

DISSERTATION

THE ROLE OF READERS' PERFORMANCE OF A NARRATIVE ON THEIR BELIEFS
ABOUT TRANSGENDER PERSONS: A MENTAL MODELS APPROACH

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ABSTRACT

THE ROLE OF READERS' PERFORMANCE OF A NARRATIVE ON THEIR BELIEFS ABOUT TRANSGENDER PERSONS: A MENTAL MODELS APPROACH

Narratives are powerful communication tools that can influence people's beliefs and attitudes. Narrative processing literature explains cognitive operations involved in information processing in terms of transportation and identification with characters. Narrative performance, however, is an unexplored construct in social science narrative engagement literature. Narrative performance is a process by which readers bring cognitions and emotions to construct distinct story worlds into which they can be transported. This study advances the narrative processing literature by going beyond narrative transportation and by examining how people's performance of a narrative affects their story-related beliefs. A three-condition experiment, with 174 voluntary participants, was conducted at a large Western university to gauge the effects of performance on viewers' beliefs about transgender persons. Multivariate regression analysis demonstrates that narrative performance can weaken the effects of narrative transportation, and performance can be a stronger predictor of viewers' story-related beliefs. The study discriminates, using construct validity tests, narrative performance from narrative transportation, demonstrating construct validity. This study uses a mental models approach as a theoretical basis, and along with operationalizing narrative performance, develops valid and reliable scales for measuring viewers' beliefs about transgender persons and their propensity to take action in socializing with transgender persons.

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TABLE OF CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGEMENT	iii
LIST OF TABLES	vi
LIST OF FIGURES	viii
1: INTRODUCTION	1
2: LITERATURE REVIEW	6
2.1 Narrative Processing.....	6
2.2 Narrative Performance	10
2.3 Mental Models	16
2.4. Mental Models: Definitions and Conceptualization	16
2.5. Mental Models: Extraction and Application.....	22
2.6. Mental Models and Narrative Performance.....	30
2.7. Narratives and Health Communication.....	31
2.8. Transgender: Health Concerns and Public Perception.....	33
2.9. Hypotheses and Research Questions	35
3. METHODOLOGY	38
3.1. Participants.....	38
3.2. Stimulus	39
3.3. Procedures.....	40
3.4. Measures	42
4. RESULTS	48

4.1. Descriptive Statistics.....	48
4.2. Factor Analysis	49
4.3. Bivariate Relations.....	57
4.4. Hypotheses Testing.....	63
5. DISCUSSION	67
5.1 Limitations	76
5.2. Future Research	76
REFERENCES	78
APPENDIX A.....	91
APPENDIX B	102
APPENDIX C	103
APPENDIX D.....	108
APPENDIX E	109
APPENDIX F.....	110
APPENDIX G.....	111

LIST OF TABLES

TABLE 1: DESCRIPTIVE STATISTICS OF THE KEY VARIABLES49

TABLE 2: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF THE PERFORMANCE SCALE.....50

TABLE 3: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF BELIEFS SCALES52

TABLE 4: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF TRANSPORTATION SCALE53

TABLE 5: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF MAURA54

TABLE 6: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF JOSH IDENTIFICATION SCALES55

TABLE 7: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF SARAH IDENTIFICATION SCALES55

TABLE 8: FACTOR LOADINGS FOR EXPLORATORY FACTOR ANALYSIS WITH
VARIMAX ROTATION OF REALISM SCALES56

TABLE 9: DESCRIPTIVE STATISTICS OF PARTICIPANTS’ GENDERS AND THEIR
IDENTIFICATION WITH DIFFERENT STORY CHARACTERS56

TABLE 10: BIVARIATE CORRELATION RELATIONSHIPS BETWEEN CHARACTER
DRAWINGS AND AFFECT ON THE DRAWINGS58

TABLE 11: BIVARIATE CORRELATIONS BETWEEN DRAWINGS AND
IDENTIFICATION WITH CHARACTERS IN THE EXPERIMENTAL GROUPS59

TABLE 12: BIVARIATE CORRELATIONS BETWEEN KEY VARIABLES.....61

TABLE 13: SIGNIFICANCE OF DIFFERENCES IN BELIEFS IN THE TWO
EXPERIMENTAL GROUPS USING ANOVA62

TABLE 14: MULTIPLE REGRESSION ANALYSIS PREDICTING BELIEFS ABOUT
TRANSGENDER PERSONS FROM NARRATIVE PERFORMANCE, NARRATIVE
TRANSPORTATION AND IDENTIFICATION WITH STORY CHARACTERS64

LIST OF FIGURES

FIGURE 1: MEANS PLOT OF DIFFERENCE OF BELIEFS ABOUT TRANSGENDER PERSONS IN THREE CONDITIONS: DISTRACTION, TRANSPORTATION, AND CONTROL	63
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1. INTRODUCTION

Narratives are the symbolic representation of real or fictive events and situations in a time sequence (Prince, 1982; Scholes, 1981). They can be used to influence people's beliefs (Appel & Richter, 2007; Green & Brock, 2000; Hoeken & Sinkeldam, 2014; Slater & Rouner, 2002; Slater, Rouner, & Long, 2006).

Narratives are often considered the basis of all human communication. Fisher (1987) asserts that humans comprehend life around them in terms of ongoing narratives that, according to the narrator and the recipient, have identifiable characters, a beginning, middle and an end. While proposing a "Narrative Paradigm", Fisher presupposes that humans, as storytellers, have the natural capabilities to recognize coherence and fidelity of stories that they share with one another. For Bruner (1987), narratives are about people's acting in a setting, and that the happenings that befall them must be relevant to their "intentional states while so engaged-to their beliefs, desires, theories, values, and so on" (p. 5). For both Fisher (1987) and Bruner (1987), readers' background knowledge is central to how stories are understood and interpreted. Bruner (1987) raises the question of background knowledge of both the storytellers and the listener (reader) while interpreting a story. Readers, thus, help in the meaning making process in a narrative and bring with them a repertoire of their existing knowledge that helps them to decide the story's veracity (Fisher, 1987) and enables them to experience varied emotions while consuming these stories (Oatley, 1995).

In this dissertation, texts are defined as any presentation of information using words and images, while reading a text is any form of audience reception, including reading print, electronic and digital media forms. In text comprehension literature, cognitive psychologists

explain the role of readers' background knowledge by exploring the process of narrative inference. Narrative inference is a process in which readers bridge the gaps in a narrative by making knowledge-based extrapolations that are based on a story's description (Graesser, Singer, & Trabasso, 1994; McKoon & Ratcliff, 1992). In this process, readers make educated guesses about the unfolding of a narrative and draw inferences about characters or characters' goals and actions (McKoon & Ratcliff, 1992; Neihaus & Young, 2014). Readers combine their existing knowledge and the information provided by the author of the text to draw these inferences that enrich the reading experience (Neihaus & Young, 2014). Graesser et al. (1994) state that narratives have a close correspondence to everyday experiences as both narrative texts and everyday experiences involve "performing actions in pursuit of goals, the occurrence of obstacles to goals, and emotional reactions to events" (Graesser et al., 1994, p. 372).

Narratives, thus, are powerful communication tools that have the ability to engage the readers in such a manner that readers conflate the real world with the story-world. The ability of narratives to influence real-world beliefs has been recently researched in narrative processing literature that frequently pays attention to the extent to which readers are transported or swept up (Gerrig, 1993; Green & Brock, 2000), absorbed (Slater & Rouner, 2002) or engaged (Busselle & Bilandzic, 2009) in the story world. This dissertation will use the term "transported" to encompass the varied labels used in the literature thus far. Studies have found that the more the readers are transported into the story world, the more they will be influenced by story beliefs (Green & Brock, 2000) and their counter-argument with story messages will be reduced (Slater & Rouner, 2002). Slater (2002) states that transporting into a narrative and counterarguing are basically contradictory. Transportation refers to readers' involvement with a narrative under which readers are engrossed in the narrative and temporarily conflate the story world with the

real world. As Gerrig (1993) notes, this traveling into the story world, however, begins only after readers have constructed a narrative world, similar to a mental model, by merging their real world knowledge with the description provided by the author.

Mental models are mental representations of the text, and readers create these dynamic representations in their working memory (Johnson-Laird, 2006; Jones, Ross, Lynam, Perez, & Leitch, 2011). Gerrig (1993) terms this active construction of a narrative world reader's "performance" as readers bring in their existing knowledge, beliefs, prior experiences, emotional involvement and world-view while processing a narrative. The reader represents and acts out the story in the reader's mind. Gerrig (1993) asserts that readers' construction of the narrative world or readers' performance of a narrative, thus, precedes the transportation process.

Even as the effects of narratives on the recipients are acknowledged by scholars, little attention is paid to how readers influence the processing of information contained in narratives. Despite the fact that transportation and performance metaphors are intertwined, scholars who have studied narrative processing have focused almost exclusively on the transportation metaphor, to the exclusion of the performance metaphor (Escalas, 2007; Green & Brock, 2000; Green, 2004; Green, Brock, & Kaufman, 2004; Hinyard & Kreuter, 2006; Van Laer, Ruyter, Visconti & Wetzels, 2014).

Explication of a reader's performance of a narrative, thus, is a way of reinserting the reader in narrative processing research and acknowledging a reader's contribution in how stories are processed. Additionally, little research exists on different mental models readers create while processing a fictional narrative. Recent studies have tried to link narrative processing with a mental models approach (Busselle & Bilandzic, 2008, 2009). However, this approach neither studies the mental models constructed by readers nor does it capture participants' emotional

involvement with specific characters in a narrative. This approach primarily explores the transportation metaphor and identification with characters in narrative processing.

Even though research on media presentations, processes and effects of transgender-themed popular narrative on people's beliefs is very limited, the recent developments in the US have sparked public interest about transgender persons. The coming out of TV celebrity and former Olympic gold medalist Bruce Jenner as a Trans woman, Caitlyn Jenner, in 2015 and the controversial North Carolina law that forces transgender and other gender-nonconforming individuals to use gendered restrooms according to their "biological sex," have ignited a lot of debate in the US about rights of transgender persons.

Even though representation of Trans characters in TV shows and films has steadily increased since 1970s, scholars lament that this increase in visibility does not always translate into positive representation (Ghazali & Nor, 2012). Comical caricatures of transvestites and cross-dressers are still common in the traditional media (Phillips, 2006), while many a times transgender persons are portrayed as sex workers, mentally ill, and unlovable (Davis, 2009). Moreover, transgender persons themselves feel that mainstream media show few authentic representations of transgender people, resulting in limited or stereotypical portrayals (McInroy & Craig, 2015). Studies have also reported a negative public attitude towards transgender community in the US and elsewhere (Norton & Herek, 2013).

Despite growing evidence on negative portrayal of transgender people in the media, little research exists on the effect of a transgender-themed narrative on people's beliefs and attitudes about transgender persons and issues. Moreover, studies on narrative persuasion have mainly tested normative narratives that are not about controversial topics, or are not associated with personal values of the readers (Igartua & Barrios, 2012). Because of the contentious nature of

transgender issues, a transgender-themed narrative is potentially polarizing that might affect people's ability to get transported into (by not reducing counterarguing) and thereby might affect their performance of a narrative. Examining narrative processing using a transgender-themed narrative, thus, contributes to understanding of the cognitive processes involved when people watch a controversial or a narrative about a distal social group.

This mixed methods study aims to make three main contributions in the narrative processing literature. First, this study aims to go beyond the Gerrig's (1993) narrative transportation metaphor and aims to explore his second metaphor- how readers' actively create a narrative world, or perform a narrative, into which they can travel. Although performance has been identified as a viable construct in a qualitative study on narrative processing (Sharma, 2015), this study proposes to operationalize narrative performance as an independent variable that potentially may have an effect on people's story-related beliefs. The study looks at whether transportation and performance discriminate into separate constructs, and whether they have different effects. Second, this study proposes to examine readers' mental models as they interface with narrative processing. This examination should provide insights into what elements feature in people's mental models. Third, this study adds to the literature media content and public perception of transgender persons by examining readers' mental models constructed after watching a narrative with a transgender protagonist. This is a relatively unexplored area in health communication and in the study of media and social groups.

2. LITERATURE REVIEW

The following section examines the existing literature about narrative processing, narrative performance, and mental models. It also poses hypotheses and a research question, based on the existing theory and research findings.

2.1 Narrative Processing

Narrative processing entails stories' effects on beliefs and attitudes of the readers. Studies in public health messages (Green & Brock, 2000; Greene & Brinn, 2003; Moyer-Gusè, Chung & Jain, 2011; Slater & Rouner, 1996), public policy (Slater, Rouner & Long, 2006), consumer research (Escalas, 2007; Van Laer, De Ruyter, Visconti, & Wetzels, 2014) among others, have demonstrated the effect narratives have on people's story-related beliefs.

The two main traditional theoretical frameworks to study the persuasive ability of narratives come from entertainment-education research and persuasion research. The ability of narratives to influence people's behaviors and attitudes is established in entertainment-education literature (Singhal & Rogers, 1989; Slater, 2002). Entertainment-Education (E-E) is a communication strategy in which educational persuasive messages are intentionally inserted into the entertainment messages to create awareness and promote behavioral change (Rice & Atkin, 2013; Singhal, Cody, Rogers & Sabido, 2004). Since the inception of E-E, entertainment-education messages have used the theoretical base of Bandura's Social Cognitive Theory (SCT) to design messages. According to Bandura (2004), social cognitive theory is rooted in the social systems in which people learn by observing others human beings. Bandura states that people learn and try to model their behaviors by watching others including media representations. SCT focuses on the effects social modeling has on perceived self-efficacy of the individuals and, in

turn, gives them the confidence to adopt new behaviors. However, Slater & Rouner (2002) argue that SCT does not explain E-E messages' substantial effects on beliefs and attitudes that precede changes in self-efficacy and behavioral intention. While E-E approaches look at the behavioral effects of embedded messages, these do not explain the cognitive processes involved in narrative processing. Moreover, homophily that exists between an entertainment character or actor and audience member is the main type of character relationship in E-E whereas narrative processing entails a whole range of character identification processing, including liking, perceived similarity, parasocial interaction, and empathy (Moyer-Gusè, 2008). Finally, SCT generally focuses on a behavioral outcome of acting similarly to an entertainment-education message's characters, while narrative processing literature focuses on how people cognitively focus on, interpret, store, understand and act on information from narrative messages.

The second major influence on narrative processing research is classical rhetorical persuasion. The traditional models of persuasion, such as Petty and Cacioppo's (1986) Elaborate Likelihood Model (ELM), provide frameworks to conceptualize cognitive processing of persuasive messages. ELM focuses on the way in which individuals are persuaded—how their beliefs and attitudes might be crystalized or changed, or how they might change their propensity to behave or their behavior as a result of exposure and attention to messages. ELM proposes two major routes to persuasion: the central route and the peripheral route. Under the central route, that involves high level of message elaboration, persuasion will likely result from a person's careful and thoughtful consideration of the true merits of the information presented. Under the peripheral route, persuasion results from a person's association with positive or negative cues in the stimulus or making a simple inference about the merits of the advocated position. ELM, however, only explains overtly persuasive messages and fails to explain the persuasive

mechanisms when advocacy messages are embedded in the entertainment content (Moyer-Gusè, 2008; Slater & Rouner, 2002).

Slater and Rouner (2002), in their extended ELM, presented a theory about entertaining narratives' unique capabilities to persuade by reducing critical scrutiny of story's persuasive content. Extended-ELM proposes that identification with story characters and engagement with the story line predicts the effectiveness of the persuasive subtext as well as of the narrative. Slater and Rouner (2002) argue that unlike ELM, entertainment messages are processed through the narrative route, and that the narrative absorption and identification with characters mediate messages' persuasive impact. When message recipients process entertainment messages they are believed to be engaged, and possibly transported. However, when they process rhetorical persuasive messages they are more likely to counterargue the points made in the persuasive claims of the messages.

In one and one-half decades of research, scholars studying narrative processing have focused on two key concepts to understand how stories persuade readers. These include transportation into the story plot and identification with the story characters.

Transportation: Using Gerrig's (1993) metaphor of transporting or traveling into a story world, Green and Brock (2000) developed the transportation imagery model of persuasion of narratives by conceptualizing transportation as a distinct mental process: "an integrated melding of attention, imagery, and feelings" (p. 701). They posited that enhanced transportation into a story leads to more engagement, hence a persuasion effect. Greater transportation is systematically associated with positive evaluation of the narrative's protagonist. Slater and Rouner (2002) argue that readers who are transported into a story world counter-argue less and, therefore, are more likely to be persuaded by the story messages. Several studies since then have

explored the role played by transportation in changing readers' beliefs and knowledge levels. Murphy et al, (2011), for instance, found that transportation was most strongly associated with changes in knowledge, attitudes, and behavior after viewing a cancer storyline in the popular primetime program *Desperate Housewives*. Similarly, McQueen, Kreuter, Kalesan, and Alcaraz (2011) found that an individual's level of transportation was associated with both decreased counter-arguing and increased interpersonal discussion about the narrative. Van Laer, De Ruyter, Visconti, and Wetzels (2014) have proposed "extended transportation-imagery model" that is based on meta-analysis of the existing quantitative data in 76 narrative transportation studies. The proposed new model considers affective and cognitive responses, beliefs, attitudes, and intentions as consequences of narrative transportation.

Identification with the characters: Identification, the basic form of involvement with a character, is a feeling of perceived similarity of that character to oneself based on personal qualities and life situations, or the attractiveness and social desirability of the protagonist in the story (Slater & Rouner, 1996). Burke (1950) states that identification is the key to persuasion. Therefore, for persuasion to occur, one party must identify with another. According to Burke, identification can occur with people/things in relation to the self, and one can perceive identification with objects that are not the self. Slater and Rouner (2002), however, have noted that personal similarity to characters in a narrative may be less important than how emotionally involved readers become with the characters as a consequence of narrative absorption or transportation. For Cohen (2001), the basic dimensions of identification include emotional empathy for the character, cognitive empathy (adopting character's point of view) and internalizing a character's goals (imagining the story as if the reader is one of the characters). Slater and Rouner (2002) posit that identification is dependent on absorption in the story, and

that absorption in the story can happen even if the reader does not feel any perceived similarity with the characters. However, absorption does occur when the reader experiences the character's emotions. Zillmann (1994) focuses on emotional involvement with the characters to explain involvement in drama, asserting caring for character must occur to be involved in the story. Moyer-Gusé's (2008) Entertainment Overcoming Resistance Model proposes that narratives facilitate character involvement in the story, which should lead to story-consistent attitudes and behaviors by overcoming various forms of resistance. The model proposes that entertaining narratives reduce cognitive resistance against the message, thereby, making the message persuasive.

Emotional involvement with characters, thus, is much more than merely identifying with a character. Readers can be emotionally involved with the characters without perceiving similarity with characters (Slater & Rouner, 2002). Moyer-Gusé (2008) uses the term character involvement to refer to the overarching category of concepts that include identification, wishful identification, similarity, parasocial interaction, and character liking. Wishful identification occurs when readers want to be like, and look up to, a character (Moyer-Gusé, 2008). Parasocial interaction refers to the pseudo relationship between audience members and media figures (Giles, 2002). Liking refers to positive evaluations of a character (Cohen, 2001). Identification, in this study, means perceived physical similarity, emotional involvement with the character, and positive evaluation of the character.

2.2. Narrative Performance

Readers performance of a narrative is a way of injecting the reader in narrative processing research by acknowledging the emotional and inferential responses generated by the readers while processing stories. The performance metaphor "forcefully reinstates readers into

the process of deriving meaning from the text” (Gerrig, 1993, p. 20) as readers’ own experiences and knowledge are central to how a story is interpreted (Maill, 1990). Gerrig considers performance a process in which individual readers experience narratives in consonance with their own identity. Gerrig draws a distinction between a narrative and a narrative world as he says that “experience of narrative world is optional; a text cannot force a reader to experience a narrative world” (P. 5). Thus, a narrative in itself is not enough to be transported into; it is the narrative world, actively created by the reader based on his or her real life knowledge and story descriptions, which enables a journey into the story world. A same narrative, therefore, can result in different narrative worlds created by different readers based on their distinctive personal experiences.

From the socio-psychological standpoint, Goffman (1973) terms performance in day-to-day interactions by people where they put up an act in front of others to present themselves in such a way so that they and the public are not embarrassed. Goffman, in *The presentation of self in everyday lives* considers this daily performance akin to a theatre performance where social interactions are enacted on a stage. From this perspective, performance is similar to acting as people have a front for public and a hidden/private place for their real selves. From the viewpoint of gender, Butler (1990) considers gender roles as performance in accordance with social and cultural norms. Butler coins the term “Gender performativity” as she argues that gender is an effect of reiterated acting where true gender represents an erroneous but collective term that represents the tacit collect agreement to perform and produce gender as discrete and polar genders.

Based on notions of people’s social interactions and the roles they take on with regard to specific socially constructed categories, such as gender, performance is thought to be a behavior

of how people act or stage themselves in social situations. Gerrig's (1993) notion of performing a text involves the occurrence of thinking about social interactions within one's working memory. According to Gerrig, readers perform a narrative by primarily making two kinds of responses: narrative inferences and participatory (non-inferential) responses. The idea of performance can be clearer if we take a hypothetical example of a reader who is reading a fictional text. For example, let's assume Susie is reading a text about dating. As she reads this text, Susie starts linking this story with the real world and starts thinking about a friend who is currently dating an attractive male. In other words, Susie is juxtaposing the real world with the fictional world as she consumes the text. As she reads further, she emotionally responds to various situations described in the text. When the two characters decide to go for another date, Susie feels happy. However, when the male character's ex-girlfriend tries to get back into his life, Susie feels unhappy and irritated. In other words, she is performing the story by emotionally responding to various situations. While reading, she also evaluates the characters and begins to apply the story situations on her life. She begins to think how she went out on a date with a guy recently and how her experience was similar to the one described in the text. She is now making self-referential responses to the text. As Susie reads the text, she hopes that two characters get together and fall in love. She is hoping for a positive outcome (Outcome performance). After finishing reading the text, Susie revisits the story in her mind and begins to think about alternate ending to the story, or a more desirable story ending, thereby demonstrating replotting performance. Keeping this example in mind, various dimensions of performance are explained below:

Narrative inference: Narrative inference is a process in which readers bridge the gaps in a narrative by making knowledge-based inferences that are based on a story's description

(Graesser et al. 1994; McKoon & Ratcliff, 1992) and add information not presented in the story to their mental representations of the narrative (Bezdek, Foy, & Gerrig, 2013; Neihaus & Young, 2014). In this process, readers make educated guesses about the unfolding of a narrative and draw inferences about characters' goals and actions (McKoon & Ratcliff, 1992; Neihaus and Young, 2014). Inferences can be on-line and off-line; online inferences are generated during the course of comprehension, whereas off-line inferences are generated during a later retrieval task (Graesser, Singer, & Trabasso, 1994). Readers draw inferences as soon as they begin reading and some of these inferences are automated and do not require a lot effort on the part of the reader (McKoon & Ratcliff, 1992). Narratives that require some degree of inferences are more interesting than those that do not require such an effort by the readers (Neihaus & Young, 2014). However, if a narrative misses out on a lot of details readers will lose interest in making inferences, judging the narrative as hard to process.

Participatory Responses: Participatory responses, on the other hand, are expressions of people's emotional reactions to information that is inferred or given by a narrative (Bezdek et al., 2013; Gerrig, 2010). Allbritton & Gerrig (1991) assert that in the course of understanding a narrative, readers generate *participatory responses* that arise as a consequence of involvement in the text, and these responses are represented in readers' mental representations. While narrative inferences help in comprehension of the narrative and aid readers in understanding the narrative by using their own skills and judgments based on descriptions in the story, participatory responses do not directly assist narrative comprehension. These can be in the form of affective, conceptual and evaluatory responses to a story (Bezdek, Foy, & Gerrig, 2013; Polichak & Gerrig, 2002). Gerrig (1993) asserts that non-inferential responses do not serve to fill the gaps in a story but these often function to enrich the emotional and aesthetic aspects of the narrative

world. Assuming the role of side-participants in the narrative world, readers encode their preferences and disapproval for the story characters or situations as they would do to evaluate real-world people and events (Polichak & Gerrig, 2002) and take an active part in the unfolding of a narrative. Inferential and non-inferential responses may or may not be generated exclusively as some readers may make both these responses simultaneously (Gerrig, 1993; Polichak & Gerrig, 2002). In three different experiments, Allbritton & Gerrig (1991) demonstrated the effects of participatory responses specifically by creating situations in which readers' preferences for the outcomes of the stories were manipulated with respect to the actual outcomes that were presented. Prentice, Gerrig, & Bailis (1997) demonstrated how participatory responses to a fictional text affect readers' real world beliefs.

Polichak and Gerrig (2002) provided a preliminary taxonomy of participatory-responses by analyzing related literature and included affective responses, replotting, problem-solving and evaluatory responses as the basic participatory-responses that readers could generate. According to the authors, while affective, replotting and problem solving responses are limited to the experience of the narrative, evaluatory responses go beyond the narrative itself and reflect readers' evaluation of the narrative's general messages (p. 79). Fundamental participatory responses that a reader makes are the affective responses wherein a reader has a liking or a disliking for certain characters or story situations. The more involved readers of a narrative will begin to participate in a narrative in the form of problem-solving where they will have a goal in mind and will focus their attention on the ways that these goals are met. Readers, in other words, demonstrate their preference for certain outcomes. In replotting (especially significant in suspense narratives), readers will take a retrospective look at the story and begin reiterating how things took place. Replotting and problem-solving responses however are dependent on readers'

abilities to mentally simulate an alternate story outcome. Highly involved readers will participate in a narrative by making evaluatory responses in which story outcomes and judgments will begin to influence readers' beliefs about the world and how they ought to behave in the real world (Polichak & Gerrig, 2002).

In a recent study, Bezdek and colleagues (2013) provided direct evidence of participatory-responses generated by film viewers by recording verbal responses of the viewers as they watched short films. The study collected data using a think-aloud method by conducting two experiments on undergraduate college students and expanded on the taxonomy originally listed by Polichak and Gerrig (2002). Significantly, they added self-projection (self-implication), positive and negative evaluation of characters and story situation and outcome preference to the potential list of participatory responses generated during experiencing a narrative. Implication of the self or self-referencing is a way in which an individual processes information by relating it to one's self or one's personal experiences (Burnkrant & Unnava, 1995). Implication of self while processing narrative, thus, is yet another way in which readers can perform a narrative.

Research of narrative processing using depth interviews identified most of Gerrig's (1993) dimensions of performance (Sharma, 2015). Based on Gerrig's explication of the performance metaphor and Sharma's (2015) findings on performance, the following theoretical assumptions are made about narrative performance:

1. Narrative performance is distinct from narrative transportation as readers actively construct a narrative world into which they travel.
2. All readers have the cognitive abilities to perform a narrative; readers use their existing knowledge and experiences to interpret a story in their unique way.
3. Performance comprises inferential and non-inferential or participatory responses

(including affective, outcome preference, evaluatory responses, self-referential and replotting).

2.3 Mental Models

As noted above, Gerrig (1993) argues that transporting into a narrative world occurs only after readers have mentally constructed a narrative world, a mental model in their heads, by merging their real world knowledge with the description provided by the text's author.

In the psychological literature, mental models are conceived of as cognitive structures that are people's personal, internal representations of the external reality (Jones, Ross, Lynam, Perez, & Leitch, 2011). Mental models are thought representations that form the basis of people's reasoning and explanations. Individuals construct these models based on their personal experiences and understandings of the world (Johnson-Laird, 1989, 2006; Jones et al., 2011). Garnham (1987) states that a mental model is intended to characterize the content of people's mental representations of situations from the real world. Mental models can, thus, be considered people's internal representations of the external world. Mental models are incomplete (Norman, 1983) yet highly dynamic structures that are context-based and may change according to the situation in which they are used (Bower & Morrow, 1990).

2.4 Mental Models: Definitions and Conceptualization

Mental model research is a confluence of two major disciplines: artificial intelligence or manual control research and cognitive psychology (Gentner & Stevens, 2014; Rouse & Morris, 1986). In manual control research, the mental model construct appears primarily as an explanatory principle in which people are assumed to develop a representation of the machinery they are controlling. Most of the studies focus on how people construct a mental model of the machine on which they are working (Doyle & Ford, 1998; Rouse & Morris, 1986; Rasmussen &

Williams, 2006). In cognitive science, the research tends to focus on how people understand the external world by constructing internal representations and symbols (Bower & Morrow, 1990; Garnham, 1987; Johnson-Laird, 1983, 1986, 2006; Jones et al., 2011; Oakhill & Garnham, 1996; Rickheit & Sichelshmidt, 1999).

Mental models in manual control research: From the perspective of manual control research, mental models are construed as a representation of people's knowledge about the machine to be controlled. Veldhuyzen and Stassen (1977), for example, consider that a human's mental model includes knowledge about the system to be controlled, knowledge about the properties of disturbances likely to act on the system, and knowledge about the criteria, etc. Rouse & Morris (1986) propose that mental models are the mechanisms whereby humans are able to generate descriptions of system's purpose and form, explanations of system functioning and observed system states, and predictions of future system states.

Similarly, Carroll and Olson (1988) defined mental models as “a rich and elaborate structure, reflecting the user's understanding of what the system contains, how it works, and why it works that way. It can be conceived as knowledge about the system sufficient to permit the user to mentally try out actions before choosing one to execute” (p. 51).

In system dynamics research, mental models are considered as representations of different elements within a bigger system. Doyle and Ford (1998) define mental models as relatively enduring and accessible, but limited, internal representations of an external system whose structure maintains the perceived structure of that system. Forrester (1971, p. 213) described mental models as “the mental image of the world around us that we carry in our heads”. Forrester clarifies that humans do not form complete images of cities, governments or countries in their heads; instead people use selected concepts to represent the real system.

From the functional point of view, mental models are described as symbolic structures that permit people to a) generate descriptions of the purpose of a system; b) generate descriptions of the architecture of a system; c) provide explanations of the state of a system; d) provide explanations of the functioning of a system, and e) make predictions of future states of a system (Rickheit & Habel, 1999, p. 9). From this perspective, the common themes of mental models are describing, explaining, and predicting, regardless of whether the human is performing internal experiments, scanning displays, or executing control actions (Rouse & Morris, 1986).

Mental models in cognitive science research: In contrast to manual and supervisory control where mental models serve as assumptions which allow calculations of expected control performance, research in cognitive science tends to focus directly on mental models, particularly in terms of the ways in which humans understand systems (Rouse & Morris, 1986, p. 4). Mental models, thus, have more generalizable definitions in the cognitive science that focus more on symbols and abstract images used in the constructions of these mental images.

In cognitive science, Craik (1943) is considered among the first scholars to argue that human beings use a working model to process information. In his book, *The nature of explanation*, Craik (1943) proposed that human reasoning entails three essential processes:

1. Translation of external processes into words, numbers or other symbols
2. Arrival at other symbols by a process of reasoning, deduction, inference, etc.
3. Retranslation of these symbols into external processes or at least recognition of these symbols and external events.

By model Craik (1943) meant “any physical or chemical system which has a similar relationship-structure to that of the process it imitates” (p. 51). Craik, thus, equated a human mind to that of a machine and argued that people imitate real life processes by building small-

scale models in their minds. Decades later, Johnson-Laird (1983) developed the construct of mental models into a mental model theory to explain human beings' deductive reasoning and fallacies occurring during reasoning. Johnson-Laird (1983, 1993) has described mental model as a representation of a body of knowledge in which:

- a) Each entity is represented by a corresponding token
- b) The properties of entities are represented by the properties of tokens.
- c) Relations among entities are represented by relations among their tokens.

Mental models theory, as proposed by Johnson-Laird, posits that people are deductive “satisficers”, that is, if they come up with one conclusion that fits their available beliefs, they will tend not to search for others (1993, p. 19-20). In his mental models theory of reasoning, Johnson-Laird argues that humans do not use formal logic to make deduction in their everyday lives; it is instead a matter of understanding meanings and manipulating their mental representations. According to mental model theory, people’s beliefs can influence deductive processing because “reasoners should search for alternative models of the premises if an initial putative conclusion offends their beliefs” (1993, p. 23). Thus, people’s beliefs play a part in construction of these models.

Johnson-Laird (1993) concludes that in mental models’ construction, everything is instantiated by a token or set of tokens during the process of interpretation. He asserts that mental models are structures that integrate the information in premises: a referent is only represented once, and the relationship between it and others are directly mirrored by relations in the model. Rickheit & Sichelschmidt (1999) describe mental models as dynamic symbolic representations of external objects or events on the part of some natural or artificial cognitive

system. Jones et al. (2011) consider mental models cognitive structures that are personal, internal representations of external reality that people use to interact with the world around them. They are constructed by individuals based on their unique life experiences, perceptions, and understandings of the world, and provide the mechanisms through which new information is filtered and stored.

Garnham (1987) and Garnham and Oakhill (1996) describe mental models as representations of situations in the real world or an imaginary world. According to the authors, mental models are closely related to representations used in reasoning, and representations derived from perception.

According to Sanford and Moxey (1999), a mental model is a representation which is assumed to correspond to some aspect of the world or the narrative world. A mental model is a representation that captures the essence or essentials of that aspect of the world. In other words, it is made of selected material which bears a systematic relation to an aspect of the world (p. 57). Sanford and Moxey argue that mental models are constructed when readers use the background knowledge with the current discourse. As per the authors, readers' mental models are "mapping between text and knowledge."

Mental models and schemata: Schemata are defined as higher-order cognitive structures that have been hypothesized to underlie many aspects of human knowledge and skill. They serve a crucial role in providing an account of how old knowledge interacts with new knowledge in perception, language, thought, and memory (Brewer & Nakamura, 1984). Bartlett (1932), who first used the term *schema*, defined schema as "an active organization of past reactions, or of past experiences, which must always be supposed to be operating in any well-adapted organic response"(p. 201) (as cited in Brewer & Nakamura, 1984). Minsky (1975) and Rumbelhart

(1980) further developed schema theory and defined schemata as data structures that are used for representing generic concepts that are stored in the memory. Luke (1987) defines schemata as conceptual structures stored in memory that represent our knowledge or our interpretation of what we have experienced and learned.

Schemata, therefore, are stored in the long-term memory and are shaped by past events. Mental models, on the other hand, are context-based inflexible structures that are generally stored in the working memory (Jones et al., 2011). Schemata, however, may be used as building blocks for the construction of situation or mental models (Zwaan & Radvansky, 1998).

Mental models and situation models: Lack of clarity exists in the literature about differences in situation and mental models. In narrative comprehension literature, for example, little distinction is made between mental models and situations models as many times these terms are used interchangeably (c.f. Bower & Morrow, 1990). However, often, situation models are considered a second level of mental models. While mental models can be symbolic, abstract and may contain a very small amount of information, situation models are generally the representations of a certain physical scenario. While distinguishing situation models from mental models, Roskos-Ewoldsen, Davies, and Roskos-Ewoldsen, (2004) describe mental models being more abstract representations of a series of related events, and that these models have temporal and spatial constraints. Despite some superficial differences, the underlining principle of situation and mental models are the same, as both these models are malleable, dynamic, and draw on real world knowledge (Roskos-Ewoldsen et al., 2004). This study uses the term mental models to refer to these mental representations in one's short-term, or working, memory.

2.5 Mental Models: Extraction and Application

Narrative comprehension: In narrative comprehension literature, scholars define mental models as mental representations of situations and actions described in the narrative (Bower & Morrow, 1990). Mental models as mental representations of the story characters and settings, integrate information from the text with broader real world knowledge of the readers (Bower and Morrow, 1990, Johnson-Laird, 2006; Zwaan & Radvansky, 1998). Research in text and narrative comprehension has progressed from verbatim study of the text alone (as in surface meaning of the text) to mental models of the text in which readers go beyond the surface meaning of the words to construct representations (Zwaan, Langston, & Graesser, 1995).

Mental models represent characters' actions, goals and physical surroundings. Zwaan et al., (1995), who use the term situation models to describe these representations, assert that readers create a "microworld" of what is conveyed in the story, in their heads (p. 292). Scholars engaged in narrative comprehension research have asserted that the mental models represent what the text is about (the events, objects, and processes described in the text) rather than features of the text itself (Bower & Morrow, 1990; Glenberg, Meyer, & Lindem, 1987). Glenberg, Meyer and Lindem (1987) assert that construction of mental models require "continual interaction between the text and the readers' linguistic, pragmatic and world knowledge" (p. 69). Mental models are updatable as the information is modified by the addition of new information, and that new information may require accommodation that produces a completely different interpretation of the events (Glenberg et al., 1987; Jones et al., 2011).

Researchers state that while comprehending narratives, readers construct multiple models: a text model that represents the linguistic text itself, a propositional text base that represents the meaning conveyed by the text, and a mental or a situation model that represents

the situations described by the text (Morrow, Bower, & Greenspan, 1989). Some of the earlier experimental research on narrative comprehension and the construction of mental models (Bower & Morrow, 1990; Morrow, Greenspan & Bower, 1987) used spatial maps to extract participants' mental models by asking them to memorize building layouts and the movements of characters within these buildings. The memory-based tasks usually required participants to remember the events or movements in the narratives. Bower and Morrow (1990), for example, demonstrated how readers construct mental models by keeping protagonists' goals, actions and thoughts in mind. In three experiments conducted on 40 undergraduate students at Stanford University, in which participants first memorized the location maps of three buildings (A, B, C) and read short 19-sentence stories about different characters' movements between these locations (termed as goal room, where the character wants to reach; and source room, from where the character starts). Participants were told clearly whether a character was "main" or "minor". After participants read the stories, researchers examined participants' times to answer simple questions about the locations of objects by asking participants to respond to simple questions by pressing the space bars on their respective computers.

Bower and Morrow (1990) demonstrated that readers divide their attention between the major and minor characters and focus more on the major character. The study also demonstrated that readers focused on whatever topic was foremost in the main character's mind. Readers focus more on a mental location than the character's physical location if the former is more relevant to the character's current plan. Despite highlighting several significant points, the study failed to show how the readers constructed mental models if there is more than one significant (main) character in the story. Because the study labeled the characters "main" and "minor", the participants were primed to think about the characters in a certain way.

In a similar study, Wilson, Rinck, McNamara, Bower and Morrow (1993) conducted four different experiments to understand how readers construct detailed situation models after memorizing a location map and reading a character's narrative that moves through the location. The study demonstrated that readers do not always construct detailed situation models, unless they are specifically instructed to do so. The study demonstrated that when subjects were forced by the task demands (i.e., protagonist probes) to follow carefully the protagonist through the learned layout, subjects did construct and access highly detailed situation models. Participants' performances seemed to reflect a very detailed understanding of the protagonist's actions, the location of the protagonist within the layout, and the importance of information from the layout to the protagonist. Across experiments, subjects with the same general task (i.e., reading and probe answering) and the same goal (i.e., to answer the probes correctly) built very different mental representations.

Zwaan et al. (1995) proposed an event-indexing model in which events and intentional actions of characters become the focal points of situation models. The authors proposed that readers create multi-dimensional situation models when reading a text. According to the event-indexing model, as each incoming story event or action is comprehended, the reader monitors and up-dates the current situation model on a number of indices that include temporality, spatiality, protagonist, causality, and intentionality. In two experiments, Zwaan and colleagues employed a verb (word) –clustering task to assess the strengths of the memory traces of readers' textual and situational representations. In Experiment 1, 17 undergraduate students were asked to read four short stories, with each story around 100 words long. Participants first performed the clustering task shortly after having read the story, but without having the story available as a memory aid (this is called memory condition). In this condition, participants were

asked to group 10 verbs from the story together. Participants later performed the verb-clustering task a second time while having the text available (This is called the text-present condition). In Experiment 2, the order of the conditions was reversed, so the text-present condition preceded the memory condition.

In their study on the use of pictures in construction of mental models, Glenberg and Langston (1992) concluded that pictures help to build mental models of what the text is about. According to the authors, mental models derived from the texts have the following main characteristics: 1) Mental models include what the text is all about (and not just the text itself). 2) These representations make use of the working memory. 3) The mental model consists of representational elements arrayed in a spatial medium of the visuo-spatial scratchpad. 4) The mental model reflects the reader's current understanding of the text, and the model is updated as the text progresses. The authors proposed that readers focus their attention on the updated element in the mental models. After conducting two experiments (one text only procedure description and the other with-picture procedure description), Glenberg and Langston demonstrated that readers created a more detailed mental model when the text was accompanied by pictures.

Risk Communication: Risk communication scholars have used a mental models approach to determine the communication content of disseminating risk information. Studies typically extract an "expert model" or an "influence diagram" by conducting literature review and expert interviews. This model or diagram is then compared with the lay persons' mental models that are extracted using surveys. The two models are compared to understand the knowledge gaps between these two groups. Morgan, Fischhoff, Bostrom, & Atman (2002) state that the aim of using mental models approach in risk communication is to assess what people

know and what they need to know. Many risk communication studies use the following procedure laid out by Morgan et al. (2002) to extract respondents' mental models:

Step I: Creation of an expert model: An expert mental model (also termed as an influence diagram) is created by reviewing current scientific literature to determine the nature and magnitude of risk. An expert model allows interpretation and representation of knowledge of experts from diverse fields. Expert models may not be perfect; these are just named because these are created by experts.

Step II: Conduct mental model interviews: The next step is to conduct open-ended interviews that elicit people's beliefs about hazard, expressed in their own terms. Interview protocol is shaped by influence diagram so that it covers potentially relevant topics. Responses are analyzed to see how well people's mental models correspond to the expert models captured in the influence diagrams.

Step III: Conduct structured initial interviews: The next step is to create a confirmatory questionnaire whose items capture the beliefs expressed in the open-ended interviews and the expert models. Questionnaires are administered to a larger group to estimate the population prevalence of these beliefs.

Step IV: Draft risk communication: Here, the results from interview and questionnaires are analyzed to determine the incorrect beliefs that need most correction. At this stage, knowledge gaps are also identified that require need more filling. Draft communication is prepared that is then subjected to expert review.

Step V: Evaluate communication: Test and refine communication with individuals selected from the target group.

A number of studies in risk communication have used the steps listed above to elicit mental models of the experts and the lay public. Cox et al (2003), for instance, developed “user models” of chemical hazards at workplace after conducting a series of interviews with experts; several stages were used to come up with the user models about the chemical use. An influence diagram for each chemical sector was developed in four stages: by (1) undertaking a review of literature on the chemical risks; (2) content analyzing existing chemical safety information; (3) conducting semi-structured interviews with occupational hygienists, chemical experts, and toxicologists working in the UK Health and Safety Executive; and (4) validation of the consolidated influence diagram by a subset of the experts. The authors developed their “initial” influence diagrams during stages (1) and (2), based on their understanding of published expert views on the chemical risks. Then, interviews were held with experts at Stage (3). The interview protocol was structured to elicit expert views in an informal manner. In practical terms, this involved a member of the research team demonstrating the concept of drawing an influence diagram on an unrelated topic, after which the expert would draw his or her own diagram relating to the chemical being considered. The detail of the experts’ diagrams varied according to their specialist knowledge and experience.

Lowe & Lorenzoni (2007) conducted 22 “expert” interviews to extract a ‘meta’-influence diagram, denoting three conceptualizations of danger in relation to climate change: (i) human influence upon the climate system; (ii) impacts upon natural and human communities; and (iii) threat to the status quo, especially in the form of mitigation measures and related costs. These conceptualizations raise questions about how experts bring to bear their knowledge, values and understanding of climatic and social systems in articulating such discourses. One-hour interview sessions for each expert were conducted. Experts drew “influence “diagrams.

Atman, Bostrom, Fischhoff and Morgan (1994) compared the expert model (desirable model of information) with that of lay persons (lay models extracted using open-ended interviews) and recommended how to present the information that matches the laypersons' models and bridge the information gaps. The recommendations included choosing appropriate headings, and presenting the text in shorter paragraphs rather than elaborated text.

Siegrist (2010) used mental models approach to reveal lay people's beliefs about mobile communication and to learn more about lay people's information requirements, potential knowledge gaps, and misconceptions. Through the means of open interviews with 16 Swiss experts, 16 lay people, and 15 base station opponents, different mental models were constructed and evaluated. Knowledge gaps in regard to changing exposure magnitudes due to the interaction patterns of cell phones and base stations as well as misconceptions about regulation issues and scientific processes were found in both lay groups. Bostrom et al. (1994) conducted a series of "mental models interviews" to know how laypersons conceptualize global climate change. Similarly, Zaksek and Arvai (2004) developed a "Comprehensive technical model" by review of literature and by consulting experts all across the US. This model comprised the key concepts. Then, 43-item interview protocol was created based on this model for both experts and non-experts (each interview 1 hour approximately). Open-ended interviews were conducted (nine interview content areas were covered). Interview data were used to construct mental models to visual inspection to understand knowledge gaps between the two groups and between the respondents and the comprehensive model.

Early childhood education: A mental models approach is found useful in understanding how children learn concepts and relationships. A popular method of extracting children's mental models is picture drawing technique where pre-school students' drawings are categorized and

analyzed to understand children's mental models. In their descriptive study, Kurnaz, Kildan and Berat (2013) extracted children's mental models using a picture drawing technique to understand how 48-72 month old children explained the sun, moon and earth in their drawings. Children were requested to draw the Sun, Earth and Moon as being appropriate to their sizes and if these objects are moving, to show with the arrow how and in what way they move. The drawings were categorized based on different characteristics including the sizes, shapes of the Sun, Earth and Moon and whether they were moving or not. Similarly, Asikuzun and Kildan (2014) used a picture drawing technique to understand how 320 pre-school children in Turkey depicted family relationships in their drawings. Vosniadou and Brewer (1992) determined the earth perception of the primary school first, third, and fifth grade students by asking a series of questions regarding the Earth to them. The study revealed that the students adopted the concept of the Earth with five different mental models. These are rectangular Earth, round Earth, dual Earth, hollowed globe Earth and smooth Earth.

Consumer research and natural resource management: A mental models approach is found to be useful in studying people's perception of various products, advertisements, and even the surrounding environment. Devinney, Dowling and Collins (2005) surveyed 109 client managers and 48 ad agency professionals to extract their mental models using a self-reported questionnaire. The authors contacted the respondents via mail and created the mental models using the information from the questionnaire. Devinney et al. (2005) asked client and advertising agency managers to evaluate four-color print advertisements for new e-business companies. Studies also employ the Zaltman Metaphor Elicitation technique (ZMET) of cognitive mapping (Zaltman, 1997) in which participants are asked to select pictures that represent their thoughts and explain their thoughts via pictures during depth interviews. Using this ZMET technique,

Christensen and Olson (2002) asked 15 mountain bikers to select 8-10 photographs that represented mountain biking. A week after the selection of the photographs, participants were asked to bring the photographs during the depth interviews. Pictures were used as metaphors that represented participants' thoughts and feeling about mountain biking. Jones et al. (2014) demonstrated the use of various mental models extraction techniques, including picture-drawing and oral-diagrammatic technique (picture drawings followed by depth interviews) to make sense of how people understand the outdoor natural environment.

Going back to our example of Susie, we can understand how mental model drawing can exhibit performance. After Susie completes the text, she is asked to draw what comes to her mind. In her drawing she might make reference to her working memory to extract the drawing as she portrays her mental model. She might draw the two characters from the text. She also might add affect and inferences in her mental model, by making these characters having smiles on their faces, thus exhibiting performance. While drawing, Susie might think about her own date night and draw the same settings and the place from the real life. In this way, Susie is reflecting her performance of the text in her mental model drawing.

2.6 Mental Models and Narrative Performance

Despite a vast body of literature about mental models and narrative processing, little research exists in the communication literature that melds these two areas of research. In recent studies, Busselle and Bilandzic (2008, 2009) have attempted to explain narrative processing using mental models theoretical approach. However, their approach primarily explores the transportation metaphor and identification with characters in narrative processing and neither explicates nor ties in mental models with narrative processing.

This study, however, aims to explain the two principal metaphors about narrative processing forwarded by Gerrig (1993): transportation, which has been studied rather extensively, and performance, for which research is at a nascent stage with few or no studies in the narrative processing field.

Moving beyond the identification of the construct of narrative performance using the drawing of mental images after reading a text (Sharma, 2015), this study operationalizes narrative performance into multiple dimensions as distinct variables that potentially have an effect on people's story-related beliefs. Also, this study examines readers' mental models as they interface with narrative processing. An examination of people's mental models about transgender persons will also help in understanding the stereotypical images that people construct in their minds.

2.7 Narratives and Health Communication

Narratives, as natural engaging means of communication, are becoming an increasingly common health communication tool as vivid writing can help audiences identify with storytellers and understand health messages (Thompson & Kreuter, 2014). The effects of narratives on people's beliefs and propensity to take action about several health issues including cancer (Kreuter et al., 2007), obesity (Niederdeppe, Shapiro, Kim, Bartolo, & Porticella, 2014), the use of tanning beds (Greene & Brinn, 2003), sexual health (Moyer-Gusé et al., 2011), alcohol consumption (Slater & Rouner, 1996) are well-documented. Studies have shown that narratives enable readers to develop an emotional relationship with the story characters that, in turn, results in reduced counter-arguing with the story messages and more persuasion (Moyer-Gusé et al., 2011). Narrative is a particularly effective message format in health communication as it helps to elicit emotional responses such as self-referencing (Dunlop, Wakefield, & Kashima, 2008).

Quality narratives are rated high on realism and are, therefore, perceived more believable than non-narrative formats (Slater, 2002). Petraglia (2009) argues that public health narratives add authentication in the communication process as narrative format provides context, and thus, aids in persuasion. The narrative approach in public health information emphasizes reception and interpretation of health messages instead of production of such messages (Petraglia, 2007).

Larkey and Hecht (2010) assert that culturally grounded narratives are a natural choice for creating health messages for specific audiences. They propose a model of Culture-Centric Narratives in health promotion to guide the development and testing of the narrative characteristics and psychosocial mediators of behavior change in a broad range of health interventions. Entertainment education literature provides ample examples for the use of culturally rooted, narratives to communicate public health messages. A television drama, *Hum Log*, in India weaved in the messages of population control and gender equality in a family drama with relatable characters. Empirical evidence found that viewers changed their beliefs about family-size after watching the series (Singhal et al., 2004). Abdulla (2004) describes the success of E-E intervention in Egypt regarding oral rehydration by creating a television drama. Similar initiatives have been taken in The UK (*The Archers*) and The Netherlands (*Costa*) to insert public health messages in entertainment dramas (Singhal et al., 2004).

Even as narratives have the ability to transport people and enhance their story-related beliefs (Green & Brock, 2002), the effect of narratives also depends on people's values and existing knowledge. Slater and Rouner (1996), for instance, found that in processing alcohol-education messages, college students rated statistical evidence as more persuasive when the message was congruent with their values and narrative evidence as more persuasive when the message was incongruent with their values. Thus, the prevailing values of college students

influenced how narratives messages impacted them. Similar findings were reported by Greene and Brinn (2003) about college women using a tanning bed. They found that college women reported realism in narrative evidence but rated statistical evidence as having more informational value.

2.8 Transgender: Health Concerns and Public Perception

Transgender as an inclusive term to describe people who have gender identities, expressions, or behaviors not traditionally associated with their birth sex (Mayer et al., 2008). Stryker (1994) states “transgender is an umbrella term that refers to all identities or practices that cross over, cut across, move between, or otherwise queer socially constructed sex/gender boundaries” (p. 251). Transgender people may identify more strongly with another gender (e.g., natal females who identify as men, natal males who identify as women) or with a variance that falls outside dichotomous gender constructions prevalent in Western cultures (e.g., individuals who feel they possess both or neither gender) (Mayer et al. 2008). Transgender people are different from intersex persons as the later term refers to persons born with atypical genital or reproductive anatomy who usually identify as male or female (some may change their gender identity in the course of their development) (Mayer et al. 2008). According to *Healthy People 2010*, transgender is an umbrella term that includes transsexuals, cross-dressers, drag kings and queens, as well as bigender and androgynous individuals. Around 0.3 to 5 % of the population in the USA identifies itself as transgender (Kattari & Hasche, 2015).

As a part of the GLBT community, transgender persons often encounter the similar mental problems and social stigma as experienced by gays and lesbians. However, within the GLBT community, transgender population is sparsely studied. Even as special health care concerns of the gays and lesbians are well established in the literature (for details read Cochran,

Sullivan & Mays, 2003; Silenzio, Pena, Duberstein, Cerel, & Knox, 2007), very few studies have looked at the transgender community exclusively. Despite a limited literature existing on transgender health concerns, studies have pointed out that transgender persons are at a high risk of developing HIV/AIDS and suicidal tendencies. After administering a self-reported survey on 182 transgender persons in Philadelphia, USA, Kenagy (2005) reported that prevention services addressing HIV/AIDS, suicides and violence are urgently needed for the community. Hargie, Mitchell, and Somerville (2015) explored the experiences of 10 transgender persons in sports by doing in-depth interviews and report the discrimination that transgender persons feel in the locker rooms and sports fields. Stotzer (2008) examined how transgender persons are subjected to violence and hate crimes in Los Angeles, California.

Mayer et al. (2008) point out that the transgender persons, especially those who have undergone sex assignment surgery, are at a unique health risk because of post-surgery complications. Transgender persons who retain pre-transition organs or tissue remnants need careful follow-up for potential oncological problems commonly associated with their natal sex, including prostate, breast, cervical, and ovarian cancer. Transgender people face additional health care barriers as transitional therapies with either medication or surgery are expensive and rarely covered by insurers in the United States (Mayer et al, 2008).

Research on public perception and attitudes towards the transgender community in the US and elsewhere is rather limited. Most studies, however, point out negative attitudes towards the transgender community. Norton and Herek (2013) surveyed 2,281 heterosexual US adults to assess their beliefs about transgender persons. In this study, participants were asked to complete an on-line survey that asked them about their feelings (feeling thermometer ratings) towards the transgender community. The study reported that a feeling thermometer rating of transgender

people was strongly correlated with attitudes toward gay men, lesbians, and bisexuals, but was significantly less favorable. Also, attitudes toward transgender people were more negative among heterosexual men than women. Similar findings have been reported in studies across the globe. Hill and Willoughby (2005) found that men had more negative attitudes towards transgender persons than women in Canada. More negative attitudes towards transgender and transsexual persons were found in persons with lower education levels in Hong Kong (King et al., 2009) and in elder population in Sweden (Landén & Innala, 2000). Tee and Hegarty (2006) found more negative attitudes towards transgender people are associated with greater religiously in the UK.

Negative attitudes towards transgender persons often correlate with homophobia (Norton & Herek, 2013; Nagoshi et al., 2008). Nagoshi et al. (2008) validated and contrasted scale of prejudice against transgender individuals with a homophobia measure in 153 female and 157 male US college undergraduates. The study reported that for both sexes, transphobia and homophobia were highly correlated with each other and with right-wing authoritarianism, religious fundamentalism, and hostile sexism, but aggression proneness was predictive of transphobia and homophobia only in men. Given the nascent area of research understanding public beliefs and attitudes about transgender people, and the paucity of research in health communication in this area, this proposed study advances our understanding of the presentation of transgender people in a popular narrative consumed by the public.

2.9 Hypotheses and Research Question

Several studies in communication literature have established the effects of narratives, whether fictional or non-fictional, on people's beliefs and attitudes on public health and public policy issues (Green & Brock, 2000, 2002; Moyer-Gusé et al., 2011; Slater et al., 2006).

Narratives have the ability to make people emotionally react to situations that they would not otherwise do. Narratives enable people to transport into the story line (Green & Brock, 2000) and empathize with the story characters (Slater & Rouner, 2002). Empirical studies demonstrate that transportation into the story and identification with the characters in the story result in reduction of counter-arguing with the story's messages and developing more story-consistent beliefs. Green and Brock (2000) operationalized and measured narrative transportation and demonstrated that more the readers are transported into the story, the more they will have story-consistent beliefs. Studies since then have found that narrative transportation has a transformational (Phillips & McQuarrie, 2010) and long-lasting effect on recipients that leads to persuasion (Green, Garst, & Brock 2004; Green et al., 2008). Based on previous research, this study predicts that narrative transportation will lead to participants' support for story-related beliefs about transgender persons.

Hypothesis I: Viewers of a television drama who are transported into that drama will be more likely to support story-consistent beliefs compared to viewers who are not transported into the control drama.

Previous research has shown that identification with story characters has an effect on recipients' story-consistent beliefs (Casey et al., 2003; Cohen, 2001, Moyer-Gusé et al., 2011; Slater & Rouner, 2002). Slater and Rouner (2002) noted that emotional involvement with story characters is more important and leads to greater absorption in the narrative. This study, thus, predicts that participants' identification with characters in the TV drama will have an effect on their story-related beliefs.

Hypothesis II: Viewers of a television drama who identify with a story character will be more likely to support story-consistent beliefs of that character compared to viewers who do not identify with any such character.

Narrative performance comprises people's emotional responses to a narrative, and includes reactions such as affective responses, evaluatory responses, self-referential, outcome preference and inferential responses (Gerrig, 1993). Narrative performance is a process by which readers construct a narrative world based on the descriptions provided in the story and their own world-view. Gerrig's (1993) explication of performance metaphor states that people's mental representation of a story enables people's transportation into the story. As explained above, transportation is demonstrated to have an effect on people's beliefs. Hence, performance, too, must have a similar effect on reader's story-related beliefs. This study, therefore, predicts:

Hypothesis III: Performance of a narrative by the viewers will affect their story-related beliefs.

Gerrig (1993) conceptualized narrative performance and narrative transportation as two cognitively distinct phenomena to explain audience's processing of a narrative. Theoretically, narrative performance should be independent of the transportation process and must precede readers' traveling into the story world. Since Gerrig (1993) conceptualized both constructs as acting in consonance with one another, it is important to empirically test the relationship between performance and transportation. Since performance has not been operationalized to a great extent, it remains to be seen how similar or distinct narrative performance and narrative transportation are. Therefore, this study poses the following research question:

Research Question: What is the relationship between narrative performance and narrative transportation in the context of narrative processing?

3. METHODOLOGY

3.1 Participants

In order to understand readers' performance of a narrative, a three-condition experiment was conducted. In all, 174 participants of an introductory media studies class in the Journalism and Media Communication department at a large Western Public University consented to participate in the study (consent letter Appendix D). The university's Institution Review Board (IRB) approved the project before recruitment started. Participants received extra credit points for completing the study. An alternate writing assignment option was given to those who would not participate in the experiment. No participant opted to do the alternate assignment. Participants were assigned, using a randomized procedure, to either the "Transportation," "Distraction" or "Control" condition after they selected their preferred times of participation at the time of recruitment (Recruitment sign-up sheet Appendix E). Participants watched the video en masse in groups of about 15 to which they were randomly assigned. Twelve experiment sessions were conducted over a period of two weeks in November 2015. Transportation, Distraction and Control sessions were run simultaneously in different rooms on any given day. Each group watched the stimulus video once. The sessions were conducted in different classrooms on campus. The stimuli videos were projected on big screens for viewing. Participants were instructed to watch the TV show in a relaxed manner, as if they were at home viewing television. At the end of the experiment, participants were debriefed verbally (Debrief statement Appendix F).

In the "Transportation" condition, 57 participants received written instructions to watch a 30-minute long episode of a TV show in a relaxed manner, as if they are watching the show in

their living rooms. In the “Distraction” condition, 61 participants received written instructions to count the number of times affective responses were made during the show. Green and Brock (2000) demonstrated that transportation into a narrative is reduced when participants are engaged in an unrelated cognitive task such as counting. In this study, a small column was provided on the instruction sheet (Instructions for Distraction group: Appendix F) so that the participants could write the final count of affective responses. It was clearly stated on the instruction sheet what affective responses meant (Please count the number of times any character in the show smiles, laughs, cries, or displays an emotional reaction). Participants were asked count the affective responses while watching the show, and then total their final counts.

In the “Control” condition, 56 participants watched a 22-minute episode of the popular TV show *The Big Bang Theory* (Season 7, episode 1). Participants were asked to watch the episode in a relaxed manner, as if they were watching this in their living rooms. *The Big Bang Theory* was selected because it is a popular TV show that does not focus on transgender issues. Thus, it served as a good control condition. The show was entertaining and humorous and kept the participants engaged, without their having to think about any transgender-related topics.

3.2 Stimulus

Participants in the experimental conditions (distraction and transportation) were requested to watch a 30-minute episode from the TV show *Transparent*. *Transparent* is an original 11-episode award winning TV series, produced and featured on Amazon Prime that is available for streaming to Amazon Prime members. The TV show, which began in February 2014, has won Emmy awards and Golden Globe awards for best actor (comedy) and best direction (comedy). The story revolves around a Los Angeles-based family where the patriarch (Mort played by Jeffery Tambor) comes out as a transgender woman Maura to his family at the

age of 68 and starts cross-dressing in public. Maura's three grown-up children and her ex-wife come to terms with her gender identity along with dealing with their own personal lives and affairs. Participants were requested to watch episode number 6, titled “*The Wilderness*,” that deals with Maura’s discussing her new identity with her son, Josh, for the first time. The episode also deals with a situation in which Sarah, Maura’s eldest daughter, has to tell her minor children about Maura’s new identity. The episode has been selected because it presents an array of different characters in the show for possible identification with characters, and also showcases interesting events that keep viewers engrossed and contemplative. While portraying a sensitive and controversial topic, the episode had the potential to elicit diversity of views from the participants. Thus, this episode had the potential for participants’ performance of a narrative.

3.3 Procedures

In both the transportation and distraction condition, after the participants watched the stimulus episode from *Transparent*, they received written instructions to draw a picture about anything that comes to their minds after watching the show (Appendix B-Drawing Sheet). Participants received pencils with erasers for this task to keep uniformity in the tools they had available to complete the drawings. This also enabled participants to erase or make changes in the drawings, if needed. Participants received plain white sheets of papers to draw. Because mental models are stored in the working memory and are immediately accessible after reading or watching a narrative, participants were given only 5 minutes to complete the drawing. This instruction was clearly stated on the sheets provided for the drawing task (Appendix B). Once participants finished their drawings, each participant was given a 76-item questionnaire to complete (Appendix A).

Even though questionnaires for the distraction and transportation conditions were exactly same, coding on the questionnaires ensured that distraction and transportation conditions' responses could be separately stored. To counter-balance the primacy effect of any character's name appearing first, the order and character identification questions were rotated for Maura, Josh and Sarah's questions (Appendix A).

In the control group, participants watched an episode of *The Big Bang Theory*, and drew a picture about the show. Similar to the distraction and transportation condition, participants in this condition were instructed to complete their drawing in 5 minutes, and pencils with erasers were provided for the task to ensure uniformity. Participants were then asked to complete a questionnaire (Appendix C).

In the experiment conditions, participants on an average spent 60 minutes in the experiment, including the time taken to watch the stimulus video. In the control group participants were engaged for 40 minutes, including the time spent on watching the video. The ten-minute difference in duration is because the stimulus video in the experiment groups was longer than the control group video by about 10 minutes.

A pretest with a different sample of 65 individuals from the same population as the main study was conducted to identify the main characters with whom the participants could potentially identify. The results of the pretest indicated that participants identified with three main characters, Maura, Josh and Sarah. Hence, these three characters were included in the final study to gauge character identification. Performance items, drawing items and belief items were also pretested to check their reliability and validity, and to reduce the number of items used in the instrument in the pretest.

3.4 Measures

Variables: The independent variables in this study are the following dimensions of performance: narrative inference, affective responses, character/situation evaluatory responses, outcome preference responses, re-plotting responses and self-referential responses. Some questions directly pertained to explaining the drawings completed by the participants while others stood on their own to gauge narrative performance.

The other independent variables are narrative transportation and character identification. Beliefs about the story message and ability to take action are the dependent variables in this study. Most questions use Likert-type responses with 1= Strongly disagree and 7=Strongly agree.

Most of the measures included in this study were created specifically for this study, with some of the performance items suggested by Gerrig's (1993) and Bezdek et al. (2013) research. The items used to measure transportation and character identification were adapted from earlier narrative engagement studies.

Gerrig (1993) defines performance as a process in which a reader brings in his or her own worldview and emotions while reading a text. Performance is conceptualized as a combination of inferential and non-inferential responses to a narrative. Following the initial drawing of their mental models after they viewed the episode in each of the conditions, participants focused their responses to several dimensions of performance based on the mental models they drew. Various dimensions of performance include inferential responses, affective responses, self-referential responses, evaluatory responses, outcome preference responses and re-plotting of events by participants.

Narrative Inference: To measure narrative inference, participants responded to their mental model drawings and to questions related to real-life projections. Trabasso et al. (1994)

have argued that no predetermined scale should be used for measuring inferences made by readers while comprehending a text. The authors recommended that both open-ended and content specific questions should be generated to understand narrative inferences made during the comprehension process. Additionally, Jones et al. (2014) have effectively used diagrammatical-oral method of mental model extraction that allows participants to tap into both the written and verbal cognition modes. This method enables participants to draw, and then respond to questions about their drawing. Both open-ended questions and Likert-scale items were used in this study to measure this variable.

Relative to the mental model drawing each participant created after viewing the video, four open-ended questions followed, which included statements like “Please explain what you have drawn in the picture.” and “Please list all the things (people, objects, places, etc.) that you have drawn after watching the show.” Eleven Likert scale items to measure narrative inference through drawings include items like: “I have drawn Maura/Mort in my drawing,” “I have drawn a character related to the show in my drawing,” and “I have drawn an abstract sketch/symbolic representation of the show” (Appendix A).

In addition, four Likert-scale items to measure narrative inference through real-life projection include items like “I thought about real-life events,” “I thought about an incident from my life,” “I thought about a transgender person in real-life” and “I thought about the treatment of transgender persons in the society” (Appendix A).

Affective responses: Bezdek et al. (2013) and Polichak and Gerrig (2002) have stated that affective responses are the primary kind of responses that readers generate while performing a narrative. Bezdek et al. (2013) demonstrated using think-aloud protocol that viewers of a film would express their liking or disapproval of story characters’ actions while they watched the

video. Affective responses in this study, however, were measured by asking participants about their affective responses toward several story characters' feelings and emotions. Six Likert scale items such as "I was happy when Maura/Mort explained her new lifestyle during the family dinner", "I was scared to see what would happen when a relative drew a knife at the family dinner," and "I anticipated trouble/disagreements at the family dinner" were created in this study to measure participants' affective responses (Appendix A).

Character/situation evaluatory responses: Polichak and Gerrig (2002) argued initially that readers perform a narrative by evaluating the story and its characters as they process the narrative. Bezdek et al. (2013) further found that participants can express these evaluations in terms of how they think the story characters perform. In this study, evaluation of story plot and characters in the story were measured by creating content-specific items that gauged participants' reactions to what they watched in the show. Participants responded to two statements: "Maura/Mort should not have appeared before minor children in woman's clothes" and "Josh should not have been so confused about his father's new identity."

Outcome preference responses: Based on the conceptualization by Gerrig (1993) and Polichak and Gerrig (2002), outcome preference responses were measured by asking participants to respond to four statements: "I expect to see no more disagreements within the family about Maura/Mort's identity", "I hope Maura/Mort's children do not see her new identity as a mental illness," "I hope Maura continues to take pride in her new identity," and "I hope Josh understands his father better."

Re-plotting responses: Gerrig (1993) and Polichak and Gerrig (2002) conceptualized participants' re-plotting of a narrative as a performance. Replotting means when the participants try to narrate the story backwards based on what they believe should have been done by the

characters. In this study, to measure re-plotting responses, participants were asked to respond to two statements including “The relative should not have drawn a knife at Maura/Mort at the dinner table,” and “Maura/Mort should have just avoided the family dinner.”

Self-referential responses: Bezdek and colleagues (2013) have shown participants generate participatory responses by making references to their own selves and their own lives. Self-referencing, thus, is an important component of performance as it allows the participants to relate to a narrative personally. To measure self-referential responses, participants in this study, responded to three items such as “If a friend reveals to me that he/she is a transgender, I would understand him/her”, “If a family member were transgender, I would expect him/her to reveal it to other family members,” and “If a similar situation happens in my family, I will be worried a lot about the minor children.” These items were specifically created for this study.

Narrative Transportation: Narrative transportation was measured adapting transportation scale used by Slater, Rouner and Long (2006) for a video narrative. While Green and Brock (2000) developed an 8-item scale to measure transportation into a text narrative, Slater, Rouner and Long (2006) adapted it to measure transportation into a TV show. Because this study used a TV show as stimulus, items are adapted from Slater et al. Participants were asked to respond to eight items such as “I was mentally involved with the story while I was watching it”, “I wanted to know what happened later to these characters” and “I found myself thinking of ways the story could have turned out differently” (Appendix A).

Character Identification: Items probing identification with story characters were adapted from Slater et al. (2006) because of the similarity of use of TV narrative in both the studies. Slater et al. captured empathy, identification, liking and caring in their scale. Participants were asked whether they identify with, or have empathy for Maura/Mort, Josh or Sarah, the three main

characters in the show. Statements include Likert scale items like: Participants' identification with story characters will be measured by asking questions like: "How much do you identify with Maura/Mort?" and "How much do you identify with Maura's son Josh?" Five questions were asked about each character to capture liking, sympathy, similarity, empathy and repulsion for Maura/Mort, Josh and Sarah (Appendix A).

Dependent variables: Beliefs and propensity to take action: Beliefs scales measuring participants' beliefs towards transgender people were created specifically for this study. Participants were asked to respond to seven statements such as: "Transgender people should dress up as they wish in public places like malls and restaurants," "Transgender people have a right to marry anyone they choose," and "Transgender people can be misunderstood and have a high chance of developing depression."

Five-item Likert scale was created to measure Propensity to take action to socialize with transgender persons. Participants were asked to respond to statements like whether they would "socialize with transgender neighbors, if invited?" "Invite transgender neighbors to dinner?" and "Sign a petition for a ballot initiative in favor of extending rights/privileges/benefits, such as health insurance to transgender?"

Controls items included participants' self-reported ideology (5-point Likert scale from 1= strongly liberal to 5 = strongly conservative), gender (open-ended so as to allow self-identification of a specific gender or not), and how many transgender people did they already know in their real lives. These served as controls that might explain participants' beliefs related to transgender persons.

Indices were additive and were created using exploratory factor loadings using Varimax rotation. All factor analysis used factor scores of $\geq .50$ to determine unique dimensions. Once dimensions yielded clear scales, additive scales used the raw scores of the scale items.

Relationships between variables were analyzed using bivariate correlation and Analysis of Variance and multiple regression analysis tested multi-variate models in this study.

4. RESULTS

This section describes the study data and discusses results of various statistical tests performed on the data to make sense of the relationships between the key variables.

4.1 Descriptive statistics

As many as 174 students voluntarily participated in the study. Of these, 116 were women (66.67 %) and 58 were men (33.33 %). As many as 118 participants participated in the experimental conditions of which 74 were women (62.71 %) and 44 were men (37.29 %). In the control condition, 42 women and 14 men were randomly assigned.

As shown in Table 1, very few participants knew any transgender persons in their real lives (Mean= .50), while several participants showed moderate ideological views (Mean=3.06) on a 5-point scale, thus slightly toward the right, or more conservative side of the scale.

Only 35 out of 118 participants (29%) reported to be fans of any of the actors in the TV show *Transparent*. The means of participants who agreed that they drew characters including Maura, Josh and Sarah in their drawings are 4.42, 2.74 and 3.10 respectively (on a 7-point Likert scale with 7 indicating “Strongly agree”) indicating that when participants reported that they drew characters in their drawings, most drawings contained Maura.

Table 1: Descriptive statistics of the key variables

	Mean	(Std. Deviation)
Maura drawing	4.42	(2.68)
Josh drawing	2.74	(2.52)
Sarah drawing	3.10	(2.67)
Transgender number	.50	(2.07)
Ideology	3.06	(1.00)

4.2 Factor Analysis

Factor analysis of the items capturing participants' performance of the narrative resulted in two main dimensions. As shown in Table 2, "Affective and Outcome Performance" comprised items capturing participants' affective responses to various characters and situation in the story as well as participants' outcome preferences. Outcome preferences included hoping for desirable outcomes for various story characters. Real-Life Projection Performance comprised participants' extrapolation of the story-events to the real-life events. The eight-item "Affective and Outcome Performance" scale was reliable with Cronbach $\alpha=.97$. The four item "Real-Life Projection Performance" was reliable with Cronbach $\alpha=.77$.

Table 2: Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of the Performance Scale

Scale items	Affective and Outcome Performance	Real-Life Projection Performance
Did you think about real life while watching the show?	.057	.821
Did you think about real life incidents while watching the show?	.050	.517
Did you think about real trans people while watching the show?	.209	.724
Did you think about treatment of trans people in real life while watching the show?	.519	.634
I felt happy when Maura explained her new lifestyle to her family	.757	.218
I was proud of Maura after she diffused a tense situation during family dinner	.814	.212
I was scared when a relative drew a knife towards Maura	.265	.104
I anticipated trouble/disagreements at the family dinner	-.015	.019
I was focused during Maura-Josh conversation	.333	.371
I was delighted to see Maura wearing clothes of her choice	.676	.334
Josh should not be so confused about Maura's identity	.321	.019
I hope Maura continues to take pride in her new identity	.917	.090
I prefer to see Josh accepts the fact that Maura has a new identity now	.885	.152
I hope Josh understands Maura better	.806	.029
I expect to see no more disagreements about Maura's new identity Maura/Mort's new identity	.135	-.015
I hope others don't see that Maura's new identity as a mental illness	.821	-.035
If a friend reveals to me that he/she is a transgender, I would understand	.703	.155
If a family member reveals to me about being Trans, I would understand him/her	-.007	-.010

If a similar situation happens in my family, I will worry for minor kids	-.473	-.019
Rethinking Maura’s decision to attend dinner	-.109	-.046
Rethinking relative’s decision to draw knife	.283	-.059
Solution for Maura to live her life with dignity	.156	.006
Solution for Maura to be unaffected by her family	.227	.099
Variance	33.36%	8.08%
Eigenvalues	7.67	1.86

Note: Factor Loadings >.5 highlighted in boldface

A twelve-item beliefs scale measuring participants’ beliefs towards transgender people was created specifically for this study. Beliefs scale captures participants’ beliefs and attitudes towards transgender and also gauged their propensity to take action to support Transgender rights. On a Likert-scale, participants responded to questions about their beliefs about a transgender person, and the items in the scale included statements such as: “Transwomen should use women’s restroom”; “Transgender persons should dress up as they wish in public;” “Family members should tell about Trans relatives to minor children.” To gauge participants’ propensity to take action to support Transgender rights, participants responded to statements such as: If invited, you will attend a Transgender wedding,” You will sign a petition to support Transgender rights such as extending health insurance for Transgender persons,” “You will invite transgender neighbors over for dinner,” etc. The scale was reliable with Cronbach α : 0.95 (Table 3).

Table 3. Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Beliefs Scales

Scale items	Beliefs
Transgender persons should dress up in public as they wish	.882
Transgender persons should reveal their identity to family adults	.787
Transgender persons should reveal their identity to minors in family	.751
Parents should explain about Trans relatives to their minor children	.777
Trans women should use women's restrooms	.646
If invited, I will socialize with Trans neighbors	.890
I will invite to Trans neighbors to dinner	.868
I will have Trans friends over for dinner if organizing a party	.898
If invited, I will attend a Trans wedding	.898
I will sign a petition for Trans rights	.902
Trans persons suffer from mental illness (R)	.716
Trans persons are attention seekers	.725
Variance	66.6 %
Eigen values	7.99

Note: Factor Loadings >.5 highlighted in boldface. R: Recorded items

Factor analysis of the items measuring transportation resulted in all the eight items loading in a single dimension (Table 4). An additive scale of items measuring transportation was reliable with Cronbach's $\alpha = 0.82$.

Table 4. Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Transportation Scale

Scale items	Transportation
I could not take the story out of my mind	.643
I could see these events in real life	.533
I could see myself in these scenes	.674
I was mentally involved in the story	.735
I wanted to know what happened to characters later (R)	.801
The story affected me emotionally	.838
I thought about ways the story could've ended differently	.610
The events in the story are relevant to my life	.666
Variance	49.78%
Eigen value	3.48

Note: Factor Loadings $>.5$ highlighted in boldface. R: Recorded items

Factor analysis of the items measuring identification with story character Maura resulted in two dimensions, with items related to liking, caring, and empathy loading together to form Maura Empathy and identification and similarity loading together to form Maura Identification (Table 5). For further analysis, Empathy with Maura and Identification with Maura were treated as two separate variables. All identification items factored similarly for the other main characters including Josh and Sarah. The scales for Maura Empathy and Maura Identification, using additive raw scores, were reliable ($\alpha = .81$ and $.83$, respectively).

Table 5. Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Maura Identification Scale

Scale items	Maura Empathy	Maura Identification
Identification with Maura	.125	.907
Similarity with Maura	.110	.915
Liking for Maura	.859	.240
Caring for Maura	.845	.319
Repulsed with Maura (R)	.806	-.117
Variance	51.9%	27.35%
Eigen Value	2.6	1.37

Note: Factor Loadings >.5 highlighted in boldface

Factor analysis of the items measuring identification with story character Josh resulted in two dimensions, with items related to liking, caring, and empathy loading together to form Josh Empathy and identification and similarity loading together to form Josh Identification variable (Table 6). For further analysis, Josh Identification and Josh Empathy were treated as two

Table 6. Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Josh Identification Scale

Scale Items	Josh Identification	Josh Empathy
Identification with Josh	.908	.151
Similarity with Josh	.930	.095
Liking for Josh	.446	.680
Caring for Josh	.402	.682
Repulsed by Josh (R)	-.140	.776
Variance	51.12%	21.54%
Eigen Value	2.56	1.08

Note: Factor Loadings >.5 highlighted in boldface. R=Recorded items

separate variables. The additive scales for Josh Identification and Josh empathy were reliable ($\alpha = .90$ and $.71$, respectively).

Similarly, factor analysis of the items measuring identification with story character Sarah resulted in two dimensions, with items related identification and similarity loading together to form Sarah Identification and liking, caring and empathy loading together to form Sarah Empathy variable (Table 7). The additive scales for Sarah Identification and Sarah Empathy were reliable ($\alpha = .91$ and $.70$, respectively).

Table 7: Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Sarah Identification Scales

Scale items	Sarah Identification	Sarah Empathy
Identification with Sarah	.932	.102
Similarity with Sarah	.903	.110
Liking for Sarah	.529	.655
Caring for Sarah	.555	.606
Repulsed by Sarah (R)	-.066	.858
Variance	56.33%	20.38%
Eigen Value	2.81	1.02

Note: Factor Loadings $>.5$ highlighted in boldface. R=Recorded items

Factor analysis of the items measuring how realistic the show was resulted in a single dimension as all the three items loaded together (Table 8).

Table 8: Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Realism Scales

Scale Items	Realism
Show is believable	.907
Show is realistic	.875
I disagree with the show (R)	.671

Note: Factor Loadings $>.5$ highlighted in boldface. R=Recorded item

4.3 Bivariate Relationships

Gender and Identification: Gender has not been found to correlate with identification with characters in narrative processing (Slater et al., 2006). However, the focus of this study is on performance about transgender persons, thus, character identification was examined in relationship to gender. Because marked differences were noticed between people identifying as male and female and various identification variables, t-tests were run to determine significant differences between females and males (Table 9).

Table 9: Descriptive statistics of participants' genders and their identification with different story characters

	Gender	N	Mean (Std. Dev)
Maura Identification	Men	44	1.52 (1.10)
	Women	74	1.93 (1.31)
Maura Empathy	Men	44	4.50 (1.41)
	Women	74	5.66 (1.47)
Josh Identification	Men	44	3.84 (1.71)
	Women	74	2.92 (1.64)
Josh Empathy	Men	44	4.08 (1.36)
	Women	74	4.18 (1.31)
Sarah Identification	Men	44	1.94 (1.30)
	Women	74	3.11 (1.62)
Sarah Empathy	Men	44	4.13 (1.06)
	Women	74	5.13 (1.36)

Although there was no significant gender difference between males and females on Maura Identification, Maura Empathy showed a significantly higher number of women empathized with Maura compared to men (Mean= 5.66 for women, 4.50 for men, $t = -4.26$, $p \leq .001$).

A significant difference was found between males and females on Josh Identification (Mean= 2.92 for women, 3.84 for men, $t= 2.90$ and $t=2.88$, $p\leq .001$), whereas Josh Empathy showed no significant difference. A significant difference between males and females on Sarah identification (Mean= 3.11 for women, 1.94 for men, $t= -4.08$ and $t= -4.31$, $p\leq .001$) and Sarah Empathy was found (Mean= 5.13 for women, 4.13 for men, $t= -4.46$, $t=-4.19$, $p\leq .001$).

Among all participants, empathy for Maura (Mean=5.23) was expressed at a much higher level than identifying with her (Mean=1.78). Also, empathy for Sarah (mean= 4.76) was higher than identification with her (Mean=2.68). However, comparing means, identification with Sarah was more than identification with Maura. Meanwhile, the means for identification (3.27) for Josh are higher than Sarah and Maura.

Significant Bivariate Correlations: Bivariate correlations tested the positive and negative correlations between different variables in the study.

Bivariate correlations between the characters in the drawings and emotions on the drawings were analyzed given that affective responses are a strong dimension of performance. These results also threw light on the relationship between affect in these drawings vis-à-vis the characters drawn in these drawings (Table 10). The presentation of all the characters represented in the drawings is associated with affect in the drawings, happy and other emotions, except for drawings with Sarah and emotions in the drawing.

Table 10: Bivariate Correlations between character drawings and affect on the drawings (N=118)

	1	2	3	4	5
1 Maura Drawing	1				
2 Josh Drawing	.448**	1			
3 Sarah Drawing	.490**	.568**	1		
4 Happy Drawing	.201*	.258**	.277**	1	
5 Emotion Drawing	.221*	.233*	.178	.090	1

Note: **Correlation is significant at the .01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

In addition to the relationship between drawings of characters and affect in these drawings discussed above, bivariate correlations were also tested for participants' drawings of characters and participants' identification with these characters in the story. In an exploratory study, Sharma (2016) found that there is a correlation between identification and characters drawn in the mental model drawings.

The Table 11 below shows these correlations. Table 11 shows that including Sarah's character in one's drawing is related to identifying with Sarah ($r=.25$, $p < .01$), and including Josh is related to empathizing with him ($r=.19$, $p < .05$).

Identifying with Maura is positively correlated with identifying and empathizing with Sarah ($r= .26$, $p < .05$ and $r= .26$, $p < .01$, respectively) and negatively correlated with empathizing with Josh ($r= -.32$, $p < .01$). Empathizing with Maura is also negatively correlated with identifying with Josh ($r= -.35$, $p < .01$).

Table 11: Bivariate correlations between drawings and identification with characters in the experimental groups (N=118)

	1	2	3	4	5	6	7	8	9
1 Maura Drawing	1								
2 Josh Drawing	.448**	1							
3 Sarah Drawing	.490**	.568**	1						
4 Maura Identify	.047	.021	.143	1					
5 Maura Empathy	-.034	.026	-.003	.302**	1				
6 Josh Identify	-.021	.052	.067	-.104	-.350**	1			
7 Josh Empathy	-.031	.187*	.117	-.315**	-.036	.398**	1		
8 Sarah Identify	.082	.055	.251*	.591**	.417**	-.150	-.203*	1	
9 Sarah Empathy	-.046	.104	.085	.264**	.807**	-.312**	.090	.481**	1

Note: **Correlation is significant at the .01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

The key variables were tested to find bivariate correlations between independent variables in the study and how these correlate with the story-consistent beliefs. Table 12 shows these significant bivariate correlations. These variables were included in the multiple regression analysis to predict beliefs. The following variables that show a relationship with the key independent variables (Performance, Transportation, and Identification with different characters) and the dependent variable (Beliefs) are: realism, gender, and ideology.

Table 12: Bivariate correlations among the key variables

		1	2	3	4	5	6	7	8	9	10	11	12
1	Gender	1											
2	Ideology	-.254**	1										
3	Transportation	.296**	-.351**	1									
4	Beliefs	.377**	-.575**	.602**	1								
5	Affect and Outcome Performance	.391**	-.577**	.568**	.889**	1							
6	Real Life Projection Performance	.381**	-.346**	.559**	.522**	.486**	1						
7	Maura Identification	.157	-.330**	.452**	.332**	.310**	.238**	1					
8	Maura empathy	.365**	-.534**	.638**	.852**	.835**	.545**	.302**	1				
9	Josh Identification	-.261**	.229*	-.209*	.363**	.368**	.213*	.104	.350**	1			
10	Sarah Identification	.354**	-.369**	.485**	.416**	.406**	.371**	.591**	.417**	-.150	1		
11	Sarah empathy	.363**	-.455**	.532**	.762**	.767**	.460**	.264**	.807**	-.312**	.481*	1	

12	Realism	-	.27	-	-	-	-	-	-	.21	-	-	1
		.239	2**	.45	.30	.31	.39	.18	.35	9*	3	3	
		**		9**	0**	7**	5**	1	2**		9	9	
											8*	3*	
											*	*	

Note: **Correlation is significant at the .01 level (2-tailed)
Correlation is significant at the 0.05 level (2-tailed)

4.4 Hypotheses Testing

Turning to the hypothesis tests, multivariate tests were run to examine each hypothesis, including those control variables that showed bivariate relationship to the key independent and dependent variables in this study.

Hypothesis I: The study hypothesized that viewers of experimental group, who were transported while watching the transgender-themed video, will have more story-consistent beliefs about transgender persons than viewers in the control condition. There was, however, no significant difference in the beliefs about transgender persons in the three conditions: distraction, transportation and control. As shown in Table 13, the *p* value was not significant at 0.109. Therefore, this hypothesis is not supported in this study. The means plot, Figure 1, shows that means of the three conditions are similar to each other, ranging from 5 to 5.6.

Table 13: Significance of differences in beliefs in the two experimental groups using ANOVA

	Sum of squares	df	Mean Square	F	<i>p</i>
Between Groups	9.895	2	4.94	2.245	.109
Within Groups		171	2.204		
Total		173			

Note: not significant as $p > .05$

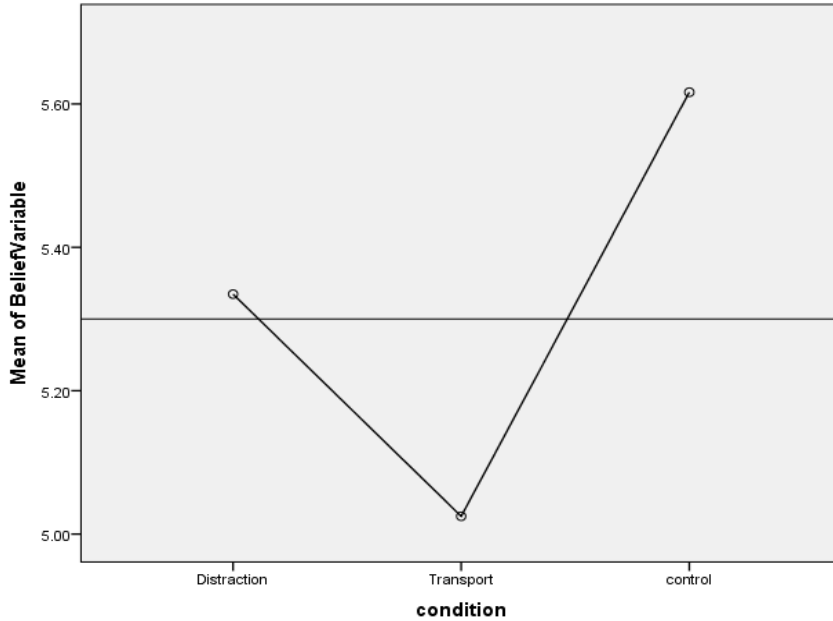


Figure 1: Means plot of difference of beliefs about transgender persons in three conditions: Distraction, Transportation, and Control

The remaining hypotheses looked at the relationship of performance with other key variables in only the distraction and the transportation conditions (n=118).

Hypothesis II: This study hypothesized that viewers of a television drama who identify with a story character will be more likely to support story-consistent beliefs of that character compared to viewers who do not identify with any such character.

The multiple regression analyses in this study (Table 14) have found that readers who identified with Maura’s character had the story-consistent beliefs and viewed transgender persons favorably ($\beta. 257, p <.01, R^2= .85$). Such relationship, however, could not be predicted by those who identified with Sarah’s and Josh’s characters. Identification with the main story character, therefore, did have an effect on viewer’s story consistent beliefs as hypothesized in this study. This occurred after controlling for participants’ ideology, number of transgender

persons they know, their gender, and perceived realism. The variance accounted for in this model is $R^2 = .85$. This hypothesis was supported.

Table 14: Multiple Regression Analyses Predicting Beliefs about Transgender Persons from Performance of Narrative, Transportation into Narrative and Identification with Story Characters

Predictors of Belief Change					
Variable	B	Std. Error	β	t	Sig.
Gender	.039	.149	.012	.265	.914
Ideology	-.110	.080	-.068	-1.372	.173
Trans number	-.004	.032	-.005	-.132	.895
Affective and Outcome Performance	.523	.083	.501	6.336	.000**
Real-Life Projection Performance	.050	.050	.051	.998	.321
Transportation	.125	.076	.099	1.655	.101
Maura Identification	.024	.067	.019	.358	.721
Maura Empathy	.266	.091	.257	2.929	.004*
Josh Identification	-.024	.041	-.026	-.598	.551
Sarah Identification	-.008	.056	-.008	-.147	.551
Sarah Empathy	.099	.089	.083	1.109	.270
Realism	.078	.049	.075	1.581	.117
R^2		.85			

Note: N=111. ** $p < .01$. * $p < .05$

Hypothesis III: This study hypothesized that performance of a narrative by the viewers will affect their story-related beliefs. The multiple regression analysis in the study (Table 14) has found that readers who performed the narrative by making affective and outcome preferences had story-consistent beliefs ($\beta = .501$, $p < .01$, $R^2 = .85$). In addition to empathy for the character Maura, performance thus had an effect on viewers' beliefs about transgender persons controlling for participants' ideology, number of transgender persons they know, their gender, transportation, identification with story characters and realism. This hypothesis was supported.

Research Question: What is the relationship between narrative performance and narrative transportation?

This study has found a bivariate correlation (Table 12) between narrative performance and narrative transportation. As seen in Table 12, both kinds of performances: Affective and Outcome Performance ($r=.59, p<.01$) and Real-Life Projection Performance ($r=.56, p<.01$) are positively correlated with transportation in this study. Therefore, this study finds that narrative performance and narrative transportation are correlated in the same direction. However, this study has discriminated these two key variables: Performance and Transportation. This study has found that while Affective and Outcome Performance effect story-consistent beliefs in the multiple regression analyses, narrative transportation does not have that effect. This demonstrates divergent concept validity. Therefore, this study statistically differentiates between narrative transportation and narrative performance in terms of their differing effects on the story beliefs. This study demonstrates that even when viewers are not completely transported into the story, they can still evaluate the story and its characters, and can make real-life comparisons. Therefore, readers' participation in the narrative strongly influences their beliefs about the story themes.

5. DISCUSSION

Even though manipulation of transportation did not work in this study, one strong dimension of performance overwhelmed the effect the measured variable of transportation had on participants' beliefs about transgender persons. This study has reliably captured the construct of performance by identifying some of the key dimensions of narrative performance. The following are the main points in this study:

Narrative Performance can influence participants' beliefs: This study demonstrates that performance of a narrative by viewers is an important variable to study when gauging viewers' beliefs after watching a narrative. In this study, participants were transported into the story and transportation has a positive bivariate correlation with participants' beliefs about transgender persons. However, the effect of Affective and Outcome Performance in predicting participants' beliefs thawed the effect of transportation in the multivariate regression analysis. This means that participants' ability to actively engage with the story and its characters determined their beliefs about transgender persons. This study demonstrates that viewers are active consumers of a TV drama and constantly react to situations in the storyline to form an opinion. The viewers also evaluate the story situations and characters and engage in interpreting story in difference ways. Narratives are important as they have the capacity to transform viewers. However, viewers are active consumers who emotionally react to story situations before deciding what to believe in.

Distraction and transportation conditions did not show any significant difference in beliefs as predicted by the literature: The narrative engagement studies that have distracted the participants cognitively by engaging them in unrelated tasks (e.g. Green & Brock, 2000) have

found significant difference in transportation among the distracted and non-distracted participants. This study, however, found no such significant difference in the transportation levels of the two experimental conditions: Distraction and Transportation. Also, there was no significant difference in story-consistent beliefs in both these two experimental groups.

Finding no significant difference in distraction and transportation conditions could be a result of the nature of the TV show used in the study. The show, *Transparent*, which is relatively new and unusual, is based on a controversial topic of a transgender person coming out to her family members, including grown-up children. The genre of the show is mixed, as it presents serious dramatic events and topics, yet it is often done in a comedic manner. Even though the show is not melodramatic or highly traumatic, its unusualness may be a reason why transportation and distraction conditions did not show a significant difference in the participants' beliefs towards transgender persons. However, the unusual and controversial nature of the show might have influenced participants' emotional reactions to the show, thereby, enabling them in performing the narrative. The nature of performance may be more in-the-moment analysis of the challenges of the characters and the outcome of the show's action. Perhaps this performance stopped short of transporting a lot of viewers, given the differences found in some viewers identifying and empathizing with one character (e.g. Maura), but not another character (e.g., Josh).

The insignificant difference in transportation in the experimental groups also could be because the participants were counter-arguing, or likely engaged in more central processing as in ELM (Petty & Cacioppo, 1986) than, the EELM model. As explained earlier, in the EELM model of transportation, Slater & Rouner (2002) have argued that participants' beliefs are changed as they do not counter-argue after being swept up in the story. In this study, however,

the participants might be thinking actively about the show rather than merely getting swept up in the storyline. Also, the show used in this study is very different from the lives of many, if not most, of the participants in the study. Thus, transporting into this world might simply be too far-fetched, whereas a lot of the transportation literature demonstrates it occurs with more conventional, common types of shows and written stories. Transportation isn't believed to always occur, and hasn't always been found to occur, particularly if emotions are too extreme (Slater & Rouner, 2002) or subject matter is too intimate or close to the experiences or life interests of the reader, as with some health topics (Green, 2002). It could be that the transgender topic, as presented in the stimulus video, is somewhat daunting to the participants who are in the life cycle phase where questioning of their sexuality, sexual orientation and gender might be relevant and salient. In this study, participants were perhaps engaged in an examination of information. Thus, they were more critical, analytical and possibly counter argumentative, as found more likely in the more conventional ELM rhetorical model of persuasion.

It is also possible that the instructions of counting and totaling the amount of affect for the experimental control condition was far too weak for such a captivating video. In this case, then, both control and experimental conditions may have resulted in performance and mild transportation. In addition to the unusualness of the lead protagonist in the story, there is also a huge age difference here with regard to Maura and audience members. As the data indicate, the participants identified with other characters like Sarah and Josh more than they could identify with Maura (Table 8). A lot of differences with the main character and her life might have made it difficult for the participants to completely engross in the story. However, participants might have indulged in evaluation and thinking about the story and its characters. Because identification with Maura might have been too far-fetched for some participants, the minor or

secondary characters in the story (such as Sarah, Josh, or others) may have been the focus of the drawings. Participants' relationship with minor characters in a multi-character story, thus, is important and can enhance their performance of a narrative.

Why Affective and Outcome Performance had more effect than Real-Life Projection Performance? This study has demonstrated that Affective and Outcome Performance can predict belief change. However, the other aspect of performance: Real-life Projection Performance- did not have the same effect. Theoretically, the ability of the viewers to make self-referential and real-life inferential responses to a narrative must enhance the engagement process. However, the TV show episode used in the study would be very different from the lives the participants currently led. Participants of college-age, as used in this study, might find it hard to project their own lives in a narrative onto a transgender person in her late 60s. Their ability to see this show related to anything in their real lives may be rather remote. Therefore, the Affective and Outcome Performance had a greater effect in this study than the Real-Life Projection Performance on participants' beliefs. However, a different TV show, with a different theme, might enable the participants to make more self-referential responses, and this might make the Real-Life Projection Performance more useful in predicting beliefs.

Additionally, it is also possible that the measures require greater refining. For example, participants can be asked about specific real-life events (Caitlyn Jenner's transition in this case) after they watch the stimulus video. Since Sharma (2015) found a strong evidence of Real-Life Projection Performance in a study about performance of a woman-oriented story, it is plausible that a different study with more refined measures can find this variable significant. Moreover, this is a nascent area of research and the measuring instrument would become more robust by using it with different sets of participants and with different narratives.

Operationalization of Variables: Variables including narrative performance, mental model drawings, and beliefs about transgender persons were operationalized in this study.

Following is the discussion related to operationalization of different variables:

Narrative performance: This study operationalized the narrative performance variable and created a multiple item scale that captured various constructs comprising narrative performance including affective, evaluatory, re-plotting, inferential, self-referential and outcome preference responses. The multiple-item scale was created specific to the TV show used in the study (*Transparent*) and also encompassed emotional reactions and evaluation of main characters in the show. The items used in the scale capture the construct reliably (with an alpha value indicating reliability). This study provides a scale to capture narrative performance in a self-reported survey.

Most of the dimensions of performance, as conceptualized by Gerrig (1993) and Polichak and Gerrig (2002), have been supported in this study. The Affective and Outcome Performance items comprise participants' affective/emotional responses to the narrative, and their outcome preferences of various story situations. This dimension of performance overwhelmed transportation and was significant in the multivariate regression analysis. The other dimension of performance: Real-Life Projection Performance comprised participants' inferential responses by juxtaposition of the real world with the fictional world of the TV show. These societal-references demonstrated participants' ability to make inferences to make the story relevant to the real world and their real world experiences. This dimension of performance showed a strong bivariate correlation with beliefs. Thus, several of the performance dimensions were reliably captured in this study.

The performance measures used in this study were derivative of (Polichak and Gerrig (2002) conceptualizations of the participatory responses. Operationalizing the various dimensions occurred by extending the empirical work done on this, for example, participatory response from Bezdek et al. (2013), based on their findings using out-loud protocols. Items measuring inferences using mental model drawings were created specifically for this study. Given that narrative performance is a nascent area of research, and little work has been done on instrument development to capture this construct, the results of this study are encouraging.

However, the other dimensions of performance that neither clustered nor formed reliable indices (such as Re-plotting and Evaluation) are an indication that more successful measures could be created. More studies should refine these measures and perhaps would find more dimensions of performance that were not captured here. Replotting has been measured by Bezdek and colleagues (2013) who manipulated suspense genre stimuli in their study to gauge participatory responses. However, due to the paucity of literature in narrative performance, it is impossible to know if there is a genre effect. *Transparent* is not a suspense drama, and this study could not find any evidence of replotting. Similarly, Sharma (2015), which used a family story stimulus, found little evidence of replotting.

Beliefs and propensity to take action: Scant literature exists in communication literature regarding the perception of transgender persons by consumers of entertainment media. This study provides a reliable 12-item scale to capture viewers' beliefs about the transgender persons and also their propensity to take action on policy issues in socializing and politically supporting the transgender community. Adapting from Slater and Rouner (2002) scale on viewers' perception of gays, this study contributes in creating items for gauging public perception of the transgender community. The scale includes items not only to gauge participants' beliefs about

transgender persons, but also to measure their propensity to take action about socializing with transgender persons and by politically supporting the transgender community. The scale used in the study was reliable with a high alpha value of .90.

Mental model drawings: This study attempts to quantify the mental models drawings of the participants by asking them eleven Likert-scale questions about their drawings. Results indicate that drawing measures inform us about participants' identification with story characters, mainly with Sarah and Josh (Table 10). Further examinations using multi-methodology and perhaps thought-listing protocols may result in a deeper understanding of the drawings and their relationship to performance.

Mental models and their significance in narrative engagement: Understanding narrative engagement using mental models approach is a nascent area of research. The mental models theory propagates that people do not include every detail in their mental models, but they capture only a few important details that help them comprehend a text (Johnson-Laird, 2006). Exploratory studies such as Sharma (2016) have found that whenever participants identify with the story characters, they are likely to represent that character in their mental model drawings.

This study has found a strong bivariate correlation between participants' drawing of the character Sarah and their identification with Sarah's character (Table 11). It means that participants who identified with Sarah's character also drew her image in their mental model drawings. Similarly, Josh's drawing in the mental models is correlated with Empathy for Josh's character (Table 11). This means that participants who empathized with the character Josh included his image in their drawings.

This study therefore highlights that participants are likely to capture those characters in their mental model drawings with whom they can identify with or empathize. Thus, character

identification can have an effect on the participants' mental model drawings. Further understanding of the relationship between performance and character identification/empathy will lend greater insights into these processes.

The findings here give a strong reason to integrate mental models approach in understanding narrative processing, as items contained in mental models are likely to enable the researchers to determine what is having an effect on the readers while processing a text.

These are, however, conservative findings for the closeness of the drawing focus and participants' identification with individual characters, given the protagonist of the television show viewed was Maura. Demonstrating this link using secondary characters is useful, not simply demonstrating that performance may be occurring through identification but that mental models, and thus performance and identification, are quite complex. Audience members may identify with more than one character and with different characters, and their performances may be quite varied.

Gender and identification with characters: The descriptive data on gender and identification with and empathy for the three main characters in the story have demonstrated that gender has no effect on whether the participants identify with transgender character Maura. Both men and women in this study had similar and low identification means with Maura (Table 8). However, gender did have an effect for participants' empathy for Maura as women empathized more with her than men. Meanwhile, men identified more than women with Josh, but no such significance difference was found between men and women when empathizing for Josh. More women than men identified and empathized with Sarah. Even though gender has not had a significant effect on persons' beliefs about transgender persons, gender does have significance in empathy and identification for characters. Transportation literature has generally found gender

not to be an important aspect of character identification. However, when the text concerns issue of gender, the relationship between gender and identification appears to be more complex.

Reverse hypothesis: Beliefs predicting performance and transportation: This study hypothesized that participants who are transported into the story will have more story-consistent beliefs than those who did not get transported. This hypothesis however was not supported. Therefore, a reverse hypothesis can be stated that beliefs predict transportation and performance. It can be possible that participants come with their existing beliefs about transgender persons, and these strong beliefs determine their transportation into the story and performance of the story. In case of participants with negative views about transgender persons, counter-arguing could be high, thus, preventing them from transportation into the story. Finding a way to manipulate performance would allow the testing of causality through the time order of the experiment. Possible ways can be found to manipulate performance including manipulating hope of the participants by giving same narrative to the experiment and the control groups but manipulating information about the story giving hope only to the experimental group.

Another possible way of manipulating performance could be to give different set of directions to participants while they draw the mental model drawings. This could be done by asking the experimental group to draw affect and real life projection while giving no such directions to the control group.

Realism and beliefs: Past research has indicated that when participants transport into a narrative, their perception of realism of the narrative also increases. This study has found a strong bivariate correlation with realism and transportation as per the earlier literature findings. Perception of realism is also positively correlated with beliefs in the study, indicating that participants who perceived realism also are likely to have story-consistent beliefs about

transgender persons. Realism also positively correlated with both the Affective and Outcome Performance and the Real-Life Projection Performance. This indicates that when people perceive a narrative to be realistic, their engagement and performance of that narrative are enhanced. The effects of realism however were not significant in the multiple regression analysis.

5.1 Limitations

This study was conducted in a classroom experimental setting, which is very different from how many viewers may watch a TV show at their homes or with their friends. The study, however, involved viewing real television shows. Hence, the study lacks some ecological validity. However, a classroom experimental set-up is common for narrative processing studies. Similarly, the study recruited undergraduate college students enrolled in an introductory Journalism and Media Communication class of a large Western university. The participant sample is neither representative of the student population nor the general population. Therefore, the study lacks generalizability. Another limitation is that this is a single stimulus study. Therefore, the findings could be idiosyncratic to the show used in the study. Testing more than one text on a different participant pool may yield different results. If similar results occur, it could be that the findings are not simply a reaction to an idiosyncratic text.

5.2 Future Research

This study highlights the need to continue studying narrative processing and performance as the effect of performance on participants' beliefs are compelling here. The area of narrative processing and narrative performance has so much application in the fields of health, environment and politics. This would lend deeper insights into the area of Entertainment-Education that is especially effective in the public health communication. Therefore, future studies can explore narrative performance and how it interfaces with E-E messages.

Further studies could also focus in-depth on the qualitative analysis of the mental model drawings and study the different patterns that emerge from such an analysis. The qualitative analysis could yield insights into why viewers draw certain characters or images in their drawings and how all this interplays with narrative performance, transportation and identification with different story characters. Different methods of understanding participants' drawings (e.g. studying the use of colors, when provided with colored pencils to draw) could result in a deeper understanding of viewers' mental imagery.

Because of the recent popularity of antiheroes in books and in television and film dramas, studies could investigate viewers' repulsion with different story characters (especially negative story characters) and how that affects performance.

Finally, because participatory response is believed to occur offline, exploring this type of performance out of the context of narrative reception would be an interesting and useful endeavor, in order to try to understand the influence and importance of narratives in people's lives outside of narrative reception contexts. Future studies can also investigate mental models constructed at different points in time in order to try to determine what narrative elements of texts facilitate different types of performance, and possibly transportation.

Clearly, this study offers evidence that studying performance in a mental models approach has merit. The importance of understanding varied reception of texts is critical. Further, how all of this translates into individual understanding of distal social groups, if not the self, shows promise for greater social cohesion.

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26. I expect to see no more disagreements within the family about Maura/Mort's new identity

Strongly disagree strongly agree

1 2 3 4 5 6 7

27. I hope that Maura/Mort's children do not see her new identity as a mental illness

Strongly disagree strongly agree

1 2 3 4 5 6 7

28. If a friend reveals to me that he/she is a transgender, I would understand him/her

Strongly disagree strongly agree

1 2 3 4 5 6 7

29. If a family member were transgender, I would expect him/her to reveal it to other family members

Strongly disagree strongly agree

1 2 3 4 5 6 7

30. If a similar situation happens in my family, I will be worried a lot about the minor children

Strongly disagree strongly agree

1 2 3 4 5 6 7

31. Maura/Mort should have just avoided the family dinner

Strongly disagree strongly agree

1 2 3 4 5 6 7

32. The relative should not have drawn a knife at Maura/Mort at the dinner table

Strongly disagree strongly agree

1 2 3 4 5 6 7

33. Maura/Mort should just lead her life on her terms

Strongly disagree strongly agree

1 2 3 4 5 6 7

34. Maura/Mort shouldn't really care about what her family thinks about her new identity

Not at all 1 2 3 4 5 6 7 Very much

52. How much do you think you are similar to Maura/Mort?

Not at all 1 2 3 4 5 6 7 very much

53. How much do you like Maura/Mort?

Not at all 1 2 3 4 5 6 7 very much

54. How much did you care about what was happening to Maura/Mort while you were watching the show?

Not at all 1 2 3 4 5 6 7 very much

55. How much did you feel repulsed with Maura/Mort while you were watching the show?

Not at all 1 2 3 4 5 6 7 very much

56. How much do you identify with Maura's son Josh?

Not at all 1 2 3 4 5 6 7 very much

57. How much do you think you are similar to Maura's son Josh?

Not at all 1 2 3 4 5 6 7 very much

58. How much do you like Josh?

Not at all 1 2 3 4 5 6 7 very much

59. How much did you care about what was happening to Josh while you were watching the show?

Not at all 1 2 3 4 5 6 7 very much

76. How many, if any, of your family and friends identify as transgender_____

APPENDIX B

Drawing sheet

Please draw anything that comes to your mind after watching the TV show. Please spend only 5 minutes on this drawing. Please use the pencils provided for this task.

Now we would like to ask some questions about you and how you would respond in different situations. How likely would you be to perform the following actions?

24. Socialize with transgender neighbors, if invited?

Unlikely 1 2 3 4 5 6 7 likely

25. Invite transgender neighbors to dinner?

Unlikely 1 2 3 4 5 6 7 likely

26. Have transgender friends over for dinners?

Unlikely 1 2 3 4 5 6 7 likely

27. Attend a transgender wedding, if invited?

Unlikely 1 2 3 4 5 6 7 likely

28. Sign a petition for a ballot initiative in favor of extending rights/privileges/benefits, such as health insurance to transgender persons?

Unlikely 1 2 3 4 5 6 7 likely

29. I consider myself socially to be

Strongly liberal Liberal Middle of the road Conservative Strongly conservative
 1 2 3 4 5

30. Please write below, if you are a fan of any of the actors seen in the show, the name(s).

31. Please state your gender here:

32. How many, if any, of your family and friends identify as transgender _____

APPENDIX D

COVER LETTER Recruitment and Consent

Dear Participant,

My name is Neelam Sharma and I am a researcher from Colorado State University in the Journalism and Technical Communication department. We are conducting a research study on the effects of narratives. The title of our project is “Narrative engagement analysis.” The Principal Investigator is Prof Donna Rouner, department of Journalism and Technical Communication.

We would like you to watch a video about gender issues and complete the enclosed anonymous survey. Participation will take approximately one hour. Your participation in this research is voluntary. If you do not decide to participate in the study, you may withdraw your consent and stop participation at any time without penalty.

We will not collect your name or personal identifiers. When we report and share the data to others, we will combine the data from all participants. You will receive extra credits for your participation in this study.

It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential (but unknown) risks. Completing the survey and returning it is your consent to participate.

If you have any questions about the research, please contact Neelam Sharma at sneelam1@gmail.com or Prof Donna Rouner at Donna.Rouner@colostate.edu. If you have any questions about your rights as a volunteer in this research, contact the CSU IRB at: RICRO_IRB@mail.colostate.edu; 970-491-1553.

(Donna Rouner)
(Dr)

(Neelam Sharma)
(ABD)

APPENDIX E

Sign-up sheet

Please indicate whether you would want to participate in the study by checking either the “Yes” or the “No” box below? Participation in the study will fetch you 10 extra credits in this class.

YES _____ NO _____

If your response is “Yes”, please write your email: _____

(I need to email you to tell about the location of your study)

If your response is “No”, thank you and have a great day!

If your response is “Yes,” please circle below a suitable date and time when you can participate.

Day/Date	Time slots	
November 16, Monday	2 to 3.15 pm	3.15 to 4.30 pm
November 17, Tuesday	4- 5.15 pm	5.15- 6.30 pm
November 18, Wednesday	2 to 3.15 pm	3.15 to 4.30 pm
November 19, Thursday	4- 5.15 pm	5.15- 6.30 pm

If none of timings suits you, please indicate your preferred date and time for participation and I will try to accommodate you

Please contact me at sneelam1@gmail.com if you have any questions about the study or your participation

APPENDIX F

Instructions (For Distraction Group)

Please read the instructions carefully before starting the study

Your task is to count the number of positive affective responses in the TV show that you are just about to watch.

Positive affective responses include smiles, laughter, happiness, humor, cheerful interactions, etc.

Please remember there is no right and wrong answer.

After you finish counting, please write the total number of such responses below.

Total responses: _____

APPENDIX G

Colorado State University Debriefing Form

For the Study entitled:
“Narrative engagement analysis”

Dear Participant;

During this study, you were asked to watch a TV show, draw a picture and take a survey. You were told that the purpose of the study was to analyze narrative engagement. The actual purpose of the study was to examine how viewers’ beliefs about transgender persons are influenced after watching a TV show.

We apologize that we could not reveal the true nature of our research to you up front as is the expectation with most research, but we hope that you can see why it was necessary to keep this information from you. We did not tell you everything about the purpose of the study because that might have influenced your views on this topic. Please feel free to discuss any concerns about this with us. It is important that you know that we take both research ethics and our responsibility to inform prospective study participants very seriously; deception is only used in research settings when we are convinced that we simply cannot answer the question we seek to address without either temporarily withholding some information, or temporarily misinforming you about the nature of the study. You should also know that we carefully discussed the rationale for any deception within our research team, and that the CSU IRB (Human Subjects research ethics committee) has reviewed and approved the use of deception for this study.

Given this, the major purpose of the debriefing is to be certain that you ARE fully informed of the true nature of the research you just participated in, and are given an opportunity to provide fully informed consent.

We will be happy to provide any information we can to help answer questions you have about this study.

If you have questions about this research or your participation in the study, please contact me at sneelam1@gmail.com, or my faculty advisor, Prof Donna Rouner, donna.rouner@colostate.edu. If you would like to receive a copy of the final report of this study (or a summary of the findings) when it is completed, please feel free to contact us.