EXPERIENCING ENTERTAINMENT-EDUCATION: THE INFLUENCE OF TRANSPORTATION AND IDENTIFICATION ON STORY-CONSISTENT BELIEFS AND ATTITUDES

By

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To the Faculty of Washington State University:

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Abstract

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Transportation and identification are examined as possible factors, influencing an entertainment-education (EE) program's impact on viewer held knowledge and attitudes concerning embedded prosocial messages. 183 undergraduates participated in this study. It was posited that the more transportation and identification a viewer experienced, the more that viewer would exhibit beliefs and attitudes consistent with prosocial messages embedded in the EE program watched. Transportation and identification did not influence story-consistent beliefs or counter arguing; however, transportation and identification are shown to have some impact on attitudes. Likewise, exposure to the EE program influenced attitudes when compared to a control group. This provides some empirical support to EE strategies and their effectiveness.

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Dedication

This thesis is dedicated to my family, both near and far;

all who are integral parts of my success.

CHAPTER ONE

INTRODUCTION

Humankind, in our actions, practices, and fictions, are essentially story telling beings (Fisher, 1984; MacIntyre, 1981). Cultures have traditionally relied on story telling to provide education and enculturation. Native Americans use story telling to communicate tradition, history, cultural values, and beliefs while captivating recipients' attention and imagination (Frey, 2001). Likewise, Grecian myths were constructed to address the social issues of their day and early British and American writers infused biblical wisdom into their fictions to promote moral education (Brown & Meeks, 1997).

Researchers consider narratives to have the potential to influence and help shape our thoughts, evaluations, and social judgments (e.g., Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002; Green, Garst, Brock, 2004; Roskos-Ewoldsen, Roskos-Ewoldsen, & Dillman Carpentier, 2002; Shrum, 2002).

Story recipients have often reported feeling swept away; being transported and immersed into a world created by the story (Green, 2004). This phenomenon is termed transportation. Transportation is the psychological phenomenon of immersion into a story an individual experiences when engaging a narrative (Busselle,

Ryabovolova, & Wilson, 2004; Green, 2004; Green & Brock, 2000; Green, Brock, & Kaufman, 2004).

Also important in experiences with stories is involvement with a story's characters. Viewer involvement is a psychological experience. Termed identification, a viewer identifies with a particular character and temporarily adopts that character's thoughts, emotions, motivations, ambitions, goals, and purpose (Cohen, 2001).

Entertainment-education (EE) uses a televised story to entertain while promoting prosocial and health conscious knowledge and behavior. Promotion occurs by using an appealing storyline and characters to embed prosocial or health messages (Whittier, Kennedy, St. Lawrence, Seely, & Beck, 2005). This practice uses a story to engage and entertain, introduce some prosocial or health message to audience members, and ultimately influence beliefs, attitudes, and behavior as it concerns the message.

In 2002, 98% of all homes in the United States had television with an average of 2.4 televisions per home. The average viewer watched over 4.5 hours per day (U.S. Census Bureau, 2004). Given the pervasiveness and accessibility of television, EE offers a unique potential to reach a large percentage of a population and merits further research (Whittier et al., 2005). To better understand EE and other similar prosocial efforts, more

research is needed into how interaction with a story or its characters can influence audience members.

CHAPTER TWO

LITERATURE REVIEW

Entertainment-Education

In the late 1960s, a television show aired in Peru depicting a young woman who overcame tremendous odds and difficulty through hard work, motivation, and skill with a sewing machine. A significant increase of sewing machine sales was attributed to this story (Center for Disease Control and Prevention [CDC], 2001; Slater, 2002). The telling of this and similar stories through telenovas or soap operas, are systematic attempts to use story telling for entertainment while fostering socially desirable behavior (Slater, 2002). EE combines entertainment with education and is perhaps one of the most prevalent and successful international health promotion efforts (CDC, 2001). Since the Peruvian drama, attempts at persuasion through entertaining education have gained momentum and many EE programs have emerged abroad (e.g., “Hum Log” in India, “Tushauriane” in Kenya, “Twende na Wakati” in Tanzania, and “Soul City” in South Africa; CDC, 2001). Similarly, in the United States, dramas, situation comedies, reality shows, and soap operas have been used to

promote beliefs, attitudes, and behaviors determined to be socially desirable (e.g., “Happy Days”, “The Cosby Show”, “Cheers”, “LA Law”, “ER”, and “Friends”; The Henry J. Kaiser Family Foundation [HJKFF], 2004; Slater, 2002).

EE is the process of designing and implementing messages to entertain and educate via radio or television broadcasts (Singal & Rogers, 2004). Thought of as an intervention, EE programs are believed to contribute to social change at the individual and collective level (Sood, 2002). The measurement of social change can be thought of in terms of an increase in awareness and knowledge concerning an EE’s educational message, ability to create favorable attitudes, influence pre-existing attitudes, shift social norms, and influence behavior (HJKFF, 2004; Singal & Rogers, 2004).

Conceptually, EEs are usually developed in a serialized program, in which several episodes are broadcast before embedding any prosocial, or health messages (Whittier et al., 2005). Many current and recent televised programs, daytime or primetime, meet this conceptual understanding (e.g., ER, All My Children, 7th Heaven, Without a Trace, and The Young and the Restless). Over the last several years, these and other daytime and primetime

programs have integrated health and prosocial messages into their storylines to include issues of pregnancy, teen sex, cancer, and alcoholism (Norman Lear Center [NLC], 2005).

In recognizing the potential EEs may possess, a cooperative group of researchers (e.g., the Center for Disease Control and Prevention, National Cancer Institute, and the Norman Lear Center) has partnered to form Hollywood, Health, & Society (HH&S) through which collaboration between the research community and the writers and producers of television entertainment is facilitated and information is shared. Specifically, the HH&S produces an informational guide to promote accuracy in the dissemination of health knowledge. Television entertainment, EE, is currently being used as a means to educate by promoting knowledge gain, attitude formation and change, and behavior change (CDC, 2001; HJKFF, 2004; NLC, 2005; Slater, 2002). EE programs have been shown to possess the potential to transmit messages and effect positive knowledge gain and attitude change. For instance, by embedding implicit health messages in EE programs, health knowledge increased, interest in health focused information increased, and some health related behaviors changed (Brodie, Foehr, Rideout, Baer, Miller, Flournoy, &

Altman, 2001; Tamir, Shabtai, Weinstein, Dayan, Avraham, & Tamir, 2003).

The impact of EE is evident in a study conducted by Kennedy, O'Leary, Beck, Pollard, and Simpson (2004). They observed that after 30 minute broadcasts of "The Bold and the Beautiful", which integrated a subplot concerning Human Immunodeficiency Virus (HIV) prevention, and subsequent to flashing a national sexually transmitted disease (STD) and HIV hotline toll-free number, attempted calls rose significantly. Whittier et al. (2005) found that participants exposed to a storyline with embedded messages concerning STDs were more likely to indicate intent to be screened for an STD as well as to tell others to be screened than those who did not view the STD storyline.

Even though the literature discusses EE and the influences it is considered to posses; the underlying mechanisms by which these influences may be derived are neither explored nor proposed. The following psychological phenomena are experienced to varying degrees when engaging a narrative and it is proposed that these phenomena influence the affect of an EE program.

Transportation

Upon immersion into a narrative world, the story becomes an experience of cognition, emotion, and involvement (Green, 2004; Green & Brock, 2000; Green et al., 2004). This immersive phenomenon, termed *transportation*, occurs as an interaction between a story and its audience.

Illuminating transportation is intuitively useful in understanding ones interaction with stories. The transportive experience is thought of as a cognitively convergent process; that is, the locus for mental concentration is the story (Green & Brock, 2000, 2002). A consequence of transportation is that parts of the world of origin become less accessible (Green & Brock, 2000). That is, aspects of reality become less accessible during transportation.

As evidence of this diminished cognitive connection to the real world, the following examples are posited: while experiencing transportation, one may not notice someone entering or leaving the room; or, one may become subjectively distanced from reality (Green & Brock, 2000). This psychological distance from reality is important as it underlies how one may be more or less accepting of

assertions within a story despite contradictions to real world facts (Green & Brock, 2000).

Transported viewers are likely to lose access to facts based in reality in favor of accepting the story world (Green & Brock, 2000). For instance, one should be less critical of premises that violate current technological limitations for the sake of the story (e.g., traveling to a distant galaxy in a matter of days).

To elucidate this process of psychological distance, an understanding of what a *story* is becomes necessary. Our recounts of events and doings, be they last night or months gone, take form as stories (Gerrig, 1993). Simply defined, stories are generally understood as having a beginning, middle, and an end (Green & Brock, 2000) comprised of a situation or event or series of events (Abbott, 2002; Bruner, 1991; Zwaan, Lanston, & Graesser, 1995). Futhermore, situations that occur within a story are comprised of element representations such as time, space, goals, causation, people, and/or objects (Speer & Zacks, 2005; Zwaan, 1999).

Stories should raise unanswered questions, present unresolved conflicts, and/or depict some not yet completed activity (Green & Brock, 2000). Bruner (1986) suggests

that narratives deal with human or human-like intentions and actions.

Oatley (2002) describes the story-audience interaction as *realization*. Realization is the formation of a virtual world in the mind of the viewer (Oatley, 2002) and requires viewers to comprehend, interpret, retrieve knowledge, and construct the story world (Busselle et al., 2004; Graesser, Olde, & Klettke, 2002; Oatley, 2002). This virtual world is a mental representation of the story comprised of a plot as a chronological, cause and effect, chain of events in the mind of the perceiver (Busselle et al., 2004).

To explore mental representations briefly, they form broader situation models. That is, situation models are the meta-representation of a narrative keeping in correspondence several narrative dimensions. These dimensions are time, space, protagonist, causality, and intentionality (Zwaan, 1999; Zwaan, Graesser, et al., 1995; Zwaan, Lanston, et al., 1995).

Viewers construct a mental representation based on the premises and propositions set forth by the story. This representation occurs in the mind of the viewer and therefore requires the viewer to accept and integrate story

premises and propositions for story world construction and transportation (Green & Brock, 2000; Oatley, 2002).

As discussed, immersion into a narrative has implications on one's experience with the narrative and the accessibility of real world aspects. What is not discussed is what impact identification with a character from that narrative might have on the same experience.

Identification

When experiencing a good story, one might begin experiencing the story from a character's perspective, often the perspective of the hero or protagonist (Cohen, 2001). *Identification* is the process by which audience members psychologically experience the events as though the events were occurring to them (Cohen, 2001). Specifically, identifying with a character allows a firsthand perspective in experiencing that character's social reality; a chance to vicariously experience what the character is experiencing (Cohen, 2001; Green et al., 2004). To elucidate this concept further, identification is a psychological experience. That is, while identifying with a character, one would imagine oneself as being that

character; thus, temporarily replacing his or her own identity and role with that of the character (Cohen, 2001).

Oatley (as cited in Cohen, 2001) describes identification as the adoption of the characters' goals, comprehension of plot events in reference to these goals, and the experience of emotion as a result of the interaction between the goals and plot events. Like transportation, identification is a psychological experience; however, the process involves adopting a character's thoughts, goals, emotions, and behaviors (Green et al., 2004) at the increasing loss of one's self-identity and its replacement with that of emotional and cognitive connections with a character (Cohen, 2001).

Identification is thought to be a central component for a story to influence attitudes and behavior (Cohen, 2001; Eyal & Rubin, 2003; Austin, Miller, Silva, Guerra, Geisler, Gamboa, Phakakayai, & Kuechle, 2002). Through identification, one may extend and modify one's social construction of reality, as it is comprised of emotional and social perspectives (Cohen, 2001; Eyal & Rubin, 2003; Austin et al., 2002). Yet, despite general understanding, dissimilar definitions have rendered identification conceptually ambiguous (Cohen, 2001).

One conceptualization defines identification as a viewer's desire to be like or emulate the character of desire or actor (Austin et al., 2002). Another conceptualization refers to identification as sharing a character's perspective and vicariously participating in that character's experiences while viewing (Cohen, 2001; Eyal & Rubin, 2003). Cohen (2001) offers a definition that is used by this study: identification is the imaginative process of temporarily substituting one's identity and perspective for that of a character presented in a mediated story, in this study, an EE program.

As identification has not been so clearly defined to foster consensus, it has been difficult to articulate its relationship to the concepts of audience involvement other than to consider it an experience of friendship, similarity, and affinity with a character by audience members (Cohen, 2001).

Cohen (2001) distinguishes identification from other processes of audience involvement. These are parasocial interaction (PSI), homophily and affinity, and imitation. In contrast to Cohen's phenomenological definition, PSI is considered an interaction between a viewer and a character. The viewer maintains his or her self-identity and, as a

result of attraction, forms an attachment to a character (Cohen, 2001). Homophily and affinity also require a viewer to maintain his or her self-identity and are characterized as attitudes and perceptions of one's similarity to and liking of a character (Cohen, 2001; Eyal & Rubin, 2003). Imitation is described as learned behavior resulting from character modeling. The viewer, maintaining his or her self-identity, positions him or herself as a learner and attends to behavior modeled by a character (Cohen, 2001).

Entertainment-Education, Transportation, & Identification

Researchers have indicated that stories can, in part, explain why the media affect its audience (e.g., Brock, Strange, & Green, 2002; Busselle et al., 2004; Gerbner et al., 2002; Green, 2004; Green & Brock, 2000; Green et al., 2004; Polichak & Gerrig, 2002; Schank & Berman, 2002). Specifically, the transportive experience appears to partly explain a story's potential to affect belief change (Green & Brock, 2002).

Likewise, identification with a story's character(s) appears to partly explain a story's potential to affect

belief change (Cohen, 2001; Eyal & Rubin, 2003; Austin et al., 2002).

Previous attempts to use EE to increase health knowledge and influence behavior have been successful (e.g., Brodie et al., 2001; Tamir et al., 2003) and are among the most promising strategies to reach large percentages of a population (Brown & Walsh-Childers, 2002; CDC, 2001; Sherry, 2002).

Concerning EEs potential for success, the CDC (2001) has asked, "how can EE messages influence knowledge, attitudes and health-related practices?" In an attempt to illuminate this issue, this study explores transportation and identification as part of EE's effectiveness.

An outcome of the transportive experience is that viewers return from their *journey* somewhat changed by their experience (Green & Brock, 2000). This change can be reflected in an individual's beliefs and attitudes (Green & Brock, 2000, 2002; Oatley, 2002). In their study, Green and Brock (2000) found that participants who experienced more transportation also exhibited higher levels of story-consistent beliefs. They explain this by suggesting, engaged viewers constructing a story-world would not have the cognitive resources available to counter-argue a

story's premises. Therefore, Green and Brock suggest that critical story evaluation is less likely to occur during the transportive experience.

It is suggested here that as one experiences transportation, story specific assertions are accepted and utilized to form a virtual world representation of that story, a psychological necessity of transportation. It is posited that messages embedded in an EE program would be accepted and serve to form knowledge as a result of transportation. Furthermore, viewer attitudes concerning the embedded message would reflect greater agreement with the issue depicted in an EE program as a result of story acceptance during the transportive experience. Specifically, one's beliefs about prevention, treatment, or cure would more closely resemble that of the narrative's portrayal and that one's attitude would exhibit greater personal concern, for oneself or close others, as it pertains to the story's portrayal of the embedded message. It is predicted that:

> **H_{1a}:** the more an individual experiences transportation while viewing an EE program, the more that individual will express story-consistent beliefs;

and,

H_{1b}: the more an individual experiences transportation while viewing an EE program, the more that individual will exhibit favorable attitudes towards embedded messages.

Likewise, consistent with Green and Brock (2000), it is posited that the more one is transported, the less likely that individual would be critically evaluating the story due to a limited amount of cognitive resources. Lang (2000) describes a limited capacity model in which humans are information processors with a limited capacity for cognitive work. Therefore, the cognitive resources allocated for the transportive experience renders viewers less able to critically evaluate a story given the limited resources available for peripheral cognitive tasks (Busselle et al., 2004). For this study, critical evaluation is analogous to counterarguing premises and propositions presented by a story. It is predicted that:

H_{1c}: the more an individual experiences transportation, the less that individual will engage in counterarguing.

The experience of identification can provide a firsthand perspective in experiencing a social reality not of one's own; an opportunity of vicariously experiencing

what the character experiences (Cohen, 2001; Green et al., 2004). It is posited that this vicarious experience during exposure to an EE program can lead to viewer learning consistent with that which a character learns (Marsh, Meade, & Roediger, 2003). As a viewer identifies with a character, he or she will adopt that character's perspective containing knowledge, experience, and learning within the story to form one's own knowledge gain and exhibit it as story-consistent beliefs. It is predicted that:

> **H_{2a}:** the more an individual experiences identification while viewing an EE program, the more that individual will express hold story-consistent beliefs.

Furthermore, it is posited that identification leads to adopting a character's perspective creating a firsthand experience. This requires acknowledgement and acceptance of their goals, motivations, thoughts, and feelings. Characters portrayed in an EE program will be subject to the embedded message and will experience the premises and propositions set forth by the embedded message. Therefore, through identification, a viewer will be vicariously subject to the same premises and propositions and the same experience leading to attitude formation or change (Cohen,

2001; Eyal & Rubin, 2003; Austin et al., 2002). It is predicted that:

> **H_{2b}:** the more an individual experiences identification while viewing an EE program, the more favorable attitudes that individual will exhibit towards embedded messages.

Stories are thought to promote a greater degree of identification as they provide an alternate reality (Cohen, 2001). A transported viewer will actively construct a story-world and feel as though they know the characters (Green & Brock, 2000). This underlies the necessity of transportation to construct a story-world so that a viewer is capable of adopting the perspective of a character (Green et al., 2004). This study extends that, as an individual experiences identification, he or she will experience transportation. That is, experiencing identification is positively related to experiencing transportation. It is predicted that:

> **H_3:** The more an individual experiences identification, the more that individual will experience transportation.

CHAPTER THREE

METHODS

A post-test only group design was utilized to collect the data for this study. This study was conducted in a classroom setting. Participation was conducted on a group basis of approximately 15-30 participants for each condition over four days. Each condition was situated in adjacent classrooms and participants, upon arrival to a predetermined room, were randomly assigned to a condition in a systematic alternating fashion. Each day, the condition and room assignment was systematically rotated (See Table 1 below).

Table 1

Room and condition rotation

	Day 1			Day 2			Day 3			Day 4		
Room	1	2	3	1	2	3	1	2	3	1	2	3
Condition	A	B	C	B	C	A	C	A	B	A	B	C

Participants

One-hundred-eighty-three communication undergraduate students were recruited from introductory communication

classes at a large northwestern university. Of these 183 participants, 107 were females (58.5%) and 76 were males (41.5%). Participants ranged from 18 to 58 with a mean age of 19.72 years (SD = 3.10). Extra credit was awarded for their participation.

Conditions

Three conditions were used in this study. Condition A, the *manipulation* group, had 56 participants (37 females, 19 males). Condition B, the *experimental* group, had 60 participants (30 females, 30 males). Condition C, the *control* group, had 67 participants (40 females, 27 males). Fourteen participants were omitted from this study, ten reported that English was not their native language and four were omitted for text messaging during the exercise, not completing the dual task, or whispering to each other.

Condition A (manipulation group): An EE program was shown, during viewing, participants were asked to perform a secondary task in an attempt to increase transportation variance between conditions. The intent of the secondary task is to aim focus on three dimensions of the narrative: time, space, and characters. Participants were required to indicate on a sheet provided each scene change and the

number of characters resident in each scene. After viewing, a thought listing task and a questionnaire were administered measuring story-consistent beliefs, counterarguing, transportation, identification, attitudes concerning the issues presented in the EE program, and participant demographics.

Condition B (experimental group): An EE program was shown, after viewing, a thought listing task and a questionnaire were administered measuring story-consistent beliefs, counterarguing, transportation, identification, attitudes concerning the issues presented in the EE program, and participant demographics.

Condition C (control group): An episode from a popular television crime drama was shown, after viewing, a thought listing task and a questionnaire were administered measuring story-consistent beliefs, counterarguing, transportation, identification, attitudes concerning the issues presented in *the* EE program, and participant demographics.

Stimuli

All stimuli materials were in digital format requiring the use of laptops. Laptops, located in each room, were used to control each presentation. Images were cast, via data projectors, upon projection screens. Stereo sound was emitted by the data projectors.

Entertainment-Education: A drama, *Too Young to be a Dad*, which aired on the Lifetime channel on June 10, 2002, was selected for its development presenting content concerning teen pregnancy, teen sex, contraception, parenthood, and safe sex. The story is depicted from a 15-year-old boy's perspective. The first time he has sex (unprotected), his girlfriend gets pregnant. They face the decision to keep their baby or place the baby up for adoption. He in particular resists the idea and suffers dissonance after giving in to parental pressure to place the baby up for adoption. He and his girlfriend are removed from their school to attend a specialized school for underage parents. To pay for his share of the medical bills, he gets a part time and works hard to balance his responsibilities. This stimulus was edited using professional quality editing software to omit its title and

credits as well as reduce its length, from approximately 90 minutes to approximately 65 minutes.

Control: A crime drama, *CSI: Miami, Cop Killer*, from season three, was selected, as it does not present content concerning the issues present in *Too Young to be a Dad*. This stimulus lasted approximately 45 minutes. No editing was performed on this stimulus.

Procedure

For all conditions, research assistants ensured that each participant was in position to view the projection screen. Upon completion of the administrative tasks (e.g., consent forms and instructions), the research assistants turned off the lights. At the completion of each stimulus presentation, the research assistant turned the lights on.

The manipulation exercise followed this procedure: Participants were asked to watch an edited made for television movie. Participants were asked to indicate on a sheet provided, every time they observe a scene change and the number of characters present in each scene. Instructions were administered that defined a scene change and provided examples; the following definition was

provided: A scene change is defined as any period of time in which a speaking part takes place in the same location involving the same characters. A new scene would begin anytime a character changes or the location changes. Following their viewing, they were asked to recall any thoughts they experienced while viewing the episode. Following their thought listing, they were asked to respond to a series of questions.

The experimental exercise followed this procedure: Participants were asked to watch an edited made for television movie. Following their viewing, they were asked to recall any thoughts they experienced while viewing the episode. Following their thought listing, they were asked to respond to a series of questions.

The control exercise followed this procedure: Participants were asked to watch an episode from a popular television series. Following their viewing, they were asked to recall any thoughts they experienced while viewing the episode. Following their thought listing, they were asked to respond to a series of questions.

Measures

Independent variables

Transportation: Utilizing a nine-point rating scale (1 = Strongly Disagree *to* 9 = Strongly Agree), participants were asked to respond to questions measuring their experience of transportation. Several scale items were constructed for this study. Likewise, several items were adapted and revised from Busselle, Zhang, & Hmielowski (2006), Cohen (2001), and Green & Brock (2000). Revisions were made to promote consistency and correspondence across items. In response to these questions, participants indicated to what degree they agree or disagree with a particular statement. A principle component factor analysis with varimax rotation was conducted on the responses using SPSS version 13 for windows. Seven components emerged after seven iterations. Transportation was limited to the initial three components comprised of 19 items and accounting for 84.61% of the variance. Reliability analysis conducted on these 19 items did not require any further item deletion, $\alpha = .91$. The final transportation measure and descriptive statistics are provided in Table 2 on the following page.

Table 2

Descriptive statistics for transportation measures

Transportation items	*M*	*SD*	Range
During the story, I was wondering about what might happen next.	6.46	2.23	1–9
While watching the story, I was vividly imagining what might happen next.	5.94	2.06	1–9
I felt as though I temporarily visited the place generated by the story.	4.33	2.33	1–9
While watching the story, I was imagining what could have happened in the story.	6.24	2.04	1–9
The story-generated world temporarily seemed more real to me than “reality”.	3.80	2.25	1–9
While watching the story, I could easily imagine myself in some of the situations depicted in the story.	5.53	2.43	1–9
When the story ended, I felt like I came back to “reality” after a journey.[a]	4.88	2.28	1–9
The story came to me and created a new world for me, and the world suddenly disappeared when the show ended.[a]	3.88	2.28	1–9
I felt as though I was in the world the story created.[a]	4.09	2.15	1–9
While watching the story, my body was in the room, but my mind was in the world created by the story.[a]	4.40	2.13	1–9
The story-generated world was more real or present for me than the “reality”.[a]	3.77	2.18	1–9
While watching the story, I could easily picture the events in it taking place.[b]	7.37	1.73	1–9
While watching the story, I could picture myself in the events of the story.[b]	5.54	2.52	1–9
I became mentally involved with the story while watching it.[b]	5.80	2.09	1–9
I wanted to learn how the story ended.[b]	7.08	2.09	1–9
I found myself thinking of ways the story could have turned out differently.[b]	5.86	2.44	1–9
Some events in the story are relevant to me in some way.[b]	5.17	2.48	1–9
While watching the story, I felt as if I was part of the action.[c]	4.31	2.00	1–9
While watching the story, I forgot myself and was fully absorbed.[c]	4.24	2.18	1–9

[a]Adapted and revised from Busselle et al. (2006). [b]Adapted and revised from Green and Brock (2000). [c]Adapted and revised from Cohen (2001).

Identification: Utilizing a nine-point rating scale (1 = Strongly Disagree *to* 9 = Strongly Agree), participants were asked to respond to questions measuring their experience of identification. These scale items were constructed as well as adapted and revised from Cohen (2001) to measure the degree to which they identified with a character in the story. Revisions were made to promote consistency and correspondence across items. In response to these questions, participants indicated to what degree they agree or disagree with a particular statement. A principle component factor analysis with varimax rotation was conducted on the responses using SPSS version 13 for windows. Two components emerged after three iterations. Identification was limited to the first component comprised of eight items and accounted for 92.99% of the variance. Reliability analysis conducted on these eight items did not require any further item deletion, $\alpha = .87$. The final identification measure and descriptive statistics are provided in Table 3 on the following page.

Table 3

Descriptive statistics for identification measures

Identification items	*M*	*SD*	Range
While watching the story, I was emotionally engaged with a character.	5.88	2.23	1–9
I was able to understand the events in the story in a manner similar to that in which the characters understood them.[a]	6.75	1.85	1–9
I think I have a good understanding of a character in the story.[a]	6.83	1.84	1–9
I tended to understand why the character did what he or she did.[a]	6.36	2.06	1–9
While I was watching the story, I could feel the emotions of at least one of the characters portrayed.[a]	6.03	2.27	1–9
While I was watching the story, I found that I could really get inside a character's head.[a]	5.00	2.24	1–9
While I was watching the story, I wanted at least one character to succeed in achieving his or her goals.[a]	6.58	2.09	1–9
When a character succeeded, I felt joy, but when he or she failed, I felt sad.[a]	5.50	1.97	1–9

[a]Adapted and revised from Cohen (2001).

Dependent Variables

Story-Consistent Beliefs: As a measure of affirmative story beliefs, a thought listing exercise was conducted. Participants recalled and indicated up to eight thoughts, which were evaluated for content affirming the story in

some way; e.g., “I don’t want to be a father at that age.”, “He shouldn’t keep the kid.”

Attitudes: Utilizing a nine-point rating scale (1 = Strongly Disagree *to* 9 = Strongly Agree), participants were asked to respond to questions related to or implied by messages embedded in the story. In response to these questions, participants will be indicating to what degree they agree or disagree with a particular statement. These attitudinal measures and their descriptive statistics are provided in Table 4 on the following page.

Table 4

Descriptive statistics for attitudinal measures

Attitudinal items	*M*	*SD*	Range
Underage teenagers should place their unborn child up for adoption.	5.29	2.21	1–9
Parents should take full responsibility for any consequence resulting from their children having unprotected sex with someone.	3.53	2.11	1–9
It is not necessary for people to use both condoms and birth control pills when having sex.	6.32	2.61	1–9
Every school district should require that all teenage students receive counseling about safe sex.	7.54	1.80	1–9
Teen pregnancy is an important issue that should be a priority to address.	7.25	1.60	1–9
Teenagers should be protected from some of their decisions; therefore, parents should monitor their children very closely.	4.71	1.90	1–9
It is more important that the female have and use contraception during sex than the male.	7.44	2.03	1–9
Teenagers should be counseled about safe sex by their parents at a much younger age.	6.15	1.77	1–9
If a couple does not have access to contraception one night, it is ok to have sex as long as they try to use contraception next time.	8.14	1.59	1–9
Approximately, what percentage of teenagers has unprotected sex?	46.33%	20.17	1–9

Other Variables

Counterarguing: As a measure of cognitive involvement, a thought listing exercise was conducted. Participants recalled and indicated up to eight thoughts, which were evaluated for content critical of the story; e.g., “Is this realistic?”, “How this case doesn’t seem very common”.

CHAPTER FOUR

RESULTS

Manipulation Check

An independent t-test was conducted to test the manipulation of transportation in Condition A, the manipulation group, to that of Condition B, the experimental group. No significant effect was found for the manipulation, $t(116) = .88$, $p = .37$. The mean scores are 5.31 ($SD = 1.41$) for Condition A and 5.08 ($SD = 1.41$) for Condition B.

The scenes counted ranged from 61 to 193 ($M = 123.57$, $SD = 34.76$). The distribution is evenly spread within the range, which indicates that the manipulation was unsuccessful. *Too Young to be a Dad* consisted of 96 scenes as determined by two research assistants counting the scenes under the same criterion given the participants.

Thought Listing

Two trained research assistants coded the thought listings. Reliability was established as both assistants separately coded the same randomly selected 183 thought listing responses. Coding resulted in 97% agreement between assistants and Scott's Pi (Riffe, Lacy, & Fico,

1998) was calculated at .82. Thoughts were coded into one of three categories: story-consistent beliefs, critical thoughts, and uncodable thoughts.

Story-consistent beliefs: As Table 5 on the following page illustrates, the manipulation group resulted in 56 participants listing from one to eight story-consistent beliefs: five listing one, 10 listing two, 11 listing three, 11 listing three, six listing five, six listing six, two listing seven, and five listing eight. The experimental group resulted in 58 participants listing from one to eight story-consistent beliefs: three listing one, eight listing two, 14 listing three, nine listing three, 10 listing five, six listing six, three listing seven, and five listing eight. The control group resulted in 51 participants listing from one to eight story-consistent beliefs: six listing one, 13 listing two, 12 listing three, six listing three, five listing five, five listing six, two listing seven, and two listing eight.

Table 5

Distribution of participant story-consistent belief listings across conditions

Number of thoughts	Participants		
	Condition A[a]	Condition B[b]	Condition C[c]
1	5	3	6
2	10	8	13
3	11	14	12
4	11	9	6
5	6	10	5
6	6	6	5
7	2	3	2
8	5	5	2
Total	56	58	51

[a]*n* = 56. [a]*n* = 60. [a]*n* = 67.

Critical thoughts: As Table 6 on the following page illustrates, the manipulation group resulted in 11 participants listing from one to eight critical thoughts: six listing one, four listing two, and one listing three. The experimental group resulted in 10 participants listing from one to eight critical thoughts: three listing one, three listing two, two listing three, one listing four, and one listing five. The control group resulted in 31 participants listing from one to eight critical thoughts:

19 listing one, eight listing two, two listing three, and two listing four.

Table 6

Distribution of participant critical thought listings across conditions

	Participants		
Number of thoughts	Condition A[a]	Condition B[b]	Condition C[c]
0	45	50	36
1	6	3	19
2	4	3	8
3	1	2	2
4	0	1	2
5	0	1	0
6	0	0	0
7	0	0	0
8	0	0	0
Total	11	10	31

[a]*n* = 56. [a]*n* = 60. [a]*n* = 67.

Uncodable Thoughts: Thoughts that were not directed to or about the narrative in some way did not fit the aforementioned categories and therefore, were listed as uncodable for the purpose of this study (*n* = 58, *M* = .50, 9.74% of all thoughts). For example, thoughts referencing

an actor, “what other shows have I seen that actor in?” or thoughts such as, “I have an exam tomorrow” were considered uncodable.

Hypotheses Tests

H1a predicted that the more an individual experiences transportation while viewing an EE program, the more that individual would express story-consistent beliefs. H1a was not supported. No correlation was found between transportation and story-consistent beliefs for the manipulation group (r = .09, p = .25) and for the experimental group (r = .04, p = .40).

H1b predicted that the more an individual experiences transportation while viewing an EE program, the more that individual would exhibit favorable attitudes towards embedded messages. As illustrated in Table 7 on page 39, support for H1b is suggested. The more participants experienced transportation, the more they agreed that *teen pregnancy is an important issue that should be a priority to address* (r = .24, p < .01). Likewise, the more they estimated *what percentage of teenagers have unprotected sex* (r = .17, p < .05), indicating their attitude concerning the pervasiveness of the issue, teenage unprotected sex.

In addition, the following attitude is approaching significance: *teenagers should be counseled about safe sex by their parents at a much younger age* (r = .15, p = .06).

Table 7

Correlational statistics for transportation and attitudinal measures

	Transportation	
Attitudinal items	*r*	*p*
Underage teenagers should place their unborn child up for adoption.	.07	.25
Parents should take full responsibility for any consequence resulting from their children having unprotected sex with someone.	−.04	.35
It is not necessary for people to use both condoms and birth control pills when having sex.	.08	.20
Every school district should require that all teenage students receive counseling about safe sex.	.07	.21
Teen pregnancy is an important issue that should be a priority to address.	.24	.004**
Teenagers should be protected from some of their decisions; therefore, parents should monitor their children very closely.	.11	.12
It is more important that the female have and use contraception during sex than the male.	−.05	.28
Teenagers should be counseled about safe sex by their parents at a much younger age.	.15	.06[a]
If a couple does not have access to contraception one night, it is ok to have sex as long as they try to use contraception next time.	−.07	.24
Approximately, what percentage of teenagers has unprotected sex?	.17	.04*

[a]Approaching significance, $p = .06$.
*$p < .05$. **$p < .01$.

H1c predicted that the more an individual experiences transportation while viewing an EE program, the less that individual would engage in counterarguing. H1c was not supported. No correlation was found between transportation and counterarguing for the manipulation group (r = -.14, p = .16) and for the experimental group (r = -.02, p = .45). However, further analysis was warranted. Given the low n for those participating in CA, a t-test was conducted. No significant difference was detected between those who did not CA (n = 95, M = 5.23) and those who did (n = 21, M = 5.05) as $t(114)$ = .527, p = 30.

H2a predicted that the more an individual experiences identification while viewing an EE program, the more that individual would express story-consistent beliefs. H2a was not supported. No correlation was found between identification and story-consistent beliefs for the manipulation group (r = .06, p = .33) and for the experimental group (r = -.15, p = .14).

H2b predicted that the more an individual experiences identification while viewing an EE program, the more favorable attitudes that individual would exhibit towards embedded messages. As illustrated in Table 8 on page 42, H2b is partially supported. The more participants

experienced identification, the more they agreed that *teen pregnancy is an important issue that should be a priority to address* ($r = .34$, $p < .001$), *teenagers should be counseled about safe sex by their parents at a much younger age* ($r = .19$, $p < .05$), *every school district should require that all teenage students receive counseling about safe sex* ($r = .22$, $p < .01$), and *underage teenagers should place their unborn child up for adoption* ($r = .20$, $p < .05$). Likewise, the more they estimated *what percentage of teenagers have unprotected sex* ($r = .18$, $p < .05$), indicating their attitude concerning the pervasiveness of the issue, teenage unprotected sex.

Table 8

Correlational statistics for identification and attitudinal measures

	Identification	
Attitudinal items	*r*	*p*
Underage teenagers should place their unborn child up for adoption.	.20	.02*
Parents should take full responsibility for any consequence resulting from their children having unprotected sex with someone.	−.10	.14
It is not necessary for people to use both condoms and birth control pills when having sex.	.05	.31
Every school district should require that all teenage students receive counseling about safe sex.	.22	.009**
Teen pregnancy is an important issue that should be a priority to address.	.34	.000**
Teenagers should be protected from some of their decisions; therefore, parents should monitor their children very closely.	.08	.19
It is more important that the female have and use contraception during sex than the male.	.04	.35
Teenagers should be counseled about safe sex by their parents at a much younger age.	.19	.02*
If a couple does not have access to contraception one night, it is ok to have sex as long as they try to use contraception next time.	.05	.30
Approximately, what percentage of teenagers has unprotected sex?	.18	.03*

*$p < .05$. **$p < .01$.

H3 predicted that the more an individual experiences identification, the more that individual would experience transportation. H3 was supported. A significant positive correlation was found between identification and transportation (r = .80, p < .001).

Additional Tests

Condition comparisons

T-tests were conducted to compare attitudinal item mean scores in the manipulation group with the control group and the experimental group with the control group.

As illustrated in Table 9 on page 45, the following attitudinal items resulted in significantly stronger agreement in the manipulation group than the control group: 1) *Underage teenagers should place their unborn child up for adoption* (t(121) = -2.41, p < .01). The mean score in the manipulation group was 5.30 (SD = 2.21) and 6.30 (SD = 2.34) in the control group. 2) *Parents should take full responsibility for any consequence resulting from their children having unprotected sex with someone* (t(121) = 1.95, p < .05). The mean score in the manipulation group was 3.71 (SD = 2.22) and 2.94 (SD = 2.16) in the control

group. 3) *Teen pregnancy is an important issue that should be a priority to address* ($t(121) = 1.71$, $p < .05$). The mean score in the manipulation group was 7.13 ($SD = 1.82$) and 6.54 ($SD = 1.95$) in the control group. 4) *Teenagers should be counseled about safe sex by their parents at a much earlier age* ($t(120) = 2.40$, $p < .01$). The mean score in the manipulation group was 6.63 ($SD = 1.60$) and 5.82 ($SD = 2.04$) in the control group.

Table 9

Attitudinal mean score comparison between manipulation and control group responses

Attitudinal items	Manipulation Group *n*	Manipulation Group *M*	Control Group *n*	Control Group *M*
Underage teenagers should place their unborn child up for adoption.	56	5.30**	67	6.30
Parents should take full responsibility for any consequence resulting from their children having unprotected sex with someone.	56	3.71*	67	2.94
It is not necessary for people to use both condoms and birth control pills when having sex.	56	6.31	67	6.70
Every school district should require that all teenage students receive counseling about safe sex.	56	7.66[a]	67	7.21
Teen pregnancy is an important issue that should be a priority to address.	56	7.13*	67	6.54
Teenagers should be protected from some of their decisions; therefore, parents should monitor their children very closely.	56	4.87	67	4.55
It is more important that the female have and use contraception during sex than the male.	56	7.61	67	7.39
Teenagers should be counseled about safe sex by their parents at a much younger age.	56	6.63**	66	5.82
If a couple does not have access to contraception one night, it is ok to have sex as long as they try to use contraception next time.	56	8.16	66	8.23
Approximately, what percentage of teenagers has unprotected sex?	56	47.20%	67	50.04%

[a]Approaching significance, $p = .10$.
*$p < .05$. **$p < .01$.

As illustrated in Table 10 on the following page, the following attitudinal items resulted in significantly stronger agreement in the experimental group than the control group: 1) *Underage teenagers should place their unborn child up for adoption* ($t(125) = -2.49$, $p < .01$). The mean score in the experimental group was 5.72 (SD = 2.23) and 6.30 (SD = 2.34) in the control group. 2) *Teen pregnancy is an important issue that should be a priority to address* ($t(125) = 2.75$, $p < .01$). The mean score in the experimental group was 7.37 (SD = 1.37) and 6.54 (SD = 1.95) in the control group.

Table 10

Attitudinal mean score comparison between experimental and control group responses

	Experimental Group		Control Group	
Attitudinal items	*n*	*M*	*n*	*M*
Underage teenagers should place their unborn child up for adoption.	60	5.28*	67	6.30
Parents should take full responsibility for any consequence resulting from their children having unprotected sex with someone.	60	3.37	67	2.94
It is not necessary for people to use both condoms and birth control pills when having sex.	60	6.33	67	6.70
Every school district should require that all teenage students receive counseling about safe sex.	60	7.43	67	7.21
Teen pregnancy is an important issue that should be a priority to address.	60	7.37*	67	6.54
Teenagers should be protected from some of their decisions; therefore, parents should monitor their children very closely.	60	4.57	67	4.55
It is more important that the female have and use contraception during sex than the male.	60	7.28	67	7.39
Teenagers should be counseled about safe sex by their parents at a much younger age.	59	5.69	66	5.82
If a couple does not have access to contraception one night, it is ok to have sex as long as they try to use contraception next time.	60	8.12	66	8.23
Approximately, what percentage of teenagers has unprotected sex?	60	45.52	67	50.04%

*$p < .01$.

Manipulation analysis

As discussed earlier, *Too Young to be a Dad* as edited for this study contained 96 scenes. The range of scenes counted by participants in Busselle et al (2005) study was deemed appropriate as they were within an acceptable tolerance. Using similar logic, those scenes counted within an acceptable tolerance from the established 96 scenes, should reflect an effective manipulation. That is, increased transportation. To accommodate further analysis, a variable was constructed measuring the number of scene changes each participant indicated during the secondary task. The variable was split about its median, 126.50, to create two levels: low (n = 26) and high (n = 30). These levels indicate whether a participant recorded a high number of scene changes or a low number. The low level represents those scenes counted within an acceptable tolerance for a successful manipulation. The high level represents those scenes counted outside the acceptable tolerance.

As illustrated in Table 11 on the following page, t-test analyses reveal that those who reported a lower number of scene changes experienced significantly more transportation (Low: M = 5.76, High: M = 4.93) than those

reporting a higher number of scene changes, $t(54) = 2.26$, $p < .05$. Likewise, those who reported a lower number of scene changes experienced more identification (Low: $M = 6.58$, High: $M = 4.93$) than those reporting a higher number of scene changes. This is approaching significance, $t(54) = 1.46$, $p = .08$. Finally, those who reported a lower number of scene changes expressed fewer critical thoughts (counter-arguing) (Low: $M = .15$, High: $M = .43$) than those reporting a higher number of scene changes. This is approaching significance, $t(54) = -1.54$, $p = .07$.

Table 11

Mean scores across levels of scene counts

	Mean scores	
Measure	Low[a]	High[b]
Transportation	5.76*	4.93
Identification	6.58[c]	6.01
Story-consistent Beliefs	4.00	3.93
Counter-arguing	0.15[d]	0.43

[a]$n = 26$. [b]$n = 30$. [c]Approaching significance, $p = .08$. [d]Approaching significance, $p = .07$.
*$p < .01$.

As illustrated in Table 12 on page 51, those in the manipulation group who reported a higher number of scene changes ($n = 30$) were more similar to the experimental

group (n = 60) in the degree of transportation and identification experienced than those in the manipulation group who reported a fewer number of scene changes (n = 26). Specifically, those who reported a fewer number of scene changes experienced significantly more transportation (M = 5.76) than those in the experimental group (M = 5.08), $t(84) = -2.09$, $p < .05$. Those who reported a higher number of scene changes experienced a similar degree of transportation (M = 4.93) to that of those in the experimental group (M = 5.08), $t(84) = -2.09$, $p < .05$. Likewise, those who reported a lower number of scene changes experienced significantly more identification (M = 6.58) than those in the experimental group (M = 5.97), $t(84) = -1.88$, $p < .05$. Those who reported a higher number of scene changes experienced a similar degree of identification (High: M = 6.01) to that of those in the experimental group (M = 5.97), $t(88) = -.12$, $p = .45$.

Table 12

Comparison of scene count levels to the experimental group

	Manipulation Group		Experimental Group
Measure	Low (n = 26)	High (n = 30)	None (n = 60)
Transportation	M = 5.76*	M = 4.93	M = 5.08
Identification	M = 6.58*	M = 6.01	M = 5.97
Story-consistent Beliefs	M = 4.00	M = 3.93	M = 4.07
Counter-arguing	M = 0.15	M = 0.43	M = 0.40
Counter-arguing frequency	4	13	24

*p < .01, significantly different than the experimental group

CHAPTER FIVE

DISCUSSION

In this study, to explore the influence EE programs are reported to have, transportation and identification were measured to examine their influence on story-consistent beliefs and attitudes consistent with messages embedded in the program.

It was predicted that, an increase in transportation or an increase in identification would increase the amount of story-consistent beliefs expressed and the strength of attitudes consistent with embedded messages. In addition, it was predicted that an increase in transportation would result in a decrease in counterarguing. Finally, consistent with previous studies, it was expected that identification and transportation would be positively related.

Hypotheses

While an attempt to generate greater variance in transportation between groups failed, the influence of transportation was still significant. First, transportation influenced the strength of viewer attitudes concerning issues relevant to messages embedded in the EE program. Second, transportation was found to be positively related to identification. However, the level of

transportation experienced did not influence the amount of story-consistent beliefs and critical thoughts expressed.

The influence of identification was found to be significant. Identification influenced the strength of viewer attitudes concerning issues relevant to messages embedded in the EE program. The more a viewer experienced identification, the more that viewer exhibited stronger attitudes consistent with messages embedded in the program. However, the level of identification experienced did not influence Story-consistent beliefs and critical thoughts expressed.

Contrary to previous research (Green & Brock, 2000; Green, 2004); transportation did not predict the quantity of story-consistent beliefs. Likewise, identification was not a predictor. Perhaps, story-consistent beliefs and counterarguing, as measured in this study are not good indicators or predictors of acceptance or denial of knowledge and assertions made by a narrative. Future research should refine these measures so that illumination of relational properties to other factors, attitudes, transportation, or identification can be accomplished.

Manipulation

In an attempt to inhibit transportation, a specially designed secondary task was used and resulted in an increase in transportation (Busselle et al., 2005).

Busselle et al. posits that the secondary task drew focus to specific narrative dimensions, time, space, and protagonist (characters). The secondary task in this study failed to impact transportation.

There are numerous possibilities for why the manipulation was not successful; two are posited. First, the possibility that participants did not universally understand what constituted a scene and scene change. The diffusion and range of counted scene changes appears to support this. Such a failure would render the manipulation ineffectual. Second, transportation required greater cognitive resources and reduced the available resources required to complete the secondary task thereby rendering the task ineffective. That is, the more a participant experienced transportation, the less cognitive resources that was available to perform the secondary task.

It is suggested here that both, misunderstood instructions and limited cognitive resources available to complete the secondary task may have contributed to the manipulation failure. However, further analysis reveals that those who counted less scene changes were more transported, providing initial support for the second posit.

Another interpretation of these results is consistent with the findings of Busselle et al. (2005). Those that recorded a lower number of scene changes experienced more

transportation because at that level the manipulation was successful. That is, the lower number of scene changes recorded is within an acceptable tolerance of the established 96 scenes in the program, thereby reflecting an effective manipulation; while, the higher number of scene changes recorded are outside the acceptable tolerance. In addition, a correlation between transportation and counter-arguing is also consistent with their findings.

Future research should examine dual tasks and cognitive resources more closely in hopes to illuminate more about the underlying cognitive processes and transportation in to filmic narrative.

Entertainment-Education as a Strategy

These findings provide a glimpse of the possible mechanisms for EE impact. Specifically, transportation and identification as experiences with a narrative may be important predictors for employing EE strategies.

Exposure to the EE program resulted in significant differences in measured attitudes. That is, comparing the manipulation group and the experimental group to a control group, the control group resulted in significantly weaker attitudes. While this does not illuminate what about exposure contributes to attitudinal shifts, given the lack of empirical research on EE and how it functions to produce an effect, this result provides a starting point from which

EE researchers can broaden their focus to include exploration and study of potential underlying processes that might enable EE to influence its audience.

These findings are important to those considering employing or to those who employ EE as a strategy. While this study cannot infer behavioral change, these findings can, at least in this case, indicate that attitudes shift, at least briefly, towards a more health conscious and aware perspective. Forming accurate knowledge and attitudes about health and other prosocial issues can be the first step in the process in influencing behavior.

Limitations

There are several limitations of this study. First, the results may be skewed by the low number of participants that engaged in counter-arguing. This makes analyses weaker in that it reduces the likelihood of statistically significant results. Second, the data collected for this study are in response to a made for television EE drama. As such, the results in this study cannot be generalized beyond the scope of the genre used. Future research should attempt to examine this and additional EE genres. Third, the attitudinal measures were designed to be relevant to the stimulus shown. It can however be argued that the questions employed were general enough in nature as to pertain to the greater issues concerning teen sex, teen

pregnancy, parenthood, and safe sex and not specifically to the stimulus used. Fourth, the persistence of resulting attitudes were not measured, as such, long-term effects cannot be inferred by this study. Future research should address this by conducting a longitudinal study measuring attitudes overtime before and after initial exposure and perhaps subsequent exposures.

Finally, the relationship between transportation and identification is correlational only and cannot be used to assess the causality of one by the other. Future research should attempt to manipulate one, e.g., transportation, and measure the other to ascertain their relational properties. Does the manipulation of one similarly affect the other? These are questions best answered under the scrutiny of future empirical research.

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