THESIS

THE EFFECTS OF NARRATIVE TRANSPORTATION AND CHARACTER IDENTIFICATION ON

PERSUASION IN THE MEDIUM OF COMICS

Submitted by

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ABSTRACT

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Though narrative messages have been used to persuade audiences for centuries,

scholars have only recently begun to investigate the mechanisms behind the narrative

persuasion process from a media effects perspective. Research has indicated that the

processing of persuasion through narrative differs from the processing of persuasion

through rhetorical messages (Slater & Rouner, 2002). Several models of the narrative

persuasion process have emerged in the past 15 years (e.g., Slater & Rouner, 2002; Moyer-

Guse, 2008; Busselle & Bilandzic, 2009), but no one is yet preferred among scholars. This

study tested the extended-Elaboration Likelihood Model (Slater & Rouner, 2002), which

posits that narrative persuasion is the result of engagement with a narrative and its

characters, as applied to comics that address a local controversy: hydraulic fracturing or

"fracking".

A group of 236 undergraduate CSU students participated in a 2x2 pre-test/post-test

experimental design, in which subjects were presented with one of two persuasive comics

(one pro-fracking, one anti-fracking) and levels Narrative Transportation, Character

Identification, and Persuasion were assessed.

Statistically significant levels of Persuasion were reported by those subjects

presented with the anti-fracking comic, but a regression model did not find that Narrative

Transportation or Character Identification predicted Persuasion to a statistically significant

degree. Though their validity is limited in some ways, these findings suggest that the e-ELM

may not adequately explain the narrative persuasion process in the context of comics.

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CHAPTER 1

INTRODUCTION

In the past half century, communicators seeking to affect attitude or behavior change have increasingly relied on entertainment-education, or E-E (Poindexter, 2004). As defined by Singhal & Rogers (2004), E-E is "the process of purposely designing and implementing a media message to both entertain and educate, in order to increase audience members' knowledge about an educational issue, create favorable attitudes, shift social norms, and change overt behavior." (p. 5) This process is inspired largely by the work of Miguel Sabido, who employed theories of drama and psychology to develop several successful E-E *telenovelas* in his native Mexico (Sabido, 2002).

Sabido's methods have since inspired dozens of E-E campaigns, many of which have proven successful in spreading prosocial and pro-health beliefs across the world. One oft-cited example is *Soul City,* a South African radio serial that successfully changed local attitudes toward sexual health practices (e.g. monogamy and condom use) in the face of an HIV epidemic (Soul City, 2001). Televised E-E soap operas with similar goals have been produced by the U.S. Center for Disease Control and shown in Botswana, Ethiopia, Ghana, and Zimbabwe (Galavotti, Pappas-DeLuca, & Lansky, 2001). E-E programs have been produced by those seeking to improve the status of women and girls in India and China (Poindexter, 2004), and to stem population growth in places like Tanzania (Rogers et al. 1999), Brazil (Poindexter, 2004) and Mexico (Sabido, 2004).

The most well-known E-E campaigns have been presented through popular mass media like television or radio, but the process has proven successful across a wide variety

of media. In areas like Ghana, where mass media is less pervasive, E-E communicators have delivered their message through public events and street theater (Valente, Poppe, Alva, de Briceno, & Cases, 1994). Messages have also been embedded within popular songs and music videos (Piotrow & Fossard, 2004), in comic books and cartoons, (Mckhee, Aghi, Carnegie, & Shahzadi, 2004), and in online media (Rogers, 2004). E-E messages have proven effective in changing the audiences and behaviors of audiences through each of these media (for an overview, see Singhal, Cody, Rogers, & Sabido, 2004).

As stated above, the style and content of most E-E messages is largely influenced by the work of Sabido, whose theory was informed in part by Bentley's (1967) dramatic theory, Bandura's social learning theory (1977), Jung's archetype theory (1958), and MacLean's theory of the triune brain (1973). Though each of these theories have since been cited by scholars in the E-E field, Bandura holds the most prominent place in the literature. Bandura's social learning theory posits that behaviors and attitudes are learned in part by modeling behaviors observed both in the real world and in media messages (Bandura, 1977). Thus, E-E messages generally attempt to influence their audiences by providing positive, negative, and transitional role models (Singhal & Rogers, 2002).

The body of theory seeking to explain the persuasive effects of E-E messages is rich and rapidly growing, but relatively young (for an overview of theory in E-E, see Sood, Menard, & Witte, 2004). Much of the work examines these effects through Bandura's theories of social learning or self-efficacy, or through other social psychology theories like the theory of planned behavior (Ajzen, 1991) or the theory of reasoned action (Fishbein & Ajzen, 1975). In the past 20 years, some scholars have sought a more strictly psychological

understanding of these effects through the Elaboration Likelihood Model (Petty & Cacioppo, 1986), or ELM.

This new field of study has examined narrative E-E messages and traditional entertainment messages alike in an attempt to understand how the use of narrative affects the cognitive mechanics of persuasion. Scholars in this field have found evidence that narrative messages produce persuasive effects through a different process than rhetorical messages like editorials, speeches, and sales pitches (Green & Brock, 2000; Slater & Rouner, 2002). This process is generally referred to by these scholars as *narrative persuasion.*

Scholars have proposed different models of the narrative persuasive process. The narrative engagement scale (Busselle & Bilandzic, 2009) describes a subject's relationship with narrative as consisting of four types of engagement: *narrative understanding, attentional focus, emotional engagement,* and *narrative presence*. Through a complex network of effects, these forms of engagement produce story-consistent attitudes and beliefs.

The Entertainment Overcoming Resistance Model, or EORM (Moyer-Guse, 2008) focuses on the relationships that exist between subjects and characters within a narrative. The model predicts that these relationships reduce counterarguing, increase self-efficacy, and have several other effects on the subject. The model posits that these effects result in the generation of story-consistent attitudes and beliefs.

The extended Elaboration Likelihood Model, or E-ELM (Slater & Rouner, 2002) seeks to explain the process through a manipulation of the traditional ELM. The ELM posits that a subject experiences varying levels of persuasion corresponding to his or her

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involvement with the issue central to a persuasive message. The e-ELM posits that this involvement is unimportant in the narrative persuasion context. Instead, the e-ELM asserts that levels of persuasion correspond to a subject's levels of engagement with a narrative's plot and characters. In this context, involvement with the plot is often operationalized as Narrative Transportation (Green & Brock, 2000) and involvement with characters as Character Identification (Cohen, 2001).

The relationships outlined in the e-ELM have been tested across a wide variety of media, including text (Slater & Rouner, 2002), video (Slater, Rouner, & Long, 2006) and audio messages (Semmler, Loof, & Burke, 2015).

Recent scholarship (Cohen, Tal-Or, Mayor-Tregerman, 2015) has also examined the role of character and plot involvement in persuasion when the topic of persuasion is controversial issue. Cohen, Tal-Or, and Mayor-Tregerman found that readers who reported high levels of transportation also reported higher levels of story-consistent beliefs after being exposed to a persuasive narrative about a controversial local topic (conducted in Israel, the study used a pro-Palestinian campus demonstration as the topic). These studies found that levels of transportation moderated the effects of subjects' pre-exposure attitudes about the topic.

This study also examined the narrative persuasion process in the context of a locally controversial topic: hydraulic fracturing, also known as "fracking". Subjects were presented with one of two narrative messages about the topic, each presented through the medium of comics. Through a process outlined in Chapter 4, the study tested the relationships of Narrative Transportation and Character Identification on Persuasion.

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CHAPTER 2

LITERATURE REVIEW

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Narrative

Though narratives have presumably existed since the dawn of human history, the empirical study of narrative as a unique form of communication is generally thought to originate with Aristotle, whose *Poetics* first described the differences between "rhetorical" communication and "poetics." Aristotle described poetics as including both poetry and plays, the predominant forms of fiction at the time. In his work, Aristotle introduced the concept of *mythos*: a "structure of incidents" that guides characters through time.

Aristotle's assertion that poetics were distinct from rhetoric (non-narrative communication intended to inform or persuade) dominated thinking on the topic for centuries. In the latter half of the 20th century, however, thinkers began to investigate the ways in which narrative structures operate in all forms of human communication (Fisher, 1987; Gerrig, 1993). This new line of thinking paved the way for the field of narrative persuasion.

The modern understanding of narrative was built largely on the work of Fisher (1987), whose narrative paradigm posits that narration is a core component of all human communication. Fisher claims that humans are "storytelling animals," and that humans largely understand all of their experiences as narration. Narration, according to Fisher, consists of "symbolic actions, words, and/or deeds that have sequence and meaning for those who live, create, or interpret them" (p. 58). Notably, this does not limit narratives to the realm of media.

As it is limited to the study of media messages, this study uses the definition of narrative employed by Kreuter et al. (2007) in their overview of persuasive narrative messages: "a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed." (p. 222). In presenting narrative as a *representation* of events, this definition implies that narrative must involve some form of mediation. It does not, however, present limits on the media that may be used in the presentation of the narrative—the definition can be applied to spoken-word stories, texts, films, video games, comics, and more.

Persuasion

Though his work was preceded by some essays on the subject by Plato and the Sophist Gorgias, Aristotle's theory of rhetorical communication is widely understood as being the first comprehensive theory of persuasion (Dillard & Pfau, 2002). Aristotle described persuasion as an attempt exercise influence through communication. He described these attempts as consisting of three appeals: the appeal to ethics though the persuader's credibility (ethos), the appeal to the audience's emotions (pathos), and the appeal to logic through sound argument (logos). This understanding dominated study of the field until the rise of the social sciences in the mid-20th century (Dillard & Pfau, 2002). This period generated a new interest in the "systematic empirical study of persuasion" (Miller, 1987, p. 448), and the fruits of that study are generally what modern scholars consider the roots of persuasion studies.

This study employs the widely-accepted understanding of persuasion developed by scholar Gerald Miller. In Miller's work, *persuasion* describes attitude or behavior change in individuals that has been inspired by communication, with or without the added presence of a coercive force (Miller, 1980). As described by Miller, this can occur through three different processes: *response shaping*, *response reinforcing*, and *response changing.*

In the process of *response shaping,* persuasion "takes the form of shaping and conditioning particular response patterns" to stimuli an individual has yet to establish a response to (Miller, 1980, p. 7). A child being taught to set the table for the first time, for example, is persuaded that a certain arrangement of silverware is correct. This persuasion process results in the formation of new patterns of response (being inclined to set forks on the left) to particular stimuli (the circumstances of setting a table). This process is often referred to in persuasion literature as "attitude forming." (Miller, 1980, p. 9).

When subjected to a *response reinforcing* persuasion process, individuals have already developed a pattern of response to certain stimuli. It is the aim of the persuader in this circumstance to strengthen or habituate these existing patterns (Miller, 1980). Examples of response reinforcing processes include most church services and political addresses, in which a set of convictions is reinforced and made more resistant to change (Miller & Burgoon, 1973, p. 5).

The form of persuasion that most echoes the common understanding of the term— and the one considered central to this study—is the *response-changing* process. This is the process by which "smokers are persuaded to become nonsmokers, automobile drivers are persuaded to walk or use public transportation, Christians are persuaded to become

Moslems, and so on." (Miller, 1980, p.10). Through this process, persuaders attempt to change an individual's responses to stimuli she is already accustomed to.

This form of persuasion is commonly referred to as "attitude change." In this context, "attitudes" are understood to describe "general evaluations people hold in regard to themselves, other people, objects, and issues." (Petty & Cacioppo, 1986, p. 127). Phrased differently, they are "postures of the mind" (Oskamp, 1977, p. 7) that inform decisions and behavior. In the social sciences, a person's attitude is understood to be "an important mediating variable between exposure to information, on the one hand, and behavioral change, on the other." (Petty, Brinol, & Priester, 2009). The reaction reinforcing persuasion process, referred to henceforth simply as "persuasion," seeks to create behavior change through this mediating variable.

In the narrative persuasion field, persuasion is generally assessed at the individual level through questionnaire administered after exposure to the persuasive attempt. This questionnaire is sometimes paired with a similar questionnaire administered prior to exposure. Green and Brock (2000), for example, presented individuals with a narrative about a murder committed by a psychiatric patient on temporary release from an institution. Their study assessed persuasion through a post-exposure questionnaire, which measured audience beliefs about temporary release programs for psychiatric patients and about the dangers posed by the mentally ill in general. Because the narrative presented a dangerous psychiatric patient, beliefs that temporary release programs are ill-advised and that the mentally ill are dangerous were considered story consistent.

In the context of this study, Persuasion served as a dependent variable, assessed as story-consistent attitude change. Persuasion was quantified as a change variable between

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pre- and post-exposure questionnaire scores. Each questionnaire addressed attitudes toward fracking through a series of Likert scales. The difference between the answers given in the pre-test questionnaires and the answers given in the post-test questionnaires was used as the measure of Persuasion.

Narrative Transportation

Coined by Green and Brock (2000), the term *narrative transportation* describes the phenomenon, experienced by the reader or audience of a narrative message, of being deeply mentally involved in a story. This phenomenon has also been described as *absorption* (Graesser, Roberston, & Anderson, 1981) and *involvement* (Moyer-Guse, 2008). The term "narrative transportation" is used in this study because it is associated with an established scale.

Transportation is understood by Green and Brock as "a convergent process, where all of the person's mental systems and capacities become focused on the events occurring in the narrative." (Green & Brock, 2002, p.324). Readers who experience high levels of transportation become less aware of their real-world surroundings, instead being absorbed in the fictional "world" of the narrative. (Green & Brock, 2000).

Green and Brock's concept is among the foremost measures of reader involvement in a narrative, and it was analyzed as an independent variable in this study. It is not the only form of involvement with persuasive messages, however, and is notably distinct from seemingly similar concepts like Busselle and Bilandzic's *narrative engagement* (2009) and Petty and Cacioppo's *high elaboration* (1986).

Narrative engagement, as understood by Busselle and Bilandzic (2009), purports to be a complete measure of an individual's involvement with the narrative. Transportation (described in this context as *telepresence*), is taken by these scholars to be one small component of this experience, which they break into four components: narrative understanding (comprehending the story and its characters), attentional focus (not thinking about other things while processing the narrative), emotional engagement (being emotionally affected by the narrative), and narrative presence (feeling immersed into the world of the story).

Though the measures of this concept proposed by Busselle and Bilandzic showed high levels of inter-item reliability in initial tests (2009), this understanding of involvement with a narrative message has not been tested as extensively as Green and Brock's transportation concept, and was therefore not the understanding employed by this study.

Likewise, transportation differs from high elaboration, which is perhaps the most popular description of high levels of engagement with persuasion messages (Petty & Cacioppo, 1986). As stated by Green and Brock (2000), "Elaboration implies critical attention to major points of an argument, whereas transportation is an immersion into the text." (p. 702).

To quantify narrative transportation, Green and Brock developed an 11-item Transportation Scale, which is measured through a questionnaire administered to subjects after message exposure (see Fig. 1). Each questionnaire item is measured on a seven-point Likert scale anchored by *very much* and *not at all.* In an initial test, Green and Brock determined the scale had a Cronbach's alpha of .76 (2000). Subsequent studies using the

full scale or variations of it have found similar levels of interitem reliability (Tal-Or & Cohen, 2010; Cohen, Tal-Or, & Mayor-Tregerman, 2015).

In this study, Narrative Transportation served as an independent variable quantified through the use of a nine-item variation of Green and Brock's (2000) transportation scale.

Character Identification

As defined by Cohen (2001), "Identification is a process that culminates in a cognitive and emotional state in which the audience member is aware not of him- or herself as an audience member, but rather imagines being one of the characters in the text" (p.252). This sensation is thought to reduce the psychological distance between a reader and a text and to increase a reader's level of emotional engagement (Busselle & Bilandzic, 2009).

Cohen's understanding of character identification, which is the one employed in this study, describes the phenomenon as composed of four components: empathy with the character, the experience of taking the character's perspective, an understanding of the motivations of the character, and the loss of self-awareness (Cohen, 2001). In short, individuals who experience character identification feel like they are the characters in the text, and they experience the same joys, fears, and pains the character feels.

It is important to note that character identification is understood in this context as an element of a message recipient's experience with a narrative. Like any experience, this makes it variable over time. As described by Cohen (2001), character identification is a sensation felt intermittently during exposure to a media message" (p. 250). Therefore, any

valid measurement of character identification must focus on the experience of the message recipient, and must address the variation of levels of character identification over time.

Though they are often conflated in common discourse, character identification is distinct from the similar concepts of parasocial interaction (PSI) and homophily.

PSI describes a relationship between a reader and a fictional character that is experienced by the reader in a way that mirrors the experience of social relationships by the reader outside the world of the narrative. PSI is different from character identification primarily in that it describes a relationship between the reader with a character the reader perceives as being other than him- or herself. This distinction does not exist during the experience of true character identification. A reader that experiences true character identification temporarily loses the sense of him- or herself and imagines being the character instead (Cohen, 2001).

Homophily is the perceived similarity by the reader between him- or herself and a character within a narrative (Bandura, 1986). This similarity can be perceived because the character shares physical characteristics, circumstances, or personality traits. While readers tend to like characters they see themselves as being similar to (Moyer-Guse, 2008), this is experience is considered independent from an empathetic emotional response. Much like PSI, the experience of homophily requires that readers perceive themselves and characters as being independent entities. In this way, the experience is unlike character identification as understood by Cohen.

To quantify character identification, Cohen developed a 10-item Character Identification Scale, which is measured through a questionnaire administered to subjects after message exposure (see Fig. 2). Each questionnaire item is measured on a seven-point

Likert scale anchored by *very much* and *not at all.* Studies employing this scale have found Cronbach's alphas of .77 or higher (Tal-Or & Cohen, 2010; Cohen, Tal-Or, & Mayor-Tregerman, 2015).

In the context of this study, Character Identification served as an independent variable quantified through an 8-item variation on Cohen's (2001) Character Identification Scale.

Theoretical Background

This study explored the effects of Character Identification and Narrative Transportation on Persuasion in subjects exposed to narrative messages as understood through Slater and Rouner's (2002) extended-Elaboration Likelihood Model, or e-ELM.

The e-ELM is a variant on the oft-cited and well-established Elaboration Likelihood Model (Petty & Cacioppo, 1986), or ELM, which posits that people process persuasive messages differently depending on their levels of involvement with the issue discussed. The ELM was developed to explain the process of rhetorical persuasion, and the e-ELM seeks to apply its core concepts to the process of narrative persuasion.

The Elaboration Likelihood Model

As understood under the ELM, the ways individuals process persuasive messages differ based on those individuals' levels of involvement with the topic of the message. The theory asserts that people who are highly involved with an issue will experience higher levels of elaboration when presented with a relevant persuasive message (Petty & Cacioppo, 1986).

"Elaboration" is essentially the generation of new thoughts, which includes counterarguments and appraisals of the merits of the persuasive argument. Under the ELM, the generation of these thoughts leads an individual down a "central processing route", which relies heavily on cognition and results in strong and lasting persuasion. This experience differs from "peripheral processing", in which message recipients are not heavily involved and form judgments based on heuristic cues. Under the ELM, peripheral processing is generally associated with weak and temporary persuasion (Petty & Cacioppo, 1986).

The ELM has been tested extensively, and is widely considered a preeminent theory for explaining the role of audience involvement in the processing of persuasive messages (Cho, 1999; Wood, 2000).

The extended-Elaboration Likelihood Model

The introduction of narrative transportation as a variable antecedent to attitude change (Green & Brock, 2000) posed some problems for the ELM as applied to narrative messages. Unlike the variables on which central processing depends in the ELM, narrative transportation is not related to the extent to which a message recipient is personally involved with an issue or invested with an outcome. Readers may be deeply transported by a narrative about whaling in the 17th century, for example, even though they have very little personal involvement in the issues presented by such a text.

The effects of narrative involvement on the persuasive process were investigated by Slater and Rouner (2002), who identified the narrative persuasion process as being unique from the rhetorical persuasion process in part in its ability to generate lasting attitude

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change while suppressing counterargument to counterattitudinal messages. *Counterarguing*, defined by Slater and Rouner as "the generation of thoughts that dispute or are inconsistent with the persuasive argument" (p. 180), is both an obstacle to persuasion and evidence of high elaboration. Though counteragruing is a "key obstacle to persuasive efforts," (Slater & Rouner, 2002, p. 180), it is also an essential component of central processing under the traditional ELM (Petty & Cacioppo, 1986).

In the narrative context, Slater and Rouner posit that narrative messages demand the "suspension of disbelief" by their recipients, and that this suspension of disbelief in turn reduces levels of counterarguing while facilitating high levels of engagement with the narrative and its characters. As a result, they posit it is engagement with the narrative and its characters, not issue involvement, that best predicts levels of persuasion in the narrative context. Further, they propose that the distinction between central and peripheral processing is not discernable in the narrative context (Slater & Rouner, 2002).

Under the e-ELM, involvement with the narrative is the product of three elements: story line appeal, quality of production, and unobtrusiveness of the persuasive subtext (Slater & Rouner, 2002). The resulting absorption reduces levels of counterargument, and works in tandem with character identification to produce persuasion. Slater and Rouner describe this involvement as "absorption," but it is conceptually analogous to *narrative transportation* as described by Green and Brock (2000).

Slater and Rouner's proposal (2002) is supported by the results of earlier research, in which subjects were presented with manipulations of a short story embedded with a persuasive message advocating against excessive alcohol use (Slater & Rouner, 1997). This study did not measure levels of transportation, but confirmed that subjects reported low

levels of counterargument when an alcohol-related message was presented in a narrative format. These levels stood in contrast to the relatively high levels of counterargument to a non-narrative alcohol-related message in an earlier study (Slater & Rouner, 1996).

Narrative Transportation and Character Identification

Research has yet to establish a significant relationship between character identification and transportation in the e-ELM context.

The idea that the two concepts may not be conceptually distinct from one another was investigated in a 2010 study by Tal-Or and Cohen. In their investigation of the potential confounding of the two concepts, they wrote: "…in many studies it is impossible to know whether the mediating role between exposure and effects that was assigned to identification is not in fact due to transportation. Similarly, it is not clear whether the finding regarding the role of transportation in enjoyment and persuasion may not in fact be attributable to identification" (p. 406).
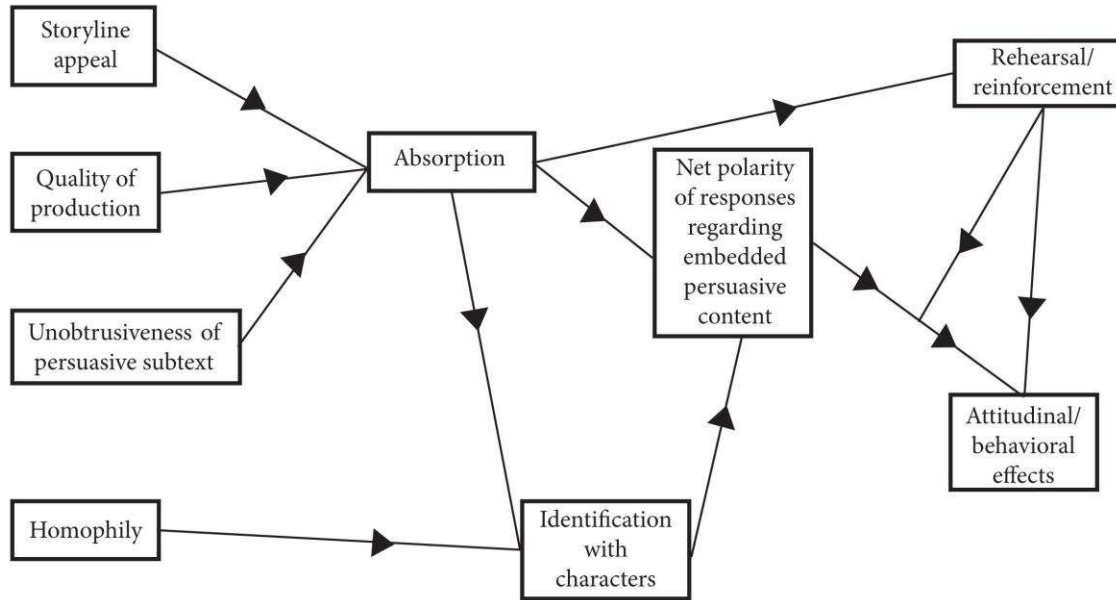
Figure 1. The extended-Elaboration Likelihood Model (Slater & Rouner, 2002, p. 178)

Hypotheses and Research Question

The proposed theoretical framework relies heavily on the understanding that narrative messages are highly effective in producing persuasion. Therefore:

H1: All subjects will report changes in attitudes toward fracking consistent with the persuasive message they are exposed to.

H1(a): Subjects exposed to the pro-fracking message will report more favorable attitudes toward fracking in the post-exposure questionnaire than in the pre-exposure questionnaire.

H1(b): Subjects exposed to the anti-hydraulic fracturing message will report less favorable attitudes toward fracking in the post-exposure questionnaire than in the pre-exposure questionnaire.

As posited in the E-ELM, persuasion in the narrative context is contingent on an individual's involvement with the narrative and its characters. Therefore:

H2: Scores on the Narrative Transportation Scale be found to predict levels of Persuasion.

H3: Scores on the Character Identification Scale be found to predict levels of Persuasion.

The concepts of character identification and narrative transportation are considered together in the E-ELM, but studies have not yet established a consistent relationship between the two concepts. Therefore:

RQ1: Are scores on the Narrative Transportation Scale correlated with scores on the Character Identification Scale?

CHAPTER 4

METHOD

Overview

This study sought to understand the effects of narrative transportation and character identification on persuasion in a narrative context. The study was performed as a 2 (pro-fracking/anti-fracking message) x 2 (pro-fracking attitudes/anti-fracking attitudes) pretest/posttest experimental design. The study assessed two independent variables: Narrative Transportation and Character Identification, and one dependent variable: Persuasion.

Participants

The participants were 236 Colorado State University students recruited from three separate sessions of the university's JTC 300 Professional Communication course. Subjects were offered 10 points of extra credit for their participation. Twelve subjects were removed from the study pool because they provided incomplete responses to one or both questionnaires.

The mean age of the remaining participants was 21.18 (SD = 3.01). One-hundred and sixteen were male, 107 were female, and one reported gender as "other/prefer not to say". Most participants reported their race/ethnicity as White (80.6%), 8% were Latino, 4.9% Asian/Pacific Islander, 3.1% African-American, and .9% Native American. The remaining participants (1.3%) did not identify their race/ethnicity.

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Procedure and Materials

The study was administered to three groups of students, and was conducted in two sessions for each group. All sessions were conducted in the early portion of a regular JTC 300 course period.

In the first session, after a brief introduction from the professor, the study author introduced the study. Because the persuasive effects of narrative are supposed to depend on the disguising of persuasive intent (Slater & Rouner, 2002), subjects were not informed before the experiment of the true purpose of the study. Instead, they were told the study is meant to evaluate public opinion on popular media pieces about a controversial issue.

Students were presented with a letter of consent and brief questionnaire (Appendix A1) designed to assess demographics and pre-exposure fracking attitudes.

In order to reduce potential sensitization from the pre-exposure questionnaire, the experimenter waited seven days before returning to the classroom. In that period, an equal number of pro-"fracking" (Appendix B-1) and anti-"fracking" (Appendix B-2) comics were placed in envelopes with questionnaires and shuffled.

In the second session, students were told they would be presented with an excerpt from a graphic novel and a short questionnaire. Packets containing the materials were then distributed at random. The questionnaire (Appendix A-2) was designed to assess narrative transportation, character identification, and post-exposure fracking attitudes.

Both pre- and post-exposure questionnaires recorded the student numbers of each subject. The last four digits of these numbers were used to match the two questionnaires.

Measures

All variables, including demographics, were assessed through one or both questionnaires.

Narrative Transportation

Narrative Transportation was assessed using a variation of the scale developed by Green and Brock (2000). This variation of the scale omitted a single item specific to written narratives ("While I was reading the narrative, I could easily picture the events in it taking place"). The remaining 10 items were assessed using 7-point Likert scales anchored by *strongly disagree* and *strongly agree*. Those items for which high levels of agreement are associated with low levels of Narrative Transportation were reverse coded to maintain consistency.

1. While I was reading the narrative, activity going on in the room around me was on my mind. (R)
2. I could picture myself in the scene of the events described in the narrative.
3. I was mentally involved in the narrative while reading it.
4. After finishing the narrative, I found it easy to put out of my mind. (R)
5. I wanted to learn how the narrative ended.
6. The narrative affected me emotionally.
7. I found myself thinking of ways the narrative could have turned out differently.
8. I found my mind wandering while reading the narrative. (R)
9. The events in the narrative are relevant to my everyday life.
10. The events in the narrative have changed my life.

    Note. R = reverse-coded

One item ("While I was reading the narrative, activity going on in the room around me was on my mind") was removed from the scale post hoc to achieve an acceptable level

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of inter-item reliability (M=3.90, SD=.81, α=.70). The recorded answers from this scale were averaged to achieve a single measure of Narrative Transportation.

Character Identification

Character Identification was assessed using a variation of the 10-item scale developed by Cohen (2001). Because two of the items on the scale are similar to items on Green and Brock's (2000) transportation scale ("While viewing program X, I felt as if I was part of the action" and "While viewing program X, I forgot myself and was fully absorbed"), these items were excluded. Items 1,4,5, 6, and 7 were slightly altered to reflect the use of comics as a medium (e.g., "While viewing the show" will be altered to read "While reading the comic"). Each of the following items was assessed with a 7-point Likert scale anchored by *strongly disagree* and *strongly agree*.

1. I was able to understand the events in the program in a manner similar to that in which Lauren (the female character) understood them.
2. I think I have a good understanding of Lauren.
3. I tend to understand the reasons why Lauren does what she does.
4. While viewing the show I could feel the emotions Lauren portrayed.
5. During viewing, I felt I could really get inside Lauren's head.
6. At key moments in the show, I felt I knew exactly what Lauren was going through.
7. While viewing the program, I wanted Lauren to succeed in achieving her goals.
8. When Lauren succeeded I felt joy, but when she failed, I was sad.

The recorded answers for this scale (M=4.14, SD=1.14, α=.87) were averaged to achieve a single measure of Character Identification.

Persuasion

Persuasion was assessed by comparing two virtually identical attitude scales. Attitudes were assessed through a 10-item scale. These items were selected from the 20-item scale developed by Choma, Hannock, and Currie (2016); items on that scale that address issues unrelated to either narrative (e.g. climate change) and some redundant items were not used. In order to be consistent with the language used in the narratives, the term "hydraulic fracturing" was replaced with "fracking" for each item. The 10 items were assessed using 7-point Likert scales anchored by *strongly disagree* and *strongly agree*. Those items for which high levels of agreement were associated with opposition to fracking were reverse coded to maintain consistency.

1. The methods used in fracking for shale gas are considered absolutely safe.
2. People would be much better off if there were fewer government regulations on fracking companies.
3. Fracking companies work hard to make sure that they take care of the environment.
4. Fracking for shale gas will have a negative impact of the environment. (R)
5. Shale gas can be removed from the earth through fracking with minimal environmental damage, if done correctly.
6. Fracking for shale gas is dangerous. (R)
7. The government should impose much stricter regulations on fracking companies. (R)
8. Fracking for shale gas will have a negative impact on the U.S. economy. (R)
9. Fracking for shale gas extraction will help create jobs locally and nationally.
10. There has been a negative impact on all communities located close to fracking sites. (R)

Note. R = reverse-coded

The 10 items appeared in the above order in the pre-exposure questionnaire (M=4.11, SD=.99, α=.88), and in reverse order in the post-exposure questionnaire (M=3.9, SD=1.1, α=.90). For each of the two scales, the recorded answers were averaged to achieve

a single measure of attitude. To achieve a measure of Persuasion, the post-exposure

attitude measure was subtracted from the pre-exposure attitude measure.

Pretests

A series of three pretests was conducted to ensure clarity of the process and to test

the scales used. Participants in the pre-tests were 24 Colorado State University and Front

Range Community College students.

Pretest data found acceptable levels of inter-item reliability for the Narrative

Transportation (α=.77), Character Identification (α=.87), pre-exposure attitude (α=.88),

and post-exposure attitude (α=.91) scales.

Verbal feedback from participants resulted in a slight change in the wording of one

item on the Character Identification scale. The item "I was able to understand the events in

the comic in a manner similar to that in which Lauren understood them." Was changed to

read "I was able to understand the events in the comic in a manner similar to that in which

Lauren (the female character) understood them." Participants gave no other indications of

confusion about the comic or the questionnaires.

CHAPTER 5

RESULTS

To assess changes in attitudes toward hydraulic fracturing among subjects, paired samples t-tests were assessed to compare attitudes toward hydraulic fracturing in pre-exposure and post-exposure conditions. It was predicted by H1 that all subjects would report changes in attitudes toward hydraulic fracturing consistent with the persuasive message they were exposed to.

H1(a) predicted that subjects exposed to the pro-fracking comic would report more favorable attitudes toward fracking in the post-exposure questionnaire than in the pre-exposure questionnaire. A paired-samples t-test of those subjects reported attitudes did not find a significant difference between attitudes in the pre-exposure (M = 4.13, SD = .93) and post-exposure (M = 4.15, SD = 1.04) conditions; $t(103)$ = -.38, NS. Subjects in the group did report attitude change in the direction predicted by H1(a), but not to a significant degree.

H1(b) predicted subjects exposed to the anti-fracking comic would report less favorable attitudes toward fracking in the post-exposure questionnaire than in the pre-exposure questionnaire. A paired-samples t-test of those subjects reported attitudes did find a significant difference between attitudes in the pre-exposure (M = 4.08, SD = 1.04) and post-exposure (M = 3.7, SD = 1.15) conditions; $t(118)$ = 7.75, p < .01. As predicted by Hypothesis 1(b), subjects who were exposed to a comic with an anti-fracking message generally reported less favorable attitudes toward fracking after exposure to the comic.

H2 and H3 predicted that scores on the Narrative Transportation and Character Identification scales would predict levels of Persuasion for all subjects.

A five-stage hierarchical linear regression analysis was performed to assess the predictive values of all variables assessed in the study. Innate demographic variables (Gender, Race/Ethnicity) were entered in the first stage, secondary demographics (Age, Classroom administered) in the second, Treatment administered in the third, Pre-exposure attitudes in the fourth, and Narrative Transportation and Character Identification scores in the fifth.

The regression explained 16.3 percent of the variance in Persuasion ($F(2, 218) = 5.153$, $p < .001$). Only the Treatment administered ($\beta = -.396$, $p < .001$) and Gender ($\beta = -.175$, $p < .05$) were found to be significant predictors of Persuasion, and Pre-exposure attitudes ($\beta = -.073$, $p = .070$) were found to predict Persuasion with marginal significance.

Contrary to the predictions of Hypotheses 2 and 3, the regression did not find that Narrative Transportation or Character Identification were significant predictors of attitude change.

Finally, the study's only Research Question asked whether a correlation existed between scores on the Narrative Transportation and Character Identification scales. A Pearson product-moment correlation coefficient was computed to assess the relationship between these variables. A positive correlation was found between the two variables [$r = .50$, $n = 224$, $p < .001$]. A scatterplot summarizes the results (Figure 2). Overall, there was a moderate, positive correlation between Narrative Transportation and Character Identification.
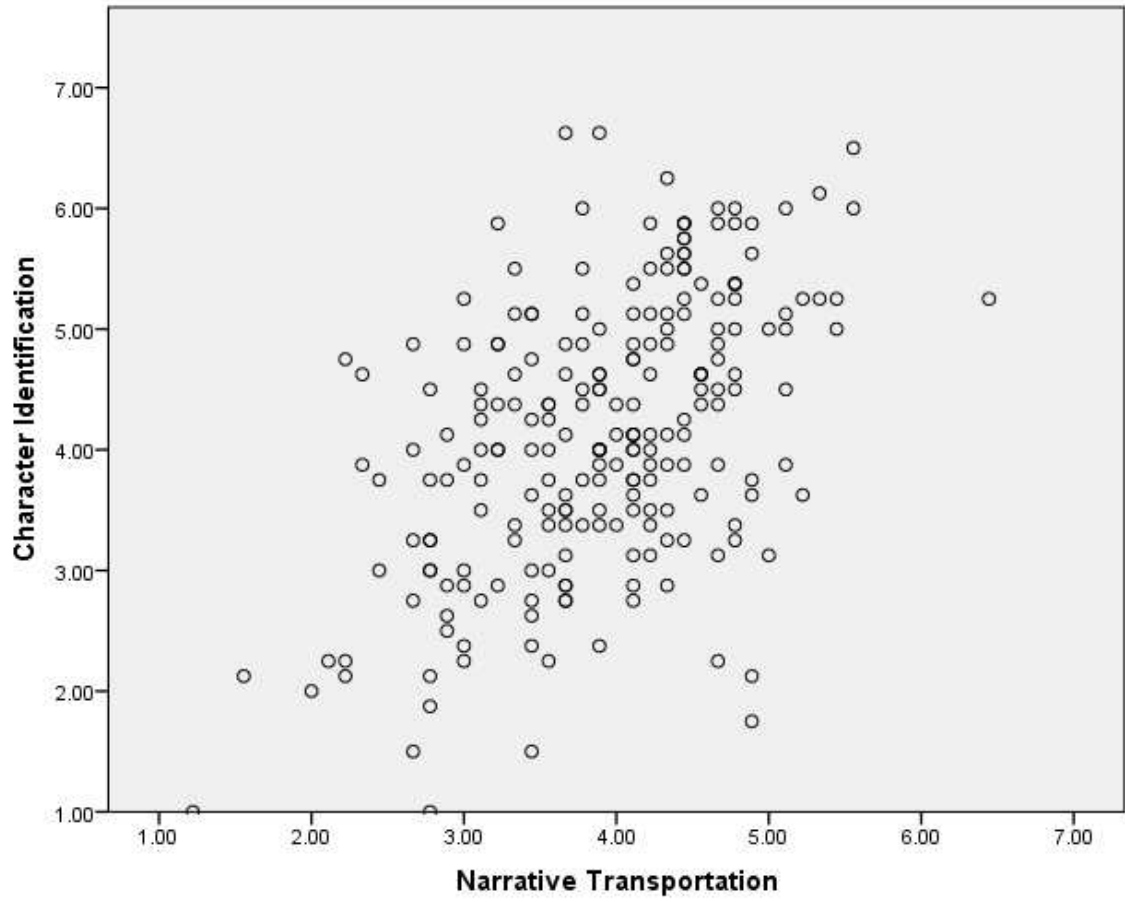
Figure 2. Correlation of Character Identification and Narrative Transportation.

CHAPTER 6

DISCUSSION

This research was conducted to test the extended Elaboration Likelihood Model (or e-ELM) against a narrative presented in the yet-untested medium of comics. The e-ELM predicts that subjects exposed to an engaging narrative will report attitudes and beliefs that align with those presented in the narrative if they are engaged by that narrative and its characters.

Past research has generally supported this model, finding that subjects who reported high levels of Narrative Transportation (Green & Brock, 2002) and Character Identification (Cohen, 2001) after processing a narrative message also reported attitudes and beliefs more in line with those presented in the narrative.

This study aimed to extend that body of research by testing the effects of two brief persuasive comics on a group of 236 undergraduate CSU students.

The anti-fracking comic was found to produce statistically significant levels attitude change in a direction consistent with the message of the narrative. The pro-fracking comic also was found to produce attitude change in a direction consistent with the narrative's message, but not to a statistically significant degree.

In this study, involvement with the narrative was assessed using Green and Brock's (2002) Transportation Scale, and involvement with characters was assessed using Cohen's Character Identification Scale (2001). Both scales have been used previously in studies of the e-ELM. A regression model did not find that scores on either of these scales predicted attitude change, but did find that Gender and the Treatment administered predicted

attitude change to a statistically significant degree. Pre-exposure attitudes were also found to predict attitude change to a marginally significant degree.

Theoretical implications

If valid, the results of this study suggest the e-ELM may not sufficiently explain the narrative persuasion process in all media. The e-ELM posits that engagement with a narrative and its characters will result in greater levels of Persuasion, but this study did not find that to be the case when subjects were presented with short narrative comics.

Though subjects presented with the anti-fracking comic did report statistically significant levels of Persuasion, those levels were not found to be predicted by engagement with the narrative or its characters. This result, paired with the relatively low predictive power of the regression model overall, suggests that factors other than engagement with the narrative and its characters may have been the primary predictors of the persuasive success of the experimental stimuli. Thus, the explanatory power of the e-ELM appears to be insufficient in this context.

The experimental stimuli used in the study differed from those used in similar studies both in length and in medium. Each of these differences provides a possible explanation for the explanatory failure of the e-ELM in this instance.

Length of the stimulus

The amount of time spent by students with the experimental students was observed to be relatively short---each stimulus was only four illustrated pages in length, and most subjects appeared to finish reading within 10 minutes. Though the levels of Narrative

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Transportation and Character Identification reported by subjects were similar to those reported in other studies, it is possible that this brief period of interaction with the narrative was not enough to generate Persuasion. This topic was addressed by Green (2008), who wrote that it was not yet clear "whether being transported into a narrative world for an extended period of time creates even stronger effects than brief immersions." (p. 49).

Brief narrative messages are often used by advertisers, and have been shown in an experimental setting to generate relatively high levels of Narrative Transportation (Escalas, 2004). However, very short messages have not been examined in the context of the e-ELM.

It has not been stated whether the cognitive processes modeled by the e-ELM are thought to occur instantaneously or over a length of time. It is possible, then, that subjects who interact with a narrative for only a short period of time might not engage in the full process. In this scenario, subjects may experience Narrative Transportation, Character Identification, and Persuasion, but these experiences may not interact with one another in the way predicted by the e-ELM.

Medium of the stimulus (comics)

As stated by McCloud (1993), the medium of comics is unique in that it communicates messages at once through both the instantaneously-processed "received" information of images and through the coded, "perceived" information of language. While readers of comics are presented with instantaneously-processed images in much the same way viewers of a film are, these images are not presented in rapid succession but are instead arranged in sequence. It is the task of the reader to infer movements in time and

space that connect those images. As a result, McCloud writes, comics is "...a medium where the audience is a willing and conscious collaborator and closure is the agent of change, time, and motion." (p. 65).

Comics readers are presented with a medium richer than text, but are still expected to put in cognitive effort to "fill in" the actions that occur between panels and the details between lines. This behavior is unique to readers of comics, and may facilitate a level of engagement exclusive to the medium.

The e-ELM posits that levels of engagement with a narrative and its characters predict the success of persuasive narratives. This engagement has often been conceptualized, as it was in this study, as Narrative Transportation and Character Identification. These two concepts may be applied to the experience of narratives regardless of medium. If it is true that subjects presented with a comic experience a medium-specific form of engagement, then these concepts may not encompass the entire scope of the narrative engagement posited to predict persuasive success in the e-ELM. While readers may feel transported into the narrative world or take on the perspective of the characters, their most meaningful engagement with the narrative and its characters may be facilitated by the cognitive effort required to understand the comic's sequential images as a narrative.

As stated above, comics are a series of images arranged in sequence---the medium is often described by comics scholars as "sequential art." (Eisner, 1985). It is generally the intention of a comic's author that these images be understood by the reader as elements of a larger narrative, but they may also be considered a grouping of stand-alone images.

As described in Barthes' "Rhetoric of the Image" (1977), stand-alone images communicate meaning through three "messages". Images that contain text, as the panels of comics often do, employ a linguistic message. The use of culturally-understood signifiers communicates a coded iconic message, which shares meaning through the use of visual symbols other than language. Finally, a non-coded iconic message communicates the visual components of the image literally, without the cultural "coding" of symbols. These messages, contained within stand-alone images, have long been used in the service of persuasion by advertisers and visual artists alike.

In addition to their role as components of a larger narrative, the images contained within a comic's panels communicate their own linguistic, coded iconic, and non-coded iconic messages. Thus each panel exerts some persuasive influence independent of the narrative, which could significantly limit the explanatory power of the e-ELM when applied to comics.

The potential role of coded iconic messages in persuasive success

In this study, reading the anti-fracking comic was found to precede significant levels of attitude change in subjects, but reading the pro-fracking comic was not. This difference in results was found despite the fact that subjects reported similar levels of Narrative Transportation and Character Identification regardless of the comic they read. The persuasive success of the anti-fracking comic, which was not found to be adequately explained by the e-ELM, may be explained in part by the effects of coded iconic messages within the comic's panels.

Care was taken by the author and illustrator to make the two comics as similar as possible. The comics were identical in length, and the narratives featured the same characters in the same setting. The appearances of the characters and the overall style of the art were similar in both comics; several panels were identical or nearly identical. The comics differed in the impacts of a nearby fracking rig on the characters, which are experienced first by the character Uncle Frank and then communicated to Lauren.

On the final page of the anti-fracking comic, Uncle Frank proves to Lauren that a nearby fracking rig is responsible for his illness by igniting the water from his kitchen sink with a cigarette lighter. Notably, this scene was inspired by a similar sequence of events portrayed in the popular anti-fracking documentary Gasland (2010). In the documentary, as in the comic, an older white man in a rural setting ignites water from his sink to demonstrate that his groundwater has been contaminated by a nearby fracking rig.

Considering the popularity of Gasland, and the widespread impact of this scene in particular, it is conceivable that images of this scene may have served as coded iconic messages. Subjects, particularly those subjects who had watched Gasland, may have interpreted the scene and the visual elements that represent it as a symbol of the larger anti-fracking movement. This processing of this symbol may in turn have increased the accessibility of water-contamination concerns and other talking points commonly associated with opposition to fracking, positioning subjects to report less favorable attitudes toward fracking in the post-exposure questionnaire.

By contrast, the final page of the pro-fracking comic shows Uncle Frank writing a check to Lauren for the amount she has told him is owed on her student loans. This scene was fabricated by the comic author, and was not inspired by a popular media product.

Therefore, it may not have been given the same symbolic weight as the scene that concluded the anti-fracking comic.

Practical implications

The results of this study suggest that E-E practitioners should take care in the way they approach the production of persuasive comics. The finding that Narrative Transportation and Character Identification were not predictive of Persuasion in this medium suggests that subjects may not use the same process for engaging with comics they use for engaging with other narratives.

These results suggest that E-E practitioners would be ill-served by simply adapting narratives that were successful in other mediums to a comic format. If those forms of narrative engagement that predict persuasive success in other mediums are insufficient predictors of persuasion in the context of comics, then the authors and illustrators of persuasive comics would do well to consider the role of their message's non-narrative elements.

Authors and illustrators of persuasive comics should approach each panel of their messages as a persuasive appeal. Each image presents an opportunity to communicate with readers using the linguistic, coded-iconic, and non-coded iconic messages described by Barthes. The results of this study suggest that the messages presented by a comic's panels may be just as effective or even more effective in generating story-consistent attitudes and beliefs than the overarching narrative that connects those panels.

Limitations

The results of this study have shown that the e-ELM was not effective in predicting the persuasive effects of a short persuasive comic. This finding suggests that the model may be an incomplete explanation of the narrative persuasion process. However, the study has several limitations that must be acknowledged.

Absence of manipulation check

Perhaps the most notable limitation in this study is the absence of a manipulation check in the post-exposure questionnaire. The attitude of subjects toward the experimental stimuli (whether they perceived it to contain a pro- or anti-fracking message) was not assessed. It is not known, then, whether subjects understood the experimental stimuli as intended. It is possible, for example, that a subject presented with the pro-fracking comic may have understood the narrative as containing an anti-fracking message.

This poses a significant threat the validity of this study's findings. Persuasion in the e-ELM is defined as the generation of story-consistent beliefs and attitudes (Slater & Rouner, 2002), so it is possible that persuasive successes may have gone unmeasured in cases where subjects understood the beliefs and attitudes presented by the narrative in a way other than intended.

Low levels of Narrative Transportation

Subjects presented with the effective anti-fracking comic reported slightly higher levels of Narrative Transportation than those subjects presented with the ineffective pro-fracking comic, but levels of Narrative Transportation reported by both groups fell slightly

below the levels reported in similar studies (Cohen, Tal-Or & Mayor-Tregerman, 2015; Green et al, 2008), and the levels were slightly lower than those reported by audiences of the major motion picture *Harry Potter and the Chamber of Secrets*.

Relatively low levels of Narrative Transportation may signify that subjects did not process the experimental stimuli as narratives, but rather as rhetorical messages. If the stimuli were processed this way, their persuasive success would be predicted not by Narrative Transportation and Character Identification, but by those predictive variables outlined in the ELM (Petty & Caccioppo, 1986). These variables (issue involvement, need for cognition, etc.) were not assessed in this study, so their predictive power is not known.

Incomplete Character Identification measure

Subjects presented with the anti-fracking comic reported slightly lower levels of Character Identification than those subjects presented with the pro-fracking comic, and a regression model did not find that Character Identification was a significant predictor of attitude change. These levels of Character Identification were generally in line with those reported in similar studies (Cohen, Tal-Or & Mayor-Tregerman, 2015; Moyer-Gusé & Nabi, 2010).

Due to the presumption that subjects (undergraduate students) would identify with the college-aged protagonist of the narratives (Lauren), the study was designed to assess character identification only with this character. Identification with the older male character (Uncle Frank) was not assessed.

It is conceivable that, if measured, Character Identification with Uncle Frank may have been related to persuasive effects. Social Learning Theory (Bandura, 2004) posits that

subjects build social models based in part on the consequences characters experience. Though Lauren is the main character in both narratives, it could be argued that Uncle Frank is the character that best models the persuasive message. Uncle Frank is the character that experiences the windfall by leasing his land to GasCo in the pro-fracking comic (though Lauren also benefits from this windfall when Uncle Frank pays her student loans), and is the character that falls ill in the anti-fracking comic.

As noted by Slater and Rouner (2002), the relationships between Character Identification and Persuasion in the context the e-ELM are complex. Citing their own study as evidence (Slater & Rouner, 1997), they hypothesized that "personal similarity to characters in a narrative may be less important that how emotionally involved one becomes with those characters as a consequence of the degree of narrative absorption or transportation." (Slater & Rouner, 2002, p. 185).

The unmeasured emotional involvement experienced by subjects toward Uncle Frank may be a predictor of Persuasion not accounted for in this study. High levels of Character Identification with Uncle Frank, who is largely the vehicle for the persuasive intent of each narrative, would likely predict the generation of story-consistent attitudes and beliefs. Subjects who identify with the version of Uncle Frank who suffers nausea and migraines as a result of water contamination from a nearby fracking site, for example, would be expected to report less favorable attitudes toward the practice of fracking overall. Conversely, subjects who identify with the version of Uncle Frank who buys a new truck and juicer after leasing his land to a fracking company, and who suffers no adverse effects from the process, would be expected to report more favorable attitudes toward the practice.

Absence of measures of perceptions of and reactions to persuasive intent

Slater and Rouner (2002) write that "If the persuasive intent and intent is so obvious as to become more salient during processing than the narrative itself, the narrative may fail and so should the persuasive effort." (p. 176). They further clarify that persuasive intent need not be fully disguised, but only that it fade into the background of the subjects' awareness while processing the narrative.

Care was taken in the administration of this study to disguise the persuasive intent of the experimental stimuli; subjects were not told the true purpose of the study under after data collection was completed, and were told that the experimental stimuli were sections taken from a popular graphic novel.

Perceived persuasive intent was not measured in this study. It is possible, then, that this variable may have an unmeasured effect on Persuasion. Audiences presented with persuasive messages often experience psychological reactance: a perceived threat to autonomy that often results in rejection of the message (Brehm, 1966). It is possible, then, that persuasive intent perceived by the subjects had an effect of Persuasion that was not measured by the study.

Under the e-ELM, the effects of Narrative Transportation (described originally as *absorption*) and Character Identification on Persuasion (described originally as *attitudinal/behavioral effects*) are mediated by a subject's responses to the embedded persuasive content.

Suggestions for future research

More research is needed to understand the predictive value of the e-ELM when applied to comics. Future studies should not only seek to avoid this study's methodological limitations, but should expand the study of the e-ELM to comics of different lengths and distribution styles. Further studies should be conducted to assess the validity of the idea, raised in the theoretical implications of this study, that individual panels may exert a persuasive influence independent from the influence of the overarching narrative.

Replication addressing limitations

To assess the validity of this study's findings, future studies should employ a similar format but should address the limitations described above. Limitations could be addressed with the use of experimental stimuli shown to generate higher levels of transportation, and possibly with experimental stimuli that are slightly longer than the four-page comic used in this study.

In addition to the variables assessed in this study, future studies should assess subjects' levels of involvement with the relevant issue, and the extent to which subjects perceive the experimental stimuli has having a persuasive intent. The measure of perceived persuasive intent may also serve as the manipulation check absent from this study. Levels of Character Identification should be assessed for all characters in the experimental stimuli.

The effects of length and distribution style

The definition of comics employed by this study---"juxtaposed pictorial and other images in a deliberate sequence, intended to convey information and/or produce an

aesthetic response in the viewer" (McCloud, 1993)---is a broad one. It at once describes three-panel newspaper cartoons, book-length graphic novels, and serial stories released over weeks, months, or even years. Researchers have broadly suggested that the persuasive effects of narratives may vary based on their length (Green, 2008) or their presentation in a serial or non-serial format (Slater & Rouner, 2002).

These potential sources of variance in persuasive effects provide fertile ground for narrative persuasion studies in all media, but their role in the processing of persuasive comics is particularly unexamined. It is intuitive that the persuasive effects of very long comics should differ from those of very short ones, but it is untested. Likewise, it is unknown whether comics that are released in segments over the course of weeks or months generate different levels of persuasion than self-contained comic narratives.

Future studies should test the e-ELM against comics of varying lengths and distribution styles. It may also be useful to examine what effects, if any, length and distribution style have on levels of Narrative Transportation and Character Identification.

The persuasive influence of individual panels

Further research is needed to test the claim, put forth in this study, that individual panels of a comic may exert persuasive influences independent from those of the narrative as a whole.

This may be tested in a number of ways. The persuasive effects of individual panels should be assessed through experiments similar in structure to the one conducted for this study. Those images should be tested against full-length narrative comics that contain those panels. Alternatively, experimental structures like the one used in this study may

compare the effects of two comics that share an identical narrative but are distinguished by the presence or absence of a single panel that is rich with coded iconic visual messages.

Future studies should also examine the effects of coded iconic visual messages intended to generate attitudes contrary to the valence of the narrative. What would have happened, for instance, if the image of a rural man igniting his tap water had been placed in a panel of a pro-fracking narrative?

Conclusion

The results of this study suggest the e-ELM may not be an adequate model for predicting the persuasive effects of narratives across all media. The e-ELM posits that a narrative's persuasive effects will be predicted by the extent to which its audience engages with the narrative and its characters, but this study did not find that to be the case. A regression model suggested that the persuasive effects of the narrative stimuli in this experiment were not predicted by engagement with the narrative and its characters. The model suggested that these effects may be predicted in part by variables not measured in this study.

The e-ELM has consistently predicted persuasive effects across media, but the results of this study suggest that it may not effectively explain the narrative persuasion process in the context of comics. Further study is needed to determine whether these findings are valid or the result of methodological limitations.

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APPENDIX A-1: PRE-EXPOSURE QUESTIONNAIRE

First name:

Last name:

Student number:

Email (only one email will be sent to participants):

Age:

Gender:
0 = Male
1 = Female
2 = Other / prefer not to say

Race/ethnicity (choose one):
1 = White, non-Hispanic
2 = African-American
3 = Latino
4 = Native American
5 = Asian / Pacific Islander
6 = Other

For the following questions, circle the number 1-7 that best describes your view.

The methods used in fracking for shale gas are considered absolutely safe.
1= strongly disagree   2   3   4   5   6   7 = strongly agree

People would be much better off if there were fewer government regulations on fracking companies.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking companies work hard to make sure that they take care of the environment.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas will have a negative impact of the environment.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Shale gas can be removed from the earth through fracking with minimal environmental damage, if done correctly.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas is dangerous.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

The government should impose much stricter regulations on fracking companies.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas will have a negative impact on the U.S. economy.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas extraction will help create jobs locally and nationally.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

There has been a negative impact on all communities located close to fracking sites.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

APPENDIX A-2: POST-EXPOSURE QUESTIONNAIRE

First name:

Last name:

Student number:

Email (only one email will be sent to participants):

For the following questions, circle the number 1-7 that best describes your view.

While I was reading the narrative, activity going on in the room around me was on my mind.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I could picture myself in the scene of the events described in the narrative.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I was mentally involved in the narrative while reading it.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

After finishing the narrative, I found it easy to put out of my mind.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I wanted to learn how the narrative ended.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

The narrative affected me emotionally.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I found myself thinking of ways the narrative could have turned out differently.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I found my mind wandering while reading the narrative.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

The events in the narrative are relevant to my everyday life.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

The events in the narrative have changed my life.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I was able to understand the events in the comic in a manner similar to that in which Lauren understood them.

1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I think I have a good understanding of Lauren.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

I tend to understand the reasons why Lauren does what she does.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

While reading the comic I could feel the emotions Lauren portrayed.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

While reading, I felt I could really get inside Lauren's head.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

At key moments in the comic, I felt I knew exactly what Lauren was going through.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

While reading the comic, I wanted Lauren to succeed in achieving her goals.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

When Lauren succeeded I felt joy, but when she failed, I was sad.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

There has been a negative impact on all communities located close to fracking sites.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas extraction will help create jobs locally and nationally.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas will have a negative impact on the U.S. economy.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

The government should impose much stricter regulations on fracking companies.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas is dangerous.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Shale gas can be removed from the earth through fracking with minimal environmental damage, if done correctly.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking for shale gas will have a negative impact of the environment.
1 = strongly disagree   2   3   4   5   6   7 = strongly agree

Fracking companies work hard to make sure that they take care of the environment.

1 = strongly disagree   2   3   4   5   6   7 = strongly agree

People would be much better off if there were fewer government regulations on fracking companies.
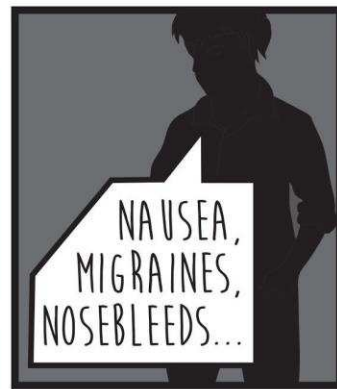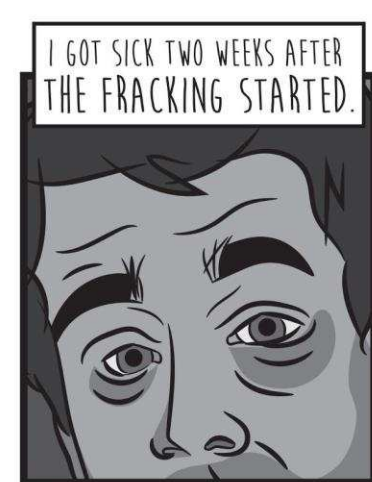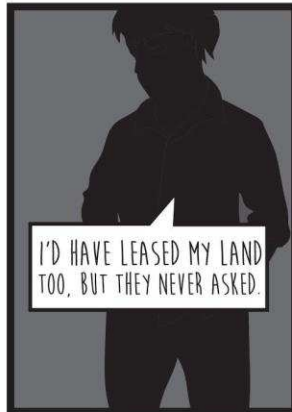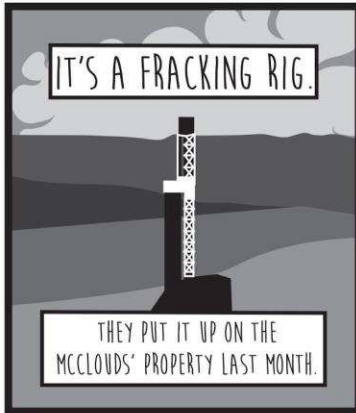1 = strongly disagree   2   3   4   5   6   7 = strongly agree

The methods used in fracking for shale gas are considered absolutely safe.
1= strongly disagree   2   3   4   5   6   7 = strongly agree
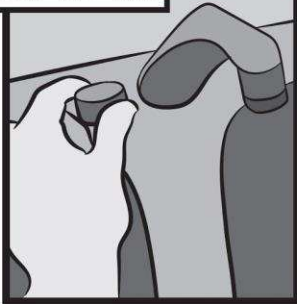
57

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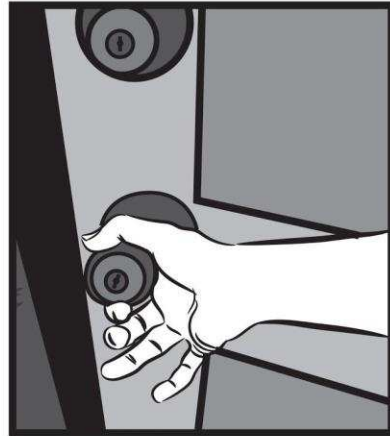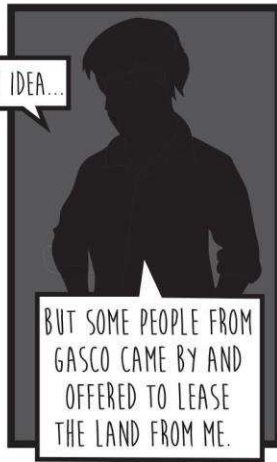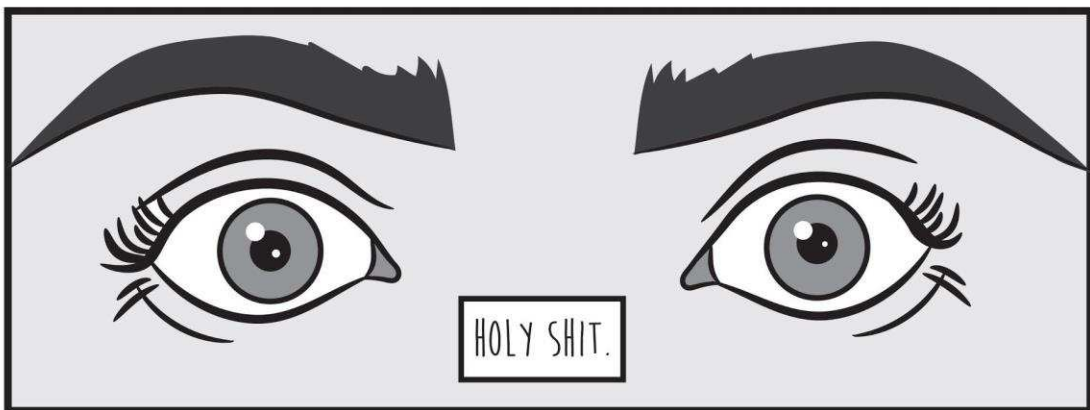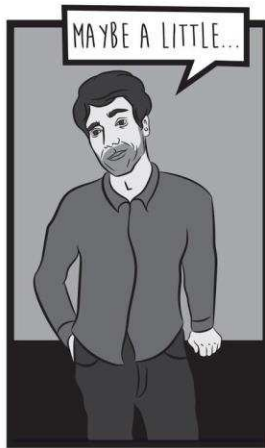
APPENDIX C-1: LETTER OF INFORMED CONSENT

You have been invited to participate in a study on media products related to hydraulic fracturing, or fracking. In particular, we are interested in the ways audiences of differing attitudes engage with a segment from a popular graphic novel that addresses the issue of fracking.

The research will require about an hour of your time over two separate sessions. In the first session, you will fill out a brief questionnaire about yourself and your attitudes toward fracking. In the second session, you will read a short excerpt from a graphic novel and then fill out a questionnaire about your experience with the narrative.

There are no anticipated risks or discomforts related to this research. The study author, however, can provide the name and telephone number of some counseling and/or mental health services, if you wish this information.

Your participation in this research is completely voluntary. If you choose to participate and complete both sessions, you will receive 10 points of extra credit in your JTC 300 course. If you choose not to participate, and alternative extra credit opportunity will be made available to you. You may also enjoy your exposure to the graphic novel, and will have the opportunity to learn about the research process.

Your name and student number will be used to match your initial questionnaire with your second questionnaire. Only the researcher will have access to this information, and all data will be anonymized before results are published. All records of your identity will be destroyed when the study is complete.

By signing below, you agree that you understand what is required of subjects in this study and the risks involved and agree to participate. For further information or the results of the study, please contact the study author at mattminich@gmail.com

Name (print):

Signature:

Date:

APPENDIX C-2: DEBRIEFING LETTER

Study participant,

Thank you for volunteering your time and your attention to this study—your efforts will contribute to the understanding of the persuasive effects of media messages.

This study was intended to examine the effects of character identification and narrative transportation on attitude change when a persuasive message is embedded within an entertainment narrative. Theory suggests that these persuasive messages become ineffective when subjects known they are present, so some deception was required for this study:

- You were not told that this study was intended to measure attitude change, when in fact it was.
- You were not told that different subjects were presented with different experimental stimuli, when in fact they were.
- You were told that the experimental stimulus was a section from a popular graphic novel, when in fact the stimulus was designed for this study by the researcher.
- You were not told that the experimental stimulus would contain a persuasive message, when in fact it did.

After the initial questionnaire, subjects in this study were randomly assigned to receive a stimulus embedded with either a pro-fracking or an anti-fracking message. The attitude change reported in your post-exposure questionnaire will be compared to your reported levels of character identification and narrative transportation.

To see the alternative narrative or to request the completed study, please contact the researcher at mattminich@gmail.com. Please also contact the researcher if you need access to psychological health services as a result of this study.

Thank you again for your participation.