Exploring Narrative Processing and Persuasion of Advertisements: Differences Across Communication Media

Brendan Quinn

A Thesis from

John Molson School of Business

Presented in Partial fulfillment of the Requirements

For the Degree of Master of Science (Administration) at

Concordia University

Montreal, Quebec, Canada

August 2020

CONCORDIA UNIVERSITY

School of Graduate Studies

This is to certify that the thesis prepared

By: Brendan Quinn

Entitled: Exploring Narrative Processing and Persuasion of Advertisements: Differences

Across Communication Media

and submitted in partial fulfillment of the requirements for the degree of

Master of Science (Marketing)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the final Examining Committee:

Dr Bianca Grohmann	Chair
Dr. Onur Bodur	Examiner
Dr. Tieshan Li	Examiner
Dr. Bianca Grohmann	Supervisor

Approved by: Dr. Zeynep Arsel, Graduate Program Director

August 20, 2020   Dr. Kathleen Boies, Dean of Faculty

Abstract

Exploring Narrative Processing and Persuasion of Advertisements:

Differences Across Communication Media

Brendan Quinn

Recent work has investigated the mechanisms underlying narrative advertisements' persuasive powers. Another body of research has investigated the ways that consumers interact with stimuli and narratives across different communication media. However, prior research has generalized findings across media without empirically testing these generalizations. This work seeks to clarify the role of media in narrative processing of advertisements. It validates that narrative transportation, retrospective reflection and narrative engagement mediate the formation of brand attitudes by narrative advertisements across media. The roles of cognitive load, imagery generation, emotional and cognitive involvement are assessed for brands ranging across product categories and prior familiarity. The results of this research provide theoretical contributions to narrative processing, narrative persuasion and advertising bodies of literature. Limitations, future research ideas and managerial implications conclude the discussion of this research.

Acknowledgements

I would first like to express my sincere gratitude to my thesis supervisor, Dr. Bianca Grohmann. From her initial encouragement when I proposed my research idea until the completion of this project, Dr. Bianca Grohmann played a crucial role in sharing her expertise and guiding me toward completing a thesis I could be proud of. I am additionally thankful for the helpful comments and feedback provided by my committee members, Dr. Onur Bodur and Dr. Tieshan Li

I would also like to express a profound thank you to my parents, my girlfriend and my friends for providing me with continuous support and encouragement, and to my boss whose support and flexibility allowed me to balance working throughout my degree. This accomplishment would not have been possible without you all. Thank you.

Table of Contents

List of Figures

List of Tables

Introduction

Stories are crucial to our understanding of the world around us, what goes on in our own lives, and who we are as individuals and members of society. Narrative processing is a critical process for enabling this understanding; it organizes events as goal-directed, action-oriented sequences occurring over time. Narratives persuade through the recipient (consumer) getting absorbed into the story world (Green & Brock, 2000), focusing on positive affect rather than cognitive messages (Escalas, 2004), and by matching incoming narrative information to experiences from one's own life (Hamby et al., 2016). Much research has been done on the mechanisms underlying narrative processing and the persuasive powers of narratives, encompassing mechanisms including *narrative transportation* (Green & Brock, 2000), *narrative identification* (Cohen, 2001)*, narrative self-referencing* (Escalas, 2006), *narrative engagement* (Busselle & Bilandzic, 2009) and *retrospective reflection* (Hamby et al., 2016).

Although these are all powerful mechanisms, research has tended to examine these mechanisms in specific contexts. Narrative transportation has been investigated[1] in the context of text-based narratives (Dunlop et al., 2010; Green & Brock, 2000; Green, 2004), verbal and visual narratives (Dunlop et al., 2010; Lien & Chen, 2011), or storyboard narratives (Escalas, 2006). Retrospective reflection has been examined in the context of text-based narratives (Hamby et al., 2016). However, only a select few researchers have begun to assess how the mechanisms underlying narratives' persuasive powers may vary by communication medium (Braverman, 2008; Lien & Chen, 2011). Most researchers have focused on one specific form of narrative, oftentimes then making generalisations beyond that medium, overlooking the key differences in

---

[1] See Van Laer et al. (2014) for a greater overview of articles utilising narrative transportation.

1

the ways that people interact with different communication media. For example, both

Escalas (2004) and Dunlop and colleagues (2010) used storyboards, but generalised

findings to video advertisements. This study seeks to empirically test whether persuasive

mechanisms of narrative ads indeed generalize across communication media. It examines

the prevalence of narrative transportation and retrospective reflection across

communication media, and the extent to which they influence consumers' brand attitudes.

Conceptual Framework

Defining Narratives and Narrative Advertising

Narratives take various forms in our daily lives. Within the context of advertising, narrative ads

can be understood as ads that tell a story. These fall into one of many specific forms (e.g., drama,

transformational, slice of life ads; Escalas, 2004). More specifically, these are advertisements

that include clearly identifiable characters, a causal sequence of events whereby characters

undertake actions to achieve a goal (as a result of an initial event), and (ideally) some degree of

awareness of the psychological state of the protagonist (Escalas, 2004). Narratives, including

narrative advertisements (Green & Brock, 2000), draw audiences into the story (Gerrig, 1993;

Nell, 1988) and encourage consumers to think in narrative form. This narrative processing

minimizes cognitive assessment of the product or brand (Escalas, 2004), and in turn leads to

more positive evaluations of the ad and brand. In the context of television ads, emotive response,

ad hedonic value, ad credibility, and perceived goal facilitation collectively mediate the positive

effects of narrative ads on ad and brand attitudes (Kim et al., 2017).

Narrative Transportation

The feeling of getting lost in a book (Nell, 1988) is a feeling that most people can relate to. This feeling, termed *narrative transportation,* is one way that people process narratives, as explained by Gerrig (1993):

> Someone ('the traveler') is transported, by some means of transportation, as a result of performing certain actions. The traveler goes some distance from his or her world of origin, which makes some aspects of the world of origin accessible. The traveler returns to the world of origin, somewhat changed by the journey (Gerrig, 1993, p. 10-11).

Transported readers may lose access to real-world facts, and experience strong emotions and motivations, regardless of whether or not the events in the story are real (Gerrig, 1993). Furthermore, transported individuals return from being transported somewhat changed by the experience (Gerrig, 1993). Within the context of advertising, this involvement with the story leads to minimized cognitive assessment of the product or brand (Escalas, 2004), with attention being paid instead to the narrative itself.

In order for narrative transportation to occur successfully, the advertisement must provide an adequate level of realism so as not to elicit feelings of skepticism. Consumers who are skeptical or suspicious of the ad, and are thus analysing it critically (a cognitively demanding process, potentially triggered by salient manipulative intent of the advertisement), may process the narrative analytically rather than experience high levels of narrative transportation (Escalas, 2006; Wentzel et al., 2010). For this reason, stories more closely related to one's own life elicit higher levels of narrative transportation, due to knowledge and experiences relevant to the themes of the story (Green, 2004).

Furthermore, consumers need to be in the right state of mind for narrative transportation to occur. Green and Brock's (2000) research suggested that elevated cognitive load would inhibit the attention levels needed to experience high levels of narrative transportation. This has since been supported in several studies, including by Hamby and colleagues (2016). In contrast, Wentzel and colleagues (2010) highlighted a potential boundary condition for the negative effects of cognitive load on transportation. In cases of high manipulative intent, when no cognitive load was present, participants processed the narrative analytically. However, higher cognitive load actually attenuated the impact of manipulative intent and led consumers to engage in narrative processing, showing that under certain circumstances, higher cognitive load is better as opposed to worse (Green & Brock, 2000). This is explained by the fact that "if [consumers'] resources are occupied with other tasks, they are not able to activate their persuasion knowledge to the full extent, as a consequence of which they do not question the motives of the advertiser as intensely and evaluate the ad in a narrative manner" (Wentzel et al., 2010, p. 523).

The importance of cognitive load and mindset on narrative transportation can be more clearly understood in light of the two pathways to persuasion proposed by the Elaboration Likelihood Model (ELM; Petty et al., 1986). This model posits that highly involved or motivated audiences use the central route to process the message, relying primarily on cognitive evaluations of the message. However, consumers less involved with the message (i.e., consumers who are not skeptical or suspicious, or the ad is not aligned with their goals) tend to use the peripheral message processing route by relying on peripheral cues rather than argument strength. Braverman (2008) supported this

tendency, finding that narrative transportation was more closely linked to persuasion for individuals with low levels of involvement with the message. Avery et al. (2010) further propose that narrative processing is a third route to persuasion.

The impact of involvement on attitudes shifts, and is arguably more important, when the involvement is with the narrative itself rather than the message (Slater & Rouner, 2002). Nielsen and Escalas (2010) found that consumers who invested more cognitive and imaginative resources to comprehending a narrative (due to it being difficult to understand and process) experienced higher levels of narrative transportation, and ultimately showed more positive brand evaluations in a path fully mediated by narrative transportation. It would therefore seem that the feelings of difficulty of processing a narrative do not transfer to judgement of the brand, due to the goal under narrative processing being to comprehend the story.

The concept of narrative transportation has received wide empirical attention. A meta-analysis conducted by Van Laer et al. (2014) found 76 published articles measuring narrative transportation, and 270 published articles (including book sections) discussing it. A concern in the narrative transportation literature (as highlighted by this meta-analysis) is the flexibility with which authors adapt measures from the scales, and have created new scales, from the original 15-item scale developed by Green and Brock (2000). For instance, in assessing narrative transportation, Van Laer et al.'s (2014) meta-analysis included articles citing the original scale by Green and Brock (2000) or an adaptation of it, the Hooked scale (Escalas et al. 2004, p. 110), and the Mysticism scale (Hood, 1975). Further scales assessing narrative transportation include the Transportation Scale Short-Form (Appel et al., 2015) and the Video Transportation Scale (Williams et al., 2010).

This preponderance of scales to measure a single construct, and the haphazard manner in which authors have selected a subset of measures that suit their needs, is a significant limitation of the field that this research aims to shed clearer light on.

Retrospective Reflection

Retrospective reflection is defined as "the recall of self- or other-relevant memories evoked by transportation into a story, which validate and extend story-implied beliefs into the reader's world" (Hamby et al., 2016, p. 3). Hamby and colleagues (2016) proposed retrospective reflection as a distinct mediator of the persuasive effects of narrative transportation. To understand the unique role of retrospective reflection, it is necessary to delineate it from self-referencing and narrative transportation.

First, self-referencing is often thought of from an analytical perspective, whereby "self-referencing occurs when information is processed by relating it to aspects of oneself (e.g., one's own personal experiences)" (Burnkrant & Unnava, 1995, p. 17). This analytical self-referencing persuades through cognitive assessment of message arguments and is a mechanism beyond the scope of this study. Escalas (2006) expanded the understanding of self-referencing beyond being an analytical process, uncovering the existence of narrative self-referencing. Narrative self-referencing is related to narrative transportation, enabling persuasion through affective transference occurring during narrative transportation, and involves consumers creating a mental simulation of the narrative. This creation of a story world about the self enables greater narrative transportation and persuades through positive affect (and consequently, distraction from message arguments; Escalas, 2006). Argument strength is important for non-narrative ads, but not for narrative ads (Lien & Chen, 2011)

By contrast, although retrospective reflection is also related to narrative transportation, rather than enabling greater narrative transportation through creation of a story world as does narrative self-referencing (Escalas, 2006), retrospective reflection occurs subsequent to and as a result of narrative transportation, once the outcome of the narrative is revealed. Retrospective reflection serves to match the elements of the narrative to one's own memories and experiences (either about oneself or others), increasing the persuasive effects of narrative transportation by contrasting what happened in the narrative to consumers' model of the real world (Hamby et al., 2016). Personal relevance established through matching increases persuasion-related outcomes of narratives (Green, 2004), and increases credibility of the brand as a source of the narrative (Brumbaugh, 2002). This makes consumers more likely to accept statements made by the brand, and ultimately view the brand (and its products/services) as a potential tool to help achieve their self-concept-related goals (Escalas, 2004).

Research on retrospective reflection has only been conducted with health-related narratives (Hamby et al., 2016), and it is pertinent to evaluate whether these effects emerge with narrative brand advertisements and across communication media.

Narratives Ads Help Shape Self-Brand Connections

Escalas (2004) elaborated on one specific mechanism through which narrative processing occurs and helps shape brand attitudes. Consumers match the incoming narrative information onto stories in memory (Schank et al., 1995) to comprehend the information. This supports the development of *self-brand connections (SBCs)*, defined as "the extent to which individuals have incorporated brands into their self-concept" (Escalas, 2004, p. 3). The matching process of the narratives to their own experiences allows consumers to "make inferences and draw conclusions

about the brand and its potential link to their self-concept-related-goals" (Escalas, 2004, p. 10), in some cases even being incorporated as tools and symbols in consumers' life narratives.

Escalas' (2004) research showed that SBCs are associated with more positive attitudes toward the brand and higher likelihood of purchase, findings that have since been confirmed by Wentzel and colleagues (2010).

Communication Media and Processing of Narratives

There is significant evidence that consumers process narratives differently depending on the medium through which they are delivered (Childers & Houston, 1984; Lien & Chen, 2011). For instance, a distinction exists between pictorial and verbal narratives (Childers & Houston, 1984), with Paivio (1986) explaining that pictures contain sufficient information and imagery on their own, thus potentially reducing the formation of further mental imagery (Babin & Burns, 1997a). Lien and Chen (2011) demonstrated the implications for brand attitude formation, in that narrative transportation mediated attitude formation for verbal narrative ads, whereas cognitive resource allocation (such as retrospective reflection/self-referencing) may be the underlying process mediating visual narrative stories' persuasion effects[2]. Hamby and colleagues (2016) explained this distinction further, claiming that reading (either texts, pictures, or a combination) allows respondents to choose their own pace and thus increases their ability to create mental representations of the narrative world that are connected to their own world (narrative self-referencing), compared to video narratives which may have lower levels of narrative transportation.

---

[2] It is important to note that in their study, although touted as a visual-only narrative, the bottom third of the page was filled with product arguments, potentially artificially inflating analytical elaboration compared to narrative processing.

Although it is standard practice to test storyboard ad concepts before fully producing advertisements, the literature dating back several decades highlights that in some cases, consumer reactions to storyboard ads are correlated to reactions to corresponding fully produced videos, but that they may also differ. Schlinger and Green (1980) tested ratings of storyboard ads prior to production and compared these to ratings of the fully produced ads. Their research highlighted that although no significant differences existed between ratings of persuasion, brand reinforcement and "relevant new" (i.e., the extent to which the consumer felt the ad was well suited to them, thought the product would be useful to them – similar in basis to retrospective reflection), there were significant differences in terms of the level of confusion and empathy the ad generated. Consumers are more likely to empathise with characters in fully flushed out advertisements than in storyboard mock-ups (Schlinger & Green, 1980). They also suggested the art-work renderings and rough soundtracks must be of reasonably high quality if storyboards are to be meaningful. Deshpande and colleagues (2015) conducted a study comparing ratings of a video and storyboard ad of a social marketing promotion encouraging kids to exercise, and found significant differences in ad liking and motivation to adhere to the guidelines set out by the ad.

Despite these long-standing distinctions between communication media and the different ways that consumers interact with them, it is surprising that research tends to test stimuli delivered by one medium (e.g., storyboards) and generalise findings to other media that may trigger different processing mechanisms (e.g., video ads). This research seeks to fill that void and clarify the processes across communication media.

Hypotheses

Based on the literature on the effect of advertisements on narrative transportation, retrospective reflection and subsequent brand attitudes, this research examines whether different advertising communication media (i.e., storyboard, audio, and video advertisements) lead to different degrees of narrative transportation, retrospective reflection, and brand attitudes. This research also examines the moderating role of cognitive load in these processes.

The literature suggests that stimuli that contain sufficient imagery on their own may supress the formation of further mental imagery (Babin & Burns, 1997; Paivio, 1986; Percy & Rossiter, 1983). Because of this reduced need to formulate mental imagery, it is hypothesized that consumers viewing the video advertisement will experience lower levels of narrative transportation than stimuli without fully developed visuals.

Mixed findings exists concerning the differences between audio and storyboard stimuli with regards to narrative transportation. Paivio (1986) claimed that even pictures may contain sufficient imagery and thus reduce further mental imagery (Babin & Burns, 1997) as compared to text or audio stimuli. However, by contrast, the ability to see images (but still fill in the gaps) may increase consumers' likelihood to empathise with characters, and ultimately increase narrative transportation. Due to the need for imagination to fully envisage the story playing out in the storyboard and audio compared to video advertisements, consumers may be more likely to establish links to their own experiences (Hamby et al., 2016), thus furthering narrative self-referencing and narrative transportation (Escalas, 2006). Due to mixed evidence, a difference in narrative transportation for audio versus storyboard ads is not anticipated, but it is hypothesized

that storyboard and audio advertisements are associated with greater narrative transportation compared to video advertisement.

Hypothesis 1: Narrative transportation will be significantly greater in the (a) audio and (b) storyboard advertisements compared to the (c) video advertisement.

Previous research has shown that both narrative transportation and retrospective reflection are cognitively demanding tasks (Dunlop et al., 2010; Green & Brock, 2000; Hamby et al., 2016). Green and Brock's (2000) research suggested that elevated cognitive load inhibits the attention levels needed to experience narrative transportation. This has since been supported in several studies, including by Hamby et al. (2016), who also found that increased cognitive load reduced retrospective reflection.

Increased cognitive load may also serve to encourage participants to use the central route to process the message (Petty et al., 1986) rather than a peripheral processing route where narrative transportation and retrospective reflection are more likely to occur. This leads to the following prediction:

Hypothesis 2: Cognitive load will reduce levels of (a) narrative transportation, (b) retrospective reflection and, consequently, (c) brand attitudes regardless of media condition.

Narrative transportation has been shown to increase evaluations of the ads, and many researchers have shown specifically that increased narrative transportation results in increased attitude toward the brand (Escalas, 2004; Kim et al., 2017; Lien & Chen, 2011; Nielsen & Escalas, 2010). Furthermore, the diversity of media used in narrative transportation research (Van Laer et

al., 2014) and the similar trend found across media provides support that this effect will occur across media conditions. This leads to the following hypothesis:

Hypothesis 3: Narrative transportation positively relates to attitude toward the brand.

Hamby et al. (2016) showed that retrospective reflection mediates the relationship between narrative transportation and persuasion-related outcomes, with higher retrospective reflection resulting in more positive attitudes. Although Hamby et al. (2016) are the only authors to study retrospective reflection specifically, other researchers have supported similar processes that may mediate persuasion-related outcomes through matching narratives to stories in memory (Escalas, 2004; Green, 2004; Lien & Chen, 2011; Schank et al., 1995). This support by multiple authors and studies speaks to its importance, and suggests that retrospective reflection will be a mediator across communication mediums.

Hypothesis 4: Retrospective reflection positively relates to attitude toward the brand.

This hypothesis is based on the framework set out in the previous hypotheses. If narrative transportation, retrospective reflection and, consequently, attitudes vary as a function of media, and if cognitive load may moderate that relationship across media, then a significant moderated serial mediation is expected to emerge.

Hypothesis 5: Narrative transportation and retrospective reflection will serially mediate the interactive effect of media and cognitive load on brand attitude.

Overview of Studies

12

This research consists of several pretests of advertising stimuli and cognitive load manipulations. In pretest 1, we examine the stimuli adapted across media to ensure they maintain adequate levels of perceived narrative structure and quality. In pretest 2a and 2b, we test the cognitive load manipulation, ensuring that it is appropriately difficult and that it does not reduce perceptions of quality or narrative structure. Study 1 assesses the role of narrative transportation and retrospective reflection across media and brands in predicting attitude toward the brand. Pretest 3 examines further stimuli adapted across media (for new brands) to ensure their perceived narrative structure and quality are appropriate. Study 2 assesses the role of narrative transportation, retrospective reflection and narrative engagement across media and brands in predicting attitude toward the brand and attitude toward the ad.

Pretest 1

Pretest 1 tested the appropriateness of the ad stimuli in a 3 (type of media: storyboard, video, audio ad) × 3 (brand: Publix, BT Mobile, Uncle Toby's) mixed-factorial design. Type of media was a between-participants factor and brand was a within-participants factor.

Participants

A total of 98 adult consumers from Amazon's Mechanical Turk (herein referred to as MTurk; Paolacci, Chandler, & Panagiotis, 2010) completed the online study through the Qualtrics survey platform in exchange for 1.00 USD. The HIT (*human intelligence task*, referring to a task that MTurk *workers* can complete) was posted on October 18, 2019 at midday and was restricted to US workers with a 95% approval rating and 100 or more approved HITs in an attempt to maximise data quality (Berinsky et al., 2012; Goodman et al., 2013; Paolacci et al., 2010; Peer et al., 2014)..

Eleven participants' answers were removed because they failed both instructional manipulation checks found within the study (Oppenheimer et al., 2009), completed the questionnaire +/-2SD from the average time to completion, or did not watch the advertisements in full (verified by timers on the stimuli pages). The final sample comprised 87 adults (37.9% female; M_{age} = 35.67, SD = 10.62).

Stimuli

Advertisements were sourced online in video format and chosen by the authors for having a narrative structure, and for being produced in a way that the message would remain clear if the visuals were removed from the video advertisement (to allow adaptation across types of media). The brands selected for use in the study were chosen to range across product categories and levels of prior awareness. Two of the brands (BT Mobile and Uncle Toby's) were chosen for not being offered in North America as a way to limit prior awareness, as well as for being across different product categories (mobile service provider and snack items, respectively). Publix was chosen for being a grocery store chain that is only present in the southeastern United States, ideally resulting in a mixed amount of prior awareness among participants.

Storyboard advertisements were adapted from the original video advertisements (see Appendix 1 for links to original video advertisements) by compiling a series of freeze-frames from the fully produced video. The full soundtrack of the original advertisement was kept in its original format (including dialogue and music/sound effects) due to Schlinger and Green's (1980) assessment of storyboard ads (and their fully produced counterparts) that highlighted that rough soundtracks must be of reasonably high quality if storyboards are to be meaningful.

Audio advertisements were adapted from the original video advertisements by removing the visuals. They were presented with a sound icon on-screen to enable a point of visual fixation for later studies when there would be a visual manipulation of cognitive load on-screen. All forms of stimuli were shown to participants as embedded videos integrated into the Qualtrics survey platform.

Procedure and Measures

Participants were randomly assigned to one of three conditions (media: audio, storyboard, video), and were exposed to three different brands' advertisements within that form of media in counterbalanced order in a 3 × 3 mixed-methods design.

Participants reviewed each advertisement and then answered a series of questions about their perceptions. Measures included attitudes toward the brand (α = .93; Hamby et al., 2016)[3], perceived advertisement quality (α = .70; Escalas, 2004), perceived narrative structure (α = .71; Escalas, 2006), narrative transportation (Appel et al., 2015)[4], as well as control measures, including product category involvement (last time to purchase products within the product category, how much they enjoy purchasing that type of product), prior awareness of the brand and presence of technological issues while completing the survey.

Results

Quality Scale Adjustment

---

[3] Kim et al. (2017) showed that in the context of narrative ads, attitude toward the ad mediates attitude toward the brand as a result of the narrative processing. Since this is of greater empirical interest to the researchers, in an effort to reduce the number of measures for participants to complete, attitude toward the brand was chosen as the dependent variable.

[4] The transportation scale short-form (Appel et al., 2015) was chosen for its reduced length and prevalence in the literature (including Hamby et al., 2016). It has been validated to measure transportation effectively using only 6 of the 15 original items (Green & Brock, 2000).

The authors initially included three items to form the quality scale (the advertisement was professional, the advertisement was high quality, the advertisement was realistic; Escalas, 2004). However, the quality scale reliability in this form was inadequate ($\alpha = .64$). Unbounded principal component analysis showed that the item "the ad was realistic" loaded with an item of narrative structure ("the ad had a clear beginning, middle, and end") rather than to the other items of the quality measure, suggesting that it was in fact more closely an indicator of narrative structure than quality. By removing this item from the quality scale, reliability was improved ($\alpha = .70$). As such, assessment throughout the studies when referring to quality is with only the two items (i.e., "the ad is professional", "the ad is high quality").

Prior Awareness

Analyses of prior awareness confirmed that, prior to viewing the advertisements, few participants were aware of Uncle Toby's (7%) and BT Mobile (11.5%), and the majority were aware of Publix (65.5%). As anticipated, two brands were associated with limited awareness and one with higher awareness. This allowed for a potential evaluation of the impact of brand familiarity on the role of narrative transportation in predicting attitudes.

Technological Issues

Participants' responses to the presence of technological issues highlighted potential problems in the introduction to the storyboard condition. More than a quarter (26.6%) of participants in the storyboard condition reported experiencing technological issues, with participants commenting that the video was freezing and not loading properly (indicating that they did not properly understand the intended format of the stimuli they were exposed to). By comparison, nobody in the video condition reported experiencing technological issues, and only 2 (2.4%) in the audio condition reported experiencing

issues. The authors' effort to keep descriptions similar across conditions evidently compromised clear expectations of the stimuli being set to the participants in the storyboard condition (see Appendix 2 for full introduction texts used for each medium). The importance of this is further highlighted by a univariate ANOVA analysis which showed that presence of technological issues significantly predicted attitudes ($F(1, 258) = 4.57$, $p < .04$), with participants who reported experiencing technological issues reporting lower attitudes toward the brand.

Identification of Covariates

We conducted a series of 3 × 3 ANOVAs of media and brand on all potential covariates to ensure the equivalence of measures across types of media; the only measure that was significantly predicted by media type was quality ($F(2, 251) = 17.12$, $p < .001$), with the storyboard condition having significantly lower quality perceptions ($M_{audio} = 5.60$, $SD = 1.07$; $M_{storyboard} = 5.09$, $SD = 1.41$; $M_{video} = 6.08$, $SD = .80$) compared to the audio ($t(171) = -2.64$, $p < .01$; mean difference = -.51) and the video ($t(175) = -5.71$, $p < .001$; mean difference = -.99) conditions. This is aligned with the lack of clear expectations and perception of technological issues. No other potential covariates were significantly predicted by media (all Fs < 1.8, all ps > .15), suggesting that comparison across media types in the main study can be conducted appropriately. However, many potential covariates were significantly predicted by brand, suggesting the potential need to control for brand in this research. Specifically, brand significantly related to prior awareness ($F(2,251) = 68.27$, $p < .001$), involvement ($F(2,251) = 99.48$, $p < .001$) and enjoyment ($F(2,251) = 40.25$, $p < .001$). These differences may, at least in part, reflect the brands' association with different product categories. There were no significant interaction effects.

Next, a series of 3 × 3 ANOVAs with attitudes toward the brand as the dependent variable, and brand and media as the independent variables, and the various covariates were conducted. Prior awareness significantly predicted attitudes ($F(2,166) = 94.44, p < .001$), with significant differences in levels of prior awareness existing between the Publix ($M_{Publix}=1.35, SD = .48$) and BT Mobile ads ($M_{BT} = 1.88, SD = .32$; mean difference = .54, ($t(171) = 8.66, p < .001$) and between the Publix and Uncle Toby's ads ($M_{Tobys}=1.93$, $SD = .26$; mean difference = .58, ($t(171) = 9.99, p < .001$), but not between the BT Mobile and Uncle Toby's ads ($t(172) = 1.05, p > .20$), suggesting the potential importance of prior awareness or brand as a covariate. No other potential covariates significantly predicted attitudes.

Narrative Structure

Narrative structure of the advertisements was assessed by media type, indicating an acceptable average perceived narrative structure ($M_{Publix} = 5.81, SD = 1.14$; $M_{BT} = 5.64, SD = 1.32$; $M_{Tobys} = 5.50, SD = 1.10$). A mixed-model ANOVA with narrative structure as the dependent variable and media type and brand as the independent variables revealed that brand was the only significant predictor of narrative structure ($F(2,166) = 5.84, p < .01$). No significant differences existed in perceived levels of narrative structure across type of media ($p > .30$), validating the fact that a clear story was communicated regardless of type of media.

Perceived Quality

Perceived quality of the advertisements was assessed by media type, indicating an acceptable average perceived quality of the advertisements ($M_{Publix} = 5.81, SD = 1.14$; $M_{BT} = 5.64, SD = 1.32$; $M_{Tobys} = 5.50, SD = 1.10$). A mixed-measures ANOVA with quality as the dependent variable and brand (within-participants across the three brands), media type and presence of

technological issues (both between-participants) as the independent variables revealed that brand ($F(2,164) = 3.99$, $p = .020$) and media type ($F(2,82) = 5.67$, $p = .005$) were significant predictors of quality perceptions, while presence of technological issues was not a significant predictor ($F(1,82) = 3.42$, $p = .07$). This suggests the need to use quality as a covariate when assessing attitudes in this research, and again reiterates the importance of clarifying expectations for the storyboard condition (as it was the condition with the lowest quality perceptions).

Discussion

Pretest 1 provides evidence for the appropriateness of the ad stimuli. Most importantly, no differences existed in perceived narrative structure across media, highlighting that the story was not lost in adapting the stimuli from video to either storyboard or audio. Although perceived quality was lower in the storyboard condition, this was likely due to the inadequate explanation given in the introduction. As a result, the introductions was modified for the remainder of this research. In addition, quality perceptions were measured in subsequent studies in order to statistically control for potential differences.

Pretest 2

The effectiveness of the cognitive load manipulation was tested in a 2 (cognitive load: present, absent) × 3 (media: video, storyboard, audio) between-participants factorial design. The only brand used in this study across the types of media was Uncle Toby's.

Participants

A total of 180 adult consumers from MTurk completed the online study through the Qualtrics survey platform in exchange for 0.75 USD. The study was posted on the afternoon of December 21, 2019 and was restricted to US workers with a 95% approval rating and 100 or more approved HITs in an attempt to maximise data quality (Berinsky et al., 2012; Goodman et al., 2013;

Paolacci et al., 2010; Peer et al., 2014). Following the elimination criteria utilised in the first pretest, ten participants' answers were removed, resulting in a final sample comprising 170 adults (41.8% female; $M_{age} = 37.36$, $SD_{age} = 12.16$).

Procedure and Measures

Participants were randomly assigned to one of six conditions (cognitive load: no load, cognitive load; media: audio, storyboard, video). The stimuli used were the Uncle Toby's advertisements from pretest 1, with the addition of scrolling numbers along the bottom of the screen. Participants in the cognitive load condition were instructed to count the number of times they saw the digit "8", whereas those in the no cognitive load condition were instructed to ignore the scrolling numbers (Hamby et al., 2016). Participants viewed the advertisement and completed measures of attitudes toward the brand ($\alpha = .93$; Hamby et al., 2016), perceived advertisement quality ($\alpha = .75$; Escalas, 2004), perceived narrative structure ($\alpha = .78$; Escalas, 2006), narrative transportation ($\alpha = .87$; Appel et al., 2015), retrospective reflection ($\alpha = .95$; Hamby et al., 2016), as well as control measures, including perceived cognitive load ($\alpha = .94$), product category involvement (i.e., last time to purchase products within the category, how much they enjoy purchasing that type of product), prior awareness of the brand and presence of technological issues while completing the survey.

Results

Quality Perceptions

A 2 × 3 univariate ANOVA of media and cognitive load on perceived quality revealed that quality perceptions were significantly influenced by media type ($F(2, 164) = 5.86$, $p < .01$). The effect of cognitive load condition was marginally significant ($F(1, 164) = 3.45$, $p = .07$; $M_{CognitiveLoad} = 5.61$, $SD = 1.15$, $M_{NoLoad} = 5.61$, $SD = 1.15$). There were no significant differences

in quality perceptions between the video condition (M_{video} = 5.72, SD = .90) and the storyboard condition ($M_{storyboard}$ = 5.60, SD = 1.05; mean difference = .12, $t(114)$ = .67, p > .50). However, there were significant differences between the audio condition (M_{audio} = 5.06, SD = 1.19) and the video (mean difference = -.69, $t(110)$ = -3.34, p < .01) and storyboard (mean difference = .55, $t(110)$ = -2.59, p < .01) conditions. Although participants' perceptions of quality varied across conditions, the ratings followed a predictable trend given that the audio stimuli was adapted by stripping away the visuals of the video format. Again, the issue that the storyboard condition had significantly lower quality perceptions than both the audio and the video conditions (as in pretest 1) did not reoccur[5], suggesting that the change to the introduction text in the storyboard condition successfully clarified participants' expectations.

Narrative structure of the advertisements was also assessed by media type and deemed acceptable (M_{video} = 5.65, SD = .85; $M_{Storyboard}$ = 5.41, SD = 1.00; M_{audio} = 5.33, SD = 1.06). Although the addition of cognitive load resulted in significantly lower perceptions of narrative structure (mean difference = -.38, $t(168)$ = -2.72, p < .01; M_{NoLoad} = 5.59, SD = .95, $M_{CognitiveLoad}$ = 5.21, SD = .87), the average rating (M = 5.21) was still deemed adequate.

Overall, the ANOVA results and means of quality perceptions and narrative structure indicate that the experimental manipulations (and the adjusted introductory text) were effective and resulted in the expected pattern of results across cognitive load manipulations.

Table 1: PT2 Effects of Media and Cognitive Load on Perceived Quality and Narrative Structure

Media	Cognitive Load	Mean (Std. Deviation)	
		Narrative Structure	Quality
Storyboard	No Load	5.89 (0.67)	5.85 (0.98)
	Load Throughout	5.08 (0.80)	5.34 (1.06)
	Total	5.50 (0.84)	5.60 (1.05)

[5] This is further reinforced by the fact that there were no significant differences in experiencing technological issues across types of media ($F(1,164)$ = .56, p > .57).

Audio	No Load	5.01 (1.07)	4.98 (1.39)
	Load Throughout	5.36 (0.94)	5.14 (0.93)
	Total	5.18 (1.02)	5.06 (1.19)
Video	No Load	5.82 (0.84)	5.95 (0.83)
	Load Throughout	5.20 (0.88)	5.42 (0.91)
	Total	5.55 (0.90)	5.72 (0.90)
Total	No Load	5.58 (0.95)	5.61 (1.15)
	Load Throughout	5.21 (0.87)	5.30 (0.97)
	Total	5.41 (0.93)	5.47 (1.08)

Identification of Covariates

We first conducted a series of 2×3 ANOVAs of cognitive load and media on all potential covariates. Last purchase within the product category was significantly related to cognitive load ($F(1,164) = 4.72$, $p = .03$). This is likely a spurious result that is not induced by the experimental manipulation per se (this result did not emerge in the previous phases, nor is there any theoretical reason to expect it). No other significant differences in potential covariates existed across levels of cognitive load or media (all Fs < 2.44, all ps $> .12$).

Next, a series of 2×3 ANCOVAs with attitudes toward the brand as the dependent variable, cognitive load and media as the independent variables, and the various covariates were conducted. Covariates significantly related to attitudes when separate ANCOVAs were conducted included education ($F(1,163) = 3.97$, $p < .05$), enjoyment ($F(1,163) = 53.34$, $p < .001$), last purchase ($F(1,163) = 16.76$, $p < .001$), last consumption ($F(1,163) = 17.94$, $p < .001$), prior awareness ($F(1,163) = 14.76$, $p < .001$), technological issues ($F(1,163) = 9.23$, $p < .01$), negative feelings ($F(1,163) = 13.50$, $p < .001$). Skepticism had a marginally significant effect ($F(1,163) = 3.40$, $p = .07$).

A full ANCOVA was then conducted including all of the above significant covariates. Only four covariates remained significant predictors of attitudes: technological issues ($F(1,163) = 9.14$, $p < .01$), enjoyment ($F(1,163) = 10.43$, $p < .01$), prior awareness ($F(1,163) = 10.01$, $p < .01$) and negative feelings ($F(1,163) = 23.23$, $p <$

.001). Education, last consumption, last purchase and skepticism were no longer significant (all

Fs < 2.53, all ps > .11)

Cognitive Load Manipulation

An independent samples t-test of cognitive load ratings was conducted comparing participants'

ratings in the no load and cognitive load conditions. There was a significant difference in

cognitive load ratings between conditions with a mean difference of 1.84 ($t(168)$ = 7.31, p <

.001; M_{NoLoad} = 3.95, SD = 2.00; $M_{CognitiveLoad}$ = 5.79, SD = 1.04). These results highlight that the

manipulation was successful in altering participants' experienced cognitive load.

Discussion

The results of the second pretest provide evidence that the modified manipulation of cognitive

load was effective. Participants rated their experienced cognitive load significantly higher in the

cognitive load condition. Importantly, cognitive load did not reduce perceived quality or

perceived narrative structure.

The pretest also provided preliminary evidence for some, but not all, of the theoretically

expected results. Most importantly, narrative transportation significantly affected attitudes across

types of media. Although media does not appear to impact narrative transportation in the pretest,

a more robust assessment of the effects was anticipated by inclusion of different brands (and,

consequently, product categories) in subsequent studies.

Study 1

An experiment examined the impact of advertisement media and cognitive load on narrative

transportation, retrospective reflection, and attitude toward the brand.

Participants

A sample of 540 adult consumers recruited from an online panel (MTurk) completed the online study through the Qualtrics survey platform in exchange for 0.85 USD. The study was posted on the afternoon of February 21, 2019 and was restricted to US workers with a 95% approval rating and 100 or more approved HITs in an attempt to ensure data quality (Berinsky et al., 2012; Goodman et al., 2013; Paolacci et al., 2010; Peer et al., 2014). Following the elimination criteria utilised in the pretests, ten participants' answers were removed, resulting in a final sample comprising 530 adults (44% female; M_{age} = 35.53, SD = 10.73).

Procedure and Measures

Participants were randomly assigned to one of eighteen conditions in a 3 (media: video, storyboard, audio) × 2 (cognitive load: no load, cognitive load) × 3 (brand: Publix, BT Mobile, Uncle Toby's) between-participants factorial design. The stimuli used in this study were the advertisements of three pretested brands (Publix, BT Mobile, Uncle Toby's), with cognitive load being manipulated as in pretest 2 through the use of scrolling numbers across the screen. Participants in the cognitive load condition were instructed to count the number of times they saw the digit "8", whereas those in the no load condition were instructed to ignore the scrolling numbers (Hamby et al., 2016). Participants viewed the advertisement and completed measures of attitude toward the brand (α = .91; Hamby et al., 2016), perceived advertisement quality (α = .77; Escalas, 2004), perceived narrative structure (α = .75; Escalas, 2004), narrative transportation (α = .88; Appel et al., 2015)[6], retrospective reflection (α = .91; Hamby et al., 2016), as well as

---

[6] Two additional transportation measures were also asked, which, in combination with measures in the transportation scale short-form (Appel et al., 2015), made up the 5-item video transportation scale created by (Williams et al., 2010). However, the scale had a poor reliability (α = .31), even when an assessment of reliability was only conducted on participants in the video condition (α = .32). As such, the short-form of the transportation was maintained as the only measure of transportation, and the responses to the two additional questions were disregarded.

control measures, including perceived cognitive load ($\alpha = .94$; Wilcox et al., 2011), product category involvement (i.e., last time to purchase products within the category, how much they enjoy purchasing that type of product), prior awareness of the brand, and presence of technological issues while completing the survey.

Results

Factor Analysis

A principal component analysis was conducted with Varimax (orthogonal) rotation, resulting in six factors explaining a total of 67.6% of the variance. The first factor of the rotated component matrix explained 31.19% of the variance and contained the four retrospective reflection items, one narrative transportation item (i.e., I could picture myself in the scene of the events of the ad) and the enjoyment item. The second factor explained 12.16% and contained the perceived narrative structure and quality items. The third factor contained the five remaining narrative transportation items and explained 8.86% of the variance. The fourth factored contained the perceived cognitive load items, accounting for 6.45% of the variance, and the fifth and sixth contained the various covariance items (except for enjoyment, which was in the first factor), explaining 8.89% between the two factors. As all scales loaded on separate factors (with the exception of the one narrative transportation item), the items in each scale were averaged and the resulting composite measures were used in the subsequent analyses.

Identification of Covariates

A series of $2 \times 3 \times 3$ univariate ANOVAs of cognitive load, media and brand were conducted on potentially important covariates identified in the pretests (i.e., perceived quality and perceived narrative structure). When perceived quality served as the dependent variable,

there were significant main effects of media ($F(2, 512) = 8.95$, $p < .001$; see Table 2) and brand ($F(2, 512) = 5.53$, $p < .01$; see Table 3), but not cognitive load ($F(1, 512) = 3.33$, $p > .05$). There were no significant interaction effects (all Fs < 2.65, all ps $> .07$). When perceived narrative structure served as the dependent variable, significant main effects emerged for media ($F(2, 512) = 9.21$, $p < .001$; see Table 2) and cognitive load ($F(1, 512) = 11.13$, $p < .01$), but not brand ($F(2, 512) = 1.67$, $p > .15$; see Table 3). There was a significant brand × cognitive load interaction ($F(2, 512) = 4.29$, $p < .01$). The media × cognitive load and media × brand interactions were not significant (both Fs $< .70$, both ps $> .50$). This analysis confirms the importance of including both perceived quality and narrative structure as covariates in the following analyses. Furthermore, given the variation between the different brands' advertisements, brand was included as a covariate to examine whether the results were robust across brands.

Table 2: Study 1 Perceived Quality and Perceived Narrative Structure by Media

Measure	Media	Mean	Std. Deviation
Quality	Audio	5.15	1.21
	Storyboard	5.54	1.06
	Video	5.61	0.95
	Total	5.44	1.09
Narrative Structure	Audio	5.03	1.03
	Storyboard	5.37	1.00
	Video	5.44	0.87
	Total	5.29	0.98

Notes:
Significant differences in perceived quality: Audio vs storyboard mean difference = -.34, $t(348) = -3.17$, $p < .01$; audio vs video mean difference = -.46, $t(346) = -3.95$, $p < .001$.
Significant differences in perceived narrative structure: Audio vs video mean difference of -.41, $t(346) = -4.04$, $p < .001$; audio vs storyboard mean difference of -.34, $t(348) = -3.17$, $p < .01$.

Table 3: Study 1 Perceived Quality and Perceived Narrative Structure by Brand

Measure	Condition	Mean	Std. Deviation

		Mean	Std. Deviation
	Publix	5.60	1.11
	BT Mobile	5.40	.94
Quality	Uncle Toby's	5.30	1.20
	Total	5.44	1.09
	Publix	5.32	1.05
	BT Mobile	5.31	0.89
Narrative Structure	Uncle Toby's	5.23	0.99
	Total	5.29	0.98

Note: Publix vs Uncle Toby's: Quality mean difference = .30, $t(356) = 2.43$, $p < .02$

Cognitive Load Manipulation

An independent samples t-test of perceived cognitive load was conducted comparing participants' ratings in the cognitive load and no load conditions. There was a significant difference in cognitive load ratings between conditions ($t(528) = 13.67$, $p < .001$) with a mean difference of 1.84 ($M_{noload} = 3.78$, $SD = 2.07$; $M_{cognitiveload} = 5.78$, $SD = 1.13$). These results highlight that the manipulation was successful in altering participants' perceived cognitive load.

A $2 \times 3 \times 3$ univariate ANOVA of cognitive load condition, media and brand on cognitive load perceptions was then conducted, revealing that cognitive load perceptions were significantly predicted by cognitive load condition ($F(1, 512) = 180.02$, $p < .001$), brand ($F(2, 512) = 3.30$, $p < .05$), but not by media ($F(2, 512) = 1.06$, $p > .30$). Cognitive load perceptions for the BT Mobile condition ($M_{BT} = 5.09$, $SD = 1.75$) were significantly higher than Publix ($t(360) = 2.54$, $p < .05$; mean difference = .51; $M_{Publix} = 4.57$, $SD = 2.05$) and Uncle Toby's ($t(338) = 2.45$, $p < .05$; mean difference = .50; $M_{Tobys} = 4.58$, $SD = 2.02$). This highlights that there were cross-over effects from the experimental manipulation, and reiterates the importance of controlling for brand.

Table 4: Study 1 Means of Perceived Cognitive Load by Cognitive Load Condition, Brand and Media

Cognitive Load	Media	Brand	Mean	Std. Deviation
No Load	Storyboard	Uncle Toby's	3.66	2.19
		BT Mobile	4.26	1.89
		Publix	3.84	2.06

		Total	3.89	2.06
	Audio	Uncle Toby's	3.78	2.08
		BT Mobile	4.67	1.98
		Publix	2.65	1.74
		Total	3.75	2.10
	Video	Uncle Toby's	3.85	2.05
		BT Mobile	3.75	2.37
		Publix	3.46	1.97
		Total	3.69	2.08
	Total	Uncle Toby's	3.77	2.09
		BT Mobile	4.33	2.06
		Publix	3.32	1.97
		Total	3.78	2.07
Load Throughout	Storyboard	Uncle Toby's	5.65	1.32
		BT Mobile	5.79	0.95
		Publix	5.99	0.96
		Total	5.85	1.06
	Audio	Uncle Toby's	5.35	1.25
		BT Mobile	5.76	1.12
		Publix	5.46	1.46
		Total	5.55	1.27
	Video	Uncle Toby's	5.99	1.12
		BT Mobile	5.82	0.91
		Publix	5.94	1.15
		Total	5.91	1.04
	Total	Uncle Toby's	5.70	1.23
		BT Mobile	5.79	0.99
		Publix	5.83	1.18
		Total	5.78	1.13
Total	Storyboard	Uncle Toby's	4.45	2.12
		BT Mobile	4.98	1.69
		Publix	5.11	1.84
		Total	4.86	1.91
	Audio	Uncle Toby's	4.51	1.90
		BT Mobile	5.17	1.73
		Publix	3.93	2.14
		Total	4.58	1.98
	Video	Uncle Toby's	4.75	2.02
		BT Mobile	5.08	1.87
		Publix	4.53	2.07
		Total	4.77	1.99
	Total	Uncle Toby's	4.58	2.02
		BT Mobile	5.09	1.75
		Publix	4.57	2.05
		Total	4.74	1.96

Effects of Media and Cognitive Load on Narrative Transportation

A 2 × 3 univariate ANCOVA of media and cognitive load condition on narrative transportation, with brand, perceived narrative structure and perceived quality as covariates, revealed that media did not have a significant effect on narrative transportation ($F(2, 521) = 1.46, p > .20$). Contrary to hypothesis 1, there were no significant differences in the estimated marginal means of narrative transportation between any of the conditions (audio versus video mean difference = -.039, $p > .70$; storyboard versus video mean difference = .17, $p > .10$; audio versus storyboard mean difference = -.204, $p > .10$). However, when no longer controlling for covariates and comparing the raw means, significant differences emerged, highlighting the importance of the covariates. There was a significant difference in the raw means of narrative transportation between audio and storyboard ($t(348) = -3.10, p < .01$; mean difference = -.48), audio and video ($t(346) = -2.25, p < .03$; mean difference = -.34), but not between storyboard and video ($t(360) = .90, p > .30$; mean difference = .13).

The inclusion of covariates served as a conservative test of our hypothesis. However, it is important to note than when other authors generalise across media, they are not controlling for such factors. These results suggest that there may in fact be differences in narrative transportation to be weary of across media.

Table 5: Study 1 Estimated Marginal Means of Narrative Transportation (Controlling for Covariates)

Media	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Storyboard	4.44	.088	4.26	4.61
Audio	4.23	.093	4.05	4.42
Video	4.27	.089	4.10	4.45

In support of hypothesis 2a, there was a significant effect of cognitive load condition on narrative transportation ($F(1, 521) = 11.09, p < .01$), with the no load condition ($M_{noload} = 4.57, SD = 1.36$)

leading to greater narrative transportation than the cognitive load condition ($M_{cognitiveload} = 4.05$, $SD = 1.44$; mean difference = .51, ($t(528) = 4.20$, $p < .001$). The media × cognitive load interaction did not have a significant effect on levels of narrative transportation ($F(2, 521) = 1.11$, $p > .30$).

The coefficients for perceived quality ($F(1, 521) = 7.88$, $p < .01$) and perceived narrative structure ($F(1, 521) = 67.02$, $p < .001$) were positive and significantly related to narrative transportation. Brand ($F(1, 521) = 6.35$, $p < .02$) was also a significant covariate. Narrative transportation was significantly lower for Uncle Toby's ($M_{Tobys} = 4.04$, $SD = 1.38$) than for both the Publix condition ($t(356) = -2.78$, $p < .01$, mean difference = -.41; $M_{Publix} = 4.44$, $SD = 1.39$) and the BT Mobile condition ($t(338) = -2.76$, $p < .01$; mean difference = -.43; $M_{BT} = 4.46$, $SD = 1.47$). This may be due to the content of the Uncle Toby's ad being less easily relatable to consumers' life, as Green (2004) found that perceived realism and greater knowledge or experiences relevant to the themes of the story elicited higher narrative transportation.

Narrative Transportation Scale – Imaginative Items

Among the six items making up the transportation scale short-form, two of the items are "imaginative" in that they assess mental image generation on the basis of a textual narrative (Appel et al., 2015; two items, each phrased "While watching the ad, I had a vivid image of X", with the two main characters' names in the ad being used in the questions). Similar to other items of the narrative transportation scale, these items were designed for use with written narratives that do not include images. Their use with narratives involving visual stimuli (as is the case for storyboards and video ads) was therefore assessed in comparison to audio ads which, despite following the same narrative, did not include images. To examine the role of the imaginative

items of the narrative transportation scale, the two items were averaged and the resulting measure, hereinafter referred to as imaginative transportation (imaginative $r = .90$), was used in the following analysis.

A 2 × 3 ANCOVA of media and cognitive load condition on imaginative transportation, with brand, perceived narrative structure and perceived quality as covariates, revealed a significant main effect of media ($F(2, 521) = 3.77, p < .05$), with a significant difference in imaginative transportation between the audio and storyboard conditions ($t(348) = 3.80, p < .001$; mean difference = .71; $M_{audio} = 3.87, SD = 1.83, M_{storyboard} = 4.58, SD = 1.66$) and between audio and video ($t(346) = 3.64, p < .001$; mean difference = .67; $M_{video} = 4.55, SD = 1.58$). There was no significant difference between the storyboard and video conditions ($t(360) = .26, p > .70$; mean difference = .044). These findings highlight that image generation varies between audio and storyboard/video, but not between storyboard and video[7].

A significant main effect of cognitive load also emerged ($F(1, 521) = 15.19, p < .001$; $M_{cognitiveload} = 4.09, SD = 1.48, M_{noload} = 4.52, SD = 1.40$; mean difference = .69, $t(528) = 4.68, p < .001$). The media × cognitive load interaction did not have a significant effect on the imaginative transportation ($F(2, 521) = 5.18, p > .10$).

Perceived narrative structure ($F(1, 521) = 35.74, p < .001$) and perceived quality ($F(1, 521) = 8.48, p < .01$) were significant covariates, while brand ($F(1, 521) = 12.61, p > .90$) was not significant. See

Table 6 for full list of means.

Narrative Transportation Scale – General Transportation Items

---

[7] An important caveat pertains to the wording of the measures, wherein it only asks for image generation in terms of static images, not movement ("I had a vivid image of…"). A more suitable measure may involve wording that takes into account the creation of a video in one's mind rather than simply an image. This is particularly applicable to filling in the gaps between mock-up images in the storyboard compared to full video.

The remaining four items of the narrative transportation scale short-form assess emotional and cognitive involvement with the narrative (i.e., "I could picture myself in the scenes of the events in the ad", "I was mentally involved in the ad while watching it", "I wanted to learn how the ad ended", "The ad affected me emotionally"). The four items were averaged into a scale ($\alpha = .82$), hereinafter referred to as general transportation.

A 2 × 3 ANCOVA of media and cognitive load condition on general transportation, with brand, perceived narrative structure and perceived quality as covariates, revealed that media type did not have a significant effect on general transportation ($F(2, 521) = 1.46, p > .20$). When assessing the raw means without covariates, a significant difference emerged between the audio and storyboard conditions ($t(348) = 2.30, p < .03$; mean difference = .36; $M_{audio} = 4.13, SD = 1.46, M_{storyboard} = 4.48, SD = 1.44$). There was no significant difference between storyboard and video ($t(360) = 1.16, p > .20$; mean difference = .18; $M_{video} = 4.31, SD = 1.44$) nor between audio and video ($t(346) = 1.17, p > .20$; mean difference = .18). Interestingly, storyboard had the highest level of general transportation, while audio had the lowest. This suggests that having visuals allows the consumer to be more involved with the narrative, but that having gaps in the visuals that allow consumers to elaborate on the narrative to complete the storyline (storyboard vs video) increases narrative transportation.

A significant main effect of cognitive load emerged ($F(1, 521) = 6.03, p < .02$; $M_{cognitiveload} = 4.51, SD = 1.40, M_{noload} = 4.09, SD = 1.48$) and there was a significant difference between the cognitive load conditions ($t(528) = 3.40, p < .01$ mean difference = .42). The media × cognitive load interaction did not have a significant effect on the general transportation scale ($F(2, 521) = .42, p > .60$).

Brand ($F(1, 521) = 12.61$, $p < .001$), perceived narrative structure ($F(1, 521) = 67.83$, $p < .001$), and perceived quality ($F(1, 521) = 5.28$, $p < .001$) were all significant covariates.

The comparison between these findings and the non-significant main effect of media in the ANCOVA model reiterates the importance of including the covariates in the model.

Table 6: Study 1 Means of Imaginative & General Narrative Transportation

Media	Cognitive Load		Imaginative Transportation	General Transportation
			Mean (Std. Deviation)	
Storyboard	No Load	Publix	4.55 (1.67)	4.88 (1.47)
		BT Mobile	5.50 (1.38)	5.08 (1.31)
		Uncle Toby's	5.03 (1.40)	4.38 (1.22)
		Total	5.01 (1.52)	4.75 (1.35)
	Load Throughout	Publix	4.47 (1.48)	4.66 (1.26)
		BT Mobile	4.38 (1.52)	4.18 (1.53)
		Uncle Toby's	3.26 (1.98)	3.43 (1.53)
		Total	4.13 (1.69)	4.22 (1.48)
	Total	Publix	4.50 (1.55)	4.75 (1.34)
		BT Mobile	4.97 (1.54)	4.66 (1.48)
		Uncle Toby's	4.33 (1.86)	4.00 (1.41)
		Total	4.58 (1.66)	4.48 (1.44)
Audio	No Load	Publix	3.18 (1.77)	3.98 (1.54)
		BT Mobile	4.46 (1.78)	4.75 (1.43)
		Uncle Toby's	4.39 (1.90)	3.91 (1.44)
		Total	4.01 (1.89)	4.27 (1.51)
	Load Throughout	Publix	4.06 (1.76)	4.38 (1.45)
		BT Mobile	3.50 (1.85)	3.86 (1.57)
		Uncle Toby's	3.55 (1.67)	3.55 (0.86)
		Total	3.70 (1.77)	3.95 (1.40)
	Total	Publix	3.58 (1.80)	4.16 (1.50)
		BT Mobile	4.02 (1.86)	4.35 (1.55)
		Uncle Toby's	4.00 (1.83)	3.74 (1.21)
		Total	3.87 (1.83)	4.13 (1.46)
Video	No Load	Publix	4.99 (1.09)	4.49 (1.09)
		BT Mobile	5.08 (1.27)	4.83 (1.54)
		Uncle Toby's	4.92 (1.44)	4.41 (1.34)
		Total	4.98 (1.27)	4.52 (1.30)
	Load Throughout	Publix	4.48 (1.96)	4.66 (1.55)
		BT Mobile	4.19 (1.57)	4.22 (1.48)
		Uncle Toby's	3.54 (1.67)	3.38 (1.43)
		Total	4.07 (1.75)	4.09 (1.56)
	Total	Publix	4.77 (1.53)	4.56 (1.30)
		BT Mobile	4.51 (1.52)	4.44 (1.52)
		Uncle Toby's	4.34 (1.67)	3.98 (1.46)
		Total	4.53 (1.58)	4.31 (1.44)

Total	No Load	Publix	4.26 (1.69)	4.44 (1.40)
		BT Mobile	4.94 (1.60)	4.88 (1.41)
		Uncle Toby's	4.84 (1.55)	4.28 (1.32)
		Total	4.67 (1.64)	4.52 (1.40)
	Load Throughout	Publix	4.36 (1.69)	4.58 (1.39)
		BT Mobile	4.00 (1.68)	4.08 (1.51)
		Uncle Toby's	3.45 (1.75)	3.45 (1.32)
		Total	3.98 (1.74)	4.09 (1.48)
	Total	Publix	4.31 (1.69)	4.51 (1.39)
		BT Mobile	4.45 (1.71)	4.47 (1.52)
		Uncle Toby's	4.25 (1.77)	3.93 (1.38)
		Total	4.34 (1.72)	4.31 (1.45)

Effects of Media and Cognitive Load on Retrospective Reflection

A 2 × 3 univariate ANCOVA of media and cognitive load on retrospective reflection, with brand, perceived narrative structure and perceived quality serving as covariates, revealed no significant effects of media ($F(2, 521) = .061$, $p > .90$) and cognitive load condition ($F(1, 521) = 2.66$, $p > .10$) on retrospective reflection. Hypothesis 2b was thus not supported. The media × cognitive load interaction did not have a significant effect on retrospective reflection ($F(2, 521) = 1.78$, $p > .15$).

Perceived quality ($F(1, 521) = 35.43$, $p < .05$), narrative structure ($F(1, 521) = 42.95$, $p < .001$) and brand ($F(1, 521) = 25.61$, $p < .001$) were significant covariates. Retrospective reflection was significantly lower for Uncle Toby's ($M_{Tobys} = 3.48$, $SD = 1.62$) than for Publix ($t(356) = -5.29$, $p < .001$, mean difference = -.91; $M_{Publix} = 4.49$, $SD = 1.63$) and BT Mobile ($t(338) = -4.01$, $p < .001$; mean difference = -.70; $M_{BT} = 4.28$, $SD = 1.59$).

Table 7: Study 1 Means of Retrospective Reflection

Media	Cognitive Load	Brand	Mean	Std. Deviation
Storyboard	No Load	Publix	4.74	1.79
		BT Mobile	4.69	1.57
		Uncle Toby's	3.50	1.55

		Total	4.25	1.72
	Load Throughout	Publix	4.72	1.58
		BT Mobile	4.02	1.60
		Uncle Toby's	3.49	1.67
		Total	4.22	1.67
	Total	Publix	4.73	1.65
		BT Mobile	4.37	1.60
		Uncle Toby's	3.50	1.58
		Total	4.24	1.69
Audio	No Load	Publix	4.21	1.80
		BT Mobile	4.55	1.66
		Uncle Toby's	4.00	1.86
		Total	4.29	1.76
	Load Throughout	Publix	4.04	1.62
		BT Mobile	3.60	1.60
		Uncle Toby's	3.01	1.12
		Total	3.60	1.53
	Total	Publix	4.13	1.71
		BT Mobile	4.12	1.69
		Uncle Toby's	3.54	1.62
		Total	3.97	1.69
Video	No Load	Publix	4.26	1.25
		BT Mobile	4.84	1.12
		Uncle Toby's	4.17	1.58
		Total	4.34	1.39
	Load Throughout	Publix	4.93	1.69
		BT Mobile	4.15	1.54
		Uncle Toby's	3.02	1.59
		Total	4.02	1.76
	Total	Publix	4.55	1.48
		BT Mobile	4.40	1.43
		Uncle Toby's	3.69	1.67
		Total	4.19	1.58
Total	No Load	Publix	4.40	1.62
		BT Mobile	4.66	1.51
		Uncle Toby's	3.89	1.65
		Total	4.30	1.62
	Load Throughout	Publix	4.59	1.64
		BT Mobile	3.93	1.58
		Uncle Toby's	3.17	1.50
		Total	3.96	1.67
	Total	Publix	4.49	1.62
		BT Mobile	4.28	1.59
		Uncle Toby's	3.58	1.62
		Total	4.14	1.66

Effects of Media and Cognitive Load on Brand Attitude

A 2 × 3 univariate ANCOVA of media and cognitive load on attitude toward the brand, with brand, perceived narrative structure and perceived quality serving as covariates, revealed there was no significant effect of media type ($F(2, 521) = 2.03$, $p > .10$) and cognitive load condition ($F(1, 521) = 1.78$, $p > .10$) on attitude toward the brand. Hypothesis 2c was thus not supported. The media × cognitive load interaction did not have a significant effect on attitude toward the brand ($F(2, 521) = .79$, $p > .45$).

Perceived quality ($F(1, 521) = 38.22$, $p < .001$), narrative structure ($F(1, 521) = 29.68$, $p < .001$) and brand ($F(1, 521) = 6.62$, $p < .02$) were significant covariates. Attitudes were significantly lower for Uncle Toby's ($M_{Tobys} = 5.08$, $SD = 1.18$) than for Publix ($t(356) = -3.37$, $p < .001$, mean difference = -.42; $M_{Publix} = 5.50$, $SD = 1.17$), and marginally lower than for BT Mobile ($t(338) = -1.80$, $p < .08$; mean difference = -.24; $M_{BT} = 5.32$, $SD = 1.27$).

Table 8: Study 1 Means of Brand Attitude

Media	Cognitive Load	Brand	Mean	Std. Deviation
Storyboard	No Load	Publix	5.56	1.22
		BT Mobile	5.63	1.09
		Uncle Toby's	5.38	1.17
		Total	5.51	1.16
	Load Throughout	Publix	5.78	0.89
		BT Mobile	5.01	1.32
		Uncle Toby's	4.51	0.93
		Total	5.25	1.15
	Total	Publix	5.69	1.04
		BT Mobile	5.34	1.23
		Uncle Toby's	5.03	1.15
		Total	5.38	1.16
Audio	No Load	Publix	4.98	1.25
		BT Mobile	5.69	1.25
		Uncle Toby's	5.14	1.37
		Total	5.31	1.31
	Load Throughout	Publix	5.60	1.02
		BT Mobile	4.98	1.37
		Uncle Toby's	4.94	0.97
		Total	5.18	1.19
	Total	Publix	5.26	1.18
		BT Mobile	5.37	1.34

		Uncle Toby's	5.05	1.19
		Total	5.25	1.25
Video	No Load	Publix	5.41	1.03
		BT Mobile	5.57	0.97
		Uncle Toby's	5.47	0.99
		Total	5.47	0.99
	Load Throughout	Publix	5.63	1.59
		BT Mobile	5.07	1.35
		Uncle Toby's	4.70	1.37
		Total	5.11	1.46
	Total	Publix	5.50	1.29
		BT Mobile	5.25	1.24
		Uncle Toby's	5.15	1.22
		Total	5.29	1.25
Total	No Load	Publix	5.32	1.18
		BT Mobile	5.64	1.13
		Uncle Toby's	5.36	1.15
		Total	5.43	1.16
	Load Throughout	Publix	5.69	1.15
		BT Mobile	5.02	1.33
		Uncle Toby's	4.70	1.13
		Total	5.18	1.27
	Total	Publix	5.50	1.17
		BT Mobile	5.32	1.27
		Uncle Toby's	5.08	1.18
		Total	5.31	1.22

Moderated Serial Mediation Analysis

A PROCESS analysis (model 85, 5,000 samples; Hayes, 2013) was conducted with media as the predictor (indicator coded as X1 for the difference between storyboard (0) and audio (1), and X2 for the difference between storyboard (0) and video (1)), perceived cognitive load as the moderator, narrative transportation (transportation scale short-form) as the stage-one mediator, retrospective reflection as the stage-two mediator, and attitude toward the brand as the criterion, as well as brand, perceived narrative structure and perceived quality as covariates. The storyboard condition was set as the baseline to facilitate comparison to the results of Hamby et al. (2016). For simplicity of reporting, the effect of storyboard versus audio will herein be referred to as X1, and storyboard vs video effects as X2. For a diagram of all effects, see Figure 4 and Figure 5.

Narrative Transportation

The media to narrative transportation (stage one mediator) path was significant ($F(8,521) = 29.52$, $p < .001$). The coefficient for perceived cognitive load ($\beta = .040$, 95% CI [-.052, .13], $t(521) = .85$, $p > .30$) was not significant. Given the significantly lower average narrative transportation in the cognitive load ($M_{cognitiveload} = 4.05$, $SD = 1.44$) condition than in the no load ($M_{noload} = 4.57$, $SD = 1.36$) condition, the lack of significance of perceived narrative transportation may be due to the variable coding[8] or the variance in narrative transportation being explained by other variables in the model. It could also a result of contradicting effects occurring; although narrative transportation is reduced by cognitive load (between conditions), Nielsen and Escalas' (2010) study found that consumers who invested more cognitive and imaginative resources to comprehending a narrative (due to it being difficult to understand and process) experienced higher levels of narrative transportation, and ultimately had higher brand evaluations in a path fully mediated by narrative transportation. As such, perceived cognitive load could be capturing both the negative effect of cognitive load between conditions and the positive effect of increased effect of greater resources invested, ultimately rendering the coefficient non-significant.

The perceived narrative structure ($\beta = .61$, 95% CI [.47, .75], $t(521) = 8.57$, $p < .001$) and perceived quality covariates ($\beta = .16$, 95% CI [.032, .29], $t(521) = 2.46$, $p < .02$) both had positive and significant coefficients to narrative transportation, highlighting their role in facilitating narrative transportation.

---

[8] A separate PROCESS model following the same setup and comparison was conducted, with the only difference being that audio was coded as 1, and storyboard as 2. In this case, the coefficient for perceived cognitive load was significant ($\beta = .15$, 95% CI [.057, .24], $t(521) = 3.18$, $p < .01$). All other coefficients and paths in the model were identical to the current analysis with storyboard coded as 1 and audio coded as 2.

The brand ($\beta = .15$, 95% CI [.028, .28], $t(521) = 2.40$, $p < .02$) covariate was also significant. The positive brand coefficient was driven by the higher levels of narrative transportation of Publix (coded as 1; $M_{Publix} = 4.44$, $SD = 1.39$) compared to Uncle Toby's (coded as -1; $M_{Tobys} = 4.04$, $SD = 1.38$).

Compared to the storyboard ad, the audio ad had a significant and negative path coefficient to narrative transportation (X1: $\beta = -.69$, 95% CI [-1.36, -.022], $t(521) = -2.03$, $p < .05$), with those in the audio condition experiencing significantly lower narrative transportation than the storyboard condition. The coefficient of the media (X1) × cognitive load interaction was not significant ($\beta = .11$, 95% CI [-.24, .021], $t(521) = 1.65$, $p = .10$). There was no significant difference in the path coefficients of storyboard versus video ad on narrative transportation (X2: $\beta = .099$, 95% CI [-.56, .76], $t(521) = .30$, $p > .75$). The coefficient of the media (X2) × cognitive load interaction was not significant ($\beta = -.054$, 95% CI [-.18, .073], $t(521) = -.84$, $p > .40$).

Figure 1: Study 1 Narrative Transportation by Media and Perceived Cognitive Load
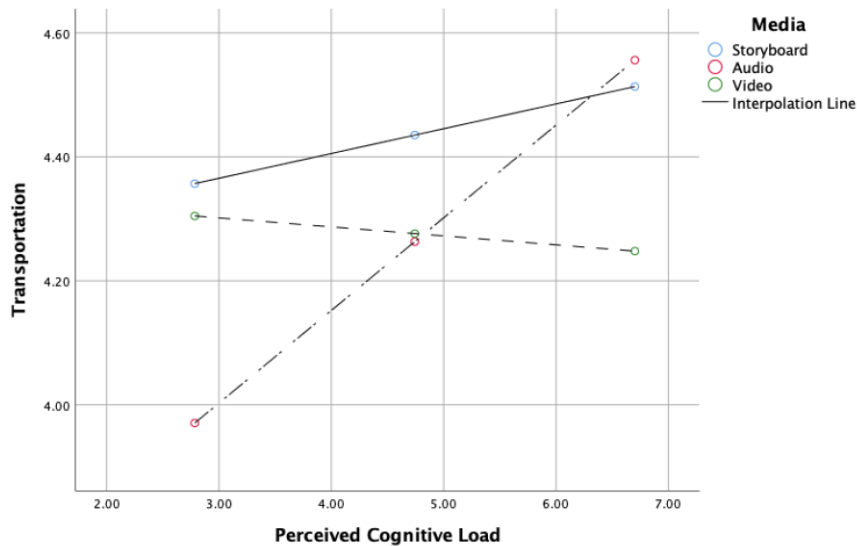
Retrospective Reflection

The media to retrospective reflection (stage two mediator) path was significant ($F(9,520) = 62.94$, $p < .001$). Compared to the storyboard ad, the audio ad had a significant and positive path

coefficient to retrospective reflection (X1: β = 1.46, 95% CI [.81, 2.11], $t(520)$ = 4.39, $p < .001$).

The coefficient of the media (X1) × cognitive load interaction was significant (β = -.28, 95% CI [-.40, -.15], $t(520)$ = -4.26, $p < .001$). Higher perceived cognitive load was associated with increased retrospective reflection in the storyboard condition, compared to the audio condition, where higher perceived cognitive load was associated with lower retrospective reflection.

There was no significant difference in the path coefficient of storyboard versus video ad on retrospective reflection (β = .63, 95% CI [-.015, 1.27], $t(520)$ = 1.92, $p < .06$). The interaction of X2 and cognitive load was not significant (β = -.11, 95% CI [-.24, .0094], $t(520)$ = -1.81, $p < .08$).

The coefficient for perceived cognitive load was positive and significant (β = .15, 95% CI [.065, .24], $t(520)$ = 3.39, $p < .001$), highlighting higher retrospective reflection as cognitive load increases.

The coefficient for narrative transportation was positive and significant (β = .74, 95% CI [.65, .82], $t(520)$ = 17.36, $p < .001$), showing that those that experienced greater narrative transportation would also experience greater retrospective reflection (in line with Hamby et al., 2016).

The brand coefficient was significant (β = .26, 95% CI [.14, .39], $t(520)$ = 4.22, $p < .001$), driven by the lower levels of retrospective reflection for Uncle Toby's (coded as -1; M_{Tobys} = 3.48, SD = 1.62) compared to the other brands (M_{Publix} = 4.49, SD = 1.63, coded as 1; M_{BT} = 4.28, SD = 1.59, coded as 0). The perceived narrative structure covariate (β = .16, 95% CI [.011, .30], $t(520)$ = 2.11, $p < .05$) was also significant, showing that greater narrative structure leads to greater retrospective reflection. The perceived quality covariate was not significant (β = .023, 95% CI [-.10, .15], $t(520)$ = .36,

p > .70), highlighting that greater quality does not (directly) lead to greater retrospective reflection (it may, however, influence it through narrative transportation).

Figure 2: Study 1 Retrospective Reflection by Media and Perceived Cognitive Load
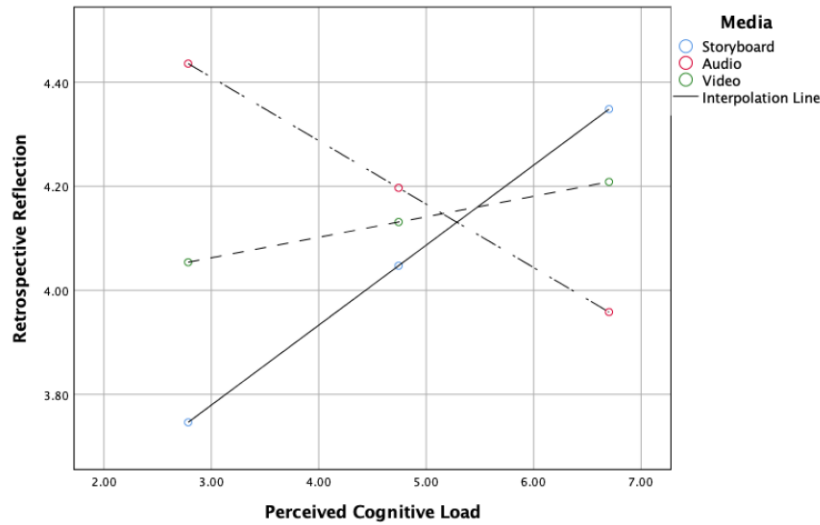
Brand Attitude

The media to attitudes path was significant ($F(10,519) = 52.19$, $p < .001$). The coefficients for narrative transportation ($\beta = .39$, 95% CI [.31, .47], $t(519) = 9.63$, $p < .001$, in support of hypothesis 3) and retrospective reflection ($\beta = .088$, 95% CI [.023, .15], $t(519) = 2.66$, $p < .01$, in support of hypothesis 4) were significant. The coefficient for perceived cognitive load ($\beta = .027$, 95% CI [-.041, .095], $t(519) = .78$, $p > .40$) was not significant.

There was no significant difference in the path coefficients of storyboard versus audio ad on attitudes (X1: $\beta = -.11$, 95% CI [-.61, .39], $t(519) = -.44$, $p < .70$). The coefficient of the media (X1) × cognitive load interaction was not significant ($\beta = .066$, 95% CI [-.031, .16], $t(519) = 1.34$, $p > .15$).

There was no significant difference in the path coefficients of storyboard versus video (X2: $\beta = -.047$, 95% CI [-.53, .44], $t(519) = -.19$, $p < .90$). The coefficient of the media (X2) ×

cognitive load interaction was not significant (β = .0008, 95% CI [-.093, .094], $t(519)$ = .018, p > .90).

These results highlight the mediating role of narrative transportation and retrospective reflection on the path from media to attitudes. The significant relation between narrative transportation and attitudes provides support for hypothesis 3, and the significant relation between retrospective reflection and attitudes provides support for hypothesis 4.

The perceived quality covariate (β = .24, 95% CI [.15, .34], $t(519)$ = 5.13, p < .001) was significant, whereas the coefficients for brand (β = .056, 95% CI [-.038, .15], $t(519)$ = 1.16, p > .20) and perceived narrative structure covariate were not significant (β = .045, 95% CI [-.065, .16], $t(519)$ = .80, p > .40).

Figure 3: Study 1 Attitude Toward the Brand by Media and Perceived Cognitive Load
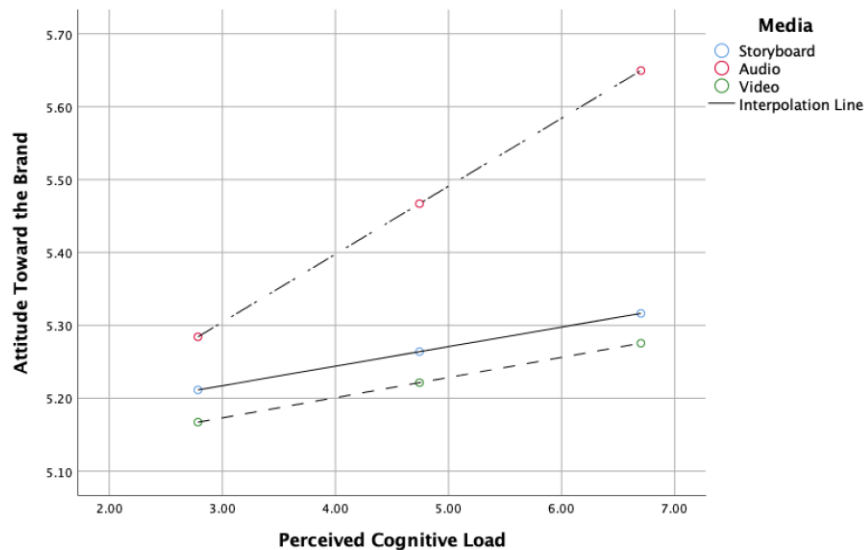
Moderated Serial Mediation

Overall, the moderated serial mediations were not significant for the storyboard – audio comparison (X1 index of moderated mediation = .0071, 95% CI [-.0010, .020], nor the storyboard – video comparison (X2 index of moderated mediation = -.0035, 95% CI: -.015, .0049). Hypothesis 5 was thus not supported.

The conditional indirect effect of X1 (storyboard vs audio) at low perceived cognitive load (CL = 2.78) was significant (β = -.025, 95% CI [-.061, -.0004]. However, the conditional indirect effects of X1 at moderate (4.74) and high (6.70) levels of cognitive load were not significant. As cognitive load increases, media relates less strongly to attitudes, suggesting that the differences between audio and storyboard are greatest when there is low cognitive load.

The moderated serial mediation of media on ad attitudes through retrospective reflection was significant for the storyboard – audio comparison (X1 index of moderated mediation = -.024, 95% CI [-.0010, .020], but not for the storyboard – video comparison (X2 index of moderated mediation = -.010, 95% CI [-.028, .0021]).

Table 9: Study 1 Summary of Hypotheses

Hypothesis	Support
H1a: Narrative transportation will be significantly greater in the audio advertisements compared to the video advertisements.	No
H1b: Narrative transportation will be significantly greater in the storyboard advertisements compared to the video advertisements.	No
H2a: Cognitive load will reduce levels of narrative transportation regardless of media condition	Yes
H2b: Cognitive load will reduce levels retrospective reflection regardless of media condition.	No
H2c: Cognitive load will reduce levels of brand attitudes regardless of media condition.	No
Hypothesis 3: Narrative transportation positively relates to attitude toward the brand.	Yes
H4: Retrospective reflection positively relates to attitude toward the brand.	Yes
H5: Narrative transportation and retrospective reflection will serially mediate the interactive effect of media and cognitive load on brand attitude.	No

Figure 4: Study 1 PROCESS Summary X1 (storyboard vs. audio)

Perceived Cogntiive Load = 2.78

* = sig at .05, ** = sig at .01, *** = sig at .001

Transportation → Retrospective Reflection: .74***

Media (X1): Storyboard vs Audio → Transportation: -.69*

1.46***

.39***

.088**

Media (X1): Storyboard vs Audio → Attitudes: -.11

.39*   -.69***   -.073

Cognitive Load

Indirect Effect: -025*, 95% CI [-.061, -.0004]
Index of Moderated Mediation: .0071, 95% CI [-.0010, .020]

Perceived Cogntiive Load = 4.74

* = sig at .05, ** = sig at .01, *** = sig at .001

Transportation → Retrospective Reflection: .74***

Media (X1): Storyboard vs Audio → Transportation: -.69*

1.46***

.39***

.088**

Media (X1): Storyboard vs Audio → Attitudes: -.11

.17   -.15   -.20*

Cognitive Load

Indirect Effect: -.011, 95% CI [-.035, .0050]
Index of Moderated Mediation: .0071, 95% CI [-.0010, .020]

Perceived Cogntiive Load = 6.70

* = sig at .05, ** = sig at .01, *** = sig at .001

Transportation → Retrospective Reflection: .74***

Media (X1): Storyboard vs Audio → Transportation: -.69*

1.46***

.39***

.088**

Media (X1): Storyboard vs Audio → Attitudes: .-11

-.043   .39*   -.33*

Cognitive Load

Indirect Effect: -.0028, 95% CI [-.023, .032]
Index of Moderated Mediation: .0071, 95% CI [-.0010, .020]

44

Figure 5: Study 1 PROCESS Summary X2 (storyboard vs. video)

Perceived Cogntiive Load = 2.78

* = sig at .05, ** = sig at .01, *** = sig at .001

Transportation → Retrospective Reflection: .74***

Media (X2): Storyboard vs Video → Transportation: .099

.63~

.39***

.088**

Media (X2): Storyboard vs Video → Attitudes: -.047

-.05   .31   -.044

Cognitive Load

Indirect Effect: -.0034, 95% CI [-.031, .021]
Index of Moderated Mediation: -.0035, 95% CI [-.015, .0049]

Perceived Cogntiive Load = 4.74

* = sig at .05, ** = sig at .01, *** = sig at .001

Transportation → Retrospective Reflection: .74***

Media (X2): Storyboard vs Video → Transportation: .099

.63~

.39***

.088**

Media (X2): Storyboard vs Video → Attitudes: -.047

-.16   .084   -.043

Cognitive Load

Indirect Effect: -.010, 95% CI [-.035, .0055]
Index of Moderated Mediation: -.0035, 95% CI [-.015, .0049]

Perceived Cogntiive Load = 6.70

* = sig at .05, ** = sig at .01, *** = sig at .001

Transportation → Retrospective Reflection: .74***

Media (X2): Storyboard vs Video → Transportation: .099

.63~

.39***

.088**

Media (X2): Storyboard vs Video → Attitudes: -.047

-.27   -.14   -.041

Cognitive Load

Indirect Effect: -.017, 95% CI [-.055, .0060]
Index of Moderated Mediation: -.0071, 95% CI [-.020, .0012]

45

Table 10: Study 1 by Brand – Media to Transportation PROCESS Path

	Uncle Toby's			BT Mobile			Publix		
	Coefficient	t	p	Coefficient	t	p	Coefficient	t	p
X1[a]	-.86	-1.46	.15	-.99	-1.29	.20	-.31	-.61	.54
X2[b]	.29	.58	.57	-.34	-.44	.66	.20	.37	.71
CL[c]	-.0015	-.020	.98	.021	.19	.85	.092	1.25	.21
X1 * CL	.18	1.54	.12	.12	.81	.42	.033	.32	.75
X2 * CL	-.087	-.86	.39	-.010	-.071	.94	-.036	-.35	.73
NS[d]	.60	4.54	<.001	.70	4.48	<.001	.55	5.36	<.001
Qual[e]	.18	1.69	.09	.062	.41	.68	.21	2.13	.03

Note: X1 = storyboard vs audio, X2 = storyboard vs video, CL = perceived cognitive load, NS = perceived narrative structure, Qual = perceived quality

Table 11: Study 1 by Brand - Media to Retrospective Reflection PROCESS Path

	Uncle Toby's			BT Mobile			Publix		
	Coefficient	t	p	Coefficient	t	p	Coefficient	t	p
X1	1.38	2.26	.025	2.18	3.16	<.01	.76	1.52	.13
X2	1.05	1.98	.049	1.39	2.01	.047	-.50	-.94	.35
TS_SF	.81	9.90	<.001	.70	10.11	<.001	.72	9.88	<.001
CL	.22	9.91	<.01	.22	2.25	.026	.0022	.031	.98
Int_1	-.25	-1.99	.048	-.40	-3.11	<.01	-.17	-1.71	.090
Int_2	-.19	-1.84	.068	-.23	-1.81	.072	.077	.76	.45
NS	-.020	-.14	.89	.16	1.09	.28	.28	2.59	.010
Qual	.030	.27	.79	.028	.21	.84	.050	.51	.61

Note: X1 = storyboard vs audio, X2 = storyboard vs video, CL = perceived cognitive load, NS = perceived narrative structure, Qual = perceived quality

Table 12: Study 1 by Brand - Media to Brand Attitude PROCESS Path

	Uncle Toby's			BT Mobile			Publix		
	Coefficient	t	p	Coefficient	t	p	Coefficient	t	p
X1	-.79	-1.94	.055	.036	.070	.94	.26	.60	.55
X2	-.21	-.59	.55	-.27	-.53	.60	.32	.72	.47
TS_SF	.39	5.64	<.001	.50	7.71	<.001	.25	3.27	<.01
RR	.091	1.73	.087	.085	1.49	.14	.10	1.66	.098
CL	-.0020	-.040	.97	-.032	-.44	.66	.11	1.86	.064
Int_1	.22	2.66	<.01	.070	.73	.47	-.043	-.51	.61
Int_2	.053	.75	.45	.055	.58	.56	-.087	-1.01	.31
NS	-.025	-.27	.79	.16	1.51	.13	.035	.38	.70
Qual	.30	4.07	<.001	.16	1.68	.095	.25	3.07	<.01

Note: X1 = storyboard vs audio, X2 = storyboard vs video, CL = perceived cognitive load, NS = perceived narrative structure, Qual = perceived quality

Parallel Moderated Mediation of Media Through Narrative Transportation: Imaginative and General Transportation Items

Although differences in narrative transportation were hypothesized between media, a further assessment into the measures making up the narrative transportation scale is required to delineate between image generation and general involvement with the narrative and to truly understand the differences (or similarities) between media. Therefore, to better understand the role of the imaginative versus general transportation measures in driving the effects, two separate PROCESS analyses (model 8, 5,000 samples; Hayes, 2013) of moderated parallel mediation were conducted with media as the predictor (indicator coded as X1 for the difference between storyboard (0) and audio (1), and X2 for the difference between storyboard (0) and video (1)), perceived cognitive load as the moderator (coded no load (0) and cognitive load (1)), imaginative transportation and general transportation as parallel mediators, and either attitude toward the brand or retrospective reflection as the criterion. Brand, perceived narrative structure and perceived quality were included as covariates. The storyboard condition was set as the baseline. For simplicity of reporting, the effect of storyboard versus audio is referred to as X1, and storyboard versus video effects as X2.

For a diagram of all effects on retrospective reflection, see Figure 9 and Figure 10. For a diagram of all effects on attitude toward the brand, see Figure 11 and Figure 12.

Imaginative Narrative Transportation

The media to imaginative transportation path was significant ($F(8, 521) = 20.60$, $p < .001$).

The coefficient for perceived cognitive load was not significant ($\beta = -.023$, 95% CI [-.14, .094], $t(521) = -.38$, $p > .70$). Despite the lack of a significant coefficient of perceived cognitive load, levels of imaginative transportation were significantly higher in the no load condition

(M_{noload} = 4.52, SD = 1.40) than in the cognitive load condition ($M_{cognitiveload}$ = 4.09, SD = 1.48; mean difference = .69, $t(528)$ = 4.68, p < .001).

Compared to the storyboard ad, the audio had a significant and negative path coefficient to imaginative transportation (X1: β = -1.29, 95% CI [-2.14, -.44], $t(521)$ = -2.99, p < .01), suggesting that the audio condition produced lower imaginative transportation than the storyboard condition (M_{audio} = 3.87, SD = 1.83, $M_{storyboard}$ = 4.58, SD = 1.66). The coefficient of the media (X1) × cognitive load interaction was significant (β = .19, 95% CI [.021, .35], $t(521)$ = 2.22, p < .05), with higher cognitive load leading to lower imaginative transportation in the storyboard condition, but higher imaginative transportation in the audio condition (see Figure 6 below). This may be due to higher perceived cognitive load being a reflection of greater effort to generate imagery in the audio condition, whereas it may, in larger part, reflect greater distraction (away from the visuals) in the storyboard and video conditions.

There was no significant difference in the path coefficients of storyboard versus video ad on imaginative transportation (X2: β = .30, 95% CI [-.54, 1.14], $t(521)$ = .70, p > .40). The coefficient of the media (X2) × cognitive load interaction was not significant (β = -.084, 95% CI [-.15, .17], $t(521)$ = -1.02, p > .30).

The perceived narrative structure covariate (β = .57, 95% CI [.40, .75], $t(521)$ = 6.33, p < .001) and the perceived quality covariate (β = .21, 95% CI [.049, .37], $t(521)$ = 2.56, p < .02) both had positive and significant coefficients. The coefficient for brand covariate (β = -.013, 95% CI [-.17, .15], $t(521)$ = .16, p > .80) was not significant.

Figure 6: Study 1 Imaginative Transportation by Media and Perceived Cognitive Load
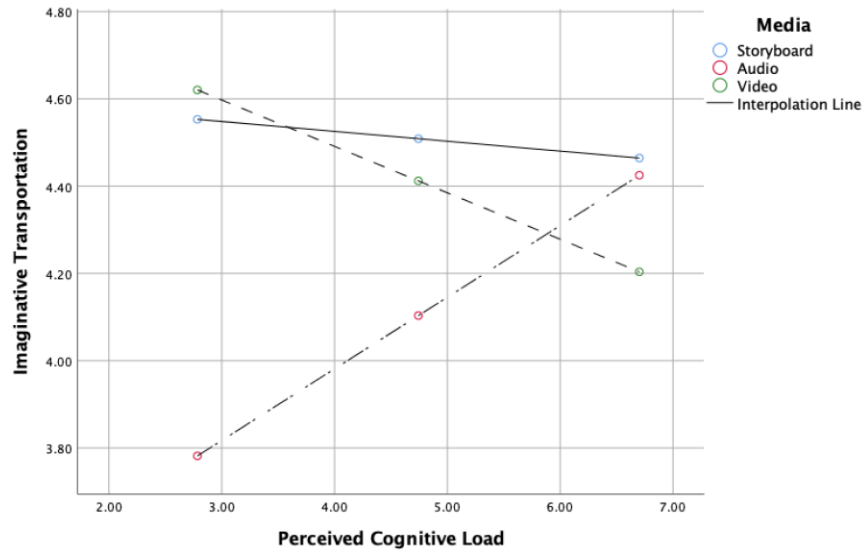
General Narrative Transportation Items

The media to general transportation path was significant ($F(8, 521) = 28.12$, $p < .001$).

The coefficient for perceived cognitive load ($\beta = .071$, 95% CI [-.023, .17], $t(521) = 1.48$, $p > .10$) was not significant. As with the imaginative transportation path, despite the lack of a significant coefficient of perceived cognitive load in the model, levels of general transportation were significantly higher in the no load condition $M_{noload} = 4.09$, $SD = 1.48$) than in the cognitive load condition ($M_{cognitiveload} = 4.51$, $SD = 1.40$; mean difference = .42, $t(528) = 3.40$, $p < .01$).

There was no significant difference in the path coefficients of storyboard versus audio ad on general transportation (X1: $\beta = -.39$, 95% CI [-1.08, .30], $t(521) = -1.12$, $p > .20$). The coefficient of the media (X1) × cognitive load interaction was not significant ($\beta = .07$, 95% CI [-.063, .20], $t(521) = 1.04$, $p > .20$).

There was no significant difference in the path coefficients of storyboard versus video ad on general transportation (X2: $\beta = -.0014$, 95% CI [-.68, .68], $t(521) = -.0041$, $p > .90$). The coefficient of the media (X2) × cognitive load interaction was not significant ($\beta = -.040$, 95% CI [-.17, .091], $t(521) = -.60$, $p > .50$).

49

The brand covariate (β = .24, 95% CI [.11, .37], $t(521)$ = 3.61, p < .001), the

perceived narrative structure covariate (β = .63, 95% CI [.49, .78], $t(521)$ = 8.61, p <

.001), and the perceived quality covariate (β = .13, 95% CI [.0025, .26], $t(521)$ = 2.00, p

< .05) were significant.

When comparing imaginative and general transportation, it is interesting to note

that there are significant differences in imaginative transformation by media, but there are

no significant differences by media in general transportation. This suggests that

differences in the results based on the full narrative transportation scale may be driven by

the imaginative measures.

Figure 7: Study 1 General Transportation by Media and Perceived Cognitive Load
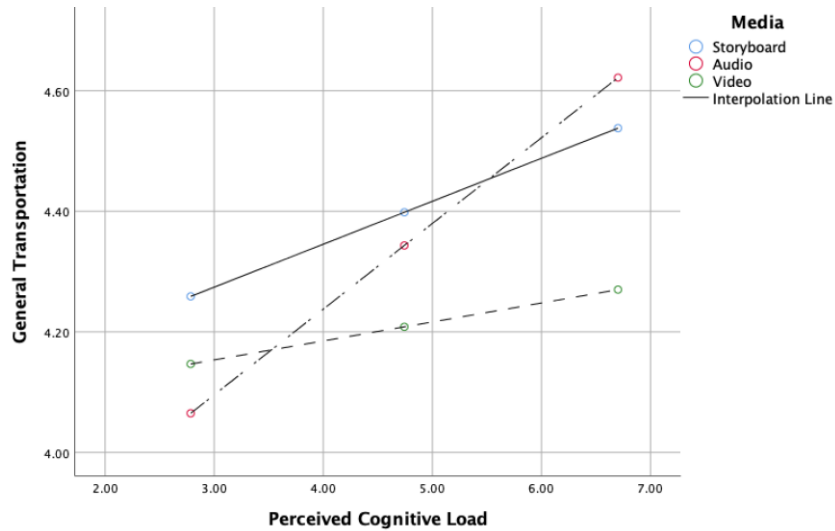
Effect on Retrospective Reflection

The media to retrospective reflection path was significant ($F(10,519)$ = 64.07, p < .001). The

coefficients for general transportation (β = .75, 95% CI [.65, .85], $t(519)$ = 14.77, p < .001),

perceived cognitive load (β = .13, 95% CI [.044, .22], $t(519)$ = 2.96, p < .01) and the brand

covariate (β = .20, 95% CI [.080, .32], $t(519)$ = 3.26, p < .01) were significant. The coefficient

for imaginative transportation was not significant (β = .015, 95% CI [-.066, .095], $t(519)$ = .36, p > .70).

There was a significant difference in the path coefficient of storyboard versus audio ad on retrospective reflection (X1: β = 1.26, 95% CI [.62, 1.89], $t(521)$ = 3.90, p < .001). The coefficient of the media (X1) × cognitive load interaction was also significant (β = -.25, 95% CI [-.37, -.13, .37], $t(521)$ = -3.99, p < .001). Higher perceived cognitive load was associated with increased retrospective reflection in the storyboard condition, compared to the audio condition, where higher perceived cognitive load was associated with lower retrospective reflection (see Figure 8).

There was a significant difference in the path coefficients of storyboard versus video ad on retrospective reflection (X2: β = .70, 95% CI [.075, 1.32], $t(521)$ = 2.20, p < .03). The coefficient of the media (X2) × cognitive load interaction was also significant (β = -.12, 95% CI [-.24, -.0038], $t(521)$ = -2.03, p < .05). Higher perceived cognitive load was associated with increased retrospective reflection in the storyboard condition, compared to nearly consistent levels of retrospective reflection across levels of perceived cognitive load in the video condition (see Figure 8).

Coefficients of perceived narrative structure covariate (β = .13, 95% CI [-.014, .27], $t(519)$ = 1.78, p > .07) and perceived quality covariate (β = .037, 95% CI [-.083, .16], $t(519)$ = .61, p > .50) were not significant.

Although media related significantly to imaginative transportation, but not general transportation, retrospective reflection is better predicted by general transportation. This suggests that cognitive or emotional transportation into narrative ads is more important for retrospective reflection than image generation.

51

Figure 8: Study 1 Retrospective Reflection by Media and Perceived Cognitive Load
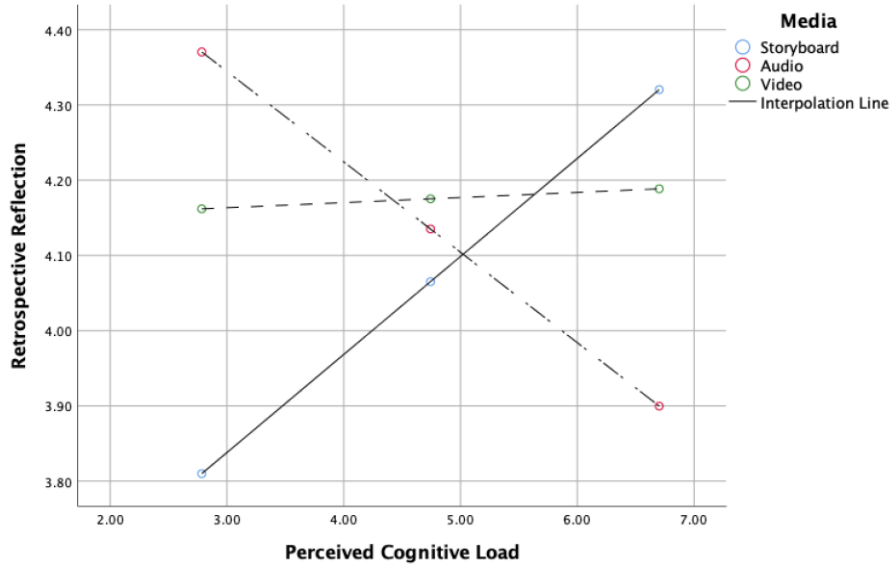
Figure 9: Study 1 PROCESS Summary X1 (storyboard vs audio) on Retrospective Reflection
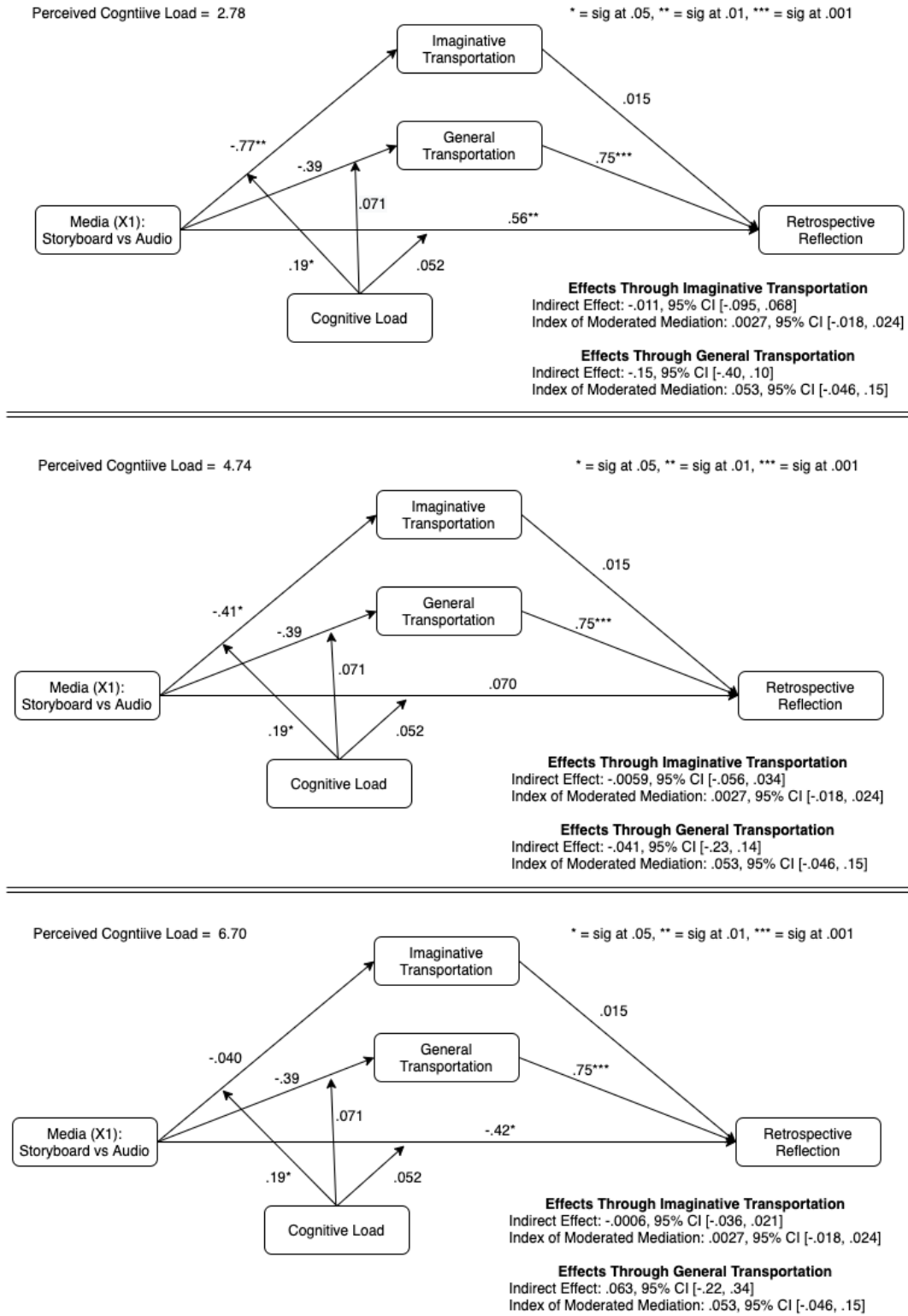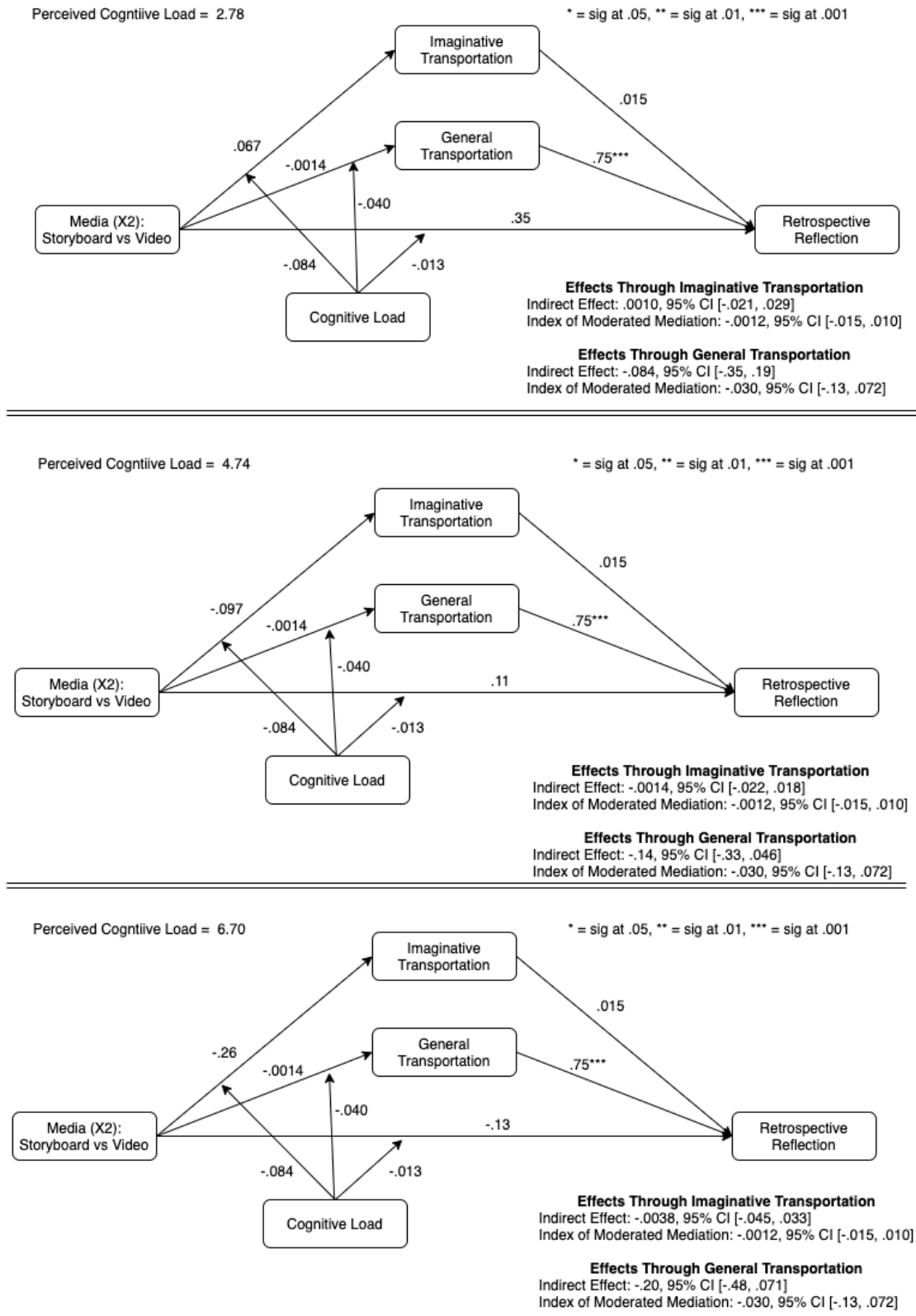
Figure 10: Study 1 PROCESS Summary X2 (storyboard vs video) on Retrospective Reflection

Attitude Toward the Brand

The media to attitude toward the brand path was significant ($F(10,519) = 52.58$, $p <$ .001). The coefficient for general transportation ($\beta = .40$, 95% CI [.32, .48], $t(519) = 10.20$, $p <$ .001) was significant. The coefficients for imaginative transportation ($\beta = .060$, 95% CI [-.0017, .12], $t(519) = 1.91$, $p > .05$) and perceived cognitive load ($\beta = .083$, 95% CI [.015, .15], $t(519) =$ 2.41, $p < .02$) were not significant.

There was no significant difference in the path coefficients of storyboard versus audio ad on attitudes (X1: $\beta = -.062$, 95% CI [-.55, .43], $t(521) = -.25$, $p > .80$). The coefficient of the media (X1) × cognitive load interaction was not significant ($\beta = .052$, 95% CI [-.044, .15], $t(521) = 1.07$, $p > .20$.

There was no significant difference in the path coefficients of storyboard versus video ad on attitudes (X2: $\beta = .036$, 95% CI [-.45, .52], $t(521) = .15$, $p > .80$). The coefficient of the media (X2) × cognitive load interaction was not significant ($\beta = -.013$, 95% CI [-.11, .080], $t(521) = -.27$, $p > .70$).

The coefficient for the perceived quality covariate ($\beta = .25$, 95% CI [.16, .35], $t(519) =$ 5.30, $p < .001$) was significant, whereas no significant coefficients emerged for the brand covariate ($\beta = .054$, 95% CI [.040, .15], $t(519) = 1.13$, $p > .20$) and the perceived narrative structure covariate ($\beta = .048$, 95% CI [-.062, .16], $t(519) = .85$, $p > .30$).

Following the same pattern of results as retrospective reflection, general (but not imaginative) transportation related significantly to brand attitudes. This again suggests that cognitive or emotional transportation into a narrative ad is more closely linked to attitudes than image generation.

Figure 11: Study 1 PROCESS Summary X1 (storyboard vs audio) on Attitudes

Perceived Cogntiive Load = 2.78

* = sig at .05, ** = sig at .01, *** = sig at .001

Imaginative Transportation

General Transportation

Media (X1): Storyboard vs Audio

Cognitive Load

Attitudes

-.77**
-.39
.071
.061
.40***
.083
.19*
.052

Effects Through Imaginative Transportation
Indirect Effect: -.047, 95% CI [-.11, .0058]
Index of Moderated Mediation: .0013, 95% CI [-.0016, .032]

Effects Through General Transportation
Indirect Effect: -.078, 95% CI [-.22, .055]
Index of Moderated Mediation: .028, 95% CI [-.025, .083]

Perceived Cogntiive Load = 4.74

* = sig at .05, ** = sig at .01, *** = sig at .001

Imaginative Transportation

General Transportation

Media (X1): Storyboard vs Audio

Cognitive Load

Attitudes

-.41*
-.39
.071
.061
.40***
.18
.19*
.052

Effects Through Imaginative Transportation
Indirect Effect: -.025, 95% CI [-.065, .0040]
Index of Moderated Mediation: .0013, 95% CI [-.0016, .032]

Effects Through General Transportation
Indirect Effect: -.022, 95% CI [-.12, .077]
Index of Moderated Mediation: .028, 95% CI [-.025, .083]

Perceived Cogntiive Load = 6.70

* = sig at .05, ** = sig at .01, *** = sig at .001

Imaginative Transportation

General Transportation

Media (X1): Storyboard vs Audio

Cognitive Load

Attitudes

-.040
-.39
.071
.061
.40***
.13*
.19*
.052

Effects Through Imaginative Transportation
Indirect Effect: -.0024, 95% CI [-.039, .034]
Index of Moderated Mediation: .0013, 95% CI [-.0016, .032]

Effects Through General Transportation
Indirect Effect: .034, 95% CI [-.12, .19]
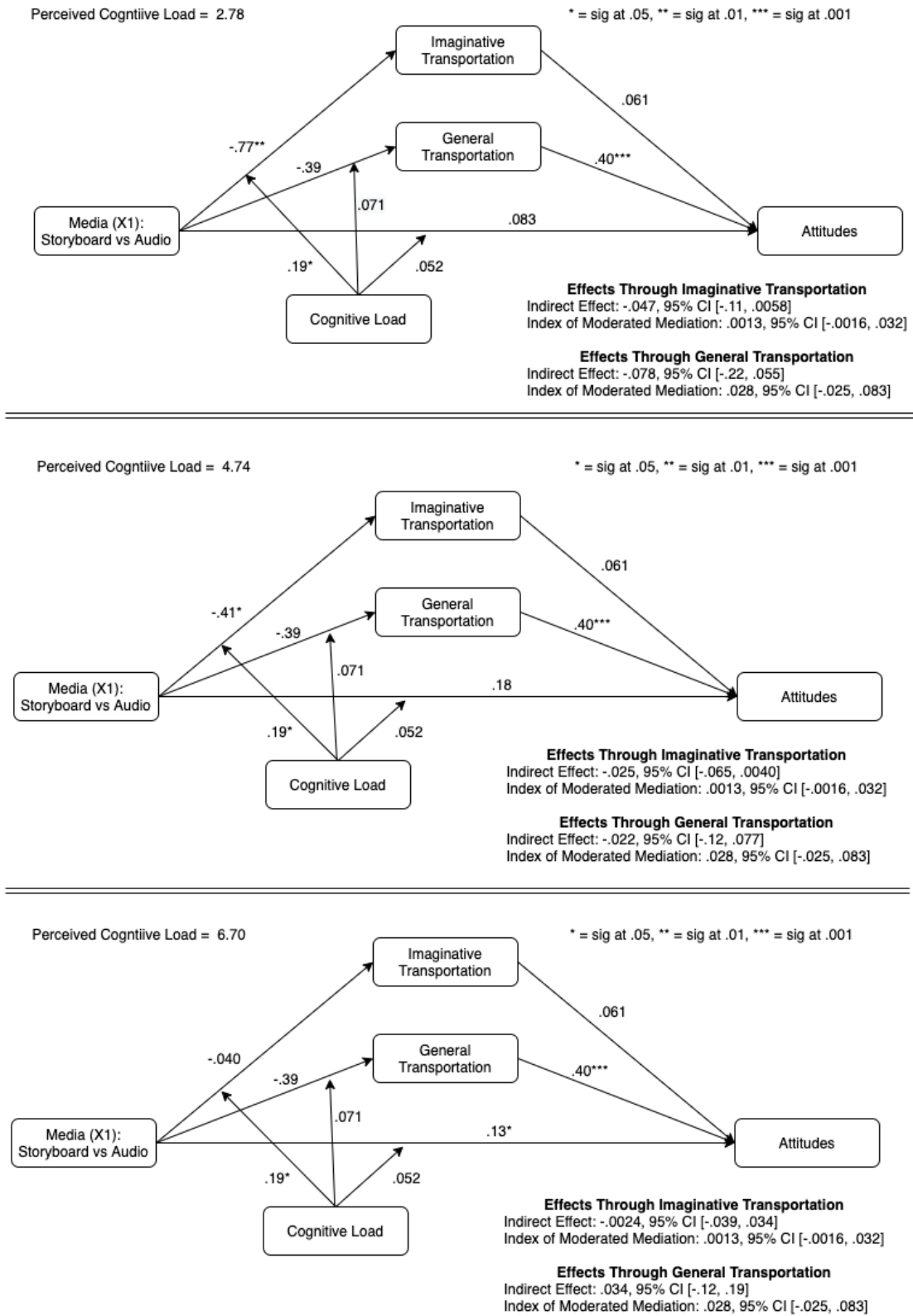Index of Moderated Mediation: .028, 95% CI [-.025, .083]

Figure 12: Study 1 PROCESS Summary X2 (storyboard vs video) on Attitudes

Perceived Cogntiive Load = 2.78

* = sig at .05, ** = sig at .01, *** = sig at .001

.067
-.0014
-.040
-.084
-.013
.061
.40***
.00

Effects Through Imaginative Transportation
Indirect Effect: .0041, 95% CI [-.027, .036]
Index of Moderated Mediation: -.0051, 95% CI [-.021, .0049]

Effects Through General Transportation
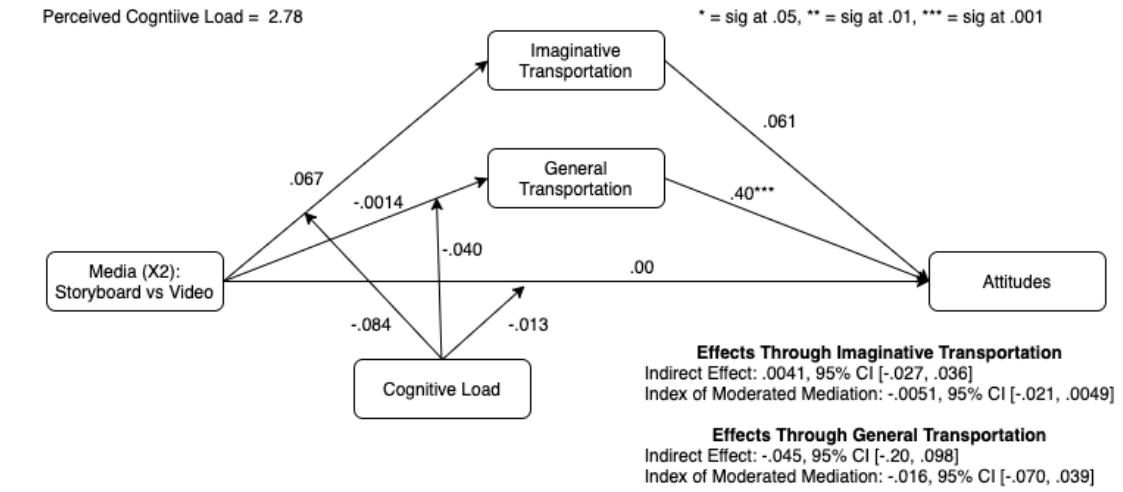Indirect Effect: -.045, 95% CI [-.20, .098]
Index of Moderated Mediation: -.016, 95% CI [-.070, .039]

Perceived Cogntiive Load = 4.74

* = sig at .05, ** = sig at .01, *** = sig at .001

-.097
-.0014
-.040
-.084
-.013
.061
.40***
-.025

Effects Through Imaginative Transportation
Indirect Effect: -.0059, 95% CI [-.035, .014]
Index of Moderated Mediation: -.0051, 95% CI [-.021, .0049]

Effects Through General Transportation
Indirect Effect: -.076, 95% CI [-.18, .026]
Index of Moderated Mediation: -.016, 95% CI [-.070, .039]

Perceived Cogntiive Load = 6.70

* = sig at .05, ** = sig at .01, *** = sig at .001

-.26
-.0014
-.040
-.084
-.013
.061
.40***
-.050

Effects Through Imaginative Transportation
Indirect Effect: -.016, 95% CI [-.064, .013]
Index of Moderated Mediation: -.0051, 95% CI [-.021, .0049]

Effects Through General Transportation
Indirect Effect: -.11, 95% CI [-.26, .044]
Index of Moderated Mediation: -.016, 95% CI [-.070, .039]

Discussion

This study provided support for hypotheses 2a, 3 and 4, but did not provide support for hypotheses 1, 2b, 2c or 5. Contrary to hypothesis 1, there were no significant differences in narrative transportation between media. A further probe into these results showed that there were significant differences in imaginative narrative transportation between the audio condition and the storyboard and video conditions, but no significant differences in general narrative transportation between media conditions. Interestingly, however, it was general narrative transportation that significantly affected retrospective reflection and attitudes, whereas imaginative narrative transportation did not. This indicates that cognitive and emotional transportation into an advertisement is more closely linked to attitude formation than image generation. Overall, in support of hypothesis 3, increased narrative transportation led to increased attitude toward the brand, regardless of media. This confirms that the role of narrative transportation in forming attitudes is indeed robust for video advertisements.

In support of hypothesis 2a, participants in the cognitive load condition experienced significantly lower narrative transportation than participants in the no load condition. However, in line with Nielsen and Escalas' (2010) study, narrative transportation increased as a function of perceived cognitive load, arguably due to the fact that participants invested more cognitive and imaginative resources comprehending the narrative. This suggests that the cognitive load condition is a distraction that limits participants' ability to fully focus on and interact with the stimuli. Perceived cognitive load, on the other hand, may simultaneously capture consumers' effort to understand and be involved with the story, explaining the positive coefficient of perceived cognitive load

on narrative transportation. Contrary to hypotheses 2b and 2c, cognitive load did not have a significant effect on retrospective reflection and attitudes.

In support of hypothesis 4, increased retrospective reflection increased attitude toward the brand. This provides the first evidence that the construct of retrospective reflection is useful in the context of advertising. The effect of retrospective reflection was significant, although smaller than that of narrative transportation. This finding was expected, due to retrospective reflection being significantly predicted by narrative transportation. However, the fact that it was still significant in predicting attitudes affirms that it adds value to the model compared to a narrative transportation-only mediation.

Finally, contrary to hypothesis 5, there was no significant index of moderated serial mediation in the model. However, the significant effects that emerged throughout the study provide much added understanding to the field.

In order to better understand narrative processing of narrative ads across media, in the following study we introduce a new construct of narrative engagement. Busselle and Bilandzic (2009) combined elements of various scales (including narrative transportation, narrative identification, narrative presence and flow) in a new 12-point narrative engagement scale to make it suitable for visual narratives. Although this scale was tested on television shows and movies, its measures may be applied to any narrative due to, by definition, even narrative advertisements requiring characters engaged in actions to achieve goals. In addition to the narrative transportation and retrospective reflection scales, this construct may unveil how consumers interact with narrative advertisements across media.

Pretest 3

Pretest 3 tested the appropriateness of the ad stimuli in a 3 (media: storyboard, video, audio ad) ×

3 (brand: Gillette, KLM, Anthony Nolan) mixed-factorial design. Media was a between-participants factor and brand was a within-participants factor. This study also assessed brands with a wider range of familiarity.

Participants

A total of 90 adult consumers from MTurk completed the online study through the Qualtrics survey platform in exchange for 1.00 USD. The task was posted on the afternoon of June 1, 2020 and was restricted to US workers with a 95% approval rating and 100 or more approved HITs in an attempt to maximise data quality (Berinsky et al., 2012; Goodman et al., 2013; Paolacci et al., 2010; Peer et al., 2014)..

Seven participants' answers were removed because they failed both instructional manipulation checks found within the study (Oppenheimer et al., 2009) or because timers on the stimuli pages indicated that they did not watch the advertisements in full. The final sample comprised 83 adults (36.1% female; $M_{age} = 37.30$, $SD = 10.71$), 90.4% of whom considered themselves to be entirely fluent in English.

Stimuli

As with the previous study, advertisements were sourced online in video format (see Appendix 3 for links to original video advertisements) and chosen for having a narrative structure, and for being produced in a way that the message would remain clear if the visuals were removed from the video advertisement to allow adaptation across types of media.

In addition to two advertisements for brands of consumer products and services, the third advertisement was for a charitable organization. This allowed for an examination of the effect of type of media on a health-related message, which has been

discussed in the narrative transportation literature (e.g., Braverman, 2008; Dunlop et al., 2010; Williams et al., 2010).

The focal brands were chosen to represent various levels of familiarity. Gillette was chosen for its market leader status and high levels of familiarity, KLM Royal Dutch Airlines (herein referred to as KLM) represented a higher involvement purchase and moderate levels of familiarity, and Anthony Nolan was chosen as a not-for-profit health-related organization and for low levels of familiarity.

Gillette and KLM are both present in North America, although the ads chosen were not aired in the United States (where the participants were sampled) to preclude familiarity effects regarding the ad. Anthony Nolan is not present in North America.

Storyboard advertisements were adapted from the original video advertisements by compiling a series of freeze-frames from the fully produced video. The full soundtrack of the original advertisement was kept in its original format including dialogue and music/sound effects. This is in line with Schlinger and Green's (1980) assessment of storyboard ads and their fully produced counterparts that highlighted that rough soundtracks must be of reasonably high quality if storyboards are to be meaningful.

Audio advertisements were adapted from the original video advertisements by removing the visuals. They were presented with a sound icon on-screen to enable a point of visual fixation for the subsequent study that included the visual manipulation of cognitive load on-screen. All stimuli were shown as embedded videos integrated into the Qualtrics survey platform.

Procedure and Measures

Participants were randomly assigned to one of three conditions (media: audio, storyboard, video) and were exposed to three different brands' advertisements within that form of media in counterbalanced order in a 3 × 3 mixed-factorial design.

Participants reviewed each advertisement and then answered measures of attitude toward the ad (α = .92; Mackenzie and Lutz, 1989), attitude toward the brand (α = .93; Hamby et al., 2016), perceived advertisement quality (α = .86; Escalas, 2004), perceived narrative structure (α = .84; Escalas, 2006), as well as control measures, including product category involvement[9] (last time to use/purchase products within the product category, how much they enjoy purchasing that type of product), prior awareness of the brand and presence of technological issues while completing the survey.

Results

Familiarity with the Brand

Analyses confirmed that, prior to viewing the advertisements, participants had little familiarity[10] with Anthony Nolan (M = 2.41, SD = 2.06; significantly below scale mid-point (4): $t(82)$ = -6.60, p < .001), moderate familiarity with KLM (M = 3.76, SD = 2.32; not significantly different from the scale mid-point: $t(81)$ = -.95, p > .30) and high familiarity with Gillette (M = 6.35, SD = 0.86; significantly above the scale mid-point: $t(82)$ = 24.84, p < .001). This allowed for an exploration of the potential impact of familiarity on the role of narrative transportation and narrative engagement in predicting attitudes.

Identification of Covariates

In a series of repeated-measures ANOVAs of media and brand on all potential covariates, no

---

[9] Measures were adapted to reflect the not-for-profit. Last purchase = last donation, last use = last contribution, enjoyment purchasing = enjoyment donating.
[10] Familiarity was assessed on a 7-point scale ranging from "never heard of it" to "very familiar."

significant main or interaction effects of media emerged, suggesting that comparison across media types in the main study can be conducted appropriately. There were, however, several effects of brand on the various covariates, suggesting the potential need to control for brand in this research. This is likely even more important than in Study 1 due to the greater differences between brands chosen for this study.

Prior familiarity with the brand was significantly related to brand ($F(2, 158) = 116.88$, $p < .001$), as outlined in the previous section. Similarly, last purchase (donation) was significantly related to brand ($F(2, 160) = 35.07$, $p < .001$). Last purchase of shaving products ($M_{Gillette} = 3.16$, $SD = 1.56$) were significantly more recent than the last purchase of plane tickets ($M_{KLM} = 5.02$, $SD = 1.35$; $t(164) = -8.25$, $p < .001$; mean difference = -1.87) and than last donation to a charity ($M_{AN} = 3.70$, $SD = 1.82$; $t(164) = -2.06$, $p < .05$; mean difference = -.54). Last donation to charity was also significantly more recent than the last purchase of a plane ticket ($t(164) = -5.33$, $p < .001$; mean difference = -1.33).

Last use (contribution to charity) followed a similar pattern of results and was also significantly related to brand ($F(2, 160) = 77.70$, $p < .001$). Last use of shaving products ($M_{Gillette} = 2.07$, $SD = 1.70$) were significantly more recent than the last flight on an airplane ($M_{KLM} = 5.00$, $SD = 1.15$; $t(164) = -13.03$, $p < .001$; mean difference = -2.93) and than last contribution to charity ($M_{AN} = 3.65$, $SD = 1.84$; $t(164) = -5.74$, $p < .001$; mean difference = -1.58). Last contribution to charity was also significantly more recent than the last purchase of a plane ticket ($t(164) = -5.66$, $p < .001$; mean difference = -1.35).

Enjoyment was significantly related to brand ($F(2, 160) = 18.29$, $p < .001$). Enjoyment donating to charity ($M_{AN} = 5.28$, $SD = 1.21$) was significantly higher than enjoyment purchasing shaving products ($M_{Gillette} = 4.42$, $SD = 1.50$; $t(164) = 4.04$, $p < .001$; mean difference = .86) and

enjoyment purchasing plane tickets ($M_{KLM} = 4.22$, $SD = 1.75$; $t(164) = 4.54$, $p < .001$; mean difference = 1.06).

Next, a 3 × 3 ANOVA with attitude toward the ad as the dependent variable, brand and media as the independent variables, and the various covariates was conducted. Significant predictors of attitude toward the ad included media ($F(2, 5.94) = 4.62$, $p < .05$), prior awareness ($F(2, 225) = 4.62$, $p < .05$), enjoyment ($F(1, 225) = 9.54$, $p < .01$), perceived narrative structure ($F(1, 225) = 9.63$, $p < .01$), perceived quality ($F(1, 225) = 46.08$, $p < .001$), marital status ($F(1, 225) = 6.92$, $p < .01$) and age ($F(1, 225) = 6.92$, $p < .01$).

Finally, a 3 × 3 ANOVA with attitude toward the brand as the dependent variable, brand and media as the independent variables, and the various covariates was conducted. Significant predictors of attitude toward the brand included media ($F(2, 13.48) = 24.00$, $p < .001$), enjoyment ($F(1, 225) = 13.25$, $p < .001$), perceived narrative structure ($F(1, 225) = 27.18$, $p < .001$), perceived quality ($F(1, 225) = 24.42$, $p < .001$), marital status ($F(1, 225) = 10.75$, $p < .01$), gender ($F(1, 225) = 5.48$, $p < .03$) and age ($F(1, 225) = 10.38$, $p < .01$).

The number of significant covariates suggest the potential importance of an analysis by brand due to the number of aspects on which the brands differ. It also highlights the importance of statistically controlling for perceived narrative structure and quality to be able to make comparisons across media.

Narrative Structure

Narrative structure of the advertisements was assessed by media type and brand, indicating an acceptable average perceived narrative structure across media (significantly above the scale mid-

point (4) all media, all ts > 9.0, all ps < .001; M_{Video} = 5.71, SD = 0.95; $M_{Storyboard}$ = 5.80, SD = 0.99; M_{Audio} = 5.36, SD = 1.08) and brand (significantly above the scale mid-point for all brands, all ts > 12.5, all ps < .001; $M_{Gillette}$ = 5.51, SD = 1.25; M_{KLM} = 5.70, SD = 1.14; M_{AN} = 5.67, SD = 1.09). Narrative structure perceptions in the audio condition were significantly lower than the video condition (t(160) = -2.99, p < .05; mean difference = -.35) and the storyboard condition (t(169) = -2.17, p < .01; mean difference = -.44). No significant differences emerged across brands (all ps > .30).

A repeated-measures ANOVA with perceived narrative structure as the dependent variable and media type (between-subjects) and brand (within-subjects) as the independent variables revealed that neither brand (F(2,160) = 1.26, p > .25) nor media (F(1,80) = 2.79, p > .09) were significant predictors of narrative structure, validating the fact that a clear story was communicated regardless of type of media.

Perceived Quality

Perceived quality of the advertisements was assessed by media type and brand, indicating an acceptable average perceived quality of the advertisements across media (significantly above the scale mid-point all media, all ts > 11.5, all ps < .001; M_{Video} = 5.85, SD = 1.05; $M_{Storyboard}$ = 5.76, SD = 1.06; M_{Audio} = 5.29, SD = 1.29) and brand (significantly above the scale mid-point for all brands, all ts > 11.0, all ps < .001; $M_{Gillette}$ = 5.51, SD = 1.25; M_{KLM} = 5.70, SD = 1.14; M_{AN} = 5.67, SD = 1.09). Quality perceptions in the audio condition were significantly lower than the video condition (t(160) = -2.99, p < .01; mean difference = -.55) and the storyboard condition (t(169) = -2.62, p < .02; mean difference = -.47). No significant differences emerged across brands (all ps > .30).

A mixed-measures ANOVA with quality as the dependent variable and brand (within-

participants) and media type (between-participants) as the independent variables revealed that neither brand ($F(2,160) = 2.11$, $p > .10$) nor media type ($F(2,80) = 1.99$, $p > .10$) were significant predictors of quality perceptions, although the lack of significance may be a function of the small sample size. These results suggest that the perceived quality was adequate across media and brands, and the potential need to control for quality perceptions in the analysis of the main study.

Discussion

Pretest 3 provides evidence for the appropriateness of the ad stimuli. Although perceptions of narrative structure and quality were lower for audio than the other types of media, they were deemed to be an adequate level to move forward. Narrative structure and quality perceptions were measured in the subsequent study in order to statistically control for potential differences.

Study 2

An experiment examined the impact of advertisement media and cognitive load on narrative transportation, retrospective reflection, narrative engagement and attitude toward the ad and brand.

Participants

A sample of 540 adult consumers recruited from an online panel (MTurk) completed the online study through the Qualtrics survey platform in exchange for 0.85 USD. The study was posted on the afternoon of June 10, 2020 and was restricted to US workers with a 95% approval rating and 100 or more approved HITs in an attempt to ensure data quality (Berinsky et al., 2012; Goodman et al., 2013; Paolacci et al., 2010; Peer et al., 2014). Following the elimination criteria utilised in

the previous studies, thirty eight participants' answers were removed, resulting in a final sample comprising 502 adults (41% female; M_{age} = 37.90, SD = 12.01).

Procedure and Measures

Participants were randomly assigned to one of eighteen conditions in a 3 (media: video, storyboard, audio) × 2 (cognitive load: no load, cognitive load) × 3 (brand: Gillette, Anthony Nolan, KLM) between-participants factorial design. The stimuli used in this study were the advertisements of three pretested brands (Gillette, Anthony Nolan, KLM) with cognitive load being manipulated as in the previous studies through the use of scrolling numbers across the screen. Participants in the cognitive load condition were instructed to count the number of times they saw the digit "8", whereas those in the no load condition were instructed to ignore the scrolling numbers (Hamby et al., 2016). Participants reviewed each advertisement and then answered measures of attitude toward the ad[11] (α = .94; Mackenzie and Lutz, 1989), attitude toward the brand (α = .92; Hamby et al., 2016), perceived advertisement quality (α = .83; Escalas, 2004), perceived narrative structure (α = .81; Escalas, 2006), perceived cognitive load (α = .95; Wilcox et al., 2011) narrative transportation (α = .92; Appel et al., 2015), retrospective reflection (α = .93; Hamby et al., 2016), narrative engagement (α = .81; Busselle & Bilandzic, 2009)[12] as well as control measures, including product category involvement (last time to use/purchase products within the product category, how much they enjoy purchasing that type of product[13]), prior awareness of the brand and presence of technological issues while completing the survey.

---

[11] Due to the consistent pattern of results for attitude toward the ad and attitude toward the brand, results for attitude towar the ad are not discussed for the sake of brevity.

[12] The reliabilities of the four sub-scales (see **Error! Reference source not found.**) were also assessed; narrative presence (α = .87), emotional engagement (α = .76), narrative understanding (α = .92) and attentional focus (α = .89).

[13] Measures were adapted to reflect the not-for-profit. Last purchase = last donation, last use = last contribution, enjoyment purchasing = enjoyment donating.

Results

Factor Analysis

A principal component analysis was conducted with Varimax (orthogonal) rotation, resulting in eight factors explaining a total of 72.91% of the variance. The first factor of the rotated component matrix explained 29.36% of the variance and contained the narrative presence, emotional engagement and narrative transportation items. The second factor explained 17.91% and contained the negative feelings confound (negative), attentional focus and narrative understanding items. The third factor contained the perceived narrative structure and perceived quality items and explained 6.79% of the variance. The fourth factored contained the retrospective reflection items, accounting for 5.58% of the variance. The fifth factor contained the perceived cognitive load items and explained 4.23% of the variance. The sixth, seventh and eighth factors contained the other covariates and explained 3.36%, 2.94% and 2.74% of the variance, respectively. As all scales loaded on separate factors (with the exception of narrative transportation loading on the same factor as two of the narrative engagement sub-scales), the items in each scale were averaged and the resulting composite measures were used in the subsequent analyses.

Identification of Covariates

A series of $2 \times 3 \times 3$ univariate ANOVAs of cognitive load, media and brand were conducted on potentially important covariates identified in the pretests (i.e., perceived quality and perceived narrative structure). When perceived quality served as the dependent variable, there were no significant main effects of media ($F(2, 484) = .652, p > .50$), brand ($F(2, 484) = 2.00, p > .20$) nor cognitive load ($F(1, 484) = 1.32, p > .30$). There were no significant interaction effects (all Fs < 3.50, all ps $> .10$). When perceived narrative structure served as the dependent variable, the

same pattern of results emerged, with no significant main effects for media (F(2, 484) = 1.24, $p >$ .40), brand (F(2, 484) = 11.39, $p >$ .80) nor cognitive load (F(1, 484) = 1.64, $p >$ .50). There were no significant interaction effects (all Fs < 1.90, all ps > .25). This analysis confirms the appropriateness of the stimuli across conditions.

Cognitive Load Manipulation

An independent samples t-test of perceived cognitive load was conducted comparing participants' ratings in the cognitive load and no load conditions. There was a significant difference in cognitive load ratings between conditions (t(500) = 10.52, $p <$ .001) with a mean difference of 1.65 (M_{noload} = 4.21, SD = 2.10; $M_{cognitiveload}$ = 5.85, SD = 1.26). These results highlight that the manipulation was successful in altering participants' perceived cognitive load.

A 2 × 3 × 3 univariate ANOVA of cognitive load condition, media and brand on cognitive load perceptions was then conducted, revealing that cognitive load perceptions were significantly predicted by cognitive load condition (F(1, 501) = 112.08, $p <$ .001) and brand (F(2, 500) = 3.21, $p <$ .05), but not by media (F(2, 500) = .78, $p >$ .40). Cognitive load perceptions for the Anthony Nolan condition (M_{AN} = 5.17, SD = 1.75) were significantly higher than for the Gillette condition (t(326) = 2.08, $p <$ .05; mean difference = .44; M_G = 4.73, SD = 2.06). This highlights that there were cross-over effects from the experimental manipulation, and thus the importance of controlling for brand.

Table 13: Study 2 Means of Perceived Cognitive Load by Cognitive Load Condition, Brand and Media

Cognitive Load	Media	Brand	Mean	Std. Deviation
No Load	Storyboard	Gillette	3.26	2.05
		Anthony Nolan	4.80	1.80
		KLM	4.39	1.96
		Total	4.19	2.01
	Audio	Gillette	3.93	1.87
		Anthony Nolan	4.69	1.87
		KLM	4.45	2.58
		Total	4.37	2.11

			Mean	SD
	Video	Gillette	4.00	2.35
		Anthony Nolan	3.85	2.14
		KLM	4.23	2.10
		Total	4.06	2.18
	Total	Gillette	3.74	2.11
		Anthony Nolan	4.51	1.94
		KLM	4.34	2.17
		Total	4.21	2.10
Cognitive Load	Storyboard	Gillette	5.72	1.24
		Anthony Nolan	5.68	1.19
		KLM	5.93	1.23
		Total	5.79	1.21
	Audio	Gillette	5.95	1.61
		Anthony Nolan	6.17	0.92
		KLM	5.74	1.29
		Total	5.96	1.35
	Video	Gillette	5.51	1.23
		Anthony Nolan	5.74	1.44
		KLM	6.25	0.70
		Total	5.81	1.22
	Total	Gillette	5.76	1.41
		Anthony Nolan	5.84	1.22
		KLM	5.96	1.14
		Total	5.85	1.26
Total	Storyboard	Gillette	4.30	2.13
		Anthony Nolan	5.25	1.57
		KLM	5.16	1.80
		Total	4.96	1.85
	Audio	Gillette	5.08	1.99
		Anthony Nolan	5.32	1.69
		KLM	5.05	2.16
		Total	5.15	1.94
	Video	Gillette	4.67	2.06
		Anthony Nolan	4.89	2.01
		KLM	4.92	1.99
		Total	4.83	2.01
	Total	Gillette	4.73	2.06
		Anthony Nolan	5.17	1.75
		KLM	5.05	1.97
		Total	4.98	1.94

Presence of Technological Issues

A sizeable portion of participants across conditions (27.5%) reported experiencing technological issues, with the majority stating that the video took a long time to buffer. Despite the steps taken by the authors to ensure the smooth processing of the study and

following the same procedure as previous phases, it would seem that an issue with Qualtrics'

platform resulted in longer time spent waiting for the video to load, and thus a delay before

beginning the study. To assess the impact of this issue on the results, a series of tests were

conducted.

First, a series of 3 × 2 × 2 univariate ANCOVAs were conducted of media, cognitive load

and presence of technological issues on the various dependent variables of interest with brand as

a covariate. These revealed that presence of technological issues had a significant impact in

certain instances. However, when perceived quality and perceived narrative structure were added

as covariates (as well as brand, as outlined in the following sections), presence of technological

issues was no longer significant, suggesting that its impact on results was controlled for by these

covariates and that it may be removed from the PROCESS analyses.

Next, a full analysis was conducted on the data; one on the full dataset, and one on a

reduced dataset where responses of participants who reported experiencing technological issues

had been removed. The results were then compared between datasets, indicating that the pattern

of results remained consistent (when controlling for perceived quality and perceived narrative

structure in both sets of analysis) and thus that the participants' responses who indicated

experiencing technological issues may be retained in the final analysis.

Effects of Media and Cognitive Load on Narrative Transportation

A 2 × 3 univariate ANCOVA of media and cognitive load condition on narrative transportation,

with brand, perceived narrative structure and perceived quality as covariates, revealed that media

did not have a significant effect on narrative transportation ($F(2, 492) = .090, p > .90$). Contrary

to hypothesis 1, there were no significant differences in the estimated marginal means of

narrative transportation between any of the conditions (all mean differences < .045, all ps > .70).

These results suggest that when advertisements across types of media are very similar in terms of perceived narrative structure and quality, that narrative transportation does not differ significantly.

Table 14: Study 2 Estimated Marginal Means of Narrative Transportation (Controlling for Covariates)

Media	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Storyboard	4.64[a]	.087	4.47	4.81
Audio	4.69[a]	.088	4.52	4.87
Video	4.69[a]	.089	4.51	4.86

In support of hypothesis 2a, there was a significant main effect of cognitive load condition on narrative transportation ($F(1, 492) = 25.68$, $p < .04$), with the no load condition ($M_{noload} = 4.95$, $SD = 1.32$) leading to significantly greater narrative transportation than the cognitive load condition ($M_{cognitiveload} = 4.40$, $SD = 1.49$; mean difference = .55, ($t(500) = 4.41$, $p < .001$). The media × cognitive load interaction did not have a significant effect on levels of narrative transportation ($F(2, 492) = .79$, $p > .40$).

Perceived quality ($F(1, 492) = 22.79$, $p < .001$) and perceived narrative structure ($F(1, 492) = 34.18$, $p < .001$) were both significant covariates positively related to narrative transportation. The brand covariate ($F(1, 492) = .32$, $p > .50$) was not significant, suggesting that the difference between brands was explained by the variation in perceived quality and perceived narrative structure. The presence of technological issues covariate ($F(1, 492) = 1.12$, $p > .25$) was not significant.

Effects of Media and Cognitive Load on Retrospective Reflection

A 2 × 3 univariate ANCOVA of media and cognitive load on retrospective reflection, with brand, perceived narrative structure and perceived quality serving as covariates, revealed no significant main effects of media ($F(2, 492) = .37$, $p > .70$) and cognitive load condition ($F(1,$

492) = 5.85, $p > .10$, inconsistent with hypothesis 2b) on retrospective reflection. The media ×
cognitive load interaction did not have a significant effect on retrospective reflection ($F(2, 492)$
= .91, $p > .40$). Perceived quality ($F(1, 492) = 16.20$, $p < .001$) was a significant covariate,
whereas narrative structure ($F(1, 492) = 3.17$, $p > .05$) and brand ($F(1, 492) = 1.40$, $p > .20$) were
not significant covariates.

Table 15: Study 2 Means of Retrospective Reflection

Media	Mean	Std. Deviation
Storyboard	4.11	1.69
Audio	4.15	1.63
Video	4.22	1.76
Total	4.16	1.69

Effects of Media and Cognitive Load on Narrative Engagement

A 3 × 2 univariate ANCOVA of media and cognitive load on narrative engagement, with brand,
perceived narrative structure and perceived quality serving as covariates, revealed no significant
effect of media ($F(2, 492) = .016$, $p > .90$) and a marginally significant effect of cognitive load
condition ($F(1, 492) = 15.08$, $p < .060$) on narrative engagement. The media × cognitive load
interaction did not have a significant effect on retrospective reflection ($F(2, 492) = 2.12$, $p > .10$).

Perceived quality ($F(1, 492) = 13.71$, $p < .001$) and perceived narrative structure ($F(1, 492) = 38.36$, $p < .001$) were significant covariates, whereas brand ($F(1, 492) = .62$, $p > .40$) was
not significant, suggesting that the difference between brands' ads was explained by the variation
in perceived quality and perceived narrative structure.

In order to better understand the effects, separate ANCOVAs were also conducted for
each of the subscales (see Appendix 4 for list of all measures comprising the subscales). The
pattern of results for the main effects of media, interaction effects of media × cognitive load, the
presence of technological issues covariate and brand covariate were consistent across the

subscales. However, the pattern of results varied slightly between the subscales for the

perceived quality covariate and the main effect of cognitive load. When narrative

presence or emotional engagement served as the dependent variable, quality was a

significant covariate, whereas the main effect of cognitive load was not significant. The

opposite pattern of results was true when attentional focus or narrative understanding

served as the dependent variable; in this case, quality was not a significant covariate, and

the main effect of cognitive load was significant. These results highlight that quality of

the advertisement does not affect consumers' ability to focus on and understand the

narrative, but it does impact their ability to become emotional engaged and involved with

the narrative. Furthermore, they suggest that cognitive load inhibits consumers' ability to

properly understand and maintain focus on the narrative, but that it does not seem to

impact their ability to become emotionally engaged and involved with the narrative. This

may be due to contrasting effects, whereby higher perceived cognitive load may be

reflecting greater distraction (reduced emotional engagement and narrative presence) as

well as greater concentration (increased emotional engagement and narrative presence).

Table 16: Study 2 Means of Narrative Engagement

Media	Mean	Std. Deviation
Storyboard	4.30	1.07
Audio	4.20	1.05
Video	4.35	1.09
Total	4.28	1.07

Effects of Media and Cognitive Load on Attitude Toward the Brand

A 3 × 2 univariate ANCOVA of media and cognitive load on attitude toward the brand, with

brand, perceived narrative structure and perceived quality serving as covariates, revealed there

was no significant effect of media type ($F(2, 492) = 3.09, p > .20$) and cognitive load condition

($F(1, 492) = 1.40$, $p > .30$) on attitude toward the brand, thus once again hypothesis 2c was not supported. The media × cognitive load interaction did not have a significant effect on attitude toward the brand ($F(2, 492) = .83$, $p > .40$).

Perceived quality ($F(1, 492) = 43.62$, $p < .001$) and narrative structure ($F(1, 492) = 17.01$, $p < .001$) were significant covariates, highlighting their importance in shaping brand attitudes. The brand covariate ($F(1, 492) = .92$, $p > .30$) and presence of technological issues ($F(1, 492) = .025$, $p > .80$) were not significant.

Table 17: Study 2 Means of Attitude Toward the Brand

Cognitive Load	Media	Brand	Mean	Std. Deviation
No Load	Storyboard	Gillette	5.50	1.35
		Anthony Nolan	5.93	1.01
		KLM	5.70	1.23
		Total	5.72	1.20
	Audio	Gillette	5.38	1.38
		Anthony Nolan	5.85	1.09
		KLM	5.96	0.96
		Total	5.74	1.17
	Video	Gillette	5.76	1.32
		Anthony Nolan	6.10	0.77
		KLM	5.81	0.93
		Total	5.86	1.04
	Total	Gillette	5.55	1.34
		Anthony Nolan	5.94	0.98
		KLM	5.81	1.04
		Total	5.77	1.13
Cognitive Load	Storyboard	Gillette	5.63	1.44
		Anthony Nolan	5.75	1.05
		KLM	5.66	1.04
		Total	5.69	1.13
	Audio	Gillette	5.73	1.48
		Anthony Nolan	5.57	1.22
		KLM	5.77	0.99
		Total	5.70	1.27
	Video	Gillette	5.07	1.17
		Anthony Nolan	5.45	1.47
		KLM	5.68	1.26
		Total	5.39	1.32
	Total	Gillette	5.51	1.40
		Anthony Nolan	5.60	1.24
		KLM	5.70	1.08
		Total	5.60	1.24
Total	Storyboard	Gillette	5.56	1.37

	Anthony Nolan	5.84	1.03
	KLM	5.68	1.13
	Total	5.70	1.16
Audio	Gillette	5.58	1.44
	Anthony Nolan	5.73	1.15
	KLM	5.87	0.97
	Total	5.72	1.22
Video	Gillette	5.45	1.29
	Anthony Nolan	5.74	1.24
	KLM	5.77	1.05
	Total	5.66	1.19
Total	Gillette	5.53	1.36
	Anthony Nolan	5.77	1.13
	KLM	5.76	1.05
	Total	5.69	1.19

Moderated Serial Mediation Analysis

A PROCESS analysis (model 85, 5,000 samples; Hayes, 2013) was conducted with media as the predictor (indicator coded as X1 for the difference between storyboard (0) and audio (1), and X2 for the difference between storyboard (0) and video (1)), perceived cognitive load as the moderator, narrative transportation (transportation scale short-form) as the stage-one mediator, retrospective reflection as the stage-two mediator, and attitude toward the brand as the criterion, as well as brand, perceived narrative structure and perceived quality as covariates[14]. The storyboard condition was set as the baseline to facilitate comparison to prior research (Hamby et al., 2016). For simplicity of reporting, the effect of storyboard versus audio will herein be referred to as X1, and storyboard vs video effects as X2.

Narrative Transportation

The media to narrative transportation (stage one mediator) path was significant ($F(8,493) = 36.16$, $p < .001$). The coefficient for perceived cognitive load ($\beta = -.017$, 95% CI [-.11, .077], $t(493) = -.36$, $p > .70$) was not significant. Given the significantly lower average narrative

---

[14] Presence of technological issues was not included due to its effect being captured by the perceived quality and perceived narrative structured covariates, as evidenced by the ANOVAs outlined previously.

transportation in the cognitive load ($M_{cognitiveload}$ = 4.40, SD = 1.49) condition than in the no load (M_{noload} = 4.95, SD = 1.32) condition, the lack of significance of perceived narrative transportation may be due to the variance in narrative transportation being explained by other variables in the model. It could also a result of contradicting effects occurring; although narrative transportation is reduced by cognitive load (between conditions), Nielsen and Escalas' (2010) study found that consumers who invested more cognitive and imaginative resources to comprehending a narrative (due to it being difficult to understand and process) experienced higher levels of narrative transportation, and ultimately had higher brand evaluations in a path fully mediated by narrative transportation. As such, perceived cognitive load could be capturing both the negative effect of cognitive load between conditions and the positive effect of increased effect of greater resources invested, ultimately rendering the coefficient non-significant.

The perceived narrative structure (β = .53, 95% CI [.35, .70], $t(493)$ = 5.92, $p < .001$) and perceived quality covariates (β = .38, 95% CI [.22, .53], $t(493)$ = 4.84, $p < .001$) both had positive and significant coefficients to narrative transportation, highlighting their role in facilitating narrative transportation. The coefficient of the brand covariate (β = .042, 95% CI [-.084, .17], $t(493)$ = .65, $p > .50$) was not significant.

Compared to the storyboard ad, the audio ad had a significant and negative path coefficient to narrative transportation (X1: β = -.26, 95% CI [-.96, .44], $t(493)$ = -.72, $p > .40$), with those in the audio condition experiencing significantly lower narrative transportation than the storyboard condition. The coefficient of the media (X1) × cognitive load interaction was not significant ($\be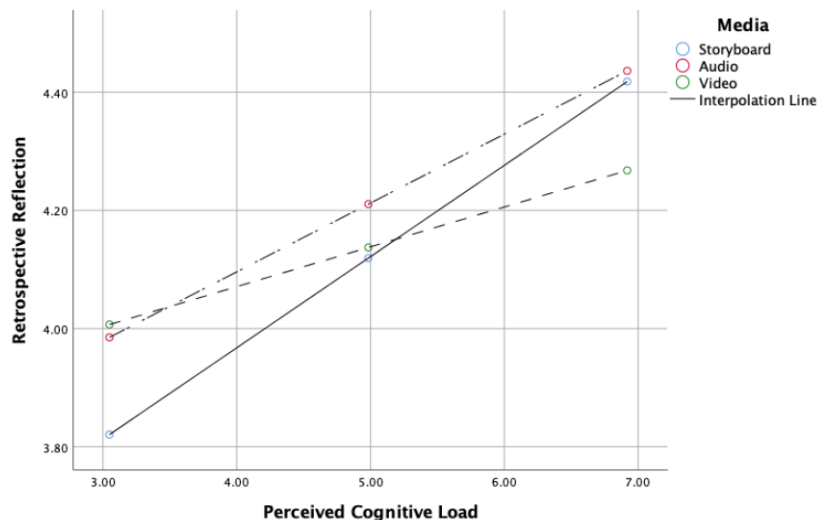ta$ = .060, 95% CI [-.069, .19], $t(493)$ = .91, $p > .36$). There was a moderately significant difference in the path coefficients of storyboard versus video ad on narrative transportation (X2: β = -.65, 95% CI [-1.33, .021], $t(493)$ = .-1.90, $p = .058$). The coefficient of

the media (X2) × cognitive load interaction was significant (β = .15, 95% CI [.023, .28],

t(493) = 2.32, p < .03).

Figure 13: Study 2 Narrative Transportation by Media and Perceived Cognitive Load
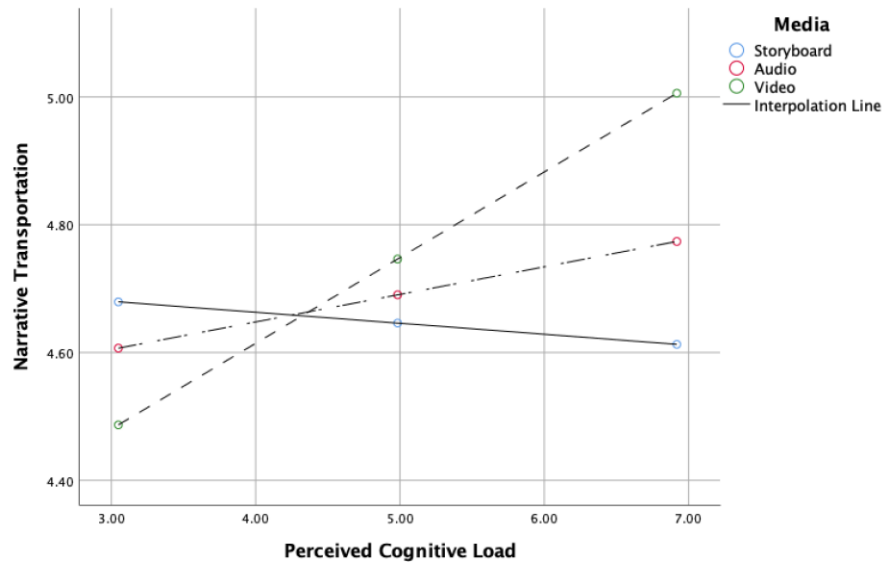
Retrospective Reflection

The media to retrospective reflection (stage two mediator) path was significant (F(9,492) =

48.68, p < .001). There was no significant difference between the storyboard and the audio ad on

retrospective reflection (X1: β = .28, 95% CI [-.48, 1.04], t(492) = .72, p > .40). The coefficient

of the media (X1) × cognitive load interaction was not significant (β = -.038, 95% CI [-.18, .10],

t(492) = -.53, p > .50).

There was no significant difference in the path coefficient of storyboard versus

video ad on retrospective reflection (β = .45, 95% CI [-.28, 1.19], t(492) = 1.21, p > .20).

The interaction of X2 and cognitive load was not significant (β = -.087, 95% CI [-.23,

.053], t(492) = -1.22, p > .20).

The coefficient for perceived cognitive load was positive and significant ($\beta = .15$, 95% CI [.052, .26], $t(492) = 2.97$, $p < .01$), highlighting higher retrospective reflection as cognitive load increases.

The coefficient for narrative transportation was positive and significant ($\beta = .80$, 95% CI [.70, .90], $t(492) = 16.34$, $p < .001$), showing that those that experienced greater narrative transportation would also experience greater retrospective reflection (in line with Hamby et al., 2016).

The perceived narrative structure covariate ($\beta = -.20$, 95% CI [-.39, -.0006], $t(492) = -1.97$, $p < .05$) was significant, whereas the coefficients for brand ($\beta = .057$, 95% CI [-.080, .19], $t(492) = .81$, $p > .40$) and the perceived quality covariate were not significant ($\beta = .11$, 95% CI [-.057, .28], $t(492) = 1.30$, $p > .15$), highlighting that greater quality does not (directly) lead to greater retrospective reflection (it may, however, influence it through narrative transportation).

Figure 14: Study 2 Retrospective Reflection by Media and Perceived Cognitive Load

Attitude Toward the Brand

The media to brand attitude path was significant ($F(10,491) = 36.28$, $p < .001$). The coefficient for narrative transportation ($\beta = .20$, 95% CI [.12, .20], $t(491) = 4.57$, $p < .001$, in support of hypothesis 3) was significant. The coefficients for retrospective reflection ($\beta = .025$, 95% CI [-.040, .090], $t(491) = .75$, $p > .40$, inconsistent with hypothesis 4) and for perceived cognitive load ($\beta = .028$, 95% CI [-.048, .10], $t(591) = .73$, $p > .40$) were not significant.

There was no significant difference in the path coefficients of storyboard versus audio ad on brand attitude (X1: $\beta = -.11$, 95% CI [-.66, .45], $t(491) = -.37$, $p > .70$). The coefficient of the media (X1) × cognitive load interaction was not significant ($\beta = .044$, 95% CI [-.060, .15], $t(491) = .83$, $p > .40$).

There was no significant difference in the path coefficients of storyboard versus video (X2: $\beta = -.25$, 95% CI [-.79, .29], $t(491) = -.90$, $p > .30$). The coefficient of the media (X2) × cognitive load interaction was not significant ($\beta = .030$, 95% CI [-.073, .13], $t(491) = .58$, $p > .50$).

These results highlight the mediating role of narrative transportation on the path from media to attitudes. The significant relation between narrative transportation and brand attitude provides further support for hypothesis 3.

The coefficients for the perceived quality covariate ($\beta = .33$, 95% CI [.21, .47], $t(491) = 5.21$, $p < .001$) and the perceived narrative structure covariate ($\beta = .20$, 95% CI [.058, .35], $t(491) = 2.76$, $p < .01$) were significant, whereas the coefficient for brand ($\beta = .040$, 95% CI [-.060, .14], $t(491) = .79$, $p > .40$) was not significant.

Figure 15: Study 2 Attitude Toward the Brand by Media and Perceived Cognitive Load
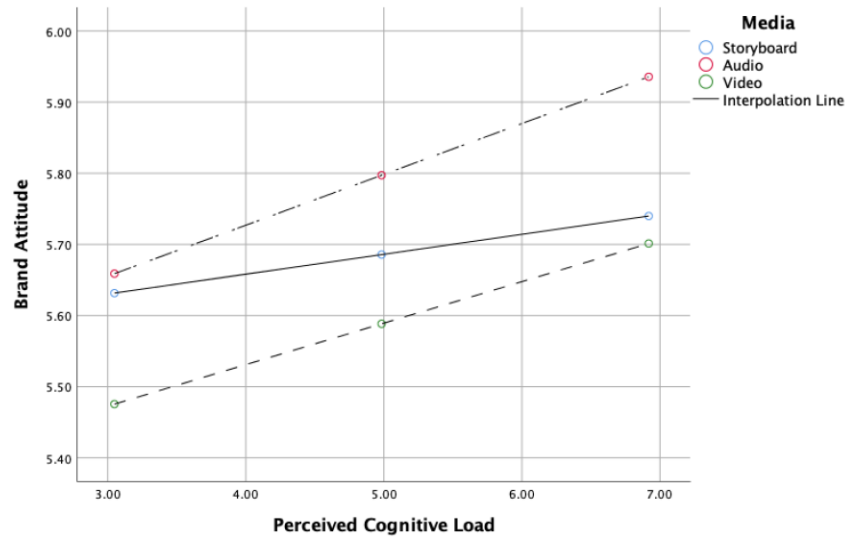
Index of Moderated Serial Mediation

Overall, the moderated serial mediations (through narrative transportation and retrospective reflection) were not significant for the storyboard – audio comparison (X1 index of moderated mediation = .0012, 95% CI [-.0040, .0089]), nor the storyboard – video comparison (X2 index of moderated mediation = .0030, 95% CI: [-.0063, .014]). Hypothesis 5 was thus not supported.

The moderated mediation of media on brand attitude through narrative transportation was significant for the storyboard – video comparison (X2 index of moderated mediation = .031, 95% CI: [.0043, .066]), but not for the storyboard – audio comparison (X1 index of moderated mediation = .012, 95% CI: [-.017, .046]).

In contrast to study 1, the moderated mediation of media on brand attitude through retrospective reflection was not significant for either the storyboard – audio comparison (X1 index of moderated mediation = -.0009, 95% CI [-.010, .0057]) nor for the storyboard – video comparison (X2 index of moderated mediation = -.0021, 95% CI [-.014, .0059]). Overall, study 2

provided further support for hypotheses 2a and 3. Hypotheses 1, 2b, 2c, 4 and 5 were not

supported.

Table 18: Study 2 Summary of Hypotheses

Hypothesis	Support
H1a: Narrative transportation will be significantly greater in the audio advertisements compared to the video advertisements.	No
H1b: Narrative transportation will be significantly greater in the storyboard advertisements compared to the video advertisements.	No
H2a: Cognitive load will reduce levels of narrative transportation regardless of media condition	Yes
H2b: Cognitive load will reduce levels retrospective reflection regardless of media condition.	No
H2c: Cognitive load will reduce levels of brand attitudes regardless of media condition.	No
Hypothesis 3: Narrative transportation positively relates to attitude toward the brand.	Yes
H4: Retrospective reflection positively relates to attitude toward the brand.	No
H5: Narrative transportation and retrospective reflection will serially mediate the interactive effect of media and cognitive load on brand attitude.	No

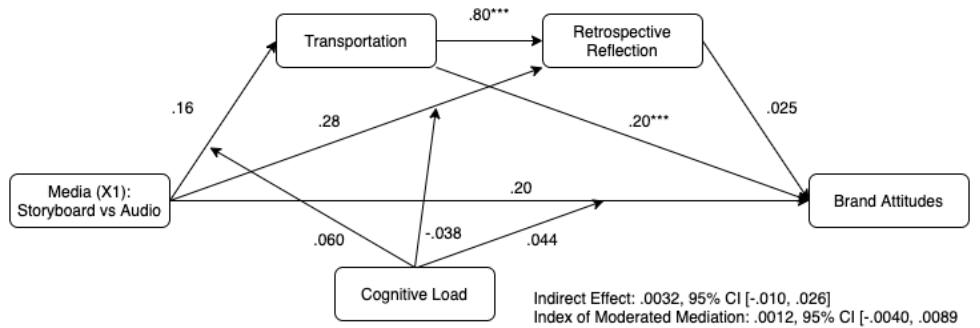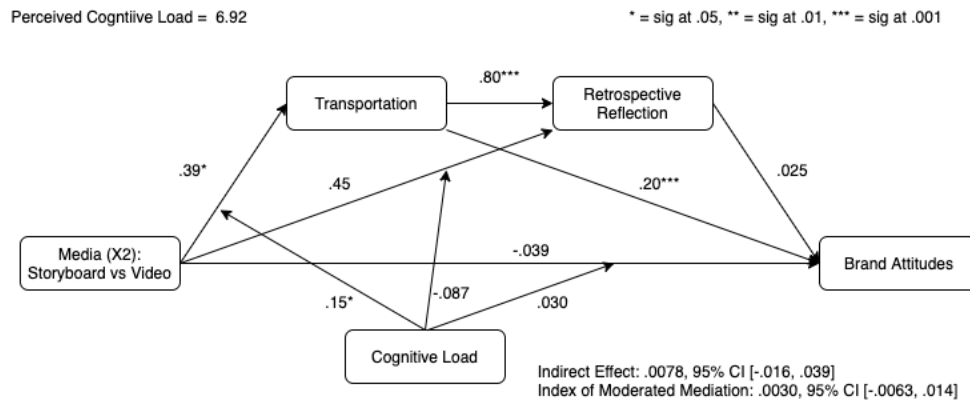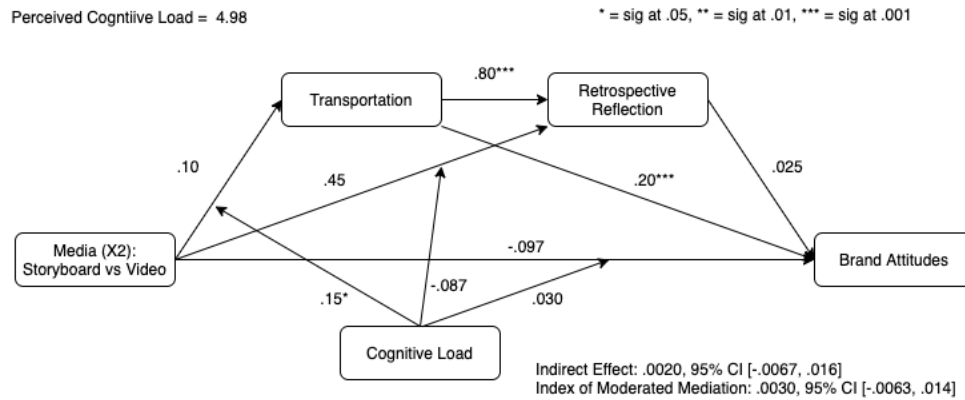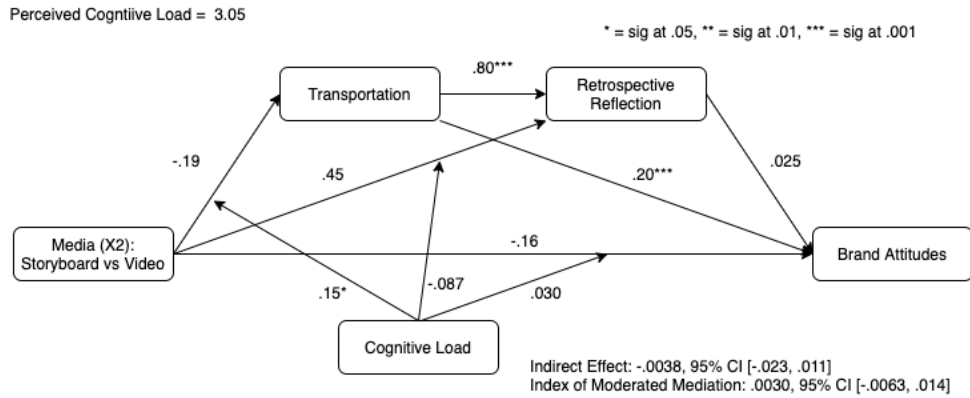*Figure 16: Study 2 PROCESS (TS & RR) Summary X1 (storyboard vs. audio)*
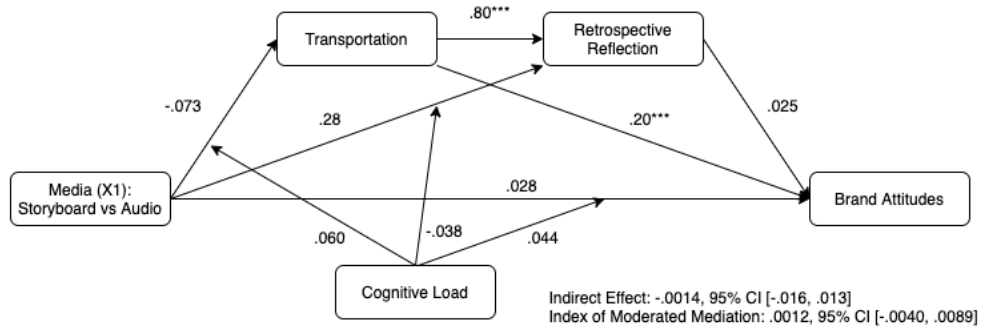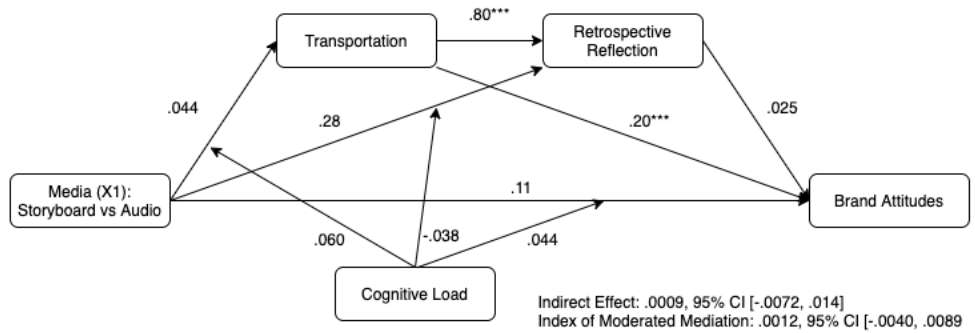
Figure 17: Study 2 PROCESS (TS & RR) Summary X2 (storyboard vs. video)

Moderated Mediation Analysis: Narrative Engagement

A PROCESS analysis (model 8, 5,000 samples; Hayes, 2013) was conducted with media as the

predictor (indicator coded as X1 for the difference between storyboard (0) and audio (1), and X2

for the difference between storyboard (0) and video (1)), perceived cognitive load as the

moderator, narrative engagement as the mediator, and attitude toward the brand as the criterion,

as well as brand, perceived narrative structure and perceived quality as covariates. The

storyboard condition was set as the baseline. For simplicity of reporting, the effect of storyboard

versus audio will herein be referred to as X1, and storyboard vs video effects as X2.

Narrative Engagement

The media to narrative engagement path was significant ($F(8,493) = 36.04$, $p < .001$). The

coefficient for perceived cognitive load ($\beta = -.14$, 95% CI [-.21, .066], $t(493) = -3.81$, $p < .001$)

was significant.

The perceived narrative structure ($\beta = .41$, 95% CI [.28, .54], $t(493) = 6.24$, $p < .001$) and

perceived quality covariates ($\beta = .26$, 95% CI [.14, .37], $t(493) = 4.42$, $p < .001$) both had

positive and significant coefficients to narrative transportation, highlighting their role in

facilitating narrative engagement. The coefficient for the brand covariate ($\beta = -.010$, 95% CI [-

.10, .084], $t(493) = -.21$, $p > .80$) was not significant.

Compared to the storyboard ad, the audio ad did not have a significant path coefficient to

narrative engagement (X1: $\beta = .063$, 95% CI [-.46, .59], $t(493) = .24$, $p > .80$). The coefficient of

the media (X1) × cognitive load interaction was not significant ($\beta = -.0061$, 95% CI [-.10, .091],

$t(493) = -.12$, $p > .90$).

There was no significant difference in the path coefficient of storyboard versus video ads

on narrative engagement (X2: $\beta = -.28$, 95% CI [-.79, .22], $t(493) = -1.11$, $p > .25$). The

coefficient of the media (X2) × cognitive load interaction was not significant ($\beta = .057$, 95% CI

[-.039, .15], $t(493) = 1.18$, $p > .20$).

Figure 18 highlights the reduction of narrative engagement with increased perceived cognitive load (across media). However, an assessment of the pattern of results separated by narrative engagement subscale reveals that these results are driven by the reduction in attentional focus and narrative understanding that is related to increased cognitive load. Emotional engagement and narrative presence, on the other hand, increase along with increased perceived cognitive load. It is possible that consumers who invested more cognitive and imaginative resources in order to comprehend a narrative experienced higher levels of narrative transportation (Nielsen & Escalas, 2010).

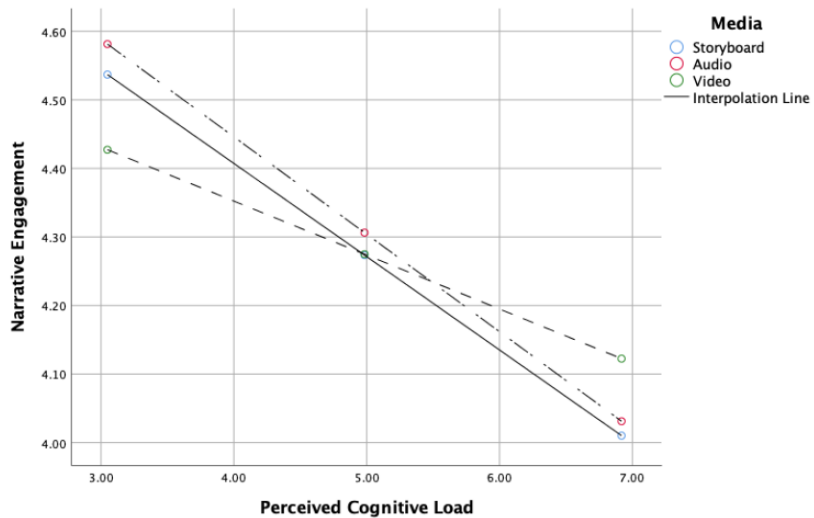*Figure 18: Study 2 Narrative Engagement by Media and Perceived Cognitive Load*

Figure 19: Study 2 Narrative Presence by Media and Perceived Cognitive Load
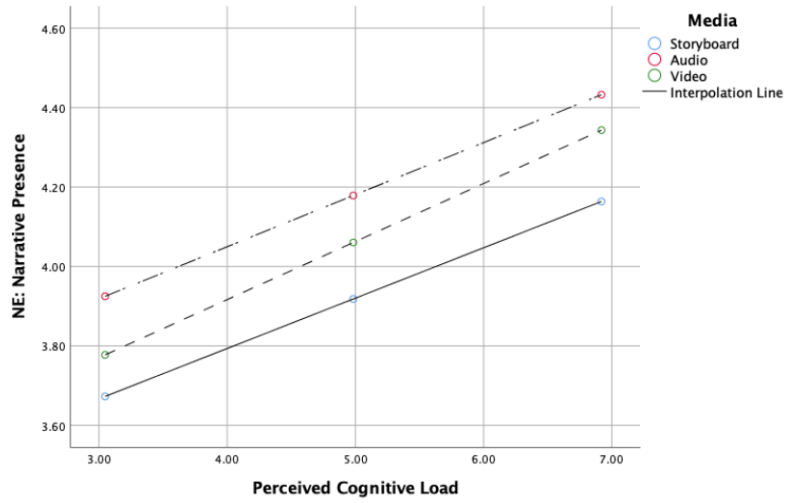

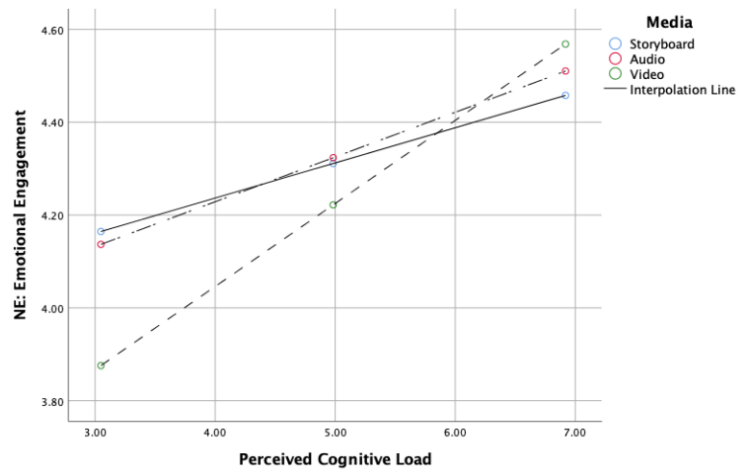*Figure 20: Study 2 Emotional Engagement by Media and Perceived Cognitive Load*

Figure 21: Study 2 Narrative Understanding by Media and Perceived Cognitive Load
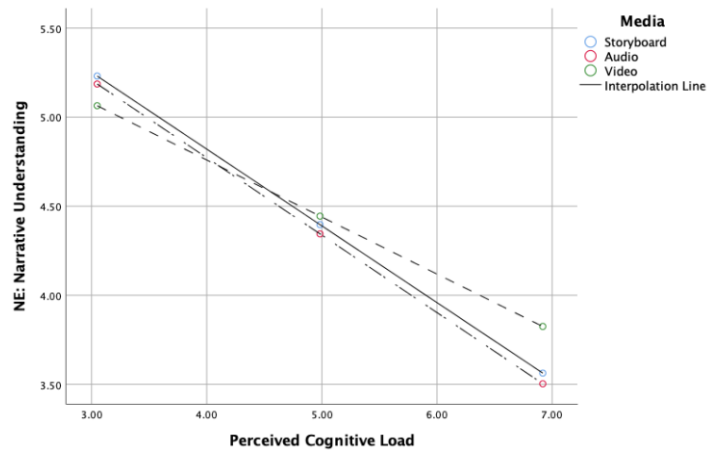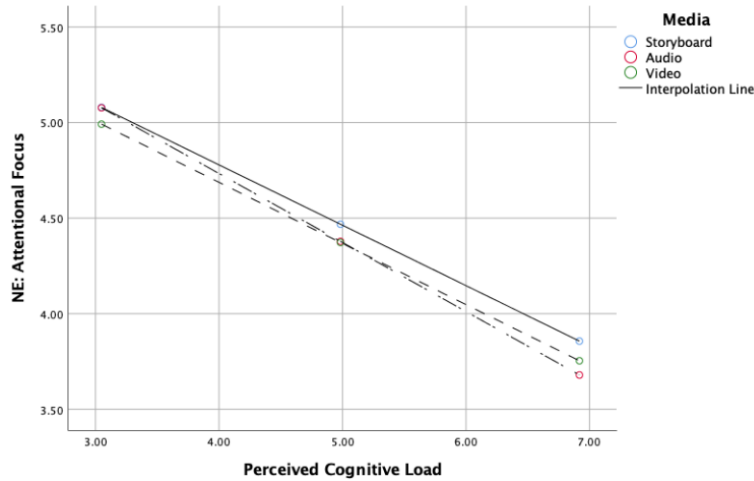
Figure 22: Study 2 Attentional Focus by Media and Perceived Cognitive Load

Attitude Toward the Brand

The path of media to attitude toward the brand was significant ($F(9,492) = 39.28$, $p < .001$). The coefficient for narrative engagement ($\beta = .28$, 95% CI [.18, .37], $t(492) = 5.76$, $p < .001$) was significant, whereas the coefficient for perceived cognitive load ($\beta = .066$, 95% CI [-.011, .14], $t(492) = 1.69$, $p > .05$) was not significant.

There was no significant difference in the path coefficients of storyboard versus audio ads on brand attitude (X1: $\beta = -.17$, 95% CI [-.73, .39], $t(492) = -.61$, $p > .50$). The coefficient of the media (X1) × cognitive load interaction was not significant ($\beta = .058$, 95% CI [-.046, .16], $t(492) = 1.09$, $p > .25$).

There was no significant difference in the path coefficients of storyboard versus video (X2: $\beta = -.30$, 95% CI [-.85, .24], $t(492) = -1.11$, $p > .25$). The coefficient of the media (X2) × cognitive load interaction was not significant ($\beta = .046$, 95% CI [-.056, .15], $t(492) = .88$, $p > .30$). These results highlight the mediating role of narrative engagement on the path from media to brand attitudes.

The coefficients for perceived quality covariate ($\beta = .35$, 95% CI [.22, .47], $t(492) = 5.46$, $p < .001$) and for the perceived narrative structure covariate ($\beta = .20$, 95% CI

[.056, .35], $t(492) = 2.72$, $p < .01$) were significant, whereas the coefficient for brand was not significant ($\beta = .054$, 95% CI [-.047, .15], $t(492) = 1.05$, $p > .20$).

Moderated Mediation – Attitude Toward the Brand

The moderated mediations were not significant for the storyboard – audio comparison (X1 index of moderated mediation = -.0017, 95% CI [-.030, .029]) nor the storyboard – video comparison (X2 index of moderated mediation = .016, 95% CI: [-.012, .047]).

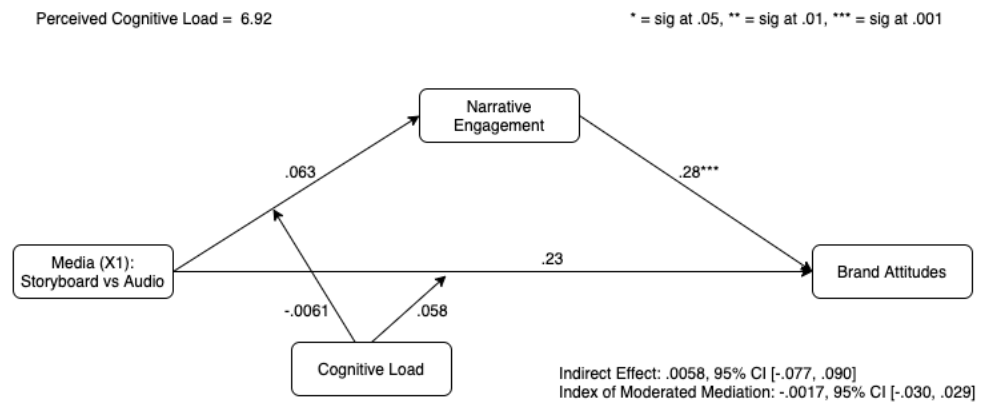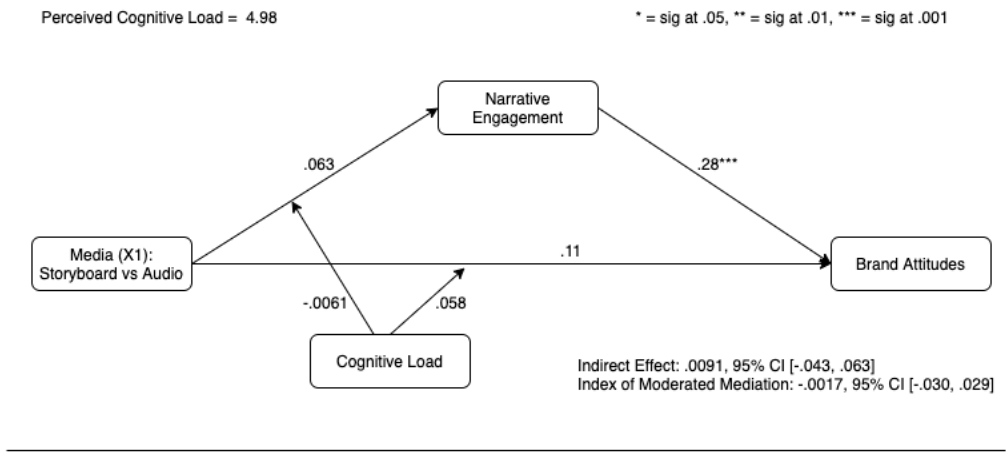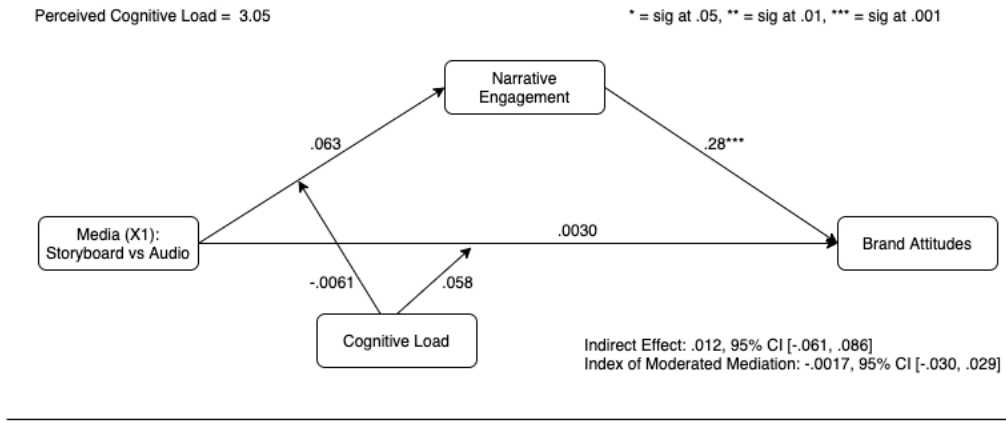*Figure 23: Study 2 PROCESS (NE) Summary X1 (storyboard vs. audio)*

Figure 24: Study 2 PROCESS (NE) Summary X2 (storyboard vs. video)

Perceived Cognitive Load = 3.05

* = sig at .05, ** = sig at .01, *** = sig at .001

Narrative Engagement

-.28

.28***

Media (X1): Storyboard vs Audio

-.16

Brand Attitudes

.057   .046

Cognitive Load

Indirect Effect: -.031, 95% CI [-.11, .034]
Index of Moderated Mediation: .015, 95% CI [-.012, .047]

Perceived Cognitive Load = 4.98

* = sig at .05, ** = sig at .01, *** = sig at .001

Narrative Engagement

-.28

.28***

Media (X1): Storyboard vs Audio

-.075

Brand Attitudes

.057   .046

Cognitive Load

Indirect Effect: .0004, 95% CI [-.055, .052]
Index of Moderated Mediation: .015, 95% CI [-.012, .047]

Perceived Cognitive Load = 6.92

* = sig at .05, ** = sig at .01, *** = sig at .001

Narrative Engagement

-.28

.28***

Media (X1): Storyboard vs Audio

.014

Brand Attitudes

.057   .046

Cognitive Load

Indirect Effect: .031, 95% CI [-.049, .12]
Index of Moderated Mediation: .015, 95% CI [-.012, .047]

91

Discussion

This study provided further support for hypotheses 3, 2a and 2b, but did not provide support for hypotheses 1, 2c, 4 or 5. Contrary to hypothesis 1, there were no significant differences in narrative transportation between media. In support of hypothesis 3, increased narrative transportation led to increased attitude toward the brand (and attitude toward the ad), regardless of media. This confirms that the role of narrative transportation in forming attitudes is indeed robust for video advertisements and for brands of varying levels of familiarity.

In support of hypothesis 2a, participants in the cognitive load condition experienced significantly lower narrative transportation than participants in the no load condition. However, once again in line with Nielsen and Escalas' (2010) study, narrative transportation increased as a function of *perceived* cognitive load, arguably due to the fact that participants invested more cognitive and imaginative resources comprehending the narrative. This suggests that the cognitive load condition is a distraction that limits participants' ability to fully focus on and interact with the stimuli. Perceived cognitive load, on the other hand, may simultaneously capture consumers' effort to understand and be involved with the story, explaining the positive coefficient of perceived cognitive load on narrative transportation. Contrary to hypotheses 2b and 2c, cognitive load did not have a significant effect on retrospective reflection nor on ad attitudes. Contrary to hypothesis 4, increased retrospective reflection did not significantly increase attitude toward the brand. This may be a function of the nature of the advertisements used in this study (compared to the previous study, where the effect was significant), which may not have been as easily relatable. Further analysis across different types of narrative advertisements should be conducted to better evaluate the role of retrospective reflection

in shaping consumers' attitudes towards brands. Contrary to hypothesis 5, there was no significant index of moderated serial mediation in the model. However, the significant effects that emerged throughout the study provide much added understanding to the field.

Although not directly hypothesized, the role of narrative engagement in predicting attitudes was supported, with greater narrative engagement leading to more positive attitudes toward the brand. However, it did not vary significantly across types of media. Given that narrative transportation varied significantly in study 1, but not study 2, further research should continue to assess the role of narrative engagement across media to provide support for the robustness of effects across different types of advertisements and brands.

Finally, the absence of significant differences between brands provided support for the robustness of effects beyond for-profit brands to include not-for-profits and ranging across levels of familiarity.

General Discussion

Much research has investigated the mechanisms underlying narrative advertisements' persuasive powers. However, prior research has tended to generalize findings across media without empirically them. This research has provided insight into the appropriateness of these generalizations. It provides support for the role of narrative transportation, retrospective reflection and narrative engagement in mediating the formation of brand attitudes by narrative ads across types of media. However, further research is needed to better understand the prevalence of these mechanisms across media.

For instance, in study 1, we found a significant difference of narrative transportation between storyboard and audio conditions, but no such difference was uncovered in study 2. These results may have simply been a function of the ads that were chosen, due to the many

ways in which they differed, including the content of the ads, the product categories (and the inclusion of a not-for-profit), and familiarity with the brands. Furthermore, in study 1, there was a significant effect of retrospective reflection on attitude toward the brand, but this effect did not emerge in study 2. Again, this discrepancy is likely a function of the different types of ads chosen between studies. The ads chosen for the first study may have been more easily relatable than the second study due to their contents being based on more universal themes of parenthood compared to the themes of the second study (transgender transition, international travel, cancer).

It is also interesting to note that although there was a significant difference in narrative transportation between media, and a significant path from narrative transportation to attitude toward the brand, this does not results in a significant difference in attitude toward the brand. This may outline a need for further mechanisms to explain the narrative persuasion process, or an inability of a single advertisement to shape brand attitudes to an extent that is sensitive enough to be detected statistically.

This research served as a conservative test of the differences between media by adapting the same ads across 3 types of media and statistically controlling for perceived narrative structure and quality (as opposed to comparing raw means). Furthermore, the format of the storyboards (maintaining the full soundtrack, including dialogue and music/sound effects) was a more developed version than has been used in other research, which has sometimes instead relied on pictures and a textual description of the scenes that would occur.

In general, this research provided an important step in understanding the mechanisms underlying the persuasive effects of narrative advertisements across media.

Theoretical and Managerial Implications

This research provides a better understanding of the prevalence of the mechanisms underlying narrative persuasion for narrative ads. It confirms that narrative transportation, retrospective reflection and narrative engagement are at play across media. It also provides the first evidence for retrospective reflection being used with non health-related advertisements in shaping brand attitudes. This may help researchers and managers understand the value of aligning the story message to the consumers' real world. Although narrative transportation distracts is not a cognitive process and arguably occurs regardless of personal relevance, retrospective reflection's role in mediating the relationship between narrative transportation and attitude toward the brand (and ad) reinforces the need for stories to align with consumers' reality to benefit from the highest possible persuasion.

Although no significant differences existed in narrative transportation between media when controlling for covariates (perceived quality and narrative structure), the significant effect of these covariates can act as a sign of caution to author researchers who do not make such efforts to control when generalising their results. This research served as a conservative test of the hypotheses by controlling for the covariates. However, significant differences in raw means of narrative transportation existed between media conditions, suggesting that narrative transportation may in fact vary between media, and that perceived quality and narrative structure also may vary inherently across media. Further research should continue to investigate this.

This research also provided a better understanding of the appropriateness of the narrative transportation scale across media. It highlighted that the imagery questions of the scale vary across media based on the amount of visual information in the stimuli in question. However, it is

not these measures that significantly affect the formation of brand attitudes, but instead measures that that represent emotional and cognitive involvement with the advertisement. Further research should assess the role of these imagery questions. Further research on the role of imaginative versus general narrative transportation could therefore be insightful. For instance, although the imagery items were originally designed to reflect mental image generation based on a textual narrative, in the current widespread use of the scale in advertising research (where visuals are a part of the stimuli), rather than reflecting mental image generation, they may instead be a reflection of attention paid to the advertisement (i.e. if subjects are paying close attention, they may have a more vivid image of the characters). Future narrative transportation research may continue to investigate the usefulness of the imagery items when the narrative transportation scale is applied to visual narratives.

This research also provided a better understanding of the impact of cognitive load on the narrative persuasion process. Cognitive load did not significantly affect retrospective reflection or narrative engagement. However, it did significantly reduce narrative transportation across media. However, interestingly, higher ratings of perceived cognitive load did not have a significant effect on narrative transportation. This may point to contradicting effects occurring; perceived cognitive load could be capturing both the negative effect of cognitive load between conditions (similar to distraction) and the positive effect of increased effect of greater resources invested (as in Nielsen and Escalas' 2010 study), ultimately rendering the coefficient non-significant. Further research should further investigate the effect of cognitive load directed at other tasks compared to cognitive load in focusing on the narrative.

Limitations and Future Research Directions

Due to the authors' desire to adapt fully developed advertisements across media, advertisements were chosen that would maintain a clear narrative once visuals were removed. The desire of the authors to cast a wide net (across product categories and familiarity) and the difficulty in finding suitable advertisements resulted in advertisements being chosen that ranged in their themes and relatability, and brands that spanned across product categories, target markets and familiarity, to name a few. Furthermore, although the authors strove to reflect brands across product categories and familiarity, only 6 advertisements were assessed. More research is needed to simply increase the amount of advertisements assessed and continue to find elements on which they vary that may affect the narrative persuasion process across media. Future research should continue to assess the narrative persuasion process across media, but focus on a narrower niche to be able to validate the effects for a more specific type of advertisement or product/brand, such as high vs low involvement, varying levels of familiarity, types of relationships with brands (i.e. brands that are transactional compared to those that form a self-brand concept; Escalas, 2004).

A further limitation of the stimuli used was the level of development of the storyboards. Storyboards were only assessed as a close adaptation of the full video advertisements, maintaining the same fully developed visuals (rather than mockups) and the full soundtrack, including dialogue and music/sound effects. This is a contrast to the form of storyboard used by other researchers, many which did not use any audio component and instead had participants read a description of the scenes. Future research should investigate the impact of storyboards at

varying levels of development on the mechanisms in narrative persuasion and make comparisons on those versions to fully developed video stimuli to validate generalisations.

Although efforts were made to statistically control for it, the server issues that were experienced in Study 2 may have impacted the results. The consistency of the pattern of results between the two studies provides evidence of the appropriateness of the results. However, future research could seek to replicate the current study to validate the results with different stimuli, ideally across wider types of brands.

A limitation of the cognitive load scale used was that it was unable to identify cognitive load that was focused on the scrolling numbers compared to cognitive load in focusing on the advertisement. Future research could utilise different cognitive load scales to investigate the effects of effort focused on the advertisement compared to cognitive load directed at other tasks (perhaps better defined as "distraction"). This may also have better managerial implications, due to the easier time to generalise to real-world settings where consumers may be focused on competing tasks while advertisements are playing.

References

Appel, M., Gnambs, T., Richter, T., & Green, M. C. (2015). The Transportation Scale–Short

Form (TS–SF). *Media Psychology*, *18*(2), 243–266.

https://doi.org/10.1080/15213269.2014.987400

Avery, J., Paharia, N., Keinan, A., & Schor, J. (2010). *The Strategic Use of Brand Biographies*.

https://www.hbs.edu/faculty/Pages/item.aspx?num=39231

Babin, L. A., & Burns, A. C. (1997a). Effects of Print Ad Pictures and Copy Containing

Instructions to Imagine on Mental Imagery That Mediates Attitudes. *Journal of*

Advertising, *26*(3), 33–44.

Babin, L. A., & Burns, A. C. (1997b). Effects of Print Ad Pictures and Copy Containing

Instructions to Imagine on Mental Imagery That Mediates Attitudes. *Journal of*

Advertising, *26*(3), 33–44. https://doi.org/10.1080/00913367.1997.10673527

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Evaluating Online Labor Markets for

Experimental Research: Amazon.com's Mechanical Turk. *Political Analysis*, *20*(3), 351–

368. https://doi.org/10.1093/pan/mpr057

Braverman, J. (2008). Testimonials versus Informational Persuasive Messages: The Moderating

Effect of Delivery Mode and Personal Involvement. *Communication Research*, *5*(5), 666.

Brumbaugh, A. M. (2002). Source and Nonsource Cues in Advertising and Their Effects on the

Activation of Cultural and Subcultural Knowledge on the Route to Persuasion. *Journal of*

Consumer Research, *29*(2), 258–269.

Burnkrant, R. E., & Unnava, H. R. (1995). Effects of Self-Referencing on Persuasion. *Journal of*

Consumer Research, *22*(1), 17–26.

Busselle, R., & Bilandzic, H. (2009). Measuring Narrative Engagement. *Media Psychology*, *12*(4), 321–347. https://doi.org/10.1080/15213260903287259

Childers, T. L., & Houston, M. J. (1984). Conditions for a Picture-Superiority Effect on Consumer Memory. *Journal of Consumer Research*, *11*(2), 643–654.

Cohen, J. (2001). Defining Identification: A Theoretical Look at the Identification of Audiences With Media Characters. *Mass Communication & Society*, *4*(3), 245–264. https://doi.org/10.1207/S15327825MCS0403_01

Deshpande, S., Berry, T. R., Faulkner, G. E. J., Latimer-Cheung, A. E., Rhodes, R. E., & Tremblay, M. S. (2015). Comparing the Influence of Dynamic and Static Versions of Media in Evaluating Physical-Activity-Promotion Ads. *Social Marketing Quarterly*, *21*(3), 135–141. https://doi.org/10.1177/1524500415599376

Dunlop, S. M., Wakefield, M., & Kashima, Y. (2010). Pathways to Persuasion: Cognitive and Experiential Responses to Health-Promoting Mass Media Messages. *Communication Research*, *1*(1), 133.

Escalas, J. E. (2004). Narrative Processing: Building Consumer Connections to Brands. *Journal of Consumer Psychology (Taylor & Francis Ltd)*, *14*(1/2), 168–180.

Escalas, J. E. (2006). Self-Referencing and Persuasion: Narrative Transportation versus Analytical Elaboration. *Journal of Consumer Research*, *33*(4), 421–429.

Gabriele Paolacci, Jesse Chandler, & Panagiotis G. Ipeirotis. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, *5*, 411.

Gerrig, R. J. (1993). *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. Yale University Press.

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data Collection in a Flat World: The

    Strengths and Weaknesses of Mechanical Turk Samples. *Journal of Behavioral Decision*

    Making, *26*(3), 213–224. https://doi.org/10.1002/bdm.1753

Green, M. C. (2004). Transportation into Narrative Worlds: The Role of Prior Knowledge and

    Perceived Realism. *Discourse Processes: A Multidisciplinary Journal*, *2*(2), 247.

Green, M. C., & Brock, T. C. (2000). The Role of Transportation in the Persuasiveness of Public

    Narratives. *Journal of Personality and Social Psychology*, *5*(5), 701.

Hamby, A., Brinberg, D., & Daniloski, K. (2016). Reflecting on the journey: Mechanisms in

    narrative persuasion. *Journal of Consumer Psychology*, *27*(1), 11–22.

    https://doi.org/10.1016/j.jcps.2016.06.005

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A*

    regression-based approach (pp. xvii, 507). Guilford Press.

Hood, R. W. (1975). The Construction and Preliminary Validation of a Measure of Reported

    Mystical Experience. *Journal for the Scientific Study of Religion*, *14*(1), 29.

    https://doi.org/10.2307/1384454

Kim, E. (Anna), Ratneshwar, S., & Thorson, E. (2017). Why Narrative Ads Work: An Integrated

    Process Explanation. *Journal of Advertising*, *46*(2), 283–296.

    https://doi.org/10.1080/00913367.2016.1268984

Lien, N.-H., & Chen, Y.-L. (2011). Narrative ads: The effect of argument strength and story

    format. *Journal of Business Research*, *66*(4), 516–522.

    https://doi.org/10.1016/j.jbusres.2011.12.016

Nell, V. (1988). *Lost in a book :the psychology of reading for pleasure*. Yale University Press.

Nielsen, J. H., & Escalas, J. E. (2010). Easier is not always better: The moderating role of processing type on preference fluency. *Journal of Consumer Psychology*, *20*(3), 295–305. https://doi.org/10.1016/j.jcps.2010.06.016

Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, *45*(4), 867–872. https://doi.org/10.1016/j.jesp.2009.03.009

Paivio, A. (1986). *Mental representations* (Vol. 9). Oxford University Press.

Paolacci, Chandler, & Ipeirotis. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, *5*, 411.

Peer, E., Vosgerau, J., & Acquisti, A. (2014). Reputation as a sufficient condition for data quality on Amazon Mechanical Turk. *Behavior Research Methods*, *46*(4), 1023–1031. https://doi.org/10.3758/s13428-013-0434-y

Percy, L., & Rossiter, J. R. (1983). Effects of Picture Size and Color on Brand Attitude Responses in Print Advertising. *Advances in Consumer Research*, *10*(1), 17–20.

Petty, R. E., Cacioppo, J. T., & Berkowitz, L. (Eds.). (1986). *The elaboration likelihood model of persuasion* (Vol. 19). Academic Press.

Schank, R. C., Abelson, R. P., & Wyer, R. S. (1995). *Knowledge and Memory: The Real Story* (R. S. W. Jr, Ed.; pp. 1–85). Lawrence Erlbaum Associates, Inc.

Schlinger, M. J., & Green, L. (1980). Art-Work Storyboards versus Finished Commercials. *Journal of Advertising Research*, *20*(6), 19.

Slater, M. D., & Rouner, D. (2002). Entertainment-Education and Elaboration Likelihood: Understanding the Processing of Narrative Persuasion. *Communication Theory*, *12*(2), 173–191. https://doi.org/10.1111/j.1468-2885.2002.tb00265.x

Van Laer, T., de Ruyter, K., Visconti, L. M., & Wetzels, M. (2014). The Extended

    Transportation-Imagery Model: A Meta-Analysis of the Antecedents and Consequences

    of Consumers' Narrative Transportation. *Journal of Consumer Research*, *40*(5), 797–817.

    https://doi.org/10.1086/673383

Wentzel, D., Tomczak, T., & Herrmann, A. (2010). The moderating effect of manipulative intent

    and cognitive resources on the evaluation of narrative ads. *Psychology & Marketing*,

    27(5), 510–530.

Wilcox, K., Kramer, T., & Sen, S. (2011). Indulgence or Self-Control: A Dual Process Model of

    the Effect of Incidental Pride on Indulgent Choice. *Journal of Consumer Research*, *38*(1),

    151–163. https://doi.org/10.1086/657606

Williams, J. H., Green, M. C., Kohler, C., Allison, J. J., & Houston, T. K. (2010). Stories to

    communicate risks about tobacco: Development of a brief scale to measure transportation

    into a video story – The ACCE Project. *Health Education Journal*.

    https://doi.org/10.1177/0017896910373171

Appendices

Appendix 1: Study 1 Stimuli

Uncle Toby's: https://www.youtube.com/watch?v=Qpv4iftrwWs

BT Mobile: https://www.youtube.com/watch?v=d_7BOabvE7M

Publix Super Markets: https://www.youtube.com/watch?v=RLFtGZcJLtU

Note: stimuli were adapted from the original video advertisements linked above

Appendix 2: PT1 Stimuli Introduction Text

<div style="border:1px solid">

Audio Condition:

In this study you will listen to three separate **radio advertisements** and respond to several questions regarding your perceptions of these advertisements.

The advertisements **consist of audio, please ensure that your volume is turned on.**

Storyboard Condition:

In this study you will view three separate advertisements and respond to several questions regarding your perceptions of these advertisements.

The advertisements **include audio and visuals, please ensure that your volume is turned on.**

Video Condition:

In this study you will view three separate advertisements and respond to several questions regarding your perceptions of these advertisements.

The advertisements **include audio and visuals, please ensure that your volume is turned on.**

</div>

Appendix 3: Study 2 Stimuli

Gillette: https://www.youtube.com/watch?v=AR-JkiNQ_Ro&t=1s

KLM : https://www.youtube.com/watch?v=4Etnjk1zXtw

Anthony Nolan : https://www.youtube.com/watch?v=phKHCxeMj-E

Note: stimuli were adapted from the original video advertisements linked above

Appendix 4: Subscales & Measures of Narrative Engagement

Narrative understanding
NR4*: At points, I had a hard time making sense of what was going on in the program. (−)
 CP4: My understanding of the characters is unclear. (−)
 EC2: I had a hard time recognizing the thread of the story. (−)
Cronbach's alpha for narrative understanding

Attentional focus
 DS1: I found my mind wandering while the program was on. (−)
 DS2: While the program was on I found myself thinking about other things. (−)
 DS3: I had a hard time keeping my mind on the program. (−)
Cronbach's alpha for attentional focus

Narrative presence
 NP4: During the program, my body was in the room, but my mind was inside the world created by the story.
 NP3: The program created a new world, and then that world suddenly disappeared when the program ended.
 NP1: At times during the program, the story world was closer to me than the real world.
Cronbach's alpha for narrative presence

Emotional engagement
 EP5: The story affected me emotionally.
 EP3: During the program, when a main character succeeded, I felt happy, and when they suffered in some
    way, I felt sad.
 SM1: I felt sorry for some of the characters in the program.