahai and Cooper 2003). Social presence results when people experience perceived intimacy and immediacy during a communication interaction, which can be conveyed

by verbal and nonverbal cues, such as through physical proximity, eye contact, facial expressions, or personal conversation (Rice 1993; Walther 1992). It can reduce ambiguity and purchase dissonance, as well as enhance trust (Gefen and Straub 2004; Hassanein and Head 2007). Recovery strategies that use formats with greater social presence (face-to-face) also outperform those that rely on formats with less presence (telephone), in terms of both satisfaction and trust (Lii et al. 2013).

**Media Richness Theory**

Media richness theory contends that message ambiguity that allows for "multiple and potentially conflicting interpretations" (Daft and Lengel 1986, p. 556) determines the effectiveness of a communication format (Cable and Yu 2006). Ambiguous messages should be paired with formats with a higher degree of information richness (richness), defined as the ability of information to change understanding within a certain time interval (Daft and Lengel 1986). The degree of richness associated with a communication format parallels the degree of social presence and depends on the multiplicity of cues (i.e., nonverbal and verbal), immediacy of feedback (i.e., channel synchronicity), personalization and language variety. Face-to-face communication is the richest format, because it allows people to encode messages using various nonverbal and verbal cues, such as facial expressions and tone of voice, and then encode and decode messages in real time (i.e., synchronously) to ensure "the messages received equal the messages sent with no distortion" (Mohr and Bitner 1991, p. 612). In other words, richer communication formats foster greater mutual understanding of the information transferred between the customer and firm. Yet empirical studies yield mixed support for media richness theory (Markus 1994; Rice 1992; Suh 1999), such that communication formats actually have nonlinear impacts on customer purchase frequency. A richer format has a strong initial impact on purchase intentions but also a lower communication frequency threshold (Venkatesan and Kumar 2004). These mixed findings also might reflect the greater communication costs associated with richer communication formats, for both the customer and the firm. According to media richness theory, ambiguous, non-standardized messages (e.g., customer conflict resolution) require a richer format for effective communication, whereas unambiguous, standardized messages (e.g., straightforward customer inquiry) should be paired with a leaner format for effective, efficient communication. That is, richer formats lead to greater mutual understanding, but they also demand greater communication costs, which include the time, effort and resources applied by the customer and firm to the communication interaction (Palmatier et al. 2008). Richer formats may not be best; the richness trade-off needs consideration to clarify the effects of communication formats in exchange events.

**Social Information Processing Theory**

Whereas both social presence theory and media richness theory assume the absolute effectiveness of richer formats, social information processing theory recognizes that richer formats are not always best. Social information processing theory proposes that format effectiveness depends on timing (Yadav and Varadarajan 2005). Richer formats allow for a greater rate of social information exchange, so any personal information beyond that needed to create the exchange can transfer more quickly with richer formats, which support the presence of visual cues (Walther 1992). However, with sufficient time and multiple interactions, people can

adapt to leaner formats and cultivate relationships of the same caliber as a face-to-face interaction (hyperpersonal relationships; Walther 1996). Relational development thus is only temporarily delayed with leaner communication formats, and the relative advantages of richer formats over leaner formats decrease over time (Walther, Loh, and Granka 2005). Even within a single exchange event, richer communication formats lose their relative advantage as the interaction length, or time over which the exchange event takes place, increases and thereby expands the amount of social information exchanged between the customer and employee. Accordingly, previous research shows that the amount of relational communication (i.e., interpersonal affect) is significantly greater for face-to-face versus live chat when the interaction length is shorter but does not differ significantly with longer interaction lengths (Walther, Loh, and Granka 2005).

**Media Synchronicity Theory**

While social presence, media richness and social information process theory all acknowledge several characteristics of communication formats that give rise to richness, including nonverbal and verbal cues and channel synchronicity, the characteristics unique to computer-mediated formats largely have been largely ignored. Media synchronicity theory, an adaptive theory, acknowledges that leaner formats (e.g., email, text message) are encoded using textual cues and provide communication benefits that richer formats do not. Leaner formats allow for rehearsability and reprocessability, which we refer to as channel revisability (see Perspective 3), defined as the ability of the customer and the employee to edit messages while encoding, then reexamine messages during and after decoding in the exchange event (Dennis, Fuller, and Valacich 2008). Textual cues and channel revisability, as unique characteristics of computer-mediated formats, are important because they render leaner formats more effective than richer formats in some exchange situations. With high message complexity, textual formats are more effective than richer formats that are not written down and do not allow for reflection on or reprocessing of information to reach mutual understanding (Berger 2014). Table 2 contains definitions of all communication key terms.

**Evaluation of Communication Theories from a Marketing Viewpoint**

By evaluating communication theory from a marketing viewpoint, we derive several insights into customer–firm communication. First, communication theorists collectively agree that richness, or the ability of information to change a customer's understanding within a certain time interval, drives effective communication. However, while richer formats prompt greater mutual understanding between the customer and firm, they also increase communication costs. A richness trade-off thus exists, in that mutual understanding has a positive effect on exchange performance, but communication costs have negative effects. Although communication theory notes this richness trade-off, communication costs especially from the customer's perspective are largely absent from extant theoretical frameworks. Second, the effectiveness of the communication format depends on certain exchange factors, including the need for interpersonal involvement, message ambiguity and message complexity. Third, the effectiveness of the communication format also depends on timing factors, including the factor of interaction length. Accordingly, we integrate these insights to derive the following formal propositions:

$P_1$: Communication (with any format) has a positive effect on (a) mutual understanding and (b) communication costs, which is even greater for (c) formats with higher richness.

$P_2$: (a) Mutual understanding has a positive effect and (b) communication costs have a negative effect on exchange performance.

$P_3$: The positive effect of communication format richness on mutual understanding is enhanced by exchange factors including (a) the need for interpersonal involvement and (b) message ambiguity, but is suppressed by the exchange factor of (c) message complexity and the timing factor of (d) interaction length.

In addition to identifying key contextual factors that may influence the effectiveness of communication formats in exchange events from the preceding review of communication theory, we identify six communication characteristics that drive performance, spanning two main categories (cue and channel) that capture theoretically relevant and critical differences and overlaps. Cue characteristics (proximal, visual, verbal, textual) refer to the ways the format allows people to encode messages (Te'eni 2001); channel characteristics (synchronicity, revisability) entail how the format allows people to transmit and process messages. However, before we discuss each cue and channel characteristic, we review extant research to uncover further key insights into customer-firm communication, which we will then apply at the individual characteristic level.

## Customer-Firm Communication Research

In practice, customer preferences are shifting away from traditional communication formats and toward computer-mediated formats; simultaneously, customers are using multiple formats and alternating among them, depending on the exchange event, relationship phase and stage in the decision-making process (Rangaswamy and Van Bruggen 2005). Much customer–firm communication research in marketing refers to factors related to the exchange event and timing of the interaction but a review of literature reveals minimal acknowledgment of either mutual understanding or communication costs, with even more limited applications in empirical studies. Research designs also tend to limit insights into key trends. For example, half of all extant research we identified investigates one format at a time, mostly a traditional communication format (face-to-face or telephone), without offering insights into emerging technologies or comparisons across multiple formats. Another 20% of this research aggregates or combines all the communication formats into one group, which also prevents comparisons or the isolation of critical dimensions that drive exchange performance. The remaining research (30%) makes comparisons across multiple formats but solely in relation to communication frequency. We review this literature according to these three categories (single format, multiformat aggregated, multiformat disaggregated), as each grouping provides different insights into customer–firm communication, which we summarize in Table 3.

## Single-Format Communication Research

Single-format communication research examines exchange events that take place using one communication format. Our evaluation uncovers two key insights. First, this stream of research identifies interpersonal communication factors that make communication more or less effective, including personalization and social self-disclosures (De Wulf, Oderkerken-Schröder, and Iacobucci 2001). Personalization, which reflects the social content of the interaction, is more effective for customer complaints than for standard information inquiries and for people-processing versus product-processing services (Mittal and Lassar 1996; Song and Zinkhan 2008). Social self-disclosures, which are incidental rather than essential to the exchange event, enhance trust in the salesperson and satisfaction with the encounter (Jacobs, Hyman, and McQuitty 2001). Second, this research stream highlights a key moderating role of relationship duration, or the length of time the relationship has existed (Doney and Cannon 1997; Kumar, Scheer, and Steenkamp 1995). The effect of salesperson attractiveness on trust and sales performance diminishes over time as the customer–firm relationship persists (Ahearne, Gruen, and Jarvis 1999). Post hoc explanations for such findings also suggest that some communication format characteristics, such as visual cues, become less effective over time as the customer and employee get to know each other.

## Multiformat Aggregated Communication Research

The second group of research addresses multiformat aggregated communication by investigating the impact of collaborative communication, building on Mohr and Nevin's (1990) insights into communication strategies and the underlying dimensions of frequency, bidirectionality, formality and rationality. This stream of research examines the concept of collaborative communication broadly across multiple communication formats and often across multiple dimensions, avoiding the isolation of a critical format or communication dimension(s) driving exchange performance. In turn, multiformat aggregated communication research offers three key insights. First, a collaborative communication strategy generally drives exchange performance across cultures, such that it leads to enhanced knowledge, affective commitment and relationalism, marked by a long-term orientation, interdependency and joint planning (Bandyopadhyay, Robicheaux, and Hill 1994; Joshi 2009). Second, collaborative communication exerts a stronger effect on exchange performance when the customer believes he or she has a high degree of control in interactions with the firm, resulting in greater commitment, satisfaction and coordination (Mohr, Fisher, and Nevin 1996). Control provides customer value in the form of economic gain but also social self-esteem in the customer's relationship with the firm (Wilson et al. 2012). Thus, the customer's perceived control over the actual decisions being made (i.e., decisions); the development, selection and presentation of evidence on their side before the decision (i.e., processes); and the predictability and cognitive reinterpretation of a situation according to information offered by the other party (i.e., information) is likely to enhance the effects of communication (Guo et al. 2016). In other words, a need for control in the exchange event (i.e., with lower levels of customer perceived control) likely suppresses the effects of communication on exchange performance. Third, Mohr and Nevin's (1990) work is often cited with regard to the general impact of communication, but the aggregated construct of collaborative communication seems to have fallen out of favor, reinforcing the need to separate communication formats and the dimensions of communication strategies in further research.

Table 3. Customer-Firm Communication Research in Marketing

| Authors | Research Contexts | Communication Formats | Communication Constructs | Key Findings |
|---|---|---|---|---|
| Single Format Customer-Firm Communication Research | | | | |
| De Wulf, Oderkerken-Schröder, and Iacobucci (2001) | Food and apparel retailers in the U.S., Netherlands, and Belgium (B2C) | Face-to-face | Interpersonal communication | Interpersonal communication increases customers' perceptions of the retailer's relationship investment, which has a positive effect on perceived relationship quality and behavioral loyalty. |
| Mittal and Lassar (1996) | Health clinic and car repair facility (B2C) | Face-to-face | Personalization | The degree of personalization of the message increases the customer's evaluations of service quality and willingness to recommend the service provider but decreases the customer's propensity to switch to another service provider.<br><br>The effects of personalization are greater with people-processing services (health clinic) than with possession-processing (car repair) services. |
| Song and Zinkhan (2008) | Experiment looking at e-store customer service interactions (B2C) | Live chat | Personalization, interactivity | Personalization of the message enhances perceived website interactivity (i.e., communication, control, and responsiveness), which increases attitude toward the website, satisfaction with the experience, perceived website quality, and loyalty intentions.<br><br>The effects of personalization are greater for customer complaints than service inquiries. |
| Jacobs, Hyman, and McQuitty (2001) | Insurance services (B2C) | Face-to-face | Self-disclosures | The degree of customers' social self-disclosures within the exchange event are positively associated with trust in, satisfaction with, and attraction to the salesperson, whereas the degree of customers' exchange-specific disclosures are negatively associated. |
| Dean (2007) | After-sales call centers for financial services (B2B, B2C) | Telephone | Customer feedback | The degree of customer feedback fostered by the company increases the perceived service quality and affective commitment to the company. |
| Sun and Li (2011) | Customer service for DSL using U.S. onshore and offshore call centers (B2B, B2C) | Telephone | Frequency of service | The frequency of being serviced by an offshore (versus onshore) call center increases service duration and decreases customer retention.<br><br>Technical (versus transactional) inquiries suppress the effects of the offshore call center experience when customer preferences are taken into account. |
| Rapp et al. (2013) | Manufacturer-to-retailer-to-consumer for sporting goods (B2B, B2C) | Social media site | Social media usage, frequency | The upstream channel member's degree of social media usage increases the likelihood of the downstream channel member's social media usage.<br><br>Consumer social media usage has a positive effect on consumer loyalty, and retailer social media usage has a positive effect on both retailer and supplier brand sales performance.<br><br>The frequency of communication enhances social media usage behaviors between suppliers and retailers.<br><br>Brand reputation and service ambidexterity enhance the effects of social media usage across supplier, manufacturer, and customer levels. |

(table cont'd)

| Authors | Research Contexts | Communication Formats | Communication Constructs | Key Findings |
|---|---|---|---|---|
| Ahearne, Gruen, and Jarvis (1999) | Pharmaceutical sales representatives to medical providers (B2B) | Face-to-face | Communication ability of salesperson | The attractiveness of the salesperson enhances the perceived communication ability, likeability, expertise, and trustworthiness of the salesperson, which have positive effects on customer-level sales performance.<br><br>The length of the customer-salesperson relationship suppresses the effects of attractiveness. |
| Multiformat Aggregated Customer-Firm Communication Research | | | | |
| Joshi (2009) | Manufacturer-to-supplier in Canada (B2B) | Face-to-face, telephone, written | Collaborative communication | Collaborative communication increases supplier knowledge and affective commitment. |
| Bandyopadhyay, Robicheaux, and Hill (1994) | Supplier-to-dealer for electrical lamps and lighting in the U.S. and India (B2B) | Face-to-face, telephone, letter, fax | Frequency, bidirectionality, formality, indirect influence strategy | Frequency, bidirectionality, formality (i.e., written communication), and indirect influence strategies affect relationalism (i.e., long-term orientation, high interdependencies, joint planning) across cultures. |
| Mohr, Fisher, and Nevin (1996) | Focal manufacturer-to-dealer for personal computers (B2B) | Face-to-face, telephone, letter | Collaborative communication | Collaborative communication affects commitment, satisfaction, and coordination.<br><br>Manufacturer control reduces the effect of collaborative communication. |
| Mohr and Sohi (1995) | Manufacturer-to-dealer for computers (B2B) | (Face-to-face, telephone, computer, letter) | Frequency, bidirectionality, formality | Frequency is positively associated with communication quality, and formality (i.e., written communication) is negatively associated with information control (i.e., information distortion and withholding).<br><br>Frequency, bidirectionality, and quality of communication are positively associated with satisfaction with communication. |
| Mohr and Sohi (1995) | Manufacturer-to-dealer for computers (B2B) | (Face-to-face, telephone, computer, letter) | Frequency, bidirectionality, formality | Frequency is positively associated with communication quality, and formality (i.e., written communication) is negatively associated with information control (i.e., information distortion and withholding).<br><br>Frequency, bidirectionality, and quality of communication are positively associated with satisfaction with communication. |
| Multiformat Disaggregated Customer-Firm Communication Research | | | | |
| Reinartz, Thomas, and Kumar (2005) | Manufacturer-to-vendor (B2B) | (1) Face-to-face, (2) telephone (3) email, and (4) web-based | Frequency | Frequency of communication for all formats affects customer acquisition, relationship duration, and profitability.<br><br>For firm-initiated communication, face-to-face has the greatest impact followed by telephone and e-mail, respectively.<br><br>There are synergies between face-to-face and e-mail and telephone and email but not between face-to-face and telephone. |
| Godfrey, Seiders, and Voss (2011) | Car repair services at automobile dealership (B2C) | (1) Telephone, (2) email, and (3) letter | Frequency | Communication frequency has a non-linear impact on repurchase visits and spending.<br><br>The communication frequency threshold is highest with letter, followed by email and telephone.<br><br>There are negative interactions between all pairs of formats<br><br>Customer preference for telephone and email enhance the effects of communication frequency for each format. |

(table cont'd)

| Authors | Research Contexts | Communication Formats | Communication Constructs | Key Findings |
|---|---|---|---|---|
| Venkatesan and Kumar (2004) | Hong Kong Chinese importers to Western exporters (B2B) | (1) Rich (face-to-face), (2) standardized (telephone, letter), and (3) web-based | Frequency | Frequency of firm-initiated rich and standardized communication, as well as intercontact time, have non-linear impacts on purchase frequency.<br><br>The communication frequency threshold is higher with standardized versus rich formats.<br><br>Frequency of customer-initiatived web-based contacts has a positive effect on purchase frequency. |
| Berger and Iyengar (2013) | Experiment looking at individuals' WOM discussions and field data from customer WOM log (C2C) | (1) Face-to-face, (2) telephone, (3) live chat, (4) text, and (5) mail | Synchronicity | Live chat led to more interesting discussions of products and brands than face-to-face.<br><br>Telephone led to more interesting discussions of products and brands than live chat, whichis explained by synchronicity (i.e., time to think about what to say).<br><br>Self-enhancement concerns enhanced the effects of live chat but did not affect face-to-face.<br><br>Individuals spoke more about products and brands through all forms of written communication than face-to-face. |
| Antioco et al. (2008) | Product designer-to-service employees (B2B) | (1) Verbal (face-to-face, videoconference, telephone), (2) electronic (email), and (3) written (letter, memo, fax) | Frequency | Frequency of written information enhances attitude toward the information, which in turn increases information use. |
| Ganesan, Malter, and Rindfleisch (2005) | Manufacturer-to-manufacturer for new product development (B2B) | (1) face-to-face and (2) email | Frequency | Face-to-face (email) positively (negatively) affects tacit knowledge acquisition and negatively (positively) affects product knowledge acquisition.<br><br>Relational tie strength enhances these effects.<br><br>For firms with strong relational ties, email positively affects process knowledge acquisition.<br><br>Geographic proximity negatively affects frequency of face-to-face interaction and positively affects frequency of email. |
| Cannon and Homburg (2001) | Manufacturer-to-manufacturer in the U.S. and Germany (B2B) | (1) Face-to-face, (2) telephone, and (3) written (email, letter, fax) | Frequency | Frequency of face-to-face and written communication lower operational costs, which are associated with more complex issues.<br><br>Frequency of written communication lowers acquisition costs, which are associated with less complex issues. |

## Multiformat Disaggregated Communication Research

In this third stream, researchers recognize some of the issues associated with aggregating multiple communication formats and thus seek to disaggregate and investigate multiple formats simultaneously. For the most part, these studies look at only one aspect though, namely, communication frequency, or the total number of interactions or interactions per unit of time between the customer and firm (Crosby, Evans, and Cowles 1990; Doney and Cannon 1997). Although this "emphasis on communication frequency is … incomplete" (Fisher, Maltz, and Jaworski 1997, p. 66), the importance of disaggregating communication formats is evident, and four important findings emerge. First, communication format richness exerts a positive effect

on exchange performance, consistent with communication theory. Frequency enhances customer acquisition, relationship duration and profitability; face-to-face communication has the greatest impact, followed by telephone and email (Reinartz, Thomas, and Kumar 2005). Second, communication frequency has a nonlinear, inverted U-shaped impact on repurchase intentions and purchase frequency (Godfrey, Seiders, and Voss 2011; Venkatesan and Kumar 2004). The threshold for communication frequency is inversely related to richness, such that richer formats (face-to-face, telephone) impose lower frequency thresholds than leaner formats (live chat, email). Third, synergies may exist between specific pairs of communication formats, but literature is mixed regarding the direction of these effects. Some research indicates positive synergies between face-to-face and email or telephone and email but not face-to-face and telephone (Reinartz, Thomas, and Kumar 2005); other work indicates multiplicative, negative interactions across all combinations of telephone, email and letters (Godfrey, Seiders, and Voss 2011). Fourth, leaner communication formats are more effective than richer formats for knowledge acquisition (Ganesan, Malter, and Rindfleisch 2005), so the positive effect of format richness likely is suppressed when there is a need for knowledge acquisition. Although disaggregating the formats has helped provide insights into multiformat communication, this area of research also has exposed the pressing need to decompose communication formats into their underlying characteristics to explicate the mixed findings and advance research further. Previous findings of positive and negative interactions among formats may reflect the richness trade-off (i.e., greater mutual understanding and communication costs), which is a function of the formats' characteristics. For example, leaner formats may be more effective for knowledge acquisition because their written nature allows the information exchanged to be reviewed repeatedly, during and after the exchange event.

**Evaluation of Communication Research in Marketing**

We integrate insights from communication theory to evaluate extant customer–firm communication research across these three research categories, which leads to three key insights. First, mutual understanding and communication costs offer underlying theoretical mechanisms for explaining the effectiveness of the communication format, but application of these two constructs has been limited in empirical research. The negative effect of communication costs may exceed the positive effect of mutual understanding in certain contexts, emphasizing the need to incorporate both positive and negative aspects of richness into a unified framework. Second, existing research suggests that certain exchange(interpersonal communication, need for knowledge acquisition and need for control) and timing (relationship duration) factors determine communication effectiveness. These factors suppress the relative richness advantage and can render leaner formats at least just as if not more effective in exchange events. Leaner formats are also less costly from both the customer's (e.g., hassle, time) and the firm's (e.g., monetary costs) perspectives, so they should be used as long as performance does not suffer. Third, optimal frequency levels of communication exist, which vary by format. That is, communication frequency enhances exchange performance only up to a certain point, which results from the trade-off between mutual understanding and communication costs. Richer formats have greater initial impacts, because they can foster greater mutual understanding, but their potential for overuse can be a concern, due to their higher communication costs. Finally, communication frequency is a timing factor, as it generally increases over time. By integrating these insights, we develop the following formal propositions, which highlight exchange and timing factors that

suppress the relative advantage of richer communication formats over leaner formats. They also highlight the richness trade-off between mutual understanding and communication costs, as it pertains to communication frequency.

$P_4$: The relative advantage of richer over leaner communication formats on mutual understanding is suppressed by certain exchange factors, including (a) interpersonal communication and (b) need for knowledge acquisition, and (c) need for control, and the timing factor of (d) relationship duration.

$P_5$: The positive effect of communication on (a) mutual understanding and (b) communication costs is enhanced nonlinearly by frequency, such that (c) at lower levels, communication frequency has a positive effect on exchange performance but (d) at higher levels, communication frequency has a negative effect on exchange performance (inverted U-shaped relationship).

## Decomposing Communication Formats

The previous perspectives establish a foundation based in communication theory and an overview of extant marketing research. We now draw on these two perspectives to identify underlying characteristics associated with each communication format, address some of the limitations of existing research, and decompose each communication format into its structural components (i.e., communication format profile), such that we isolate critical communication characteristics that drive exchange performance. Customers prefer to use emerging formats (e.g., social media, live chats) and switch across multiple formats, so it is imperative to understand characteristic-related trade-offs so that we can explain, for example, why telephone channels might outperform email for general inquiries but email outperforms telephone channels for complaints (Ackermann and von Wangenheim 2014; Charlton 2013). Thus, drawing from Perspectives 1 and 2, we identify six fundamental characteristics of all communication formats (proximal, visual, verbal, textual, synchronicity, revisability), which constitute two main categories: cue and channel characteristics. We then consider the most commonly used formats, in order of descending richness, and specify the underlying characteristics (see Table 4).

### Cue Characteristics

Each communication format has specific cue characteristics that determine how messages can be encoded for communication (Te'eni 2001). Cue characteristics encompass available nonverbal and verbal cues that the customer and employee rely on to communicate effectively. The four cue characteristics, proximal, visual, verbal and textual, vary across communication formats and accordingly influence customers' interpretations and behaviors (Duncan and Moriarty 1995).

Table 4. Characteristics of Communication Formats

| Characteristics | Definitions | Communication Formats | Exchange and Timing Moderating Factors |
|---|---|---|---|
| Cue Characteristics (ways the communication format allows the message to be encoded for communication) | | | |
| Proximal | Cues available from the customer and the employee's copresence in a servicescape | Face-to-face | Need for interpersonal involvement, +($P_{6a}$) |
| | | | Relationship duration, - ($P_{6b}$) |
| | | | Communication frequency, - ($P_{6c}$) |
| Visual | Cues available from physical appearance, facial expressions, eye contact, gestures, body language, and body orientation. | Face-to-face | Need for interpersonal involvement, +($P_{7a}$) |
| | | Videoconference | Interaction length, - ($P_{7b}$) |
| | | | Relationship duration, - ($P_{7c}$) |
| Verbal | Cues available from vocal features of spoken language, including tone, pitch, inflection, and accent | Face-to-face | Message ambiguity, + ($P_{8a}$) |
| | | Videoconference | Relationship duration, - ($P_{8b}$) |
| | | Telephone | |
| Textual | Cues available from written or typed language, including spelling, grammar, sentence structure, and vocabulary | Live chat | Message complexity, + ($P_{9a}$) |
| | | Text, email, social media | Interpersonal communication, +($P_{9b}$) |
| | | Letter, fax | Relationship duration, + ($P_{9c}$) |
| | | | Need for interpersonal involvement, - ($P_{9d}$) |
| | | | Message ambiguity , - ($P_{9e}$) |
| Channel Characteristics (ways the communication format allows the message to be processed for communication) | | | |
| Synchronicity | Communication that is temporally consistent, occurring at the same time and together | Face-to-face | Message ambiguity, + ($P_{10a}$) |
| | | Videoconference | Communication frequency, - ($P_{10b}$) |
| | | Telephone | Need for knowledge acquisition, - ($P_{10c}$) |
| | | Live chat | Need for control, - ($P_{10d}$) |
| Revisability | Communication that allows messages to be edited during encoding and repeatedly reviewed during and after decoding | Live chat | Need for knowledge acquisition, + ($P_{11a}$) |
| | | Text, email, social media | Need for control, + ($P_{11b}$) |
| | | Letter, fax | Message ambiguity, - ($P_{11c}$) |

*Proximal*

Cues available from the customer and employee's copresence in an exchange event are proximal cues and face-to-face interaction is the only format that offers them (Burgoon et al. 2002; Wilson et al. 2013). Proximal cues provide greater intimacy and immediacy (social

presence) in the communication interaction. They thus are more important when there is a need for interpersonal involvement in the exchange event. However, proximal cues also require the customer and employee to be co-located in time and space, so they are associated with greater communication costs. When more customer–firm interactions feature proximal cues, the advantages of proximal cues also decrease, due to the overwhelming communication costs. These social contextual cues can enhance influence and service quality perceptions though (Baker, Grewal, and Parasuraman 1994), as well as heighten involvement and attachment (Price, Arnould, and Tierney 1995). Furthermore, proximal cues enhance customers' perceptions of the firm's credibility, capabilities and employees, together with their repatronage intentions, so they might help offset some communication costs, such as waiting time (Baker and Cameron 1996; Sharma and Stafford 2000; Wood, Boles, and Babin 2008).

*Visual*

Cues available from physical appearances, facial expressions, eye contact, gestures, body language and body orientation are visual cues (Sia, Tan, and Wei 2002), which appear in face-to-face interactions and videoconferencing. A visual format inherently has verbal cues, but a verbal format does not always have visual cues. In this sense, visual cues distinguish videoconferencing from telephone communication. Researchers suggest that visual cues can enhance communication by "repeating, substituting, complementing, accenting, regulating, and relating it better than mere words alone" (Bonoma and Felder 1977, p. 170). For example, eye contact helps build rapport, signal respect, enhance cooperativeness, and foster appropriate behavior and coordination (Baltes et al. 2002). Eye contact together with smiling, gestures and body orientation also can enhance rapport by signaling positivity, warmth and friendliness, even in awkward communication interactions (Gremler and Gwinner 2000). Visual cues also might explain the enhanced perceptions of salesperson expertise, trustworthiness and likeability that arise in initial face-to-face interactions (Wood, Boles, and Babin 2008). However, as a customer's relationship duration or even the length of the interaction itself increases, visual cues become less imperative. The customer and employee may rely on visual cues only for initial inferences; once those inferences occur, such cues are less important to exchange events.

*Verbal*

Cues from the vocal features of spoken language, such as tone, pitch, inflection and accent, are verbal cues and are available in face-to-face, videoconference and telephone channels (Agrawal and Schmidt 2003). They convey meaning and intent, which help the customer and employee reach mutual understanding. Verbal cues also can enhance perceptions of the firm's personality, emotional state, credibility and sincerity, ultimately leading to greater commitment and involvement (De Ruyter and Wetzels 2000; Pearson and Nelson 2000). Overall, approximately 38% of the emotional content in a communication interaction is communicated through verbal cues (Barker and Gaut 1996). A speaker might attempt to convey confidence through the message content (e.g., "I am certain that…"), but the listener can also use verbal cues, such as loudness, pitch variation and fluency, to assess the true state of confidence (Sundaram and Webster 2000). When the messages being exchanged are subjective or the exchange event has multiple possible outcomes (i.e., high message ambiguity), the customer and employee will rely on verbal cues to reach mutual understanding. However, as the customer–

firm relationship evolves, verbal cues also become less necessary. For example, if the firm and its employees have consistently expressed concern over time, customers likely infer such characteristics even without pertinent verbal cues (e.g., email).

*Textual*

Finally, cues available in written or typed language, including spelling, grammar, sentence structure and vocabulary, are textual cues and appear in live chat, text, email, social media, letters and faxes (Sia, Tan, and Wei 2002). Textual cues distinguish written formats from all verbal formats; textual formats are more formal (Mohr and Sohi 1996), with the exception of live chat, for which the norms seem to dictate more informal uses. Lengthy, complex messages (e.g., substantial and varied language, with words, numbers and statistics) can be transferred more effectively through textual formats to help avoid confusion (Cannon and Homburg 2001). Firms can even enhance the effects of textual cues by increasing the amount of interpersonal communication in the exchange event (Jacobs, Hyman, and McQuitty 2001; Song and Zinkhan 2008). Textual communication relates positively to long-term orientations, high interdependencies and joint planning, across cultures, but it is negatively associated with information distortion and withholding, likely due to the physical documentation (Mohr, Fisher, and Nevin 1996). As the customer–firm relationship grows, the customer may become more comfortable explicitly expressing thoughts or opinions in a more permanent, written form. In addition, textual formats do not require the customer and employee to be spatially or temporally proximate, so they can cross geographical and temporal boundaries, which in turn lowers communication costs for both parties. Even when people are in close geographical proximity, they may use textual formats for efficiency, which emphasizes the importance of communication costs in customer–firm communication (Ganesan, Malter, and Rindfleisch 2005).

**Channel Characteristics**

Each communication format also has specific channel characteristics that define how messages can be processed, both during and after the exchange event (Dennis, Fuller, and Valacich 2008). Cues represent the way(s) the message is constructed, but channel characteristics refer instead to the way the message is deconstructed, including the time available to process the cues. The two key channel characteristics, synchronicity and revisability, are mutually exclusive.

*Synchronicity*

Communication that is temporally consistent, occurring at the same time and together, is synchronous (Berger and Iyengar 2013). A communication format is either inherently synchronous or asynchronous; by definition, this characteristic is available for all verbal formats (face-to-face, videoconference, telephone). Live chat by definition is asynchronous, but the format often is used in a synchronous manner in practice. That is, a conversation via live chat often features the implicit assumption that the other person is available to communicate and provide feedback, nearly immediately, which is unlike other asynchronous formats. Thus, we categorize live chat as a synchronous communication format.

Channel synchronicity accordingly distinguishes textual from verbal formats (cf. live chat) and can encourage coordinated behavior, shared focus, perceived service quality and affective commitment toward the company (Dean 2007; Dennis, Fuller, and Valacich 2008). Immediate, real-time feedback enables effective relationship selling, because people can gauge cues, diagnose and adapt the conversation, restructure impressions and experience reduced ambiguity in the exchange event. Synchronous communication provides not only more immediate feedback but more feedback overall, which is important when the goal is to understand individual interpretations of information

When messages are ambiguous, synchronicity allows the customer and the employee to interrupt each other to obtain clarification and ensure they are on the same page before moving forward (Berger 2014). However, synchronous formats (e.g., videoconferencing) are associated with higher communication costs than asynchronous formats (e.g., text), so they have a lower communication frequency threshold.

*Revisability*

Communication that allows messages to be edited during encoding and repeatedly reviewed during and after decoding is revisable (Treem and Leonardi 2012). A communication format is inherently revisable or not, and revisability is available for all textual formats, including live chat, text, email, social media, letters and faxes. Revisability provides time to reflect on the information before providing a response, and the exchanged messages also are permanently recorded (McFarland and Ployhart 2015). Revisable formats thus enable people to encode messages at their own pace, allowing for more precision, such that "Rather than saying whatever comes to mind, or speaking off the cuff" (Berger and Iyengar 2013, p. 568), the customer and employee both gain more control. They can take time to choose their words carefully and ensure the meaning of the composed message is as they intended, thus preventing any premature reactions or interruptions. When people express a need for control in the exchange event, revisable formats therefore will be more effective.

Requests made by email tend to be perceived as more polite than those made by voicemail; live chat often leads to more interesting discussions than face-to-face communication, because it gives more time to deliberate or reflect on the message content (Berger and Iyengar 2013; Duthler 2006). Thus, revisable formats also are appealing when there is a need knowledge acquisition (e.g., customer data for the firm, guidelines for customers), because those formats allow them to review all previously exchanged messages, as many times as needed (Antioco et al. 2008; Ganesan, Malter, and Rindfleisch 2005). Revisable formats lower communication costs too, because they generally do not interrupt daily tasks or require substantial mental resources, unlike formats that rely on immediate feedback.

Finally, the trade-off between channel synchronicity and revisability may help explain the conflicting findings about synergies and negative interactions across formats (Godfrey, Seiders, and Voss 2011; Reinartz, Thomas, and Kumar 2005). The sequence of communication formats in customer–firm communication may be important here, such that richer formats should be followed by leaner formats, to minimize communication costs and provide customers with the benefits associated with both synchronicity (immediate feedback) and revisability (physical

evidence). For example, texting in the sales process leads to conversion gains of more than 100%, but sending text messages before establishing contact with a prospect adversely affects both contact and conversion rates.

**Evaluation of Communication Format Characteristics**

We derive three key insights from this perspective. First, six characteristics differentiate the communication formats and determine their levels of richness. Second, proximal, visual and verbal cues have positive effects on richness, whereas textual cues have negative effects. The effectiveness of each cue characteristic depends on exchange and timing factors, in line with communication theory (Perspective 1) and extant customer–firm communication research (Perspective 2). Whereas proximal, visual and verbal cues are generally more effective for relational development, initial impressions and subjective message content, textual cues tend to benefit complex messages and become more effective as the customer–firm relationship evolves. Third, in the trade-off between channel characteristics, channel synchronicity has a positive effect on richness, whereas channel revisability exerts a negative effect. Synchronous formats facilitate and ensure more immediate feedback but are associated with greater communication costs. Revisable formats provide more time to reflect on the feedback and are associated with lower communication costs. Accordingly, exchange and timing factors determine which channel characteristic is more effective for each specific exchange event. Synchronicity will be more useful for ambiguous messages that warrant more back-and-forth dialogue and immediate feedback; revisability may be more important if there is a need to acquire knowledge or for exchange events marked by greater needs for control (i.e., with lower levels of customer perceived control). The trade-off across channel characteristics also suggests an impact of the sequence of formats, for both initial and follow-up exchange events. Accordingly, we integrate these insights to offer the following propositions regarding cue and channel characteristics:

$P_6$: The effect of proximal cues on exchange performance is enhanced by (a) the need for interpersonal involvement but suppressed by (b) relationship duration and (c) communication frequency.

$P_7$: The effect of visual cues on exchange performance is enhanced by (a) the need for interpersonal involvement but suppressed by (b) relationship duration and (c) interaction length.

$P_8$: The effect of verbal cues on exchange performance is enhanced by (a) message ambiguity but suppressed by (b) relationship duration.

$P_9$: The effect of textual cues on exchange performance is enhanced by (a) message complexity, (b) relationship duration, and (c) interpersonal communication but suppressed by (d) the need for interpersonal involvement and (e) message ambiguity.

$P_{10}$: The effect of synchronicity on exchange performance is enhanced by (a) message ambiguity but suppressed by (b) communication frequency, (c) the need for knowledge acquisition, and (d) the need for control.

$P_{11}$: The effect of revisability on exchange performance is enhanced by (a) the need for knowledge acquisition and (b) the need for control but suppressed by (c) message ambiguity.

$P_{12}$: The positive effect of communication on exchange performance is affected by the sequence of communication formats, such that the effect is enhanced when a format with channel synchronicity (channel revisability) is followed by a format with channel revisability (channel synchronicity) but suppressed when (b) a format with channel synchronicity (channel revisability) is followed by another format with channel synchronicity (channel revisability).

## Customer-Firm Communication Conceptual Framework

With Perspective 4, we integrate what we have learned thus far to construct the single conceptual model in Figure 1, to offer guidance to researchers and practitioners as they seek to apply customer–firm communication insights. It integrates our preceding propositions (Table 5), such that we seek to promote the effectiveness of communication practices, as well as advance current research. We offer brief explanations for the main effects of communication antecedents on performance, defined according to the firm's relational, service and financial performance. We build on the proposed main effects, identify mediating roles of mutual understanding and communication costs and discuss moderating roles of various exchange and timing factors.

### Communication Antecedents

Three overarching communication antecedents align with our propositions: communication format, communication format richness and communication format characteristics (see Table 2). The communication format captures communication channels through which employees can communicate with customers (Neslin et al. 2006; Sousa and Voss 2006). Those listed herein include the formats most commonly used in business practice (face-to-face, videoconference, telephone, live chat, text, email, social media, letters, faxes), in descending order of communication format richness, which is a function of individual communication format characteristics. The positive main effects for communication format and communication format richness ($P_1$) derive from the theoretical overview of communication theory and cross-disciplinary research (Perspective 1). All communication can positively affect performance, but format richness enhances these effects (Godfrey, Seiders, and Voss 2011). The positive main effects of the cue and channel characteristics stem from integrated insights (Perspective 3) from communication theory (Perspective 1) and extant customer–firm research in marketing (Perspective 2). We propose that the six underlying structural components of communication formats drive exchange performance in the exchange event.

Table 5. Propositions for Customer-Firm Communication

| | |
|---|---|
| Perspective 1: Communication Theory: A Marketing Viewpoint | |
| $P_1$: | Communication (with any format) has a positive effect on (a) mutual understanding and (b) communication costs, which is even greater for (c) formats with higher richness. |
| $P_2$: | (a) Mutual understanding has a positive effect and (b) communication costs have a negative effect on exchange performance. |
| $P_3$: | The positive effect of communication format richness on mutual understanding is enhanced by certain exchange factors including (a) the need for interpersonal involvement and (b) message ambiguity, but is suppressed by the exchange factor of (c) message complexity, and the timing factor of (f) interaction length. |
| Perspective 2: Customer-Firm Communication Research in Marketing | |
| $P_4$: | The relative advantage of richer over leaner communication formats on mutual understanding is suppressed by certain exchange factors including (a) interpersonal communication and (b) need for knowledge acquisition, (c) need for control, and the timing factor of (d) relationship duration. |
| $P_5$: | The positive effect of communication on (a) mutual understanding and (b) communication costs is enhanced nonlinearly by frequency, such that (c) at lower levels, communication frequency has a positive effect on exchange performance but (d) at higher levels, communication frequency has a negative effect on exchange performance (inverted U-shaped relationship). |
| Perspective 3: Decomposing Communication Formats | |
| $P_6$: | The effect of proximal cues on exchange performance will be enhanced by (a) need for interpersonal involvement and suppressed by (b) relationship duration and (c) communication frequency. |
| $P_7$: | The effect of visual cues on exchange performance will be enhanced by (a) need for interpersonal involvement and suppressed by (b) interaction length and (c) relationship duration. |
| $P_8$: | The effect of verbal cues on exchange performance will be enhanced by (a) message ambiguity and suppressed by (b) relationship duration. |
| $P_9$: | The effect of textual cues on exchange performance is enhanced by (a) message complexity, (b) interpersonal communication, and (c) relationship duration but suppressed by (d) the need for interpersonal involvement and (e) message ambiguity. |
| $P_{10}$: | The effect of synchronicity on exchange performance will be enhanced by (a) message ambiguity and suppressed by (b) communication frequency, (c) need for knowledge acquisition, and (d) need for control. |
| $P_{11}$: | The effect of revisability on exchange performance will be enhanced by (a) need for knowledge acquisition and (b) need for control and suppressed by (c) message ambiguity. |
| $P_{12}$: | The positive effect of communication on exchange performance is affected by the sequence of communication formats, such that the effect is enhanced when (a) a format with channel synchronicity (channel revisability) is followed by a format with channel revisability (channel synchronicity) but suppressed when (b) a format with channel synchronicity (channel revisability) is followed by another format with channel synchronicity (channel revisability). |

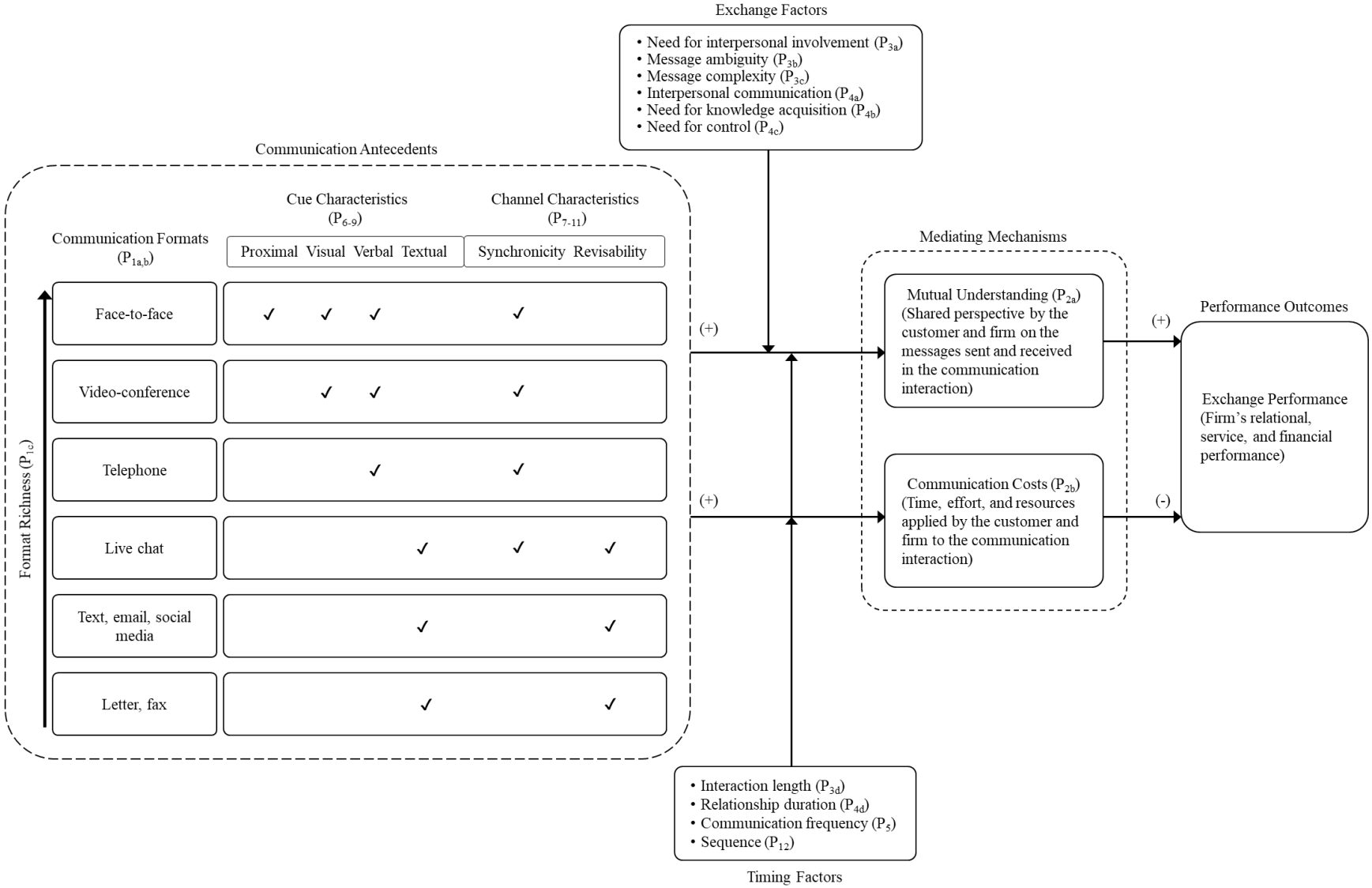



Figure 2. Customer-Firm Multiformat Communication Conceptual Framework

## Performance Outcomes

Communication in any format is a key, dyadic antecedent in relationship marketing that positively affects performance (Palmatier et al. 2008; Verma, Sharma, and Sheth 2016). We consider three overarching exchange performance outcomes in our model: relational, service and financial. Relational performance encompasses outcomes such as trust, commitment, relationship quality and relationship satisfaction. Service performance refers to outcomes such as service satisfaction and service quality. Financial performance includes outcomes such as sales, share of wallet and profit. Relational and service performance also affect financial performance, as is well established, so we do not offer predictions in this sense but instead focus on the relationships among communication antecedents, mediating mechanisms and contextual moderators.

## Mediating Mechanisms

Communication antecedents affect exchange performance through two mediating mechanisms ($P_1$): (1) mutual understanding and (2) communication costs. Whereas these mediating mechanisms have been acknowledged in communication theory (Perspective 1) and marketing literature, extant empirical research typically addresses only the direct effects of communication on exchange performance. Nonetheless, marketing scholars acknowledge that the goal of communication is mutual understanding between the customer and the firm. In richer formats, the greater available cues and channel synchronicity, generally, lead to improved mutual understanding, which then positively affects exchange performance ($P_{2a}$). However, richer formats also produce higher communication costs, which negatively affect exchange performance ($P_{2b}$). Thus, the net effect depends on the relative strength of these two opposing mechanisms.

## Moderating Factors

Multiple factors moderate the effects of communication on exchange performance. We group them into two categories: exchange and timing. Exchange factors pertain to the conversation or interaction taking place in the exchange event. Timing factors entail timing issues. The relevant exchange factors include the need for interpersonal involvement, message ambiguity, message complexity, interpersonal communication, need for knowledge acquisition and need for control. When there is a high need for interpersonal involvement in the exchange event, richer formats are more effective ($P_{3a}$), and the effect of proximal cues ($P_{6a}$) and visual cues ($P_{7a}$) increases, whereas the effect of textual cues ($P_{9e}$) is suppressed. High message ambiguity makes richer formats more effective ($P_{3b}$), such that the effects of verbal cues ($P_{8a}$) and synchronicity ($P_{10a}$) are enhanced, whereas the effect of textual cues ($P_{9f}$) and revisability ($P_{11c}$) get suppressed. Interpersonal communication ($P_{4a}$) suppresses the relative advantage of richer formats over leaner formats thereby enhancing the effects of textual cues ($P_{9b,}$ $P_{9c}$) in the exchange event. The need for knowledge acquisition and need for control in the exchange event also suppress the relative advantage of richer formats over leaner formats thereby enhancing the effect of revisability ($P_{11a,b}$) and suppressing the effect of synchronicity ($P_{10c,d}$).

The timing factors that moderate the effects of communication antecedents on mutual understanding are interaction length, relationship duration, communication frequency and

sequence. The relative advantage that richer formats have over leaner formats will be suppressed by interaction length ($P_{3f}$) and relationship duration ($P_{4d}$). Specifically, interaction length suppresses the effect of visual cues ($P_{7b}$), and relationship duration suppresses the effect of proximal ($P_{6b}$), visual ($P_{7c}$) and verbal ($P_{8b}$) cues in exchange events. Communication frequency is unique; it moderates the effect of communication on both mutual understanding and communication costs, whereas all other factors only moderate the effect on mutual understanding. Communication frequency enhances the effect of communication up to a certain point, and we propose that the nonlinear effect is due to the negative effect of communication costs on performance, which eventually overwhelm the positive effect of mutual understanding ($P_5$). The point at which communication costs overwhelm mutual understanding is earlier for richer formats. Accordingly, communication frequency should suppress the effect of proximal cues ($P_{6c}$) and channel synchronicity ($P_{10b}$) in the exchange event. Furthermore, the appropriate format sequence enhances the effects of communication on performance ($P_{12}$).

## Conclusion

Communication is a critical antecedent of effective relationship marketing; firms can use it as a powerful strategy to differentiate and expand their offerings (Banerjee 2014). However, extant research provides limited, conflicting insights into multiformat communication. The critical factors that drive performance (cue and channel characteristics) and the mediating mechanisms that explain their effects (mutual understanding and communication costs) also are largely absent from theoretical frameworks and empirical studies in marketing. To address these issues, we develop a holistic view of customer–firm communication in marketing according to four perspectives, such that we synthesize communication theory and cross-disciplinary research (Perspective 1), extant customer–firm communication research (Perspective 2) and underlying cue and channel characteristics (Perspective 3), into a unified conceptual model (Perspective 4). In turn, we propose three parsimonious research tenets that encapsulate the communication insights provided across all perspectives. These tenets serve as a strategic guide for firms designing and implementing multiformat communication strategies at the employee level, as well as an initial platform for multiformat communication theory and research. In support of each tenet and its related communication insights, we offer business case examples and also identify the characteristic profiles that are present within each example (Table 6).

### Tenets

First, academics and practitioners tend to focus on the positive aspect of richness, such as enhanced mutual understanding, but disregard the negative aspects of communication costs (e.g., time, hassle) for both the customer and the firm (Ackermann and von Wangenheim 2014). This gap was understandable for early communication strategies that were self-limiting, according to a firm's time and cost constraints, but technology has fundamentally changed customers' communication behaviors and expectations. The expanded array of available formats for customer–firm communication and customers' busier lifestyles suggest the need to consider both positive and negative aspects of richness. The telecommunications company BT even has designed a landline telephone to block unwanted calls, in response to customer complaints, with

Table 6. Tenets and Business Case Examples

| Communication Format Characteristics | Descriptions |
|---|---|
| Tenet 1: Communication strategies should use the set of cue and channel characteristics that minimize communication costs for both parties while providing the necessary level of mutual understanding in the encounter (effectiveness tenet). | |
| Textual cues, medium- high channel synchronicity, low-medium channel revisability | In 2002, Wells Fargo introduced live chat to its communication portfolio, to improve online conversion and applicant approval rates. It resulted in higher satisfaction scores, loan balances, and approval rates for those who used live chat; home equity conversion rates jumped from 30% to 40%. The bank also was able to reduce operating costs, because live chat representatives can multitask and handle several calls at once. |
| Textual cues, low-high channel synchronicity, high channel revisability | Hamilton-Ryker, a recruitment agency, sensed that its employees were incurring overly high communication costs via telephone, with little payoff. By introducing texting, Hamilton-Ryker was able to increase response rates to more than 60%; it also increased referrals, the pool of new applicants, and walk-in traffic and improved the returns on the time invested in telephone interactions. |
| Textual cues, low-high channel synchronicity, high channel revisability | By using texting instead of telephone, TaleMed, a recruitment firm for travel nurses, was able to decrease the time it takes to send a message by 40% to 60% and increase response rate by 10% to 20%. Texting also enabled the recruiters to monitor multiple text messaging conversations simultaneously. |
| Textual cues, medium- high channel synchronicity, low-medium channel revisability | Mattress Firm Inc. introduced videoconference to its communication portfolio, to enable employees to provide live product demonstrations. Within three months, the firm saw an increase in accessory sales. |
| Textual cues, medium- high channel synchronicity, low-medium channel revisability | Aid In Recovery provides immediate assistance and assessment for people struggling with addiction through live chat, to be able to provide help the moment it is needed. Live chat enables people to get the help they need the moment it is requested in real-time, without having to schedule an appointment and without long waiting periods. |
| Tenet 2: Communication strategies should match the unique cue and channel characteristics of communication formats to the specific communication goals and message content to enhance communication impacts (matching tenet). | |
| Visual cues, verbal cues, high channel synchronicity | For sales, Hubspot, an inbound marketing and sales platform, uses videoconferences, which make it easier to overcome objections, explain solutions in detail, challenge expectations, and negotiate a price for services. Because videoconference is highly synchronous with visual cues, salespersons are also able to demonstrate the product (e.g., software solution) to show the customer how the product works and to answer questions in real-time. |
| Textual cues, low-medium channel synchronicity, high channel revisability | Instacard uses email to confirm details, keep records, and to convey a lot of information at one time to customers, because email lets people archive and search the information later. Alternatively, the firm uses texting to send alerts and notifications and to convey urgent information. Texting is not used for long messages, because an if the message is over 160 characters, it will be broken up into a number of texts and come across as "spammy." |
| Proximal cues, visual cues, verbal cues, textual cues, low-high channel synchronicity, low-high channel revisability | When seeking support for an Apple product through the company's website, customers are guided through a process and asked several questions that are designed to uncover the type of support needed (e.g., iPhone keeps freezing). After customers answer the questions, they are provided a list of communication formats (i.e., send off for repair, bring in for repair, talk to Apple support via telephone, talk to Apple support via live chat), which includes one recommended option, along with all other available options for the specific issue. Additional details that may influence the customer's choice are provided, such as waiting time for phone and live chat support. |

(table cont'd)

| Communication Format Characteristics | Descriptions |
|---|---|
| Visual cues (only for the customer), verbal cues, high channel synchronicity | Amazon.com Inc.'s Kindle Tablet features a Mayday option, which connects the customer to a tech support adviser through videoconference. While the customer can see and hear the employee, the employee can see what is on the Kindle screen and hear the customer but cannot see the customer. The tech advisor can talk the customer through how to do something, show them how to it themselves, or do it for them. |
| Textual cues, medium- high channel synchronicity, low-medium channel revisability | U.S. Patriot Tactical, a military law enforcement supplier, uses a text-to-chat service, which allows customers to starta live chat conversation with the support team via a simple text message. To facilitate quick customer-provider communication for order inquiries, statuses, and returns, U.S. Patriot Tactical displays the text-to-chat phone number on the company website as well as on all order receipts and packing slips. |
| Tenet 3: Communication strategies should use the unique cue and channel characteristics that will accelerate relational development in earlier service encounters (relationship tenet). | |
| Textual cues, low-medium channel synchronicity, high channel revisability | Texting in the sales process can lead to conversion gains of more than 100%. For instance, sending three or more purposeful texts after initial contact has been made can increase conversation rates by 328%. However, sending text messages before establishing contact with a prospect can adversely affect both contact and conversion rates. Text messages are best used when there is something timely and important that can be said in few words (e.g., follow-up on commitment, reminder of appointment, acknowledgement of receipt, approval of document, request for missing information). Thus, the content, timing, and number of texts should all be taken into consideration in light of the customer's actions and status in the sales process. |
| Visual cues, verbal cues, low channel synchronicity, high channel revisability | Hubspot uses video messages (videoconference without high synchronicity) to respond personally to customers' questions, to allow customers to watch the video at their convenience and process the message in their own time (revisability), and to introduce tone and trust prior to a purchase. |
| Proximal cues, visual cues, verbal cues, high channel synchronicity; textual cues, low-medium channel synchronicity, high channel revisability | Combined Insurance aims for face-to-face interactions for first meetings, because the salesperson can ask relevant questions about the customer's situation and listen attentively to the responses, before pitching the product or service. With face-to-face interactions, employees can display their expertise, experience, and persuasiveness. Combined Insurance also notes that other communication formats (e.g., email) can be easily deleted or ignored, especially in earlier stages of the customer-provider relationship. After the first meeting though, salespersons often follow-up with email or a phone call even if a sale was not closed, because a relationship has been established. |
| Verbal cues, high channel synchronicity | Dell Computers calls the customer between two and three weeks after the expected delivery of a Dell product. The employee checks to make sure the product has arrived and that the customer is satisfied, to eliminate and quickly solve any unforeseen concerns before they become issues, as well as to build a relationship. This is especially important when the customer has made the purchase online (i.e., without any human contact). |
| Textual cues, medium- high channel synchronicity, low-medium channel revisability | Betterment, a leading online investment advisor, uses targeted proactive live chat invitations to engage with top clients when they sign up for a new account. Proactive live chat enables advisors to provide instant, personalized financial services to new clients, which in turn helps attract new clients. |

the acknowledgment that “When people feel as though they are being harassed in their own homes, they need to be able to take action” (Collinson 2013, p. 1). Previous research reveals diminishing returns for all forms of communication, such that communication costs might invariably overwhelm mutual understanding at some point, leading to negative performance

effects (Godfrey, Seiders, and Voss 2011; Venkatesan and Kumar 2004). The inherent goal of communication in any service encounter is to reach mutual understanding, but it is important to recognize the communication costs associated with the underlying cue and channel characteristics of each format, from both customer's and the firm's perspectives. Firms can even create new bundles of characteristics (i.e., new communication profiles) for their portfolio. For example, Hubspot began responding to customer questions with video messages, to introduce tone (verbal cues) and encourage trust (visual cues) prior to any sales encounter; the result was increased conversion rates and accelerated conversions. Because video messages do not require temporal or spatial colocation, they enable customers to maintain visual anonymity and reduce some of the communication costs associated with face-to-face and traditional videoconference interactions (e.g., spatial co-location, cue-message consistency).

Tenet 1: Communication strategies should use the set of cue and channel characteristics that minimize communication costs for both parties while providing the necessary level of mutual understanding in the encounter (effectiveness tenet).

This recommendation offers a good starting point, but it reflects an aggregated view of customer–firm communication. Firms can increase their effectiveness even more by adopting a more granular approach. The expanded number and diversity of communication formats with unique profiles allow firms to establish new combinations that ideally meet the communication needs of more customers. For example, Amazon's Kindle Tablet can connect customers to tech support advisers via videoconference; customers can see the employees, but the employees can only hear (not see) the customers. Waitr, a food-delivery application, also offers a live chat option that displays the employee's picture. As these examples indicate, managers should adapt the requirements of the effectiveness tenet to match the cue and channel characteristics to their specific communication goal, including critical communication activities and message content. By recognizing when certain characteristics are more effective, managers can select or design the most cost-effective format or adopt multiple formats to meet the needs of specific exchange event rather than just defaulting to a richer format (e.g., face-to-face). Each exchange event establishes unique communication goals and critical activities that demand certain cue and channel characteristics. If synchronicity is important for the interaction, because the messages being exchanged are highly ambiguous, live chat will be at least as, if not more, effective than face-to-face or telephone while also minimizing communication costs. Email may be equally effective, as long as the response times are quick enough to facilitate perceptions of synchronous communication. For example, when seeking support through Apple's website, customers go through a process that is designed to match the type of inquiry (e.g., how to sync photos) with the most effective communication format for the response (e.g., live chat).

Tenet 2: Communication strategies should match the unique cue and channel characteristics of communication formats to the specific communication goals and message content to enhance communication impacts (matching tenet).

Finally, communication is prominent for relationship building and development, both of which are critical for firms. Certain cue characteristics (proximal, visual, verbal) produce the sort of relational communication necessary to develop the customer–firm relationship more quickly than others (textual). Dell Computers calls customers (verbal cues, high channel synchronicity) two or three weeks after the expected delivery of a Dell product to eliminate and quickly solve

any unforeseen concerns, as well as to build relationships, which is especially important when customers have made online purchases (i.e., without human contact). Proximal, visual and verbal cues provide additional social information that would not be available with textual cues (Walther 1992, 1996). For example, visual cues might help produce initial impressions of communication ability, likeability and trustworthiness, but because the effects of trust and commitment on performance diminish over time, proximal, visual and verbal cues should be used in earlier stages, to move the customer into a steeper relational trajectory. Later, textual cues can promote efficiency and maintain the customer–firm relationship at lower costs. For example, Combined Insurance emphasizes face-to-face interactions for initial meetings, to enable salespeople to ask relevant questions about the customer's situation and listen to responses before pitching the product. For later meetings though, it uses email or telephone calls, because the relationship already has been established.

Tenet 3: Communication strategies should use the unique cue and channel characteristics that will accelerate relational development in earlier service encounters (relationship tenet).

**Limitations and Future Research**

This article contains several limitations that serve as potential avenues for further research. First, we attempted to be comprehensive and include constructs across marketing publication outlets, but we may have overlooked some studies. Second, most of the empirical research in the literature review pertains to business-to-business domains, suggesting substantial opportunities for further research into other important communication constructs that may be unique to business-to-consumer contexts. Third, most of this research is based in the United States; the proposed framework does not reflect cultural differences. Yet previous research has demonstrated that collaborative communication can help overcome cultural differences, and the formality of written communication is suggested to be a driving factor (Bandyopadhyay, Robicheaux, and Hill 1994). Therefore, deeper understanding of the role of cultural differences in multiformat communication is warranted and necessary. Fourth, we derived the propositions associated with communication format characteristics primarily from theory and researchers' post hoc explanations for their findings. Therefore, there is a clear opportunity to test the provided propositions and explore other potentially influential contextual factors. Less mainstream communication theories emphasize the role of impression management and anonymity in communication interactions for example, which may be especially relevant for the increasing uses of newer, computer-mediated communication formats (Spears and Lea 1994; Walther and Parks 2002). Fifth, we focused on customer–firm communication, but customers increasingly expect responses from firms on public, social media platforms. Research that assesses the different demands for managing multiformat communication practices in private (i.e., conversation viewed only by the customer and the firm) versus public (i.e., conversation can be viewed by other customers) would be both theoretically and managerially relevant.

# ESSAYS TWO AND THREE. ONLINE VIDEO MARKETING STRATEGIES

## Introduction to Essays Two and Three

"Forbes calls it 'the premier communication tool of today;' Mark Zuckerberg says it's a 'megatrend,' and The Guardian heralds it as the 'future' of content marketing."
-Lou Bortone, author of Video Marketing Rules: How to Win in a World Gone Video

Online videos is "a tool so powerful and ubiquitous that it has come to dominate the media landscape" (Bortone 2017, foreword). By 2020, Cisco predicts that 82% of all web traffic will be video (Boxer 2016). Online video marketing strategies are especially important to managers as firms using product videos have the potential to grow revenue 49% faster than those not using video (Thomas 2018). In online environments, direct product experiences are impossible but videos can promote vivid experiences, which research finds are closer to direct product experiences than indirect ones (Coyle and Thorson 2001; Daugherty, Li, and Biocca 2008).

Traditionally "video brings together two things that catch our attention like nothing else: movement and noise" (Carvalho 2018, p. 3), yet many consumers are now watching online product videos without sound (i.e., no audio narration). Such consumers may, for example, be watching videos in public spaces where having the sound on would disturb others or go against social norms (e.g., on public transportation, waiting in line, at work). This trend even varies across online platforms. YouTube automatically plays videos with sound and 90% of videos are watched with sound. Facebook automatically plays videos without sound and 85% of videos are watched without sound. Instagram will automatically play all videos with sound if the volume on the consumer's device (e.g., computer, mobile) is already turned on; 65% of users watch videos with sound (Patel 2016). Thus, firms are now being advised to "plan ahead and know that your video will be played, in its entirety, without sound by at least half of the people watching it even if they're genuinely interested" (Adespresso 2018, p. 15).

Yet, there are limited insights into whether, when and how watching an online product video with sound versus without sound actually affects performance, likely due to the recency of this phenomena. For instance, while not in the context of online product videos, previous research finds that movie trailers watched without sound are less effective than those watched with sound (Liu et al. 2018) but stops short of identifying how or when this effect holds as it is not the primary focus of the research. Accordingly, three key research questions arise that serve to guide our research for online product videos:

(1) Does the video format, specifically a video watched with sound versus without sound, alter the impact of the product video on performance?
(2) How does the video format impact performance?
(3) When does the video format impact performance?

In considering the influence of sound (i.e., audio narration) in online product videos, we first draw from media richness (Daft and Lengel 1986) and vividness (Nisbett and Ross 1980)

theories, which collectively suggest that the video format (i.e., video with sound versus video without sound) should impact performance through message understanding and message visualization, which we label the richness and vividness effect, respectively. Specifically, we argue that video with sound will lead to both greater message understanding (i.e., knowledge or the metacognitive feeling of knowing derived from the presented information) and message visualization (i.e., extent to which the information presented evokes mental images) than video without sound, which in turn both positively affect performance. A video watched with sound is able to deliver information via the visual and auditory channels, whereas a video watched without sound only delivers information via the visual channel; additional neuroscience and educational psychology research suggests this will impact both message understanding and message visualization. We test this prediction using an experimental study in Essay Two (Study 1). We also recognize that findings pertaining to both richness and vividness effects are mixed in the literature (Block and Keller 1997; Godfrey, Seiders, and Voss 2011), suggesting that a video with sound may not always outperform a video without sound on performance and its effect may be situational. Thus, we seek to identify boundary conditions for the video format's richness and vividness effect.

Specifically, in Essay Two, we look to shopping goals as a potential moderator. The most frequently adopted classification of shoppers' goals is rooted in the distinction between hedonic and utilitarian consumption (e.g., Yim et al. 2014). When consumers have utilitarian shopping goals, they are more likely to fully consider and evaluate product-related information prior to purchase than consumers with hedonic goals (Childers et al. 2001). Utilitarian shopping goals pertain to the product's functional, instrumental and practical benefits, whereas hedonic goals pertain to the experiential and enjoyment-related product benefits (Chitturi, Raghunathan, and Mhajan 2008). One study even finds that vividness, operationalized by dynamic versus static visual product presentations (accompanied by text captions), enhances consumer preferences for hedonic options and willingness to pay for those options (Roggeveen et al. 2015). Accordingly, we propose that the video format's richness effect (i.e., video with sound leads to greater message understanding than video without sound) will manifest for consumers with utilitarian shopping goals and vividness effect (i.e., video with sound leads to greater message visualization than video without sound) will manifest for consumers with hedonic shopping goals. We test this prediction with two experimental studies (Study 2a and Study 2b).

Our findings from Essay Two lead us to consider message processing costs in Essay Three to further distill the video format's richness effect, which we capture by looking at visual distraction (Study 3) and text captions (Study 4). Firms tend to optimize or monetize their video content, whether on their own website or on a third-party platform but in doing so are adding content that may be visually distracting. For example, YouTube allows firms to optimize their content by adding other related (same) branded videos on the side of or underneath the firm's focal video and monetize their content with a variety of third-party ads. Cognitive multimedia learning theory (CMLT; Mayer 2002; Mayer 2008) suggests that there are dual channels for visual and auditory information processing and that each channel has limited processing capacity. When consumers are watching a product video, a visual distraction will likely overload the visual (not auditory) channel, increasing processing costs (i.e., cognitive load) and interfering with message understanding. As a result, we propose that a video watched with sound will be more effective than one watched without sound, when a distraction is present, because of its

richness effect and ability to deliver information via multiple channels; a visual distraction will enhance the richness effect. We investigate this with an experimental study (Study 3).

Even further, we recognize that there are conflicting suggestions for sound substitution strategies with online videos so advances are warranted. For example, one suggestion in practice is to create fast-paced content (Bernazzani 2017), but research suggests that fast-paced video consumption is less effective than slow-paced video consumption (Galak, Kruger, and Loewenstein 2012; Liu et al. 2018). Despite limited insights into sound substitution strategies for online product videos, practitioners are increasingly defaulting to adding text captions, likely because captions are relatively inexpensive, easy to implement and do not involve extensive content editing. One study even finds that when videos have captions, consumers are 80 percent more likely to watch the entire video (Bedrina 2019). However, practitioners have largely focused on how text captions will impact a video watched without sound and have not considered the impact on a video watched with sound. Educational psychology research that builds on CMLT suggests that text captions provide redundant information when they mimic the audio narration, and redundant information can impose a cognitive load that interferes with learning or understanding (Kalyuga, Chandler, and Sweller 1999). Accordingly, we propose that text captions will suppress the richness effect by increasing message processing costs (cognitive load) and reducing message understanding. That is, text captions will have a negative influence on the impact a video watched with sound has on message understanding and ultimately performance. We investigate this with an experimental study (Study 4).

Our research offers important theoretical contributions. Our research has implications for the literature examining the effects of different product presentation formats on performance. Marketing scholars have recognized the positive impact of online product videos on performance (e.g., Bleier, Harmeling, and Palmatier 2018; Roggeveen et al. 2015) but most research has implicitly assumed that such videos deliver information via two channels and engage multiple senses (i.e., watched with sound). There are limited marketing insights into videos in general being watched without sound (e.g., movie trailers, Liu et al. 2018) and even fewer theoretical insights into online product videos being watched without sound. We demonstrate that a video watched with sound has two distinct advantages over one watched without sound: richness (i.e., greater impact on message understanding) and vividness (i.e., greater impact on message visualization). While extant marketing research has typically considered ‘richness’ and ‘vividness’ as interchangeable concepts (e.g., Fortin and Dholakia 2005), we present evidence that for online product videos, the mediating mechanisms that richness and vividness give rise to are distinct and even operate under different situational factors. For example, we find that the richness effect manifests for consumers with utilitarian shopping goals, when they are visually distracted, and the vividness effect manifests for consumers with hedonic shopping goals. Accordingly, we extend previous research (outside of the online product video context) that finds such richness or vividness effects to be situational (Rice 1992; Keller and Block 1997).

Our research also has important implications for managers. For example, one study finds that 84% of users have made a purchase after watching a product video (Hurley 2019). Accordingly, firms are investing resources into product video production; 85% of businesses now have internal staff and resources specifically for in-house video production (Kolowich 2017). However, firms no longer automatically benefit from the richness and vividness

advantages of a product video identified in our research. Understanding the situations in which the richness and vividness advantages matter thus becomes critical, so that firms can effectively leverage their product video content. We demonstrate that when consumers have hedonic shopping goals, vividness matters; a video watched without sound will not be as effective as one watched with sound. Incorporating hedonic product videos onto Facebook where 85% of videos are watched without sound (Patel 2016) may not effective but directing consumers to YouTube for such videos where 90% of consumers watch videos with sound may be a better strategy. We also demonstrate that when consumers have utilitarian shopping goals, a video with sound only becomes more effective than a video without sound when a visual distraction is present. This suggests that firms should avoid adding unnecessary visual distractions on their own websites or third-party platforms when possible, otherwise they risk inhibiting customers' message understanding and performance being negatively impacted as a result. Finally, we find that one of the most commonly used sound substitution strategies, adding text captions to the product video, can backfire. Text captions provide redundant information (i.e., the same information as the audio narration) when a video is watched with sound. This actually increases the costs of processing the message, ultimately lowering customers' message understanding and negatively impacting performance as a result. That is, the text captions serve as another visual distraction, in a sense, when the video is watched with sound. Managers should therefore proceed with caution when adding text captions to product videos, since they attenuate the richness effect.

## Theoretical Underpinnings for Essays Two and Three

Our research explores how the product video format (i.e., video with sound versus video without sound) might influence performance. In considering these differences, we draw from two prevalent communication theories: media richness and vividness. These theories suggest that the effect of video format on performance will operate through two distinct mechanisms: message understanding and message visualization (Figure 3). When a product video is watched with sound (i.e., audio narration), information is delivered via the visual and auditory channels, whereas when a video is watched without sound, information is only delivered via the visual channel. Having information delivered via multiple channels should distinctively result in both greater richness (message understanding) and vividness (message visualization), which in turn both positively affect performance. We note that extant research often uses the terms 'richness' and 'vividness' interchangeably (e.g., Fortin and Dholakia 2005), because they typically parallel one another. That is, the richer a communication format is the more vivid it is as well. However, our focus is on the distinct mechanisms that result from each effect, specifically message understanding (richness effect) and message visualization (vividness effect).

### Media Richness Theory

From a rational, learning perspective, media richness theory suggests that a rich format will promote message understanding (Daft and Lengel 1986; Yadav and Varadarajan 2005), which refers to knowledge or the metacognitive feeling of knowing derived from the presented information (Hadar, Sood and Fox 2013). Richness is defined as the ability of information to change understanding within a time interval and depends largely on the multiplicity of nonverbal (visual) and verbal (audio) cues (Daft and Lengel 1986; Yadav and Varadarajan 2005). A video with sound should then be richer than a video without sound, because it provides information

through both visual and audio (narration) cues. Thus, a video with sound should lead to greater message understanding than a video without sound, which we label the richness effect. Richness has been shown to positively impact purchase considerations in a web-based advertising context (Fortin and Dholakia 2005). However, richness is largely looked at in the context of bilateral communication and discussed in terms of its tradeoffs. Research finds that a richer, bilateral, format such as face-to-face has a strong initial impact on purchase intentions but also a lower communication frequency threshold then a leaner format such as telephone or email (Venkatesan and Kumar 2004). Empirical studies generally yield mixed support for the richness effect (Markus 1994; Rice 1992), suggesting it may be context-dependent. For instance, richness increases purchase intentions for 3D virtual stores, for consumers with low involvement but not for consumers with high involvement (Jin 2009).

**Vividness Theory**

From an experiential perspective, vividness theory suggests that a vivid format produces images in consumers' minds and thereby increases imagined consumption (Millar and Millar 1996; Nowlis, Mandel, and McCabe 2004; Roggeveen et al. 2015) or message visualization. Vividness refers to "the representational richness of a mediated environment as defined by its formal features" (Steuer 1992, p. 81) such as its breadth and depth. We specifically focus on the breadth of video format's features, which refers to "the number of sensory dimensions presented and is closely related to…media richness" (Hoffman and Novak 1996, p. 61). A video with sound should then be more vivid than a video without sound, because it engages more senses. Accordingly, research even suggests that product videos with human voices provide cues for human characteristics and influence perceptions of vividness (Bleier, Harmeling, and Palmatier 2018; Moon 2000). Thus, a video with sound (i.e., audio narration) should lead to greater message visualization than a video without sound, which we label the vividness effect. Message visualization has been shown to increase product evaluations (e.g., MacInnis and Price 1987; Petrova and Cialdini 2005; Shiv and Huber 2000) as well as purchasing behavior (Gregory, Cialdini, and Carpenter 1982). However, similar to the richness effect, findings for the vividness are mixed (Keller and Block 1997), suggesting it too may be context-dependent.

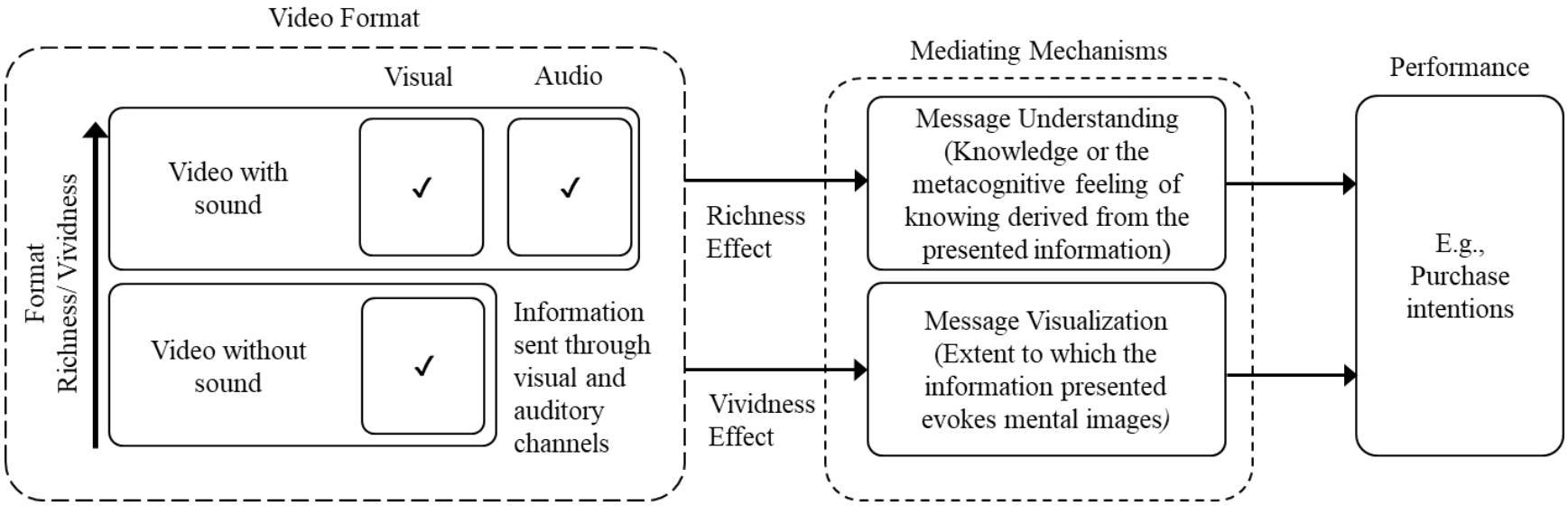



Figure 3. Theoretical Underpinnings of Essays Two and Three

# ESSAY TWO. ONLINE VIDEO MARKETING STRATEGIES: THE ROLE OF SHOPPING GOALS

In Essay Two, we examine whether, when and how the video format impacts performance, across three experimental studies. Specifically, we investigate the richness and vividness effects and a potential boundary condition for these two effects.

## Conceptual Model and Hypotheses Development

In our conceptual model (see Figure 5a and 5b), we propose that watching a video with sound (versus watching a video without sound) has a greater positive impact on performance and the underlying processes of this effect are based on richness (message understanding) and vividness (message visualization). We further explore a boundary condition for the mediating role of message understanding and message visualization, which is rooted in the basic premise of consumer shopping goals, namely, hedonic and utilitarian goals.

### Video Format: Video with Sound versus Video without Sound

We expect that a video with sound (i.e., audio narration) will be richer and more vivid than a video without sound. A video with sound delivers information to the consumers via the visual and auditory channels, providing more information overall and engaging more senses. Both format richness and vividness have been shown to have a positive effect on performance (e.g., Coyle and Thorson 2001; Jiang and Benbasat 2007; Roggeveen et al. 2015). Accordingly, in the following, we argue that watching a product video with sound versus without sound will enhance both message understanding (richness effect) and message visualization (vividness effect) thereby leading to greater purchase intentions. But first, to address whether the video format, specifically a video watched with sound versus one watched without sound, alters the impact of the product video on performance, we formally hypothesize the following:

$H_1$: A video with sound will lead to greater purchase intentions than a video without sound.

### Mediating Role of Message Understanding: Richness Effect

Drawing from media richness theory, a product video watched with sound (i.e., audio narration) will be richer than one watched without sound. When a video is watched with sound, the viewer receives concrete, visual product information (e.g., shape of product, features) accompanied by an audio narration or description of this visual information scene-by-scene. This audio narration should improve understanding by delivering information via a second channel and helping to ensure "the messages received equal the messages sent with no distortion" (Mohr and Bitner 1991, p. 612). For instance, top scholars in multimedia learning and psychology find that learners who receive information via the visual and auditory channel (i.e., images with audio narration) acquire more knowledge than those who receive information via the visual channel only (i.e., images with text captions) (Mayer and Moreno 1998; Mousavi, Low, and Sweller 1995; Tindall-Ford, Chandler, and Sweller 1997).

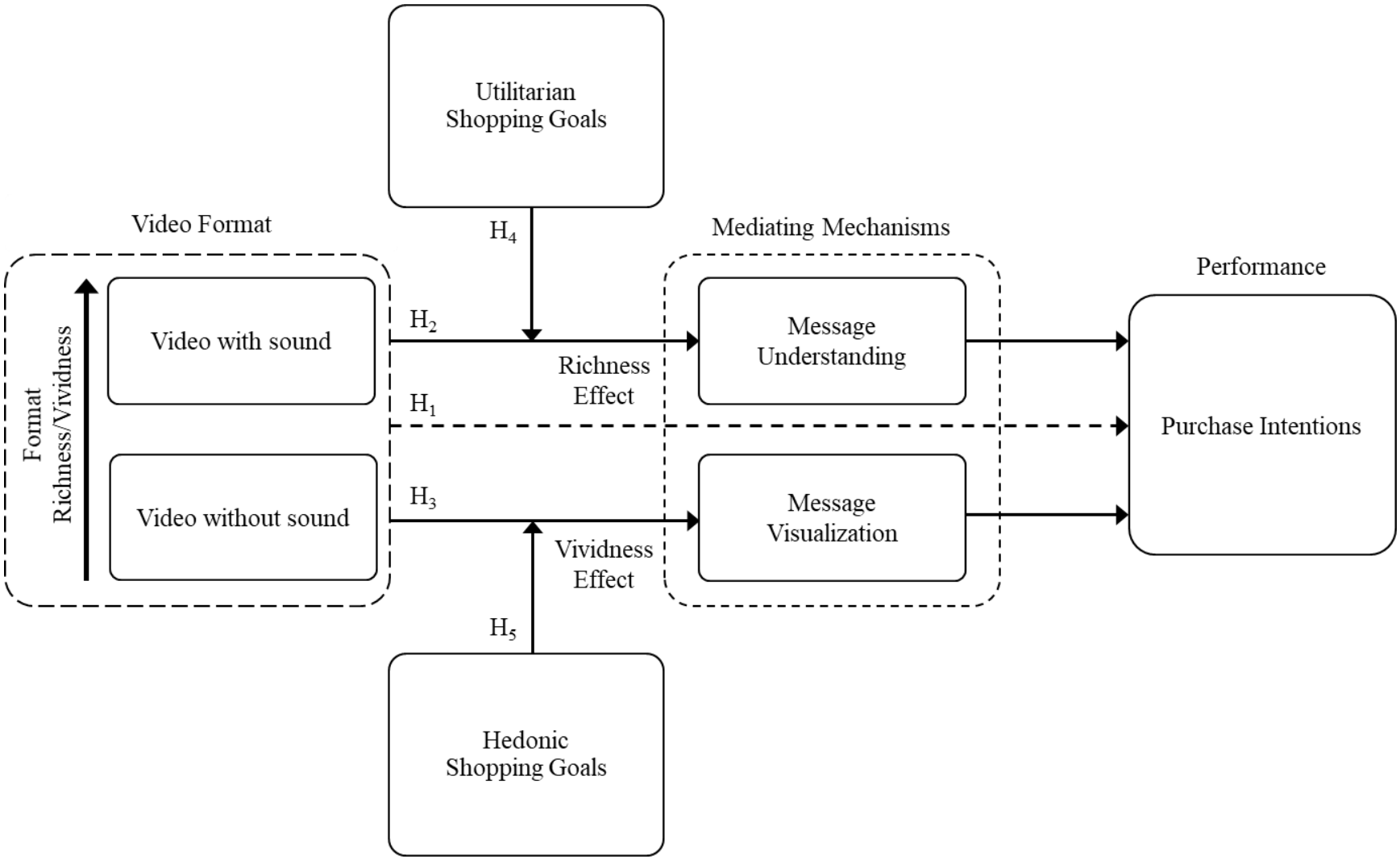



Figure 4. Conceptual Framework for Essay Two

For example, if a product video for a backpack shows the front of the backpack to feature a special pocket, then the audio narration will explicitly mention the special pocket and thereby direct the viewer's attention to the special pocket. On the other hand, if the video is watched without the accompanying audio narration, the viewer may focus on another product feature and not realize that the special pocket was the focal feature in that scene. Even further, if the viewer looks away from the video even for a split second, the accompanying narration will still deliver information (e.g., about the special pocket) via the auditory channel. Without the audio narration, the information will be missed entirely, i.e., not delivered via the visual or auditory system.

In summary, a video with sound (i.e., audio narration) should lead to greater message understanding than a video without sound, which we label the richness effect; this pertains to how the video format impacts performance. Previous research has established that richness improves performance including purchase intentions (e.g. Coyle and Thorson 2001; Jin 2009). Accordingly, we formally hypothesize the following:

$H_2$: Message understanding will mediate the relationship between video format and purchase intentions (richness effect).

**Mediating Role of Message Visualization: Vividness Effect**

Drawing from vividness theory, a product video watched with sound (i.e., audio narration) will engage more senses and thus be more vivid than one watched without sound. A video with sound is likely to be more experiential in nature than a video without sound. When a video is watched with sound, the consumer receives information via the visual and auditory channels, both of which individually can evoke mental imagery or message visualization. Previous neuroscience research finds evidence of two modality-specific networks for imagery (visualization) derived from information delivered via the visual and auditory channels (Zvyagintsev et al. 2013). While the visual information provided by the video will evoke some degree of message visualization on its own, this effect should be more pronounced when information is also delivered via the auditory system.

That is, the video format's effect on message visualization should be greater when the accompanying audio narration is present, since imagery (visualization) will be evoked through multiple senses. We label this the vividness effect, which too pertains to how the video format impacts performance. Previous research has established that vividness improves performance (e.g., Roggeveen et al. 2015). Accordingly, we formally hypothesize the following:

$H_3$: Message visualization will mediate the relationship between video format and purchase intentions (vividness effect).

**Moderating Role of Shopping Goals**

Empirical studies yield mixed results for richness and vividness effects (e.g., Jin 2009; Keller and Block 1997), suggesting both may be context-dependent. Accordingly, we recognize the value in exploring the boundary condition of shopping goals, in an attempt to shed light on when the video format impacts performance. Specifically, we aim to uncover situations in which

the video format's richness and vividness effects will manifest for online product videos. The most frequently adopted classification of shoppers' goals is rooted in the distinction between hedonic and utilitarian consumption (Dhar and Wertenbroch 2000; Khan, Dhar, and Wertenbroch 2005; Yim et al. 2014;). Clearly many motivations exist as shopping goals (Westbrook and Black 1985) but most scholars consider "instrumental [utilitarian] and hedonic motivations as fundamental to understanding consumer shopping behavior because they maintain a basic underlying presence across consumption phenomena" (Childers et al. 2001, p. 513). Thus, while shoppers may make a purchase based on both hedonic and utilitarian goals one often predominates (Babin, Darden, and Griffin 1994; Yim et al. 2014).

Utilitarian shopping goals are "task-oriented and inspired by consumers' efforts to solve problems and address needs and wants through cognitively processing product information" (Yim et al. 2014, p. 529). Prior research finds that consumers with utilitarian goals engage exhibit rational behavior (Babin, Darden, and Griffin 1994), engage in goal-directed activities such as searching for information (Holbrook and Hirschman 1982; Arnold and Reynolds 2009) and are concerned with purchasing products in an efficient and timely manner with no distractions (Childers et al. 2001). Thus, when watching an online product video, consumers will likely be goal-oriented in that they will be focused on obtaining the necessary information to assess the product's functional, practical attributes. Consumers' needs are thus to obtain enough information to be somewhat knowledgeable about or understand the product; utilitarian behavior includes "weighing evidence, and arriving at carefully considered judgment evaluations" (Holbrook and Hirschman 1982, p. 135).

On the other hand, imagination and fantasy play a central role for consumers with hedonic shopping goals (Hirschman and Holbrook 1982). Hedonic shoppers are "inspired by pleasure, joy, and fun" (Yim et al. 2014, p. 529), see shopping as an adventure (Childers et al. 2001) and want an affective and sensory experience (Dhar and Wertenbroch 2000). For example, in a grocery store context, hedonic shopping goals induce consumer impulsiveness and encourage shoppers to stay longer in a store, ultimately leading to greater purchases (Yim et al. 2014). While an online environment may limit the scope of sensory experiences, sensations can be evoked through videos. Prior research finds that product videos on web pages exert their strongest effect on sensory experiences for experience (versus search) products (Bleier, Harmeling, and Palmatier 2018). Even further, additional research finds that vividness, operationalized by dynamic visual versus static visual product presentations accompanied by text, benefits hedonically-superior products (Roggeveen et al. 2015).

We expect video with sound to offer two key, distinct advantages over video without sound: richness and vividness, as hypothesized in $H_2$ and $H_3$. However, we expect that the richness effect will be key for consumers with utilitarian shopping goals and the vividness effect key for consumers with hedonic shopping goals. In other words, we propose that consumers with utilitarian shopping goals will be more likely to purchase a product when the video enhances their understanding of the product. Alternatively, we propose that consumers with hedonic goals will be more likely to purchase the product when the video enhances their visualization or ability to imagine themselves with the product. For example, audio narration helps to convey a linear story, which "predisposes recipients to construe the implications of the product information in the context of an imagined sequence of experiences and in a holistic manner" (Adaval and Wyer

1998, p. 208). Without the audio narration, consumers may be more likely to evaluate each piece of information independently, which might interfere with the construction of a narrative-based representation or imagery (visualization) (Adaval and Wyer 1998).

In summary, we propose that video with sound will outperform video without sound on purchase intentions but that the influential roles of message understanding (richness effect) and message visualization (vividness effect) will differ according to shopping goals. Specifically, we predict that message understanding (not message visualization) underlies how video format impacts purchase intentions for utilitarian shopping goals and message visualization (not message understanding) underlies how the video format impacts purchase intentions for hedonic shopping goals. We formally hypothesize the following:

$H_4$: Video format's richness effect will be conditional on shopping goals. Specifically, message understanding will mediate the relationship between video format and purchase intentions for utilitarian shopping goals (but not for hedonic shopping goals).

$H_5$: Video format's vividness effect will be conditional on shopping goals. Specifically, message visualization will mediate the relationship between video format and purchase intentions for hedonic shopping goals (but not for utilitarian shopping goals).

## Study 1: The Mediating Role of Message Understanding and Message Visualization

Study 1 was designed to test experimentally whether watching a video with sound (versus watching a video without sound) lead to greater purchase intentions ($H_1$) and whether message understanding ($H_2$) and message visualization ($H_3$) mediate this effect. In other words, we aim to test our overarching theoretical framework (see Figure 3), which proposes that video with sound (versus a video without sound) exhibits both a richness and vividness advantage.

### Design and Participants

Study 1 adopted a one-factor design with video format (video with sound versus video without sound) as the manipulated between-subjects factor. The study was administered via Amazon Mechanical Turk, which provides greater participant diversity and more reliable and psychometrically sound responses than typical student samples as outlined by Hulland and Miller (2018) and Kees et al. (2017). A total of 90 U.S. adults (age range = 20–70, 51.1% male) completed the survey in exchange for a small payment. Participants were randomly assigned to one of the two conditions.

### Procedure and Stimuli

Participants were asked to imagine that they were in the market for a new pair of running shoes. Next, participants either watched a video with sound or a video without sound

about a pair of Nike running shoes. Participants then filled out questions assessing the dependent and mediating variables followed by demographics[1] and a brand equity scale.

Scholars suggest that "MTurk workers are generally strongly motivated to follow instructions and pay attention to study details (Hulland and Miller 2018)." Before participants were asked to imagine the scenario, participants were told they would be watching a video. Participants in the video with sound group were instructed to turn their volume on and up prior to beginning the study, to ensure that they watched the video with sound the entire way through. Once the participant pressed play, the video was programmed to automatically play with sound and all other controls were disabled. Participants in the video without sound group were told that they would not need their volume on for the study, because the video would be playing without sound, to ensure that participants did not think the muted video was a glitch and thereby bias their responses. Once the participants pressed play, the video was programmed to automatically play with sound (i.e., the audio narration had been stripped from the video, so sound was not possible in this group) and all other controls were disabled. In addition, participants responded to a question at the end of the survey regarding how the video was played (i.e., with sound versus without sound). Participants were ensured that they would be paid regardless of their response to the question, which was disguised as a technical glitch check. If participants in the video with sound condition noted any 'glitches' (i.e., that they did not watch the video with sound), they were automatically excluded from the dataset, following suggestions by Hulland and Miller (2018).

**Measures**

The dependent variable was product purchase intentions, assessed with three seven-point scale items ($\alpha$ = .95; e.g., "Because of the message, if I were in the market for a pair of running shoes, I would be more likely to purchase this pair of running shoes." 1 = Strongly Disagree, 7 = Strongly Agree) from Dodds, Monroe, and Grewal (1991). The mediating variables were message understanding and message visualization. Message understanding was assessed with three seven-point scale items ($\alpha$ = .94; e.g., "The message made me more knowledgeable about the running shoes." 1 = Strongly Disagree, 7 = Strongly Agree) from Hadar, Sood, and Fox (2013). Message visualization was assessed with three seven-point scale items ($\alpha$ = .91; e.g., "The message made it easy to imagine myself with the running shoes." 1 = Strongly Disagree, 7 = Strongly Agree) from Green and Brock (2000). See Appendix B, Table B.1 for all scale items; All items were adapted to fit the context. Brand equity was also accessed with two seven-point scale items ($\alpha$ = .86; "This brand has a strong brand image." and "This brand is very well known in my community." 1=Strongly Disagree, 7 = Strongly Agree) from Sirianni et al. (2013).

1 The demographic variables, age and gender, do not substantially change the results when included as covariates in any of our models (Essay Two or Essay Three) and thus are not discussed further in any of the analyses sections, following Paharia and Swaminathan (2019).

## Measurement Model

Confirmatory factor analyses yielded good fit indexes for the measurement model (Brown 2006; Hu and Bentler 1999) and found that each factor's composite reliability (Bagozzi and Yi 1988; CR ≥ .84) and Cronbach's α (Nunnally 1978; CA ≥ .84) exceeded recommended thresholds (see Appendix B, Table B.1). Further, the measurement model was characterized by convergent and discriminant validity (see Appendix B, Table B.2) since each factor's average variance extracted surpassed not only recommended thresholds (Bagozzi and Yi 1988; AVE ≥ .51) but also the highest squared correlations of each construct (Fornell and Larcker 1981).

## Results

Please see Appendix B, Table B.3 for all mean values and standard deviations for dependent and mediating variables.

### *Purchase Intentions*

An analysis of purchase intentions revealed a main effect of video format, as expected. Watching a video with sound led to significantly greater purchase intentions than watching a video without sound ($M_{\text{video with sound}} = 5.97$, $M_{\text{video without sound}} = 5.38$; $F(1, 88) = 5.11$, $p < .05$; see Figure 5a), in support of $H_1$.

### *Message Understanding*

An analysis of message understanding revealed a main effect of video format, as expected. Watching a video with sound led to significantly higher levels of message understanding than watching a video without sound ($M_{\text{video with sound}} = 5.99$, $M_{\text{video without sound}} = 4.98$; $F(1,88) = 13.50$, $p < .01$; see Figure 5b).

### *Message Visualization*

An analysis of message visualization revealed a main effect of video format, as anticipated. That is, watching a video with sound led to significantly higher levels of message visualization than watching a video without sound ($M_{\text{video with sound}} = 6.05$, $M_{\text{video without sound}} = 4.97$; $F(1,88) = 5.50$, $p < .05$; See figure 5c).

### *Mediation Analysis*

Following the procedures used by Berger et al. (2018) and Newman et al. (2019), we estimated a parallel mediation model (Hayes 2017; SPSS Macro PROCESS, Model 4; bootstrap samples = 5000) to examine whether message understanding ($H_2$) and message visualization ($H_3$) mediated the effect of video format on purchase intentions. Analyses indicated indirect-only mediation (Zhao, Lynch, and Chen 2010), in support of $H_2$ and $H_3$. The total effect of video format on purchase intentions was significant, as previously reported ($\beta = .59$, $t = 2.26$, $p < .05$; $R^2 = .05$, $F(1, 88) = 5.11$, $p < .05$. Controlling for video format, message understanding ($\beta = .39$, $t = 4.70$, $p < .001$) and message visualization ($\beta = .48$, $t = 5.15$, $p < .001$) both had a significant

and positive effect on purchase intentions ($R^2$ = .63, F(1,88) = 48.82, $p$ < .001). Controlling for message visualization and message understanding, video format no longer had a significant impact on purchase intentions ($p$ = .71). The indirect paths of the effect of video format on purchase intentions through message understanding and message visualization were both significant with the 95% confidence intervals excluding zero (βMessage understanding = .39, $CI_{95}$ = [.04, .89]; βMessage visualization = .26, $CI_{95}$ = [.03, .62]).

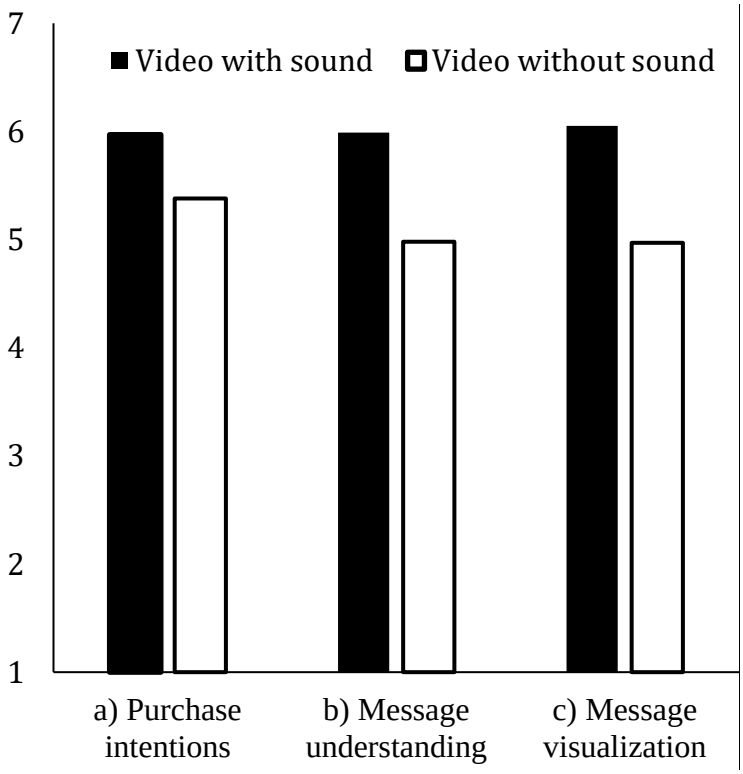



Figure 5. Effect of Video Format on a) Purchase Intentions, b) Message Understanding and c) Message Visualization

*Additional Analyses*

Following procedures outlined by Winterich, Gangwar, and Grewal (2018), we include brand equity as a control variable in an alternative PROCESS model to confirm that it does not account for the effect of the video format on purchase intentions, message understanding or message visualization. Brand equity is a significant predictor of message understanding (β = .65, t = 3.97, $p$ < .001) and message visualization (β = .75, t = 5.52, $p$ < .001) but not purchase intentions ($p$ = .90). Both indirect effects remain significant when brand equity is included as a control, consistent with $H_2$ and $H_3$.

Additional analyses also reveal that the video format x brand equity interaction was not significant for purchase intentions ($p$ = .85), message understanding ($p$ = .84), or message visualization ($p$ = .54). Thus, we can rule out brand equity as an explanation for the influence of

video format on our dependent and mediating variables and conclude that brand equity did not alter the effect of the video format manipulation (Winterich, Gangwar, and Grewal 2018).[2]

**Discussion**

Study 1 provides evidence for the effect of video format (video with sound versus video without sound) on purchase intentions ($H_1$). Study 1 also sheds light on the processes underlying our observed effect by demonstrating full mediation in support of our propositions for the video format's richness effect through message understanding ($H_2$) and vividness effect through message visualization ($H_3$).

Next, in Study 2a, we move beyond the main effect of video format and explore whether consumers' shopping goals moderates the effect of video format on message understanding ($H_4$) and message visualization ($H_5$) by conducting an experimental study. In other words, is the main effect of video format on message understanding and message visualization dependent on whether the consumers has utilitarian or hedonic shopping goals?

## Study 2a: The Moderating Role of Shopping Goals

Study 2a was designed to test experimentally whether shopping goals moderates the effect of video format on message understanding ($H_4$) and message visualization ($H_5$). In other words, we examine a potential boundary condition for when the video format's richness and vividness effect will manifest.

**Pretest: Shopping Goals Manipulation**

To ensure that our shopping goals manipulations worked as intended, we first conducted a pretest of our utilitarian and hedonic shopping goals scenarios. This pretest was administered via Amazon Mechanical Turk. A total of 115 U.S. adults (age range = 18-74, 53.9% male) completed the survey in exchange for a small payment. Participants were randomly assigned to one of the two shopping goals conditions. See Appendix C, Table C.1 for the scenarios.

Participants then rated the scenario on two seven-point scale items for utilitarian and two seven-point scale items for hedonic shopping goals (adapted from Harmeling et al. 2017). In addition, participants rated the scenario on a variety of seven-point scale items including ten negativity items, nine positivity items, three budget-concern items, two decision accuracy items, two cognitive load items and one realism item. These items were included as a means to ensure that the shopping goals scenario did not affect mood (positively or negatively), budget-related concerns (especially in the hedonic shopping goals group), or decision accuracy and cognitive load (especially in the utilitarian shopping goals group). The realism item was included to ensure that both scenarios were realistic. All items, mean values and standard deviations are listed in Appendix C, Table C.2.

2 We conducted additional analyses for all subsequent studies and confirmed that the brand shown in the video (i.e., Nike or Kelty) did not alter the effect of our manipulations.

Two ANOVA's were executed to ensure that the shopping goals manipulation for both utilitarian and hedonic goals operated as intended. Results indicated the utilitarian shopping goals manipulation had a significant effect on its check measure ($F(1,113) = 21.46$, $p < .001$), indicating significant differences between the hedonic ($M = 5.08$) and utilitarian shopping goals groups ($M = 6.45$), as desired. Results also indicated the hedonic shopping goals manipulation had a significant effect on its check measure ($F(1,113) = 39.04$, $p < .001$), indicating significant differences between the hedonic ($M = 5.88$) and utilitarian ($M = 3.63$) shopping goals groups, as desired.

Finally, we found no significant differences between the utilitarian and hedonic shopping goals groups on any of the negativity, budget concern, decision accuracy, cognitive load, or realism items (all $p$'s $> .05$) and only two out of the nine positivity items revealed a significant difference between the groups. Collectively, these results provide evidence that our manipulation worked as intended without introducing any of the confounding factors we were concerned with. Please see Appendix C, Table C.2 for mean values of all items.

**Design and Participants**

Study 2a adopted a 2 (video format: video with sound versus video without sound) x 2 (shopping goals: utilitarian versus hedonic) between-subjects experimental design. The study was administered via Amazon Mechanical Turk. A total of 194 U.S. adults (age range = 20–70, 60.3% male) completed the survey in exchange for a small payment. Participants were randomly assigned to one of the four conditions.

**Procedure and Stimuli**

All participants were first asked to imagine that they were in the market for a new pair of running shoes. Next, participants were presented with either a utilitarian or hedonic shopping goals scenario. After reading the scenario, participants either watched a video with sound or a video without sound about Nike running shoes. Finally, participants filled out manipulation checks as well as other questions assessing the dependent and mediating variables followed by demographics and a brand equity scale. In addition, we implemented the same procedures used in Study 1, to ensure that those in the video with sound group watched the video with sound in its entirety and those in the video without sound group did not assume the muted video was a glitch and thereby bias their responses.

**Measures**

We used the same manipulation checks from our pretest. The dependent variable was product purchase intentions, assessed with three seven-point scale items ($\alpha = .96$; e.g., "Because of the message, if I were in the market for a pair of running shoes, I would be more likely to purchase this pair of running shoes." 1 = Strongly Disagree, 7 = Strongly Agree) from Dodds, Monroe, and Grewal (1991). The mediating variables were message understanding and message visualization. Message understanding was assessed with three seven-point scale items ($\alpha = .94$; e.g., "The message made me more knowledgeable about the running shoes.", 1 = Strongly Disagree, 7 = Strongly Agree) from Hadar, Sood, and Fox (2013). Message visualization was

assessed with three seven-point scale items (α = .93; e.g., "The message made it easy to imagine myself with the running shoes." 1 = Strongly Disagree, 7 = Strongly Agree) from Green and Brock 2000. All items were adapted to fit the context. See Appendix B, Table B.1 for all scale items. Brand equity was also accessed with two seven-point scale items (α = .83; "This brand has a strong brand image." and "This brand is very well known in my community." 1=Strongly Disagree, 7 = Strongly Agree) from Sirianni et al. (2013).

**Measurement Model**

Confirmatory factor analyses yielded good fit indexes for the measurement model (Brown 2006; Hu and Bentler 1999) and found that each factor's composite reliability (Bagozzi and Yi 1988; CR ≥ .91) and Cronbach's α (Nunnally 1978; CA ≥ .91) exceeded recommended thresholds (see Appendix B, Table B.1). Further, the measurement model was characterized by convergent and discriminant validity (see Appendix B, Table B.2) since each factor's average variance extracted surpassed not only recommended thresholds (Bagozzi and Yi 1988; AVE ≥ .78) but also the highest squared correlations of each construct (Fornell and Larcker 1981).

**Results**

Please see Appendix B, Table B.3 for all mean values and standard deviations for dependent and mediating variables and manipulation checks.

*Manipulation Checks*

A MANOVA was executed to ensure that ensure that the shopping goals manipulation for both utilitarian and hedonic shopping goals operated as intended. Results indicated the utilitarian shopping goals manipulation had a significant effect on its check measure ($F(1,193) = 92.69$, $p < .001$), indicating significant differences between the utilitarian ($M = 6.62$) and hedonic shopping goals groups ($M = 4.29$), as desired. Results also indicated the hedonic shopping goals manipulation had a significant effect on its check measure ($F(1, 193) = 91.64$, $p < .001$), indicating significant differences between the hedonic ($M = 6.19$) and utilitarian ($M = 3.73$) shopping goals groups, as desired. The video format manipulation did not impact the utilitarian ($p = .69$) or hedonic ($p = .85$) shopping goals manipulation check measures. In addition, the format x shopping goals interaction was not significant for the utilitarian ($p = .71$) or hedonic ($p = .26$) shopping goals manipulation check measures.

*Purchase Intentions*

An analysis of purchase intentions revealed a main effect of video format ($M_{\text{video with sound}} = 5.98$, $M_{\text{video without sound}} = 5.51$; $F(1, 192) = 4.92$, $p < .05$) but no main effect of shopping goals. There was no video format x shopping goals interaction.

*Message Understanding*

An analysis of message understanding revealed a significant main effect of video format ($M_{\text{video with sound}} = 5.96$, $M_{\text{video without sound}} = 5.55$; $F(1, 192) = 4.27$, $p < .05$) but no main

effect of shopping goals. There was no video format x shopping goals interaction, contrary to expectations (i.e., no support for $H_4$).

*Message Visualization*

An analysis of message visualization revealed no main effect of video format or shopping goals. There was a video format x shopping goals interaction ($F(1, 192) = 4.16$, $p < .05$), consistent with $H_5$.

*Moderated Mediation Analysis*

Following the procedures used by Berger et al. (2018) and Newman et al. (2019), we estimated a moderated parallel multiple mediation model (Hayes 2017; SPSS Macro PROCESS, Model 8; bootstrap samples = 5000) to test whether shopping goals moderates the underlying process via message understanding and message visualization. The model used video format as the independent variable, message understanding and message visualization as mediators and shopping goals as the moderator. The interaction between video format and shopping goals was significant for message visualization ($\beta = .73$, $t = 2.04$, $p < .05$; $R^2 = .04$, $F(3,190) = 2.25$, $p = .08$) but not for message understanding ($\beta = -.43$, $t = 1.09$, $p > .10$; $R^2 = .035$, $F(3, 190) = 2.28$, $p = .08$). Message understanding and message visualization, in turn, increased purchase intentions ($\beta_{\text{Message understanding}} = .36$, $t = 5.39$, $p < .001$; $\beta_{\text{Message visualization}} = .58$, $t = 7.77$, $p < .001$; $R^2 = .60$, $F(5, 188) = 57.18$, $p < .001$). Shopping goals moderated the indirect effect of video format on purchase intentions via message visualization ($CI_{95}$ of the index of moderated mediation = [.02, .83]) but not via message understanding ($CI_{95}$ of the index of moderated mediation = [-.12, .45]). The indirect effect of video format on purchase intentions via message visualization was significant for the hedonic shopping goals group ($\beta = .35$, $CI_{95} = [.07, .65]$) but not for the utilitarian shopping goals group ($\beta = -.07$, $CI_{95} = [-.34, .22]$), in support of $H_5$ but not $H_4$. See Figure 6.

**Discussion**

Study 2a shows that watching a video with sound leads to greater message visualization than watching a video without sound for consumers with hedonic shopping goals. Contrary to our expectations, however, watching a video with sound does not lead to greater message understanding than watching a video without sound for consumers with utilitarian shopping goals. For consumers with utilitarian shopping goals, watching a video with sound leads to similar levels of both message understanding and purchase intentions as does watching a video without sound.

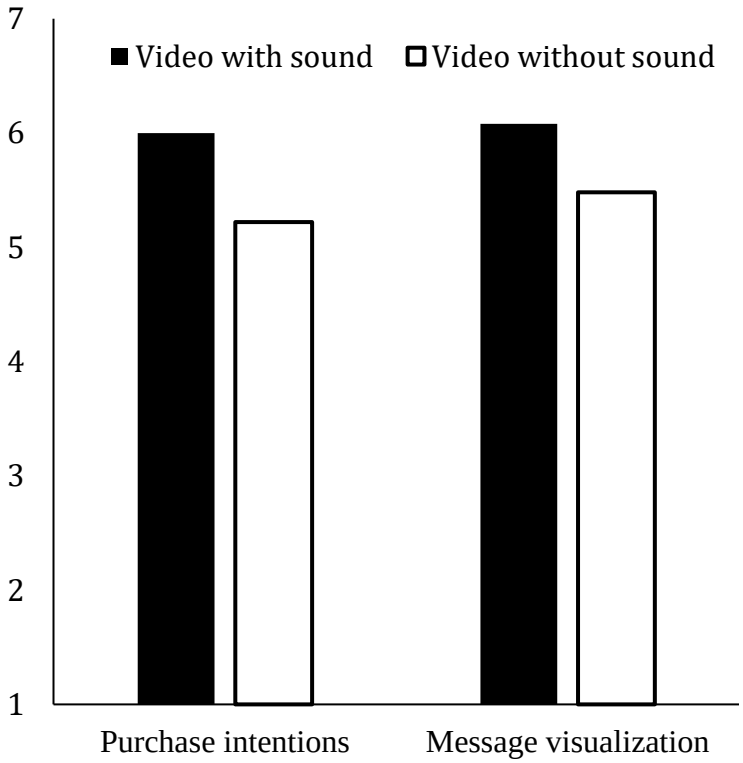


Figure 6. Vividness Effect Manifests for Consumers with Hedonic Shopping Goals (Study 2a)

**Study 2b: Replication of Study 2a across a Different Product and Participant Population**

Study 2b was specifically designed to replicate the results from Study 2a across a different product category (backpack) and participant population.

**Design and Participants**

Similar to Study 2a, Study 2b adopted a 2 (video format: video with sound versus video without sound) x 2 (shopping goals: utilitarian versus hedonic) between-subjects experimental design. The study was administered via Amazon Mechanical Turk. A total of 175 U.S. adults (age range = 20–70, 61.7% male) completed the survey in exchange for a small payment. Participants were randomly assigned to one of the four conditions.

**Procedure and Stimuli**

We followed the same procedure as Study 2a. All participants were first asked to imagine that they were in the market for a new backpack. Next, participants were presented with either a utilitarian or hedonic shopping goals scenario. After reading the scenario, participants either watched a video with sound or a video without sound about a Kelty backpack. Finally, participants filled out manipulation checks and questions assessing the dependent and mediating variables followed by demographics and a brand equity scale. Please see Appendix C, Table C.1 for the shopping goals scenarios. We adapted the pretested scenarios used in Study 2a to the backpack context. In addition, we implemented the same procedures described in Study 1 to ensure that those in the video with sound condition watched the video

with sound in its entirety and those in the video without sound condition did not assume the muted video was a glitch and thereby bias their responses.

**Measures**

We used the same manipulation checks from our shopping goals pretest and Study 2a. The dependent variable was product purchase intentions, assessed with three seven-point scale items (α = .95; e.g., "Because of the message, if I were in the market for a backpack, I would be more likely to purchase this backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Dodds, Monroe, and Grewal (1991). The mediating variables were message understanding and message visualization. Message understanding was assessed with three seven-point scale items (α = .93; e.g., "The message made me more knowledgeable about the backpack.", 1 = Strongly Disagree, 7 = Strongly Agree) from Hadar, Sood, and Fox (2013). Message visualization was assessed with three seven-point scale items (α = .90; e.g., "The message made it easy to imagine myself with the backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Green and Brock 2000. All items were adapted to fit the context. See Appendix B, Table B.1 for all scale items. Brand equity was also accessed with two seven-point scale items (α = .84; "This brand has a strong brand image." and "This brand is very well known in my community." 1=Strongly Disagree, 7 = Strongly Agree) from Sirianni et al. (2013).

**Measurement Model**

Confirmatory factor analyses yielded good fit indexes for the measurement model (Brown 2006; Hu and Bentler 1999) and found that each factor's composite reliability (Bagozzi and Yi 1988; CR ≥ .93) and Cronbach's α (Nunnally 1978; CA ≥ .93) exceeded recommended thresholds (see Appendix B, Table B.1). Further, the measurement model was characterized by convergent and discriminant validity (see Appendix B, Table B.2) since each factor's average variance extracted surpassed not only recommended thresholds (Bagozzi and Yi 1988; AVE ≥ .81) but also the highest squared correlations of each construct (Fornell and Larcker 1981).

**Results**

Please see Appendix B, Table B.3 for all mean values and standard deviations for dependent and mediating variables and manipulation checks.

*Manipulation Checks*

A MANOVA was executed to ensure that ensure that the shopping goals manipulation for both utilitarian and hedonic shopping goals operated as intended. Results indicated the utilitarian shopping goals manipulation had a significant effect on its check measure ($F(1,174) = 90.77$, $p < .001$), indicating significant differences between the utilitarian (M = 6.62) and hedonic shopping goals groups (M = 4.29), as desired. Results also indicated the hedonic shopping goals manipulation had a significant effect on its check measure ($F(1, 174) = 116.92$, $p < .001$), indicating significant differences between the hedonic (M = 6.19) and utilitarian (M = 3.73) shopping goals groups, as desired. The video format manipulation did not impact the utilitarian ($p = .52$) or hedonic ($p = .67$) shopping goals manipulation check measures. In

addition, the format x shopping goals interaction was not significant for the utilitarian ($p$ = .28) or hedonic ($p$ = .38) shopping goals check measures.

*Purchase Intentions*

An analysis of purchase intentions revealed a main effect of video format ($M_{\text{video with sound}}$ = 5.75, $M_{\text{video without sound}}$ = 5.33; F(1, 173) = 4.92, $p$ < .05) and a main effect of shopping goals ($M_{\text{utilitarian goal}}$ = 5.80, $M_{\text{heodnic goal}}$ = 5.23; F(1, 173) = 6.39, $p$ < .05). There was no video format x shopping goals interaction, replicating the findings from Study 2a.

*Message Understanding*

An analysis of message understanding revealed a significant main effect of video format ($M_{\text{video with sound}}$ = 6.16, $M_{\text{video without sound}}$ = 5.53; F(1, 173) = 13.88, $p$ < .001) but no main effect of shopping goals. There was no video format x shopping goals interaction, consistent with findings from Study 2a and contrary to our initial expectations ($H_4$).

*Message Visualization*

An analysis of message visualization revealed a significant main effect of video format ($M_{\text{video with sound}}$ = 5.85, $M_{\text{video without sound}}$ = 5.41; F(1, 192) = 5.30, $p$ < .05) but no main effect of shopping goals. There was a video format x shopping goals interaction (F(1, 192) = 4.26, $p$ < .05), replicating findings from Study 2a and consistent with $H_5$.

*Moderated Mediation Analysis*

Following the procedures used by Berger et al. (2018) and Newman et al. (2019), we estimated a moderated parallel multiple mediation model (Hayes 2017; SPSS Macro PROCESS, Model 8; bootstrap samples = 5000) to test whether shopping goals moderates the underlying process via message understanding and message visualization. The model used video format as the independent variable, message understanding and message visualization as mediators and shopping goals as the moderator. The interaction between video format and shopping goals was significant for message visualization (β = .79, t = 2.06, $p$ < .05; $R^2$ = .06, F(3, 171) = 3.69, $p$ < .05) but not for message understanding (β = .11, t = .33, p > .10; $R^2$ = .09, F(3, 171) = 5.83, $p$ < .001). Message understanding and message visualization, in turn, increased purchase intentions (βMessage understanding = .26, t = 2.94, $p$ < .005; βMessage visualization = .52, t = 6.71, $p$ < .001; $R^2$ = .44, F(5, 169) = 26.05, $p$ < .001). Shopping goals moderated the indirect effect of video format on purchase intentions via message visualization ($CI_{95}$ of the index of moderated mediation = [.04, .85]) but not via message understanding ($CI_{95}$ of the index of moderated mediation = [-.13, .29]). The indirect effect of video format on purchase intentions via message visualization was significant for the hedonic shopping goals group (β = .44, $CI_{95}$ = [.14, .84]) but not for the utilitarian shopping goals group (β = .02, $CI_{95}$ = [-.22, .32]), replicating the results in Study 2a and in support of $H_5$ but not $H_4$. See Figure 7.

**Discussion**

Study 2b replicates the results from Study 2a across another product and participant population. Specifically, our results reveal that watching a video with sound leads to greater message visualization than watching a video without sound for consumers with hedonic shopping goals. Contrary to our expectations, however, we find that watching a video with sound leads to similar levels of understanding and purchase intentions as watching a video without sound for consumers with utilitarian shopping goals. Further exploration of consumers with utilitarian shopping goals and a boundary condition for the richness effects is warranted.

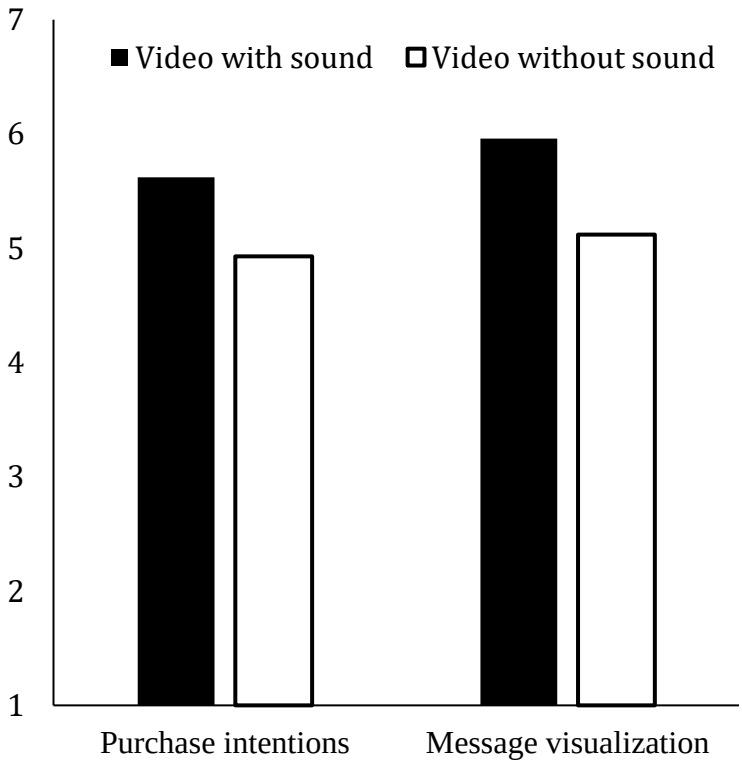



Figure 7. Vividness Effect Manifests for Consumers with Hedonic Shopping Goals (Study 2b)

**Essay Two Takeaways**

The results from Study 1, Study 2a and Study 2b collectively offer important implications for marketing practitioners (See Table 7). In Study 1, we demonstrate that the video format will impact performance (purchase intentions) through its effect on both message understanding and visualization (fully mediated model). In other words, a video watched with sound typically has two advantages over a video watched without sound: richness (i.e., greater impact on message understanding) and vividness (i.e., greater impact on message visualization). Understanding contexts in which each of these distinct advantages is necessary becomes critical to designing successful online video marketing strategies, particularly given that a growing number of consumers are watching product videos without sound.

Table 7. Summary of Essay Two Results

| Hypotheses | Studies | Results |
|---|---|---|
| $H_1$: A video with sound will lead to greater purchase intentions than a video without sound. | 1 | Supported |
| $H_2$: Message understanding will mediate the relationship between video format and purchase intentions (richness effect). | 1 | Supported |
| $H_3$: Message visualization will mediate the relationship between video format and purchase intentions (vividness effect). | 1 | Supported |
| $H_4$: Video format's richness effect will be conditional on shopping goals. Specifically, message understanding will mediate the relationship between video format and purchase intentions for utilitarian shopping goals (but not for hedonic shopping goals). | 2a | Not supported |
| $H_5$: Video format's vividness effect will be conditional on shopping goals. Specifically, message visualization will mediate the relationship between video format and purchase intentions for hedonic shopping goals (but not for utilitarian shopping goals). | 2a | Supported |

Accordingly, in Study 2a and 2b, we identify a boundary condition for the vividness effect. When consumers have hedonic shopping goals, watching a product video without sound is going to lower their purchase intentions by inhibiting message visualization or their ability to imagine themselves with the product. Product videos that evoke message visualization are important in online shopping environments where direct product experiences are impossible. With online purchases, customers cannot touch or feel the product, which may create uncertainty in product assessment before purchase (Kim and Krishnan 2015). A vivid online experience, however, mimics the experience of a highly involved consumer and is found to be closer to a direct product experience than an indirect one (Coyle and Thorson 2001; Daugherty, Li, and Biocca 2008). Previous research even suggests that while an online environment may limit the scope of sensory experiences, sensations can be evoked in other ways such as with videos (Elder et al. 2017). However, such research assumes that a video is being watched with sound and engaging multiple senses. Our findings suggest that when firms place their product videos on platforms on which consumers are primarily watching videos without sound (e.g., Facebook), then such videos may not be very effective when consumers have hedonic shopping goals. Firms may even be wasting resources on producing hedonic product videos if the consumers is not going to watch it with sound. This vividness effect, however, does not manifest for consumers with utilitarian shopping goals, as expected.

Even further, contrary to our predictions, we find that the richness effect does not manifest for consumers with utilitarian shopping goals. Previous research suggests that when the objective is to seek information, consumers are more likely to evaluate each piece of information separately and less likely to form a story of the experience (Jiang et al. 2014). Consumers with utilitarian shopping goals may then be more focused on the product video and assessing each piece of functional information separately that they do not need to be guided through the message with the audio narration. Perhaps the audio narration is more effective in evoking

visualization for those consumers with hedonic goals (i.e., vividness effect), since it helps them to form a story of the experience. Even further, consumers with utilitarian shopping goals are motivated to cognitively process product information (Strahilevitz and Myers 1998; Yim et al. 2014), and previous research has demonstrated that consumers with high involvement may not always be influenced by richness (Jin 2009). If this is the case, then what happens when the message costs (i.e., costs of processing the message) increase for consumers with utilitarian shopping goals? Does the audio narration (sound) suddenly become important, since it provides information through a second channel (i.e., audio)? For example, if a consumer becomes visually distracted and looks away from the focal video content even for a split second, the product information can still be delivered through the auditory channel. Accordingly, we explore this further in Essay Three.

# ESSAY THREE. ONLINE VIDEO MARKETING STRATEGIES: THE ROLE OF VISUAL DISTRACTION AND TEXT CAPTIONS

In Essay Two, we provided evidence for the video format's richness and vividness effect and identified a boundary condition for the video format's vividness effect. That is, a video watched with sound lead to greater message visualization (and ultimately purchase intentions) than a video watched without sound for consumers with hedonic shopping goals. Contrary to our prediction regarding the video format's richness effect, a video watched with sound did not lead to greater message understanding or purchase intentions than a video watched without sound for consumers with utilitarian shopping goals. Accordingly, in Essay Three, we turn our focus to consumers with utilitarian shopping goals (i.e., we do not manipulate shopping goals). We investigate when and how the video format impacts message understanding and performance (purchase intentions) for such consumers, using two experimental lab studies. Specifically, we aim to uncover boundary conditions for the video format's richness effect. To accomplish this, we first draw from an additional theory, cognitive multimedia learning theory, which enables us to make predictions for the moderating roles of visual distraction and text captions. See Figure 8.

## Conceptual Model and Hypotheses Development

### Cognitive Multimedia Learning Theory

In attempt to further distill the video format's richness effect, which refers to the video format's impact on message understanding (i.e., knowledge or the metacognitive feeling of knowing derived from the presented information), we look to cognitive multimedia learning theory (CMLT) and associated psychology and educational learning research (Mayer 2002; Mayer 2008; Moreno and Mayer 1999). CMLT distinguishes between visually presented information (e.g., dynamic images, text captions) and auditorily presented information (e.g., audio narration) (Brünken, Plass, and Leutner 2003; Mayer 2005) and makes three key assumptions: (1) the human information processing system includes dual channels for visual and auditory processing (i.e., dual-channels assumption); (2) each channel has limited capacity for processing (i.e., limited capacity assumption); and (3) active learning entails carrying out a coordinated set of cognitive processes during learning (i.e., active processing assumption).

Considering these three assumptions, extant research suggests that consumers with utilitarian shopping goals are motivated to cognitively process product information (Strahilevitz and Myers 1998; Yim et al. 2014) and want to do so efficiently "with a minimum of irritation" (Childers et al. 2001, p. 514). A video watched with sound will provide such consumers with product information through both the visual and auditory channels, whereas a video watched without sound will only provide information through the visual channel. However, if the visual and auditory channels each have limited processing capacity, what happens when one is overloaded?

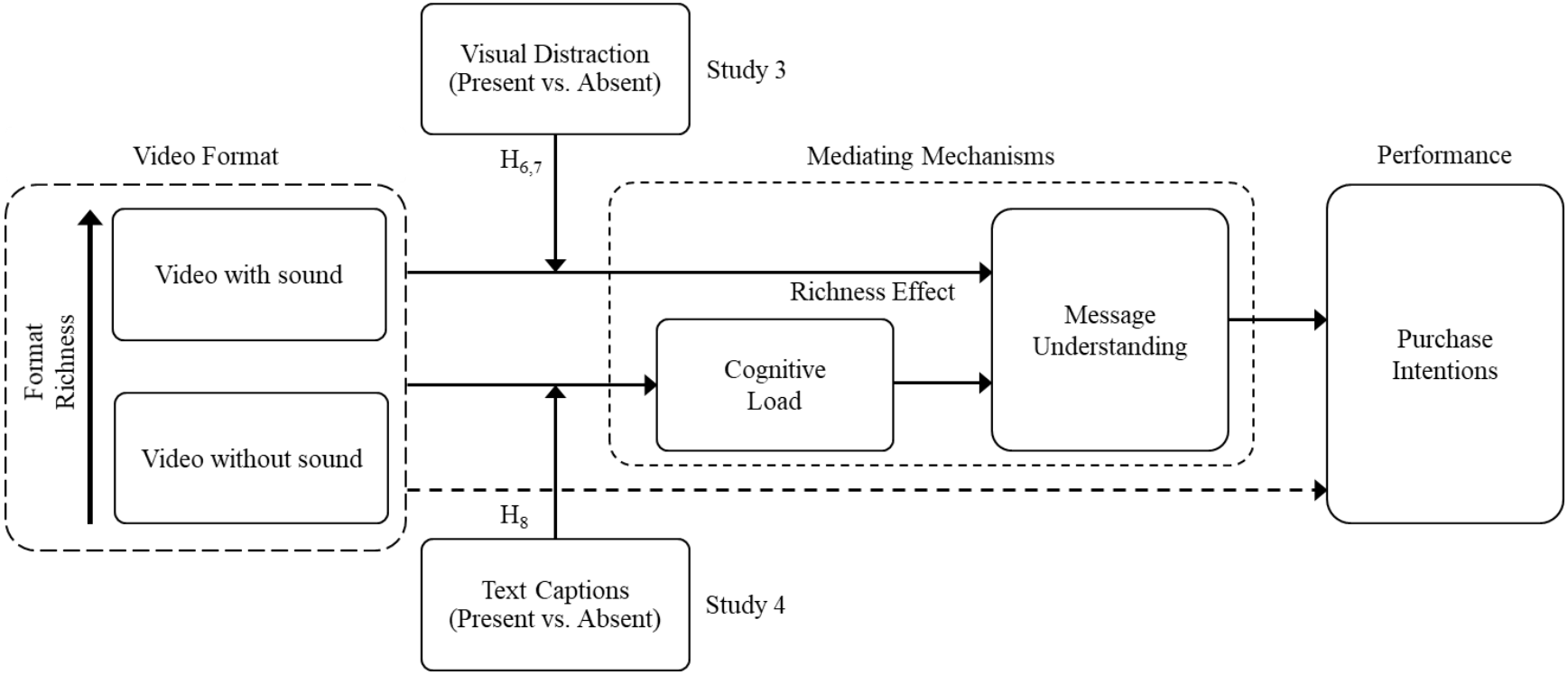



Figure 8. Conceptual Model for Essay Three (Context: Utilitarian Shopping Goals)

**Moderating Role of Visual Distraction**

Firms are increasingly adding distractive content to their own websites and on third-party platforms (e.g., Facebook), in an attempt to optimize (e.g., other related videos with moving content) or monetize (e.g., third-party ads) the situation. A distraction is anything that "may interfere with successful concentration on a task, with the irrelevant stimuli effectively capturing attention (Lavie 2010, p. 143)." While there are different types of sensory distractions (Choi, Lee, and Li 2013), our research focuses on visual distraction. A visual distraction is unrelated to the task response, presented in an irrelevant location and visually dissimilar from the search stimuli (Forster 2013). A visual distraction can impose additional message processing costs on the consumer. When consumers become visually distracted while watching product videos, their visual information channel becomes overloaded and their visual attention split between the focal product video and the visual distraction, whatever it may be. This aligns with CMLT's dual-channels and limited capacity assumptions (Mayer 2005), and research finds that cognitive overload and split attention will reduce learning or message understanding (e.g., Mayer 2002). Regardless of whether a product video is watched with sound or without sound, when a visual distraction is present, the distraction will impose additional processing costs and message understanding will thereby be reduced. Accordingly, we formally hypothesize the following:

$H_6$: Visual distraction will moderate the effect of video format on message understanding such that message understanding will be lower when a visual distraction is present than when a visual distraction is absent.

However, when product videos are watched with sound (i.e., audio narration), consumers will still receive information through the auditory channel even when their visual channel remains overloaded and visual attention split (dual-channels assumption). For example, Brünken et al. (2002) found that participants learning from audiovisual materials had more capacity available for processing a visual secondary task than those working with the same learning materials presented in a visual-only format. When the visual channel is overloaded, research even suggests to off-load by moving some of the essential processing from the visual channel to the auditory channel, to reduce the negative impact on learning (Mayer and Moreno 2003). Even further, sound or audio narration may even help to reorient consumers' attentions to the focal video and away from the visual distraction. In line with this logic, we propose that the video format's richness effect (i.e., video with sound leads to greater message understanding than video without sound) will be more pronounced, when a visual distraction is present. In other words, a visual distraction should reduce understanding regardless of the video format as we proposed in $H_6$, however, this effect should be more pronounced for video without sound (than video with sound). We formally hypothesize the following:

$H_7$: Visual distraction will enhance the video format's richness effect, ultimately increasing purchase intentions.

## Moderating Role of Text Captions

Firms are increasingly adding text captions to product videos in attempt to mitigate any potential negative impacts on performance resulting from consumers watching product videos without sound. Facebook has even added an auto-captioning tool, claiming that text captions can boost video view time by 12% (Vrountas 2018). Yet, there are little insights into how adding text captions impacts the effect of the product video on performance, especially when the video is watched with sound. Building off of CMLT, one thought is that adding text captions to any video format, one watched with or without sound, offers another way to improve a customer's understanding (i.e., from the visuals, audio narration and text captions rather than just the visuals or visuals and audio narration). Another thought is that adding text captions to a video watched with sound results in a redundancy effect; this effect highlighted by other scholars building off of CMLT. That is, the text captions provide redundant information when it mimics the audio narration and "eliminating redundant material results in better performance than when the redundant material is included" (Kalyuga, Chandler, and Sweller 1998, p. 2). For example, Mayer, Heiser, and Lonn (2001) find that students who watch animations with both audio narration and text captions perform worse on tests of retention and transfer than those who watch the same animation with audio narration (but no text captions). Top scholars in cognitive psychology also suggests that redundant information can impose a cognitive load that interferes with learning (Kalyuga, Chandler, and Sweller 1999).

In line with this logic, we propose moderated serial mediation. For a product video watched with sound, added text captions will eliminate the video format's richness effect. The text captions provide redundant information and further overload the information processing channels (i.e., increase cognitive load), reducing consumers' message understanding and ultimately purchase intentions. In other words, text captions seemingly serve as a secondary distraction for a video watched with sound. However, for a product video watched without sound, no such serial mediation is expected because there exists no sound and text redundancy. Accordingly, we formally hypothesize the following:

$H_8$: Text captions will attenuate the video format's richness effect by increasing cognitive load, ultimately lowering purchase intentions (i.e., Video format → Cognitive load → Message understanding → Purchase intentions).

## Study 3: Moderating Role of Visual Distraction

Study 3 was conducted in the context of utilitarian shopping goals and designed to test experimentally whether visual distraction impacts message understanding ($H_6$) and moderates the effect of video format on message understanding ($H_7$). In other words, we examine a boundary condition for when the video format's richness effect will manifest for consumers with utilitarian shopping goals.

### Pretest: Visual Distraction Manipulation

To ensure that our visual distraction manipulation worked as intended, we first conducted a pretest. The pretest adopted a 2 (video format: video with sound versus video

without sound) x 2 (visual distraction: present versus absent) between-subjects experimental design. This pretest was administered via Amazon Mechanical Turk. A total of 148 U.S. adults (age range = 18-74, 51.4% male) completed the survey in exchange for a small payment. Participants were randomly assigned to one of four conditions.

All participants were first asked to imagine that they were in the market for a backpack. After reading the scenario, participants either watched a video with sound or a video without sound about a Kelty backpack. Participants in the visual distraction present group had a second product video playing in the corner of their screen without sound. Participants in the visual distraction absent group only had the focal product video playing. Finally, participants filled out manipulation checks for the visual distraction manipulation ($\alpha = .81$) followed by demographics and shopping goal measures, to ensure that the utilitarian shopping goals were still primed with the scenario. See Appendix D, Table D.1 for a still shot of the stimuli and the manipulation checks.

An analysis of variance revealed that the visual distraction manipulation operated as intended. Results indicated the visual distraction manipulation had a significant effect on its check measure ($F(1,147) = 13.09$, $p < .001$), indicating significant differences between the distraction present ($M = 3.25$) and distraction absent ($M = 2.40$) groups, as desired. The video format manipulation did not impact the visual distraction manipulation check measures ($p = .96$). In addition, the video format x visual distraction interaction was not significant ($p = .15$). We also conducted a paired samples t-test, to ensure that participants had greater utilitarian (versus hedonic) shopping goals. The results revealed a significant difference between the utilitarian ($M = 5.83$) and hedonic ($M = 5.02$) shopping goals measures, as anticipated ($t(147) = 7.40$, $p < .001$).

**Design and Participants**

Study 3 adopted a 2 (video format: video with sound versus video without sound) x 2 (visual distraction: present versus absent) between-subjects experimental design and was conducted in the context of utilitarian shopping goal. The study was administered via Amazon Mechanical Turk. A total of 335 U.S. adults (age range = 18-74, 55.5% male) completed the survey in exchange for a small payment. Participants were randomly assigned to one of the four conditions.

**Procedure and Stimuli**

All participants were first asked to imagine that they were in the market for a backpack. We used the pretested utilitarian shopping scenario from Essay Two. See Appendix C, Table C.1. After reading the scenario, participants either watched a video with sound or a video without sound about a Kelty backpack. Participants in the visual distraction present group had a second product video playing in the corner of their screen without sound. Participants in the visual distraction absent group only had the focal product video playing. See Appendix D, Table D.1 for a still shot of the stimuli. Finally, participants filled out manipulation checks as well as other questions assessing the dependent and mediating variables followed by demographics, measures for hedonic and utilitarian shopping goals and a brand attitude scale for the focal video (Kelty). Participants in the visual distraction present group filled out an additional scale of

brand attitude for the distraction video (Nespresso). We also implemented the same procedures used in Study 1, to ensure that those in the video with sound condition watched the video with sound in its entirety and those in the video without sound condition did not assume the muted video was a glitch and thereby bias their responses.

**Measures**

The same manipulation checks for visual distraction from the pretest were used; cognitive load was assessed with three seven-point scale items (α = .82; e.g., "While I was reviewing the backpack message, I found it effortful." 1 = Strongly Disagree, 7 = Strongly Agree) from Keller and Block (1997). Please see Appendix D, Table D.1 for all manipulation check items. The dependent variable was purchase intentions, assessed with three seven-point scale items (α = .94; e.g., "Because of the message, if I were in the market for a backpack, I would be more likely to purchase this backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Dodds, Monroe, and Grewal (1991). The mediating variable assessed was message understanding, with three seven-point scale items (α = .94; e.g., "The message made me more knowledgeable about the backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Hadar, Sood, and Fox (2013). While we predicted that message understanding would serve as the mediator (richness effect), we wanted to rule out message visualization (vividness effect) as an alternative explanation. Message visualization was assessed with three seven-point scale items (α = .89; e.g., "The message made it easy to imagine myself with the backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Green and Brock 2000. All items were adapted to fit the context. See Appendix D, Table D.2 for all scale items. Brand attitude for the focal product video (Kelty) was accessed with two seven-point scale items (α = .94; "The Kelty brand is likable." and "The Kelty brand is high quality." 1=Strongly Disagree, 7 = Strongly Agree) from Darley and Smith (1995). For those in the distraction present condition, brand attitude for the distraction video (Nespresso) was accessed with two seven-point scale items (α = .94; "The Nespresso brand is good." and "The Nespresso brand is pleasant." 1=Strongly Disagree, 7 = Strongly Agree) from Darley and Smith (1995).

**Measurement Model**

Confirmatory factor analyses yielded good fit indexes for the measurement model (Brown 2006; Hu and Bentler 1999) and found that each factor's composite reliability (Bagozzi and Yi 1988; CR ≥ .90) and Cronbach's α (Nunnally 1978; CA ≥ .90) exceeded recommended thresholds (see Appendix D, Table D.2). Further, the measurement model was characterized by convergent and discriminant validity (see Appendix D, Table D.3) since each factor's average variance extracted surpassed not only recommended thresholds (Bagozzi and Yi 1988; AVE ≥ .84) but also the highest squared correlations of each construct (Fornell and Larcker 1981).

**Results**

Please see Appendix D, Table D.4 for all mean values and standard deviations for dependent and mediating variables and manipulation checks.

*Manipulation Checks*

An analysis of variance was executed to ensure that the distraction manipulation operated as intended. Results indicated the distraction manipulation had a significant effect on its check measure ($F(1,334) = 22.83$, $p < .001$), indicating significant differences between the distraction present ($M = 4.05$) and distraction absent ($M = 3.33$) conditions, as desired. Our analyses support successful manipulations, as per Perdue and Summers (1986). The video format had a marginally significant impact on the visual distraction manipulation check measure ($F(1,334) = 3.24$, $p = .07$; $M_{video\ with\ sound} = 3.56$; $M_{video\ without\ sound} = 3.82$). However, the effect size for the visual distraction manipulation (partial $\eta^2 = .07$; $\omega^2 = .06$) is larger than the effect size of the video format (partial $\eta^2 = .01$; $\omega^2 = .00$) (Cohen 1969; Perdue and Summers 1986; Richardson 2011). The format x visual distraction interaction was also not significant ($p = .69$).

*Shopping Goals*

We also conducted a paired samples t-test, to ensure that participants had greater utilitarian (versus hedonic) shopping goals. The results revealed a significant difference between the utilitarian ($M = 5.41$) and hedonic ($M = 3.07$) shopping goals measures, as anticipated ($t(334) = 15.54$, $p < .001$).

*Purchase Intentions*

An analysis of purchase intentions revealed a main effect of video format ($M_{video\ with\ sound} = 5.74$, $M_{video\ without\ sound} = 5.23$; $F(1, 334) = 12.92$, $p < .001$) and a main effect of visual distraction ($M_{distraction\ present} = 5.18$, $M_{distraction\ absent} = 5.79$; $F(1, 334) = 18.61$, $p < .001$). The video format x visual distraction interaction was not significant.

*Message Understanding*

An analysis of message understanding revealed a main effect of video format ($M_{video\ with\ sound} = 6.10$, $M_{video\ without\ sound} = 5.32$; $F(1, 334) = 35.47$, $p < .001$) and a main effect of visual distraction ($M_{distraction\ present} = 5.35$, $M_{distraction\ absent} = 6.06$; $F(1, 334) = 30.19$, $p < .001$), which is consistent with $H_6$. There was a video format x visual distraction interaction ($F(1, 334) = 5.27$, $p < .05$), consistent with $H_7$.

*Message Visualization*

While $H_7$ did not make predictions about the vividness effect, we wanted to rule this effect out as an alternative explanation. An analysis of message visualization was conducted and revealed a main effect of video format ($M_{video\ with\ sound} = 5.71$, $M_{video\ without\ sound} = 5.28$; $F(1, 334) = 10.36$, $p < .001$) and a main effect of visual distraction ($M_{distraction\ present} = 5.11$, $M_{distraction\ absent} = 5.87$; $F(1, 334) = 32.58$, $p < .001$). However, the video format x visual distraction interaction was not significant.

*Moderated Mediation Analysis*

Following the procedures used by Berger et al. (2018) and Newman et al. (2019), we estimated a moderated parallel multiple mediation model (Hayes 2017; SPSS Macro PROCESS, Model 8; bootstrap samples = 5000) to test whether visual distraction moderates the underlying process via message understanding. The model used video format as the independent variable, message understanding and message visualization as mediators and visual distraction as the moderator. We hypothesized that message understanding would serve as the mediator ($H_7$), however message visualization was included to rule out the vividness effect as an alternative explanation. The interaction between video format and visual distraction was significant for message understanding ($\beta = .30$, $t = 2.29$, $p < .05$; $R^2 = .17$, $F(3,331) = 22.67$, $p < .001$) but not for message visualization ($\beta = .20$, $t = 1.52$, $p = .13$; $R^2 = .12$, $F(3, 331) = 14.54$, $p = .001$). Message understanding and message visualization, in turn, increased purchase intentions ($\beta$Message understanding$= .32$, $t = 4.57$, $p < .001$; $\beta$Message visualization $= .41$, $t = 6.06$, $p < .001$; $R^2 = .45$, $F(5, 329) = 53.80$, $p < .001$). Visual distraction moderated the indirect effect of video format on purchase intentions via message understanding ($CI_{95}$ of the index of moderated mediation = [.02, .42]) but not message visualization ($CI_{95}$ of the index of moderated mediation = [-.05, .43]). The indirect effect of video format on purchase intentions via message understanding was greater when a visual distraction was present ($\beta = .34$, $CI_{95} = [.14, .58]$) versus absent ($\beta = .15$, $CI_{95} = [.04, .28]$), in support of $H_7$. See Figure 9.

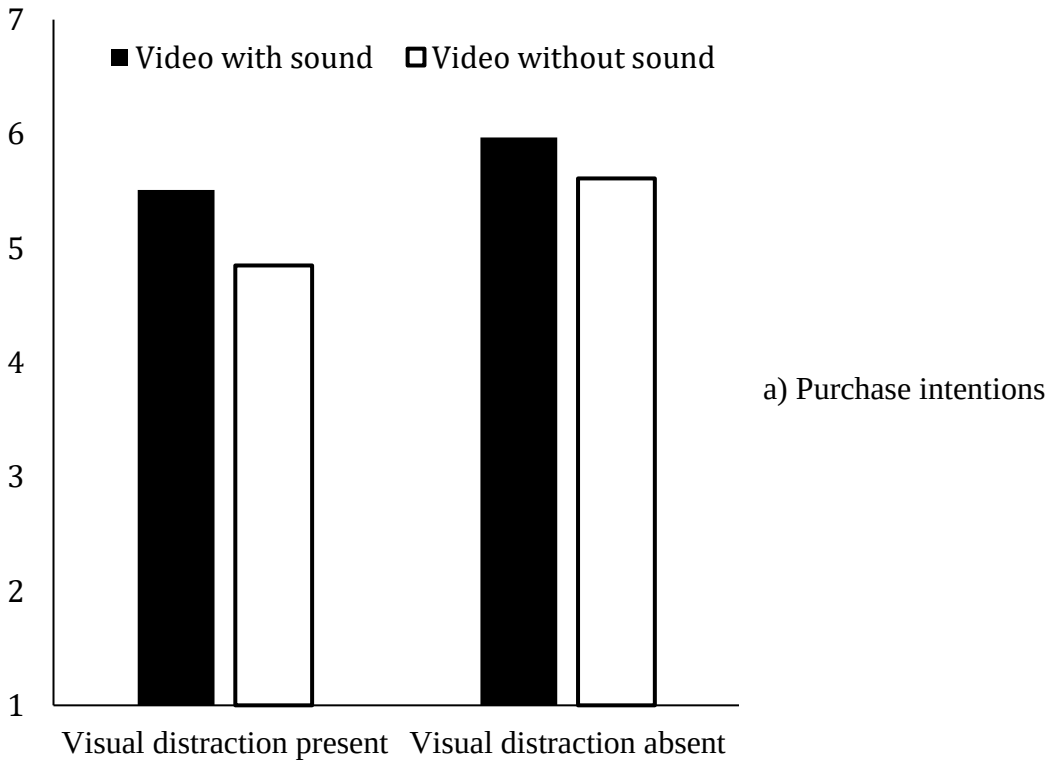
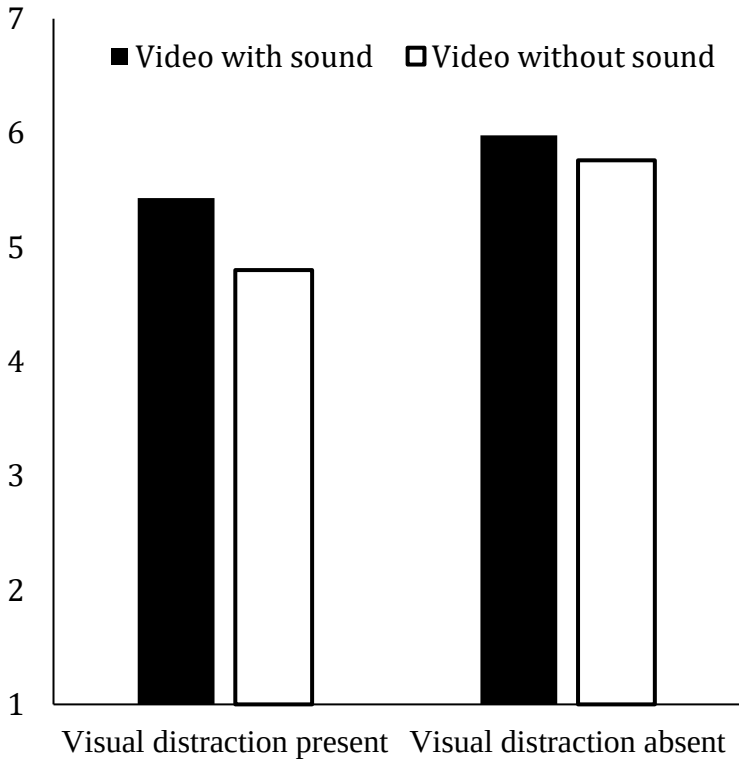



Figure 9. Richness Effect Manifests in the Presence of a Visual Distraction on a) Purchase Intentions and b) Message Understanding

(fig. cont'd)




b) Message understanding

*Additional Analyses*

We also included brand attitude for the distraction video (Nespresso) as a control variable, in a separate, alternative PROCESS model for those in the visual distraction present group, to confirm that it does not account for the effect of the video format's impact on message understanding (and ultimately purchase intentions). Brand attitude (distraction video) is not a significant predictor of purchase intentions ($p$ = .79) or message understanding ($p$ = .15). The indirect effect of video format on purchase intentions through message understanding remains significant when brand attitude (for the distraction video) is included ($\beta$ = .38, $CI_{95}$ = [.12, .70]. These results allow us to rule out brand attitude (for the distraction video) as an explanation for the influence of the video format on purchase intentions and message understanding, for those in the visual distraction present group.

**Discussion**

Study 3 shows that when a consumer is visually distracted (i.e., distraction present), watching a video with sound leads to greater message understanding and ultimately purchase intentions than watching a video without sound (i.e., no audio narration), when that customer has utilitarian shopping goals. However, when the consumer is not visually distracted (i.e., distraction absent), video with sound performs similarly to video without sound on both message understanding and purchase intentions, which is consistent with our findings in Essay Two, Study 2a and Study 2b.

## Study 4: Moderating Role of Text Captions

Building off of Study 3, Study 4 was conducted in the context of utilitarian shopping goals with a visual distraction present. Study 4 was designed to test experimentally whether text captions moderate the effect of video format on message understanding ($H_8$). In other words, we turned on the video format's richness effect in Study 3 and now in Study 4 we examine a potential boundary condition to turn off this richness effect.

### Design and Participants

Study 4 adopted a 2 (video format: video with sound versus video without sound) x 2 (text captions: present versus absent) between-subjects experimental design and was conducted in the context of utilitarian shopping goals with a distraction present. The study was administered via Amazon Mechanical Turk. A total of 218 U.S. adults (age range = 18-74), 50.9% female) completed the survey in exchange for a small payment. Participants were randomly assigned to one of the four conditions.

### Procedure and Stimuli

All participants were first asked to imagine that they were in the market for a new backpack. We used the pretested utilitarian shopping scenario from Essay Two that was also used in Study 3. See Appendix C, Table C.1. After reading the scenario, participants either watched a video with sound or a video without sound (i.e., audio narration) about a backpack. All participants had a distraction present. We used the same distraction video (without sound) as we did in Study 3; see Appendix D, Table D.1. Participants in the text captions present group had text captions playing throughout the video. We hired a professional to create text captions that precisely matched the audio narration and that were placed at the bottom of the video so as to not obstruct any of the visuals. Finally, participants filled out questions assessing the dependent and mediating variables followed by demographics and a brand equity scale for the focal video (Kelty). We also assessed message visualization, to rule out the vividness effect as an alternative explanation. We also implemented the same procedures used in Study 1, to ensure that those in the video with sound condition watched the video with sound in its entirety and those in the video without sound condition did not assume the muted video was a glitch and thereby bias their responses.

### Measures

The dependent variable was purchase intentions, assessed with three seven-point scale items ($\alpha$ = .94; e.g., "Because of the message, if I were in the market for a backpack, I would be more likely to purchase this backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Dodds, Monroe, and Grewal (1991). The mediating variables assessed were cognitive load and message understanding. Cognitive load was assessed with three seven-point scale items ($\alpha$ = .89; e.g., "While reviewing this message, I found it effortful." 1 = Strongly Disagree, 7 = Strongly Agree) from Keller and Block (1997). Message understanding was assessed with three seven-point scale items ($\alpha$ = .86; e.g., "The message made me more knowledgeable about the backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Hadar, Sood, and Fox (2013).

Message visualization was also assessed to rule out the vividness effect, with three seven-point scale items (α = .84; e.g., "The message made it easy to imagine myself with the backpack." 1 = Strongly Disagree, 7 = Strongly Agree) from Green and Brock 2000. While we predicted that message understanding would serve as a mediator (richness effect), we wanted to rule out message visualization (vividness effect) as an alternative explanation. All items were adapted to fit the context. See Appendix D, Table D.2 for all scale items. Brand equity was also accessed with two seven-point scale items (α = .76; "This brand has a strong brand image." and "This brand is very well known in my community." 1=Strongly Disagree, 7 = Strongly Agree) from Sirianni et al. (2013).

**Measurement Model**

Confirmatory factor analyses yielded good fit indexes for the measurement model (Brown 2006; Hu and Bentler 1999) and found that each factor's composite reliability (Bagozzi and Yi 1988; CR ≥ .90) and Cronbach's α (Nunnally 1978; CA ≥ .89) exceeded recommended thresholds (see Appendix D, Table D.2). Further, the measurement model was characterized by convergent and discriminant validity (see Appendix D, Table D.3) since each factor's average variance extracted surpassed not only recommended thresholds (Bagozzi and Yi 1988; AVE ≥ .64) but also the highest squared correlations of each focal construct (Fornell and Larcker 1981).

**Results**

Please see Appendix D, Table D.4 for all mean values and standard deviations for dependent and mediating variables and manipulation checks.

*Shopping Goals*

We conducted a paired samples t-test, to ensure that participants reported greater utilitarian (versus hedonic) shopping goals. The results revealed a significant difference between the utilitarian (M = 6.02) and hedonic (M = 4.66) shopping goals measures, as anticipated ($t(217) = 7.02$, $p < .001$).

*Purchase Intentions*

An analysis of purchase intentions revealed no main effect of video format and no main effect of text captions. The video format x text captions interaction was not significant.

*Cognitive Load*

An analysis of cognitive load revealed no main effect of video format and no main effect of text captions. There was a video format x text captions interaction ($F(1, 217) = 8.68$, $p < .01$), consistent with $H_8$. See Figure 10a.

*Message Understanding*

An analysis of message understanding revealed a main effect of video format ($M_{\text{video with sound}} = 6.18$, $M_{\text{video without sound}} = 5.54$; $F(1, 217) = 20.59$, $p < .001$) and no main effect of text captions. There was a video format x text captions interaction ($F(1, 217) = 5.50$, $p < .05$), consistent with $H_8$.

*Message Visualization*

An analysis of message visualization revealed no main effect of video format or text captions. The video format x text captions interaction was not significant, as anticipated.

*Richness Effect versus Vividness Effect*

First, we wanted to provide evidence for the richness effect and rule out the vividness effect. Following the procedures used by Berger et al. (2018) and Newman et al. (2019), we estimated a moderated parallel multiple mediation model (Hayes 2017; SPSS Macro PROCESS, Model 8; bootstrap samples = 5000) to test whether text captions moderates the underlying process via message understanding, i.e., the richness effect (and rule out message visualization, i.e., vividness effect, as an alternative explanation). The model used video format as the independent variable, message understanding and message visualization as mediators and text captions as the moderator. The interaction between video format and text captions was significant for message understanding ($\beta = -.66$, $t = -2.34$, $p < .05$; $R^2 = .11$, $F(3,214) = 8.87$, $p < .001$) but not for message visualization ($\beta = -.13$, $t = -.46$, $p = .64$; $R^2 = .00$, $F(3, 214) = .23$, $p = .88$). Message understanding and message visualization, in turn, increased purchase intentions ($\beta_{\text{Message understanding}} = .27$, $t = 3.23$, $p < .01$; $\beta_{\text{Message visualization}} = .62$, $t = 7.55$, $p < .001$; $R^2 = .39$, $F(5, 212) = 27.39$, $p < .001$). Text captions moderated the indirect effect of video format on purchase intentions via message understanding ($CI_{95}$ of the index of moderated mediation = [-.44, -.01]) but not message visualization ($CI_{95}$ of the index of moderated mediation = [-.47, .27]). The indirect effect of video format on purchase intentions via message understanding was significant when text captions were absent ($\beta = .26$, $CI_{95} = [.05, .53]$) but not when text captions were present ($\beta = .08$, $CI_{95} = [-.01, .22]$), in support of the richness effect.

*Serial Moderated Mediation Analysis*

Next, following procedures by Hoyt, Morgenroth, and Burnette (2018) and Luffarelli, Stamatogiannakis, and Yang (2019) and we estimated a serial moderated mediation model following procedures outlined by Hayes (2017) (SPSS Macro PROCESS, Model 84; bootstrap samples = 5000) to test whether text captions moderates the underlying process via cognitive load and message understanding (Video format → Cognitive load → Message understanding → Purchase intentions), for further testament to our theoretical argument and $H_8$. See Figure 10. The model used video format as the independent variable, cognitive load as the first mediator, message understanding as the second mediator and purchase intentions as the dependent variable and text captions as the moderator. The interaction between video format and text captions was significant for cognitive load ($\beta = 1.23$, $t = 2.95$, $p < .01$; $R^2 = .05$, $F(3,214) = 3.64$, $p < .05$). Cognitive load, in turn, reduced message understanding ($\beta_{\text{Cognitive load}} = -.18$, $t = -4.03$, $p <$

.001; $R^2$ = .17, F(3, 214) = 11.19, $p$ < .001). Message understanding, in turn, increased purchase intentions (βMessage understanding = .65, t = 7.73, $p$ < .001; .$R^2$ = .23, F(3, 214) = 21.43, $p$ < .001) but cognitive load did not (βCognitive load = .08, t = 1.38, $p$ = .17). Text captions moderated the indirect effect of video format on purchase intentions via cognitive load and message understanding, in that order (Video format → Cognitive load → Message understanding → Purchase intentions; $CI_{95}$ of the index of moderated mediation = [-.28, -.04]) but not through cognitive load (Video format → Cognitive load → Purchase intentions; $CI_{95}$ of the index of moderated mediation = [-.02, .26] or message understanding only (Video format → Message Understanding → Purchase intentions; $CI_{95}$ of the index of moderated mediation = [-.65, .06]). The indirect effect of video format on purchase intentions via cognitive load and message understanding was significant when text captions were absent (β = .11, $CI_{95}$ = [.03, .20]) but not when text captions were present (β = -.04, $CI_{95}$ = [−.12, .03]), in support of $H_8$.

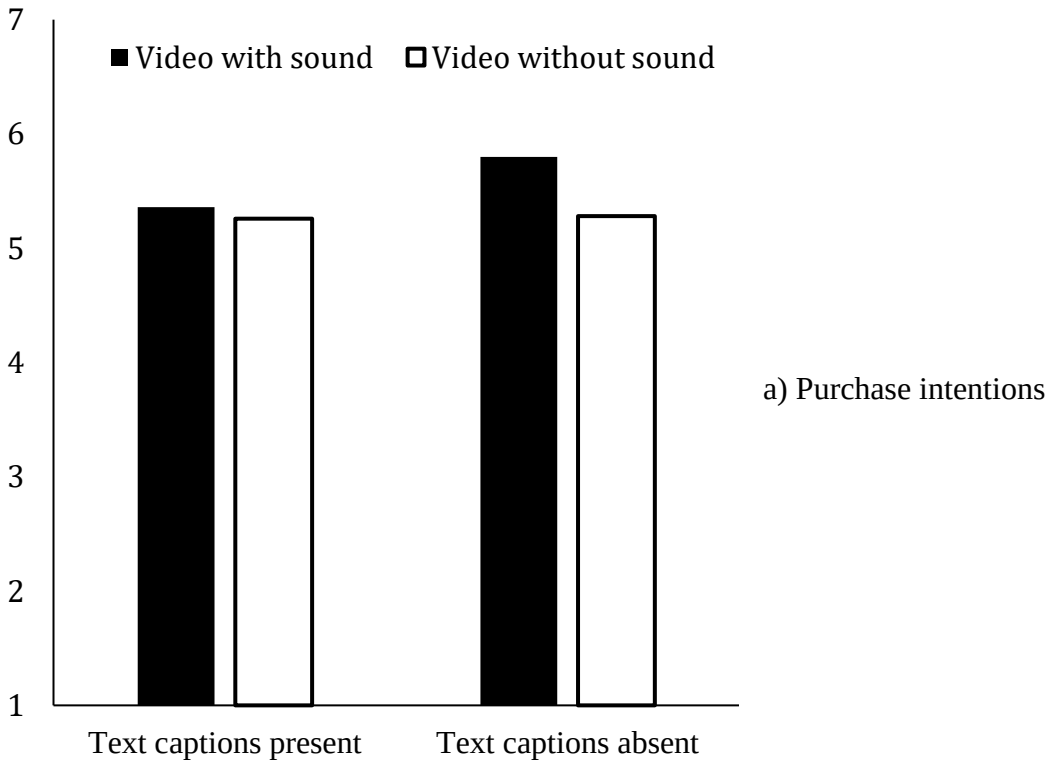
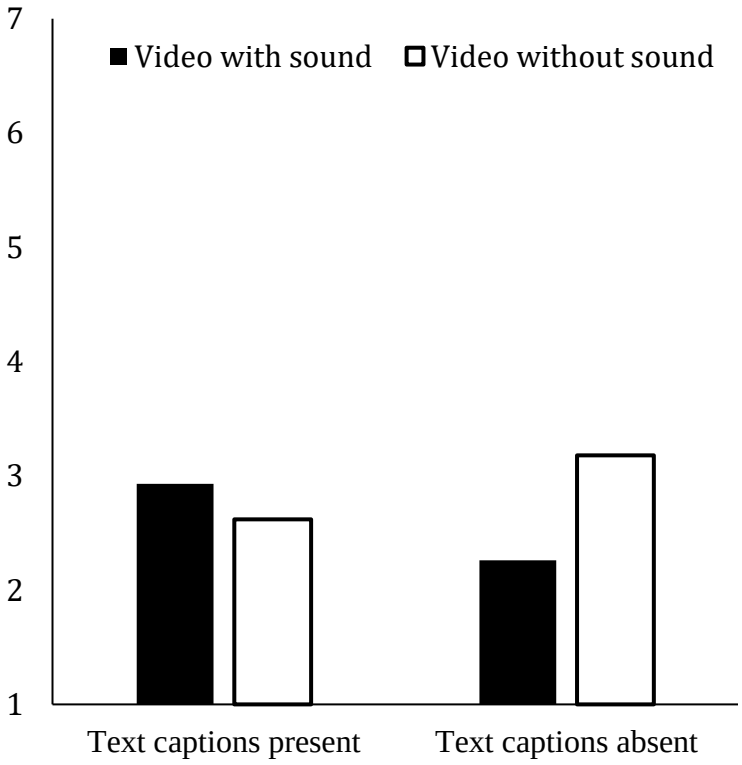
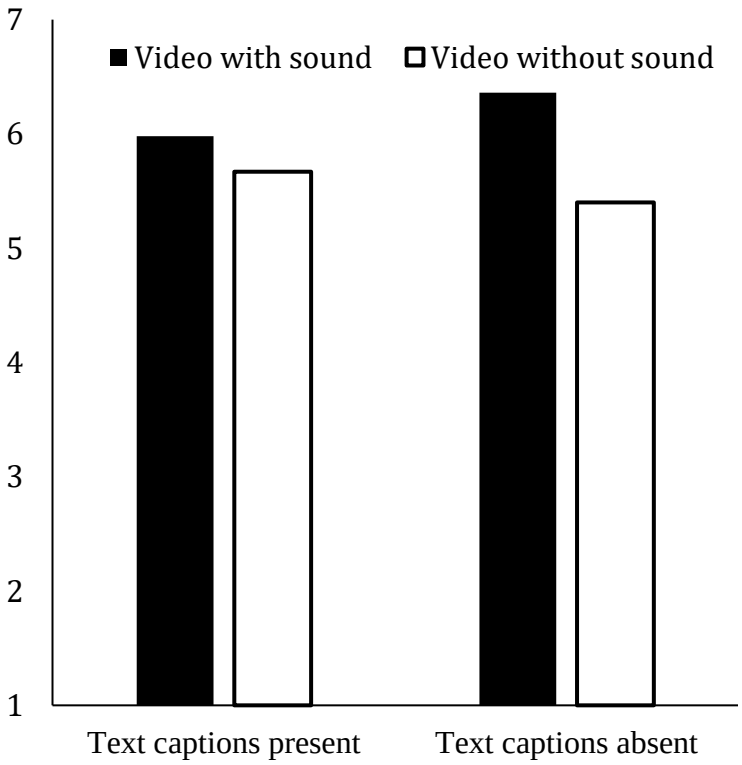



Figure 10. Text Captions Attenuate Richness Effect via Cognitive Load: Effect on a) Purchase Intentions, b) Cognitive Load, and c) Message Understanding

(fig. cont'd)




b) Cognitive load




c) Message understanding

## Discussion

Study 4 shows that when a consumer with utilitarian shopping goals is distracted (i.e., distraction present), watching a video with sound leads to greater message understanding than watching a video without sound (i.e., the video format's richness effect manifests), replicating the results from Study 3. However, there exists a boundary condition. When text captions are added to the video with sound format, the richness effect disappears. Specifically, a video with sound and text captions leads to lower message understanding than a video with sound (but no text captions), because adding text captions to the video with sound provides redundant information, increasing cognitive load.

## Essay Three Takeaways

Study 3 and Study 4 results offer important implications for marketing practitioners, including both firms and online video platform providers (See Table 8). In particular, Study 3 suggests that firms be cautious with using existing online platforms (e.g., YouTube, Facebook) or designing their own online platforms with visual distractions (e.g., optimizing platform with additional, firm-relevant content, monetizing platform with third-party content), especially if consumers are mostly watching video content on these platforms without sound. Otherwise, firms risk inhibiting message understanding and ultimately lowering purchase intentions. Study 4 suggests firms reconsider current strategies which involve adding text captions to online videos. While firms are increasingly doing so in an attempt to combat adverse effects from consumers watching product videos without sound, added text captions can back-fire. Not all consumers watch product videos without sound, making text captions a double-edged sword. We demonstrate that text captions can reduce a video with sound's impact on message understanding (and ultimately purchase intentions).

Table 8. Summary of Essay Three Results

| Hypotheses | Studies | Results |
|---|---|---|
| $H_6$: Visual distraction will moderate the effect of video format on message understanding such that message understanding will be lower when a visual distraction is present than when a visual distraction is absent. | 3 | Supported |
| $H_7$: Visual distraction will enhance the video format's richness effect, ultimately increasing purchase intentions. | 3 | Supported |
| $H_8$: Text captions will attenuate the video format's richness effect by increasing cognitive load, ultimately lowering purchase intentions. | 4 | Supported |

Further, findings from both studies suggest strategic and tactical modifications for online video platform providers, as well. Providers like YouTube and Facebook that are fierce competitors might improve monetizing platforms (i.e., increasing attractiveness to firms) by creating and promoting options that allow firms to avoid distraction. Unfortunately, existing platforms do not offer these beneficial options. In fact, YouTube provides firms with five different options for monetizing their content, all of which represent visual distractions for consumers. In sum, Studies 3 and 4 illustrate implications for both the user of the platform (i.e., firm) and the actual online platform itself.

# CONCLUSION FOR ESSAYS TWO AND THREE

## Theoretical Implications and Future Research for Essays Two and Three

Our research offers key theoretical contributions that give rise to a variety of avenues for future research. First, our research has implications for the literature examining the effects of different product presentation formats on performance. Marketing scholars have been increasingly recognizing the positive impact of online product videos on performance (e.g., Bleier, Harmeling, and Palmatier 2018; Roggeveen et al. 2015). However, most research has implicitly assumed that these videos are watched with sound (i.e., audio narration), delivering information through two channels (visual and auditory) and engaging multiple senses (vision and hearing). For example, research recommends firms use product videos on websites for experience products, because human voices provide cues for human characteristics and influence perceptions of vividness (Bleier, Harmeling, and Palmatier 2018; Moon 2000). There are limited marketing insights into videos being watched without sound (e.g., movie trailers, Liu et al. 2018) and even fewer insights into online product videos being watched without sound, which offers a fruitful avenue of future research.

Second, our findings have implications for research exploring boundary conditions for the effects of different product presentation formats. Our research demonstrates that different situational factors can render the richness and vividness effect important for online product videos such as consumers' shopping goals, visual distraction and text captions, extending previous research that finds such effects (outside of the online product video context) to be situational (Rice 1992; Keller and Block 1997). This research advances prior studies that find dynamic visual product presentations (accompanied by a static text description) benefit hedonically-superior products and outperform static visual product presentations (accompanied by a static text description) by increasing imagery or visualization (Roggeveen et al. 2015). Even further, our moderators represent circumstances under which consumers are currently watching online product videos. Given the recency of this phenomena (i.e., consumers watching online product videos without sound), as mentioned, prior research is limited, especially for situation-specific boundary conditions regarding the outcomes of watching a product video without sound. While not in the context of online product videos, Liu et al. (2018) find that movie trailers watched without sound are less effective than those watched with sound but stop short of identifying how or when this effect holds as it is not the primary focus of their research. Accordingly, further research is needed to identify additional boundary conditions under which product presentation formats, specifically video formats, impact performance.

For example, we found that text captions increased cognitive load (and reduced message understanding) when a video was watched with sound. However, the pattern of results for video without sound suggested that text captions have the potential to reduce cognitive load. Video game research suggests that when cognitive capacity is already used up on the focal task (video), consumers may be less likely to become distracted by irrelevant content (Choi, Lee, and Li 2013). Adding text captions to a video without sound in a context in which consumers are motivated to cognitively process the focal product information such as with utilitarian shopping goals may result in more cognitive resources being used and thus act as a distraction safeguard. Alternatively, when a video is watched with sound (i.e., audio narration), the sound may help to

re-orient attention and act as a distraction safeguard. Thus, as demonstrated, adding text captions results in a redundancy effect, with text captions in and of themselves taking on the role of a new visual distraction (when a video is watched with sound). The interaction between visual distraction and text captions provides a fruitful and relevant avenue of future research.

Third, while extant marketing research often uses the terms 'richness' and 'vividness' interchangeably (e.g., Fortin and Dholakia 2005), we present evidence that for online product videos, the mediating mechanisms that richness and vividness give rise to are distinct and operate under different situational factors. We find that a video with sound (versus without sound) results in greater message understanding (richness effect) and message visualization (vividness effect), both of which have a positive impact on performance. Even further, we find that the richness effect (not vividness effect) manifests for consumers with utilitarian shopping goals when a distraction is present, whereas the vividness effect (not richness effect) manifests for consumers with hedonic shopping goals. Future research could extend these findings by examining these two distinct effects for other product presentation formats (e.g., 360 degree product shot, AR virtual product preview and virtual product try-on) or for different video format characteristics (e.g., video speed, linear vs. nonlinear imagery). Even further, new theory may be warranted to integrate previous research and develop new insights into the underlying format characteristics of product videos and their individual and collective impacts on performance.

**Managerial Implications and Future Research for Essays Two and Three**

Our research provides firms with valuable insights into designing online video marketing strategies, which also highlight future research opportunities. Video marketing "is no longer an up-and-coming content strategy. It's here (Kolowich 2017, p. 1)." Firms are increasingly investing resources into product video production. A 2019 study reports that 85% of businesses now have internal staff and resources specifically for in-house video production (Kolowich 2017). Firms have traditionally been able to rely on consumers watching their videos with sound. However, some studies suggest that up to 81% of consumers watch online product videos without sound (Hurley 2019); this statistic varies across platforms and situations. Given the recency of this phenomena there has been few insights into the resulting impact on performance. Our research demonstrates that when consumers watch a product video without sound (versus with sound or audio narration) the firm may lose two distinct advantages, richness (i.e., greater message understanding) and vividness (i.e., greater message visualization), both of which have a positive impact on performance. Understanding when the video format (i.e., watching a video with sound versus without sound) impacts performance or rather when richness and vividness matter is thus imperative, so that firms can effectively leverage their product video content. This is particularly relevant since, for example, 50% of web users look for a video before going into a store and 84% of users have made a purchase after watching a product video (Hurley 2019). Further research should investigate potential firm strategies for promoting message understanding and message visualization, when either is deemed necessary.

Our research begins to address this issue by investigating consumers shopping goals as a boundary condition for the video format's richness and vividness effects. Scholars agree that utilitarian and hedonic motivations are fundamental to understanding consumer shopping behavior (Childers et al. 2001, p. 513). Consumers' shopping goals can be determined by a

variety of factors such as the store, specific product or even the platform itself. For example, groceries are typically considered to be a utilitarian retail setting but can evoke hedonic shopping motivations by stocking a wide variety of hedonic products (e.g., diverse brands of alcohol, house decorations) (Bloch and Bruce 1984; Yim et al. 2014). In practice, one study also finds that 73% of consumers watching product videos on social media are doing so for entertainment purposes (Kolowich 2017). Our results indicate that a video watched without sound is not as effective as one watched with sound when consumers shopping goals are hedonic in nature (e.g., fun, entertainment, pleasure). That is, vividness matters for consumers with hedonic shopping goals, because it evokes greater message visualization. Previous research even finds that a vivid online experience is found be closer to a direct product experience than an indirect one (Coyle and Thorson 2001; Daugherty, Li, and Biocca 2008), which is key for online shopping environments since a direct product experience is impossible. Future research is thus needed to identify firm strategies that can promote message visualization in the absence of sound, particularly for consumers with hedonic shopping goals. For example, research could investigate video speed as a potential solution to muted videos. On one hand, practitioners propose fast-paced content will increase vividness (Bernazzani 2017) and thereby should promote message visualization. On the other previous research suggests that fast-paced video consumption may actually be less effective than slow-paced video consumption (Galak, Kruger, and Loewenstein 2012; Liu et al. 2018). Research could resolve this discrepancy and provide managers with clearer guidance.

Alternatively, when consumers have utilitarian shopping goals, we find that the sound (i.e., audio narration) may not always be necessary. One potential explanation is that consumers with utilitarian shopping goals are motivated to cognitively process the product information in front of them in an efficient manner (Strahilevitz and Myers 1998; Yim et al. 2014). Consumers are then more likely to be involved in the message, and research finds that consumers with high involvement are not always influenced by richness (Jin 2009). Accordingly, we find that when the costs of processing the product video increase, understanding is negatively impacted for all video formats but suddenly richness matters. That is, a video watched with sound becomes more effective than a video watched without sound at promoting message understanding and ultimately purchase intentions. In practice, processing costs can be increased by a variety of factors one of which is a visual distraction. Visual distraction is particularly relevant to managers, since firms often optimize or monetize video content with visual distractions such as third-party ads and can no longer rely on a video format's richness effect. Firms risk not only lowering product purchases altogether with visual distractions but even more so when the consumer watches the video without sound. The sound or audio narration serves somewhat as a distraction safeguard, delivering the product information through the consumer's auditory channel even when the visual channel becomes occupied with another stimuli. Future research should examine different types of distraction (e.g., audio vs. visual, product-relevant vs. product-irrelevant) that firms can control, to provide insights into whether, when and how the video format's effect on performance is impacted.

Finally, we investigate one of the most commonly employed sound substitution strategies for product videos: text captions. Firms have been defaulting to adding text captions to product videos in attempt to mitigate any negative impacts on performance that result from consumers' increasing tendencies to watch videos without sound. Text captions are relatively easy and inexpensive to implement. Facebook even offers an in-platform option for adding accurate, text narrations. While managers have been heavily focused on overcoming a lack of audio narration, little attention has been paid to the impact text captions have on product video watched with audio narration (sound). Our results suggest that adding text captions to a product video can backfire when the video is watched with sound. The text captions provide redundant information (i.e., the same information as the audio narration) and actually increases the costs of processing the message, ultimately lowering both message understanding and purchase intentions. The text captions serve as another distraction, in a sense, when the video is watched with sound. Alternatively, the pattern of our results suggest that adding text captions to a video watched without sound potentially reduces the associated processing costs; this warrants further attention and future research. Managers should only use text captions as a sound substitution strategy for videos being watched without sound otherwise they risk attenuating the richness advantage in a situation in which it is necessary (utilitarian shopping goals but high processing costs). Future research is needed to further dissect the role of text captions as a sound substitution strategy across different contexts including but not limited to shopping goals and types of distraction, to provide clear guidance to firms.

## Limitations and Future Research for Essays Two and Three

While our research provides consistent support for our models, our research has several limitations that provide opportunities for future research. We focus solely on whether a video format includes sound (i.e., audio narration) or not. However, while beyond the scope of our research, other firm-controlled, technical video format characteristics may alter the video format's impact on performance, such as length, speed, or color scheme and thus warrant future research. Previous research in psychology and marketing suggests that color plays a role in visual attention and memory (Horstmann 2002; Moore, Stammerjohan, and Coulter 2005) and can impact purchase intentions (Labrecque and Milne 2011). For example, warm colors such as red generate more arousal, attention, and excitement than cool colors such as blue but cool colors elicit greater relaxation, pleasure, and competence than warm colors (Jacobs and Seuss 1975; Labrecque and Milne 2001). Accordingly, future research could investigate whether or not the color scheme of the video can act as a visual distraction safeguard or evoke message visualization for hedonic purposes. For example, unexpected colors may orient attention to the surprising color (Horstmann 2002). We also examine a moderating role for consumers' shopping goals. However, other consumer-specific factors may influence a video format's impact on performance such as product or brand experience. Future research could investigate different consumer-specific factors that would allow for more effective target in online video marketing strategies.

Finally, we examine visual distraction but recognize that other types of distraction may affect the video format's impact on performance. We conducted an exploratory, experimental study outside of this research in which we examined audio distraction and found that performance was negatively impacted for both video with sound and without sound. This

provides additional evidence for the theoretical argument linked to information channel (visual or auditory) overload that we presented for visual distraction in Study 3. That is, when the visual or audio channel is overloaded, message processing costs increase and performance suffers as a result. Different types of firm-controlled distractions for online product videos warrant further investigation. Even further, research needs to investigate additional sound substitution strategies. For example, some suggested strategies include using text captions that are short, catchy phrases or title cards rather than text captions that directly mimic the audio narration, incorporating a variety of facial expressions to build familiarity through emotional and social cues or incorporating a lot of dynamic movement to capture attention (Eliasson 2018). Overall, given the recency of this video phenomena, there are a wide variety of future research opportunities, to advance theory and extant research and offer clear guidance to managers for designing and implementing effective online product video strategies.

# APPENDIX A. INSTITUTIONAL REVIEW BOARD APPROVAL DOCUMENTS

## Application for Exemption from Institutional Oversight

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/ projects using living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This form helps the PI determine if a project may be exempted, and is used to request an exemption.

-- Applicant, Please fill out the application in its entirety and include the completed application as well as parts B-F, listed below, when submitting to the IRB. Once the application is completed, please submit the completed application to the IRB Office by e-mail (irb@lsu.edu) for review. If you would like to have your application reviewed by a member of the Human Subjects Screening Committee before submitting it to the IRB office, you can find the list of committee members at http://sites01.lsu.edu/wp/ored/human-subjects-screening-committee-members/.

-- A Complete Application Includes All of the Following:
**(A)** This completed form
**(B)** A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1&2)
**(C)** Copies of all instruments to be used.
*If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
**(D)** The consent form that you will use in the study (see part 3 for more information.)
**(E)** Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB. Training link: (http://phrp.nihtraining.com/users/login.php)
**(F)** Signed copy of the IRB Security of Data Agreement: (https://sites01.lsu.edu/wp/ored/files/2013/07/Security-of-Data-Agreement.pdf)

**1) Principal Investigator:** Jordan Moffett **Rank:** PhD Student

**Dept:** Marketing **Ph:** 225-578-2434 **E-mail:** jmoffe5@lsu.edu

**2) Co Investigator(s):** please include department, rank, phone and e-mail for each
*If the Principal Investigator is a student, identify and name supervising professor in this space

Dr. Judith Anne Garretson Folse, PhD.
Professor and PhD Advisor, Department of Marketing
E.J. Ourso College of Business
225-578-6539/ folse@lsu.edu

**3) Project Title:** Communicaiton Channel Effects

**4) Proposal? (yes or no)** No **If Yes, LSU Proposal Number**

Also, if YES, either ◯ **This application completely matches the scope of work in the grant**

**OR** ◯ **More IRB Applications will be filed later**

**5) Subject pool** (e.g. Psychology students) Undergraduate students seeking extra credit in behavioral lab and adults over 18

*Indicate any **"vulnerable populations" to be used**: (children <18 the mentally impaired, pregnant women, the ages, other). Projects with incarcerated persons cannot be exempted.

**6) PI Signature** _____ **Date** 10/06/2015 (no per signatures)

** **I certify my responses are accurate and complete.** If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

**Screening Committee Action:** ◯ Exempted ◯ Not Exempted Category/Paragraph

**Signed Consent Waived?:** ◯ Yes **or** ◯ No

**Reviewer** _____ **Signature** _____ **Date** _____

**Continue on the next page**

# Part 1: Determination of "Research" and Potential For Risk

- This section determines whether the project meets the Department of Health and Human Services (HSS) definition of research involving human subjects, and if not, whether it nevertheless presents more than "minimal risk" to human subjects that makes IRB review prudent and necessary.

1. **Is this project involving human subjects a systematic investigation, including research, development, testing, or evaluation, designed to develop or contribute to generalizable knowledge?**
(Note some instructional development and service programs will include a "research" component that may fall within HHS' definition of human subjects research).

◉ **YES**

◯ **NO**

2. **Does the project present physical, psychological, social or legal risks to the participants reasonably expected to exceed those risks normally experienced in daily life or in routine diagnostic physical or psychological examination or testing?** You must consider the consequences if individual data inadvertently become public.

◯ **YES - Stop.** This research cannot be exempted - **submit regular application for IRB review.**

◉ **NO-Continue** to see if research can be exempted from IRB oversight

3. **Are any of your participants incarcerated?**

◯ **YES - Stop.** This research cannot be exempted--**submit regular application for IRB review.**

◯ **NO-Continue** to see if research can be exempted from IRB oversight.

4. **Are you obtaining any health information from a health care provider that contains any of the identifiers listed below?**

A. Names
B. Address: street address, city, county, precinct, ZIP code, and their equivalent geocodes. Exception for Zip codes: the initial three digits of the ZIP Code may be used, if according to current publicly available data from the Bureau of the Census: (1) The geographic unit formed by combining all ZIP codes with the same three initial digits contains more than 20,000 people; and (2) the initial three digits of a ZIP code for all such geographic units containing 20,000 or fewer people is changed to '000'. (Note: The 17 currently restricted 3-digit ZIP codes to be replaced with '000' include: 036, 059, 063, 102, 203, 556, 692, 790, 921, 830, 831, 878, 879, 884, 890, and 893.)
C. Dates related to individuals
   i. Birth date
   ii. Admission date
   iii. Discharge date
   iv. Date of death
   v. And all ages over 89 and all elements of dates (including year) indicative of such ago. Such ages and elements may be aggregated into a single category of age 90 or older.
D. Telephone numbers;
E. Fax numbers;
F. Electronic mail addresses;
G. Social security numbers;
H. Medical record numbers; (including prescription numbers and clinical trial numbers)
I. Health plan beneficiary numbers;
J. Account numbers;
K. Certificate/license numbers;
L. Vehicle identifiers and serial numbers including license plate numbers;
M. Device identifiers and serial numbers;
N. Web Universal Resource Locators (URLs);
O. Internet Protocol (IP) address numbers;
P. Biometric identifiers, including finger and voice prints;
Q. Full face photographic images and any comparable images; and
R. Any other unique identifying number, characteristic, or code; except a code used alone or in combination with other information to identify an individual who is the subject of the information.

◯ **YES - Stop.** This research cannot be exempted--**submit regular application for IRB review.**

◉ **NO-** Continue to see if research can be exempted from IRB oversight.

**Continue on the next page**

## PART 3: Consent Forms

* The consent form must be written in non-technical language which can be understood by the subjects. It should be free of any exculpatory language through which the participant is made to waive, or appears to be made to waive any legal rights, including any release of the investigator, sponsor, institution or its agents from liability for negligence. (Note: the consent form is not a contract.)

* For example consent forms, please refer to our website, www.lsu.edu/irb

* The IRB prefers using signed informed consent; However, if that is impractical, an application to waive signed consent can be requested below. However, even if this waiver is requested, the **IRB must be provided with the consent script** that will present the information to human subjects regarding the study/research. All consent forms or scripts must include a statement that the study was approved or exempted by the IRB and provide IRB contact information to participants.

**I am requesting waiver of signed Informed Consent because:**

○ **(a)** Having a participant sign the consent form would create the ***principal risk*** of participating in the study.

***or that***

◉ **(b)** The research presents ***no more than minimal risk*** of harm to subjects and involves no procedures for which having signed consent is normally required.

Now that your application is complete, please send it to the IRB office by e-mail (irb@lsu.edu) for review. If you would like to have your application reviewed by a member of the Human Subjects Screening Committee before submitting it to the IRB office, you can find the list of committee members at http://sites01.lsu.edu/wp/ored/human-subjects-screening-committee-members/.

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

**ACTION ON EXEMPTION APPROVAL REQUEST**

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

**TO:** Jordan Moffett
Marketing

**FROM:** Dennis Landin
Chair, Institutional Review Board

**DATE:** October 9, 2015

**RE:** **IRB#** E9540

**TITLE:** Communication Channel Effects

**New Protocol/Modification/Continuation:** New Protocol

**Review Date:** 10/7/2015

**Approved** X **Disapproved**

**Approval Date:** 10/9/2015 **Approval Expiration Date:** 10/8/2018

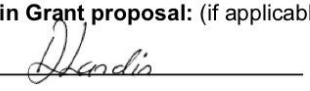
**Exemption Category/Paragraph:** 2a

**Signed Consent Waived?:** Yes

**Re-review frequency:** (three years unless otherwise stated)

**LSU Proposal Number** (if applicable):

**Protocol Matches Scope of Work in Grant proposal:** (if applicable)

**By**: Dennis Landin, Chairman 

**PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –**
**Continuing approval is CONDITIONAL on:**

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient make sure you use bcc.**

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

# APPENDIX B. SUPPORTING TABLES FOR ESSAY TWO RESULTS

Table B.1. Measurement Models: Items, Reliabilities and Model Fits (Essay Two)

| Constructs and Items | Study 1 | | Study 2a | | Study 2b | |
|---|---|---|---|---|---|---|
| | CR | CA | CR | CA | CR | CA |
| Purchase intentions (1=strongly disagree to 7=strongly agree) | .95 | .95 | .96 | .96 | .94 | .95 |
| Because of the message I reviewed, If I were in the market for a pair of running shoes/backpack,… | | | | | | |
| I would be more likely to consider buying this pair of running shoes/backpack. | | | | | | |
| I would be more likely to possibly buy this pair of running shoes/backpack. | | | | | | |
| The likelihood of me purchasing this pair of running shoes/backpack would be higher. | | | | | | |
| Message understanding (1=strongly disagree to 7=strongly agree) | .95 | .94 | .94 | .94 | .93 | .93 |
| Please indicate the degree to which you agree with the following statements about the message that you | | | | | | |
| The message improved my understanding of the running shoes/backpack. | | | | | | |
| The message made me more knowledgeable about the running shoes/backpack. | | | | | | |
| The message made me more confident in my knowledge of the running shoes/backpack. | | | | | | |
| Message visualization (1=strongly disagree to 7=strongly agree) | .91 | .91 | .93 | .93 | .90 | .90 |
| Please indicate the degree to which you agree with the following statements about the message that you | | | | | | |
| The message made it easy to imagine myself with the running shoes/backpack. | | | | | | |
| The message created a vivid image of myself with the running shoes/backpack in my mind. | | | | | | |
| The message helped me to imagine what it would be like to experience the running shoes/backpack. | | | | | | |
| Model fit indexes | | | | | | |
| CFI | .98 | | .99 | | .98 | |
| TLI | .97 | | .99 | | .97 | |
| RMSEA | .08 | | .03 | | .08 | |
| SRMR | .07 | | .03 | | .07 | |

Notes: Parameter abbreviations with recommended thresholds (Bagozzi and Yi 1988; Brown 2006; Hu and Bentler 1999; Nunnally 1978): CR = Composite Reliability (≥.06), CA = Cronbach's Alpha (≥.08), CFI = Comparative Fit Index (≥.95), TLI = Tucker-Lewis Index (≥.95), RMSEA = Root Mean Square Error of Approximation (≤.08), SRMR = Standardized Root Mean Squared Residual (≤..08); Verbal Anchors in Parentheses

Table B.2. Average Variances Extracted and Squared Correlations (Essay Two)

| Constructs | | | Squared Correlations | |
|---|---|---|---|---|
| | | AVE | 1 | 2 |
| 1 Purchase intentions | Study 1 | (.87) | | |
| | Study 2a | (.89) | | |
| | Study 2b | (.84) | | |
| 2 Message understanding | Study 1 | (.85) | .59 | |
| | Study 2a | (.84) | .52 | |
| | Study 2b | (.93) | .28 | |
| 3 Message visualization | Study 1 | (.78) | .59 | .50 |
| | Study 2a | (.81) | .60 | .52 |
| | Study 2b | (.90) | .43 | .39 |

Notes: Parameter abbreviation with recommended thresholds (Bagozzi and Yi 1988; Brown 2006): AVE = Average Variance Extracted (≥.05)

Table B.3. Means and Standard Deviations for Dependent and Mediating Variables and Manipulation Checks (Essay Two)

| Studies | Purchase Intentions | | Message Understanding | | Message Visualization | | Utilitarian Shopping Goal | | Hedonic Shopping Goal | |
|---|---|---|---|---|---|---|---|---|---|---|
| Study 1 | | | | | | | | | | |
| Video format | | | | | | | | | | |
| Video with sound | $5.97_{a}$ (1.43) | | $5.99_{a}$ (1.01) | | $6.05_{a}$ (1.00) | | N/A | | N/A | |
| Video without Sound | $5.38_{b}$ (1.05) | | $4.98_{b}$ (1.59) | | $5.50_{b}$ (1.34) | | N/A | | N/A | |
| Study 2a | Shopping goals | | Shopping goals | | Shopping goals | | Shopping goals | | Shopping goals | |
| Video format | Utilitarian | Hedonic | Utilitarian | Hedonic | Utilitarian | Hedonic | Utilitarian | Hedonic | Utilitarian | Hedonic |
| Video with sound | $5.95_{a}$ (1.23) | $6.00_{a}$ (1.37) | $5.97_{a}$ (1.07) | $5.96_{a}$ (1.35) | $5.84_{a}$ (.94) | $6.08_{a}$ (1.07) | $6.63_{a}$ (.68) | $4.38_{b}$ (2.38) | $3.56_{a}$ (2.29) | $6.31_{b}$ (.99) |
| Video without sound | $5.80_{a}$ (1.44) | $5.22_{b}$ (1.67) | $5.77_{a,b}$ (1.50) | $5.33_{b}$ (1.44) | $5.97_{a}$ (1.46) | $5.48_{b}$ (1.31) | $6.61_{a}$ (.65) | $4.20_{b}$ (2.14) | $3.91_{a}$ (2.23) | $6.07_{b}$ (1.21) |
| Study 2b | Shopping goals | | Shopping goals | | Shopping goals | | Shopping goals | | Shopping goals | |
| Video format | Utilitarian | Hedonic | Utilitarian | Hedonic | Utilitarian | Hedonic | Utilitarian | Hedonic | Utilitarian | Hedonic |
| Video with sound | $5.87_{a}$ (1.23) | $5.62_{a}$ (1.40) | $6.25_{a}$ (.95) | $6.08_{a}$ (1.09) | $5.75_{a}$ (1.34) | $5.96_{a}$ (.92) | $6.54_{a}$ (.88) | $4.35_{b}$ (2.18) | $2.94_{a}$ (2.07) | $6.08_{b}$ (1.08) |
| Video without sound | $5.73_{a}$ (1.24) | $4.93_{b}$ (1.53) | $5.67_{b}$ (1.16) | $5.39_{b}$ (1.25) | $5.70_{a}$ (1.05) | $5.12_{b}$ (1.50) | $6.65_{a}$ (.64) | $3.91_{b}$ (2.36) | $3.07_{a}$ (2.24) | $5.73_{b}$ (1.3) |

Note: Standard deviations in parentheses. For each measure, overall cell means with distinct superscripts differ significantly at $p < .05$.

# APPENDIX C. PRETEST FOR SHOPPING GOAL MANIPULATION

Table C.1. Shopping Goals Manipulation Scenarios

| | |
|---|---|
| Utlitarian shopping goals scenario | One of the most important features of a product is how functional it is and its ability to perform a set of uses for which it is designed. Imagine that you are in the market for a new pair of running shoes/backpack. Your last pair of running shoes/backpack was not functional and performed poorly. As a result, now you are only concerned with finding a pair of running shoes/backpack that is going to be functional and perform well. |
| Hedonic shopping goals scenario | One of the most important features of a product is how much fun it is and how much you enjoy it. Imagine that you are in the market for a new pair of running shoes/backpack. Your last pair of running shoes/backpack was not fun or enjoyable to use. As a result, now you are only concerned with finding a pair of running shoes/backpack that is going to be fun and enjoyable to use. |

Table C.2. Pretest Items, Mean Values and Standard Deviations

| Constructs and Items | Utilitarian Goals Group | Hedonic Goals Group |
|---|---|---|
| Utilitarian shopping goals (1=strongly disagree to 7=strongly agree) | $6.45_a$ (.91) | $5.08_b$ (1.68) |
| While I was reviewing the message, I was primarily concerned with… | | |
| …how functional the product would be. | | |
| …how well the product would perform. | | |
| Hedonic shopping goals (1=strongly disagree to 7=strongly agree) | $3.63_a$ (1.86) | $5.88_b$ (1.25) |
| While I was reviewing the message, I was primarily concerned with… | | |
| …how much I would enjoy the product. | | |
| …how much fun the product would be. | | |
| Positivity (1=very slightly or not at all to 7= very much) | | |
| To what degree did the shopping situation described make you feel… | | |
| …excited? | $3.86_a$ (1.96) | $5.13_b$ (1.87) |
| …strong? | $4.24_a$ (1.86) | $4.70_a$ (1.89) |
| …enthusiastic? | $4.58_a$ (1.58) | $5.29_b$ (1.68) |
| …proud? | $3.80_a$ (1.96) | $4.20_a$ (2.06) |
| …alert? | 5.34a (1.68) | $5.21_a$ (1.67) |
| …inspired? | $4.31_a$ (1.91) | $4.84_a$ (1.93) |
| …determined? | $5.68_a$ (1.61) | $5.46_a$ (1.65) |
| …attentive? | $5.54_a$ (1.52) | $5.54_a$ (1.55) |
| …active? | $5.20_a$ (1.68) | $5.20_a$ (1.73) |
| Negativity (1=very slightly or not at all to 7= very much) | | |
| To what degree did the shopping situation described make you feel… | | |
| …distressed? | $1.81_a$ (1.36) | $1.95_a$ (1.61) |
| …upset? | $1.54_a$ (1.13) | $1.86_a$ (1.72) |
| …guilty? | $1.49_a$ (1.15) | $1.73_a$ (1.46) |
| …scared? | $1.58_a$ (1.29) | $1.57_a$ (1.43) |
| …hostile? | $1.47_a$ (1.08) | $1.45_a$ (1.12) |
| …irritable? | $1.71_a$ (1.26) | $1.77_a$ (1.48) |
| …ashamed? | $1.49_a$ (1.12) | $1.54_a$ (1.25) |
| …nervous? | 1.81a (1.33) | $1.84_a$ (1.49) |
| …jittery? | $1.56_a$ (1.13) | $1.66_a$ (1.38) |
| …afraid? | $1.51_a$ (1.06) | $1.48_a$ (1.22) |

(table cont'd)

| Constructs and Items | Utilitarian Goals Group | Hedonic Goals Group |
|---|---|---|
| Budget concern (1=very slightly or not at all to 7= very much) | | |
| To what degree did the shopping situation described make you feel… | | |
| …budget-conscious? | $3.86_a$ (1.73) | $4.07_a$ (1.93) |
| …worried about money? | $3.31_a$ (1.72) | $3.70_a$ (1.94) |
| …price conscious? | $4.12_a$ (1.87) | $4.07_a$ (2.06) |
| Decision accuracy (1=very slightly or not at all to 7= very much) | | |
| To what degree did the shopping situation described make you feel… | | |
| …confident in your ability to successfully make a purchasing decision? | $5.86_a$ (1.01) | $5.77_a$ (1.03) |
| …confident in your decision-making abilities? | $5.88_a$ (.97) | $5.70_a$ (1.06) |
| Cognitive load (1=strongly disagree to 7=strongly agree) | | |
| The shopping situation described would… | | |
| …require a lot of attention. | $4.63_a$ (1.96) | $4.16_a$ (2.08) |
| …require a lot of thought. | $4.27_a$ (1.87) | $4.02_a$ (2.14) |
| Realism (1=not at all to 7=very much) | | |
| To what degree do you think the shopping situation described to you represents one that could occur in real life? | $6.12_a$ (1.16) | $6.00_a$ (1.43) |

Notes: Standard deviations are in parentheses. For each measure, overall cell means with distinct super scripts differ significantly at $p < .05$.

# APPENDIX D. SUPPORTING TABLES FOR ESSAY THREE STIMULI AND RESULTS

Table D.1. Visual Distraction Stimuli and Manipulation Check

Visual Distraction Absent Condition: Focal video-only


Visual Distraction Present Condition: Focal video + distraction video (no sound)


Visual distraction manipulation check (1=strongly agree to 7=strongly disagree; $CA_{pretest}$ = .81; $CA_{study\ 3}$ = .82)

While reviewing the backpack message,….

I found it effortful.

I found it stressful.

I was distracted.

Notes: Video format (focal video) was manipulated and either played with sound or without sound.

Table D.2. Measurement Models: Items, Reliabilities and Model Fits (Essay Three)

| Constructs and Items | Study 3 | | Study 4 | |
|---|---|---|---|---|
| | CR | CA | CR | CA |
| Purchase intentions (1=strongly disagree to 7=strongly agree) | .95 | .94 | .93 | .93 |
| Because of the message I reviewed, If I were in the market for a pair of running shoes/backpack,… | | | | |
| 1 I would be more likely to consider buying this pair of running shoes/backpack. | | | | |
| 2 I would be more likely to possibly buy this pair of running shoes/backpack. | | | | |
| 3 The likelihood of me purchasing this pair of running shoes/backpack would be higher. | | | | |
| Message understanding (1=strongly disagree to 7=strongly agree) | .95 | .94 | .86 | .86 |
| Please indicate the degree to which you agree with the following statements about the message that you reviewed. | | | | |
| 1 The message improved my understanding of the running shoes/backpack. | | | | |
| 2 The message made me more knowledgeable about the running shoes/backpack. | | | | |
| 3 The message made me more confident in my knowledge of the running shoes/backpack. | | | | |
| Message visualization (1=strongly disagree to 7=strongly agree) | .91 | .89 | .84 | .84 |
| Please indicate the degree to which you agree with the following statements about the message that you reviewed. | | | | |
| 1 The message made it easy to imagine myself with the running shoes/backpack. | | | | |
| 2 The message created a vivid image of myself with the running shoes/backpack in my mind. | | | | |
| 3 The message helped me to imagine what it would be like to experience the running shoes/backpack. | | | | |
| Cognitive load (1=strongly disagree to 7=strongly agree) | | | .90 | .90 |
| While reviewing the backpack message,… | | | | |
| 1 I found it effortful. | | | | |
| 2 I found it stressful. | | | | |
| 3 I was distracted. | | | | |
| Model fit indexes | | | | |
| CFI | .99 | | .99 | |
| TLI | .98 | | .98 | |
| RMSEA | .07 | | .05 | |
| SRMR | .05 | | .08 | |

Notes: Parameter abbreviations with recommended thresholds (Bagozzi and Yi 1988; Brown 2006; Hu and Bentler 1999; Nunnally 1978): CR = Composite Reliability (≥.06), CA = Cronbach's Alpha (≥.08), CFI = Comparative Fit Index (≥.95), TLI = Tucker-Lewis Index (≥.95), RMSEA = Root Mean Square Error of Approximation (≤.08), SRMR = Standardized Root Mean Squared Residual (≤..08); Verbal Anchors in Parentheses

Table D.3. Average Variances Extracted and Squared Correlations (Essay Three)

| Constructs | | | Squared Correlations | | |
|---|---|---|---|---|---|
| | | AVE | 1 | 2 | 3 |
| 1 Purchase intentions | Study 3 | (.85) | | | |
| | Study 4 | (.81) | | | |
| 2 Message understanding | Study 3 | (.85) | .43 | | |
| | Study 4 | (.67) | .27 | | |
| 3 Message visualization | Study 3 | (.77) | .43 | .70 | |
| | Study 4 | (.64) | .46 | .34 | |
| 4 Cognitive load | Study 4 | (.74) | .01 | .13 | .03 |

Notes: Parameter abbreviation with recommended thresholds (Bagozzi and Yi 1988; Brown 2006): AVE = Average Variance Extracted (≥.05)

Table D.4. Means and Standard Deviations for Dependent and Mediating Variables and Manipulation Checks (Essay Three)

| Studies | Purchase Intentions | | Message Understanding | | Message Visualization | | Cognitive Load | |
|---|---|---|---|---|---|---|---|---|
| Study 3 | Visual distraction | | Visual distraction | | Visual distraction | | Visual distraction | |
| Video format | Present | Absent | Present | Absent | Present | Absent | Present | Absent |
| Video with sound | $5.51_{a}$ (1.21) | $5.97_{b}$ (1.07) | $5.89_{a}$ (1.07) | $6.30_{b}$ (.87) | $5.43_{a}$ (1.24) | $5.98_{b}$ (.95) | $3.88_{a}$ (1.58) | $3.23_{b}$ (1.21) |
| Video without sound | $4.85_{b}$ (1.47) | $5.61_{a}$ (1.38) | $4.82_{b}$ (1.56) | $5.83_{c}$ (1.09) | $4.80_{b}$ (1.46) | $5.76_{c}$ (1.06) | $4.21_{c}$ (1.32) | $3.44_{b,d}$ (1.26) |
| Study 4 | Text captions | | Text captions | | Text captions | | Text captions | |
| Video format | Present | Absent | Present | Absent | Present | Absent | Present | Absent |
| Video with sound | $5.36_{a}$ (1.18) | $5.80_{b}$ (1.04) | $5.98_{a}$ (.87) | $6.36_{b}$ (.77) | $5.74_{a}$ (1.20) | $5.81_{a}$ (.87) | $2.93_{a}$ (1.70) | $2.26_{b}$ (1.44) |
| Video without sound | $5.26_{a}$ (1.64) | $5.28_{a}$ (1.56) | $5.67_{a}$ (.95) | $5.40_{a}$ (1.44) | $5.71_{a}$ (1.19) | $5.64_{a}$ (.99) | $2.62_{a}$ (1.40) | $3.18_{a}$ (1.63) |

Note: Standard deviations in parentheses. For each measure, overall cell means with distinct superscripts differ significantly at $p < .05$, for all appropriate comparisons. Comparisons were made within each video format manipulation across the visual distraction manipulation (Study 3) and text captions manipulation (Study 4). Comparisons were also across the video format manipulation within the visual distraction manipulation (Study 3) and text captions manipulation (Study 4).

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# VITA

Jordan Worth Moffett is a PhD candidate in the Department of Marketing at the E.J. Ourso College of Business at Louisiana State University. She received a B.A. in Marketing with a minor in Textiles, Apparel and Merchandising from Louisiana State University in 2009, an MBA with an emphasis in Marketing from Regent's College, London in 2010 and an M.A. in Media Communications from Regent's College, London in 2013. Moffett has accepted a position as an Assistant Professor of Marketing at University of Kentucky beginning in fall 2019. Her research interests include work in relationship marketing and customer engagement marketing, with a particular focus on communication strategies. Moffett's work has been published in *Journal of the Academy of Marketing Science*, presented at conferences including the American Marketing Association, the Academy of Marketing Science and Southeastern Marketing Symposium and featured as part of a working paper series at *Marketing Science*.

At Louisiana State University, Moffett taught retailing management for undergraduate students. Her teaching interests also include marketing management, marketing strategy and digital marketing. In addition to being recognized for research, Moffett was honored with the 2017 Daryl McKee Memorial Award from the LSU Department of Marketing in recognition of her collegiality, mentoring and program stewardship. She was also selected to represent the Department of Marketing at the 2018 Academy of Marketing Science Consortium and the 2018 American Marketing Association Sheth Consortium, an annual event for top PhD students in marketing from around the world. Prior to entering academics, her work experience includes retail, marketing and financial management/consulting.