RUNNING HEAD: Presence and Television

# Presence and Television: Form versus Content

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# Presence and Television: Form versus Content

## *Introduction*

Presence research has demonstrated that researchers can induce a sense of presence in television viewers using both form variables such as screen size (Lombard, Reich, Grabe, Bracken, & Ditton, 2000), image quality (Bracken 2002), and sound quality and dimensionality (Lessiter & Freeman, 2001). Additionally, previous research suggests that content also can evoke a sense of presence (Lombard & Ditton, 1997). However, it is still unclear if both form and content are necessary, or if one aspect contributes more to the likelihood viewers experience a sense of presence. This study attempts to understand the distinction between these two contributing factors of presence.

## *Presence*

The concept of presence, variously defined as a sense of "being there," a "sensation of reality," "involvement," and more generally as "an illusion of nonmediation," has been examined in research and theory in diverse fields. Lombard and Ditton (1997) defined presence as the "perceptual illusion of nonmediation" ("Presence Explicated" section; paragraph 1). The concept includes social richness (feelings of warmth or intimacy via a medium), realism (both perceptual and/or social), transportation (sensations of sharing the environment with mediated characters), and immersion (involvement in a mediated environment). Additionally, presence has been extended to include perception of media technologies as social actors (Bracken, 2001; Lombard & Ditton, 1997). Various researchers categorized these dimensions differently: Lombard and Ditton

(1997) title them invisible medium (forgetting about the medium) and transformed medium (reacting to the medium socially), while IJsselsteijn, de Ridder, Freeman, & Avon (2000) used the terms physical presence (being in the mediated environment) and social presence (being near someone).

*Presence and Television.* Even though presence has originated within virtual reality and other mediated environments, it has now been established that television viewers also experience a sense of presence – viewers respond to objects and people on the screen as if they were real **(**Grabe, Lombard, Reich, Bracken, and Ditton, 1999).

*Presence and Form*

Previous research has found that manipulating form variables alters the amount of presence experienced by viewers'; this is particularly true for image quality and size. There are consistent findings that larger images (Bocker & Muhlbach, 1993; Heeter, 1992; Lombard, 1995; Lombard, Ditton, Grabe, & Reich, 1997; Reeves, Detenber, & Steuer, 1993; Zeltzer, 1992) and improved image quality (Bracken, 2002; Neuman, 1990) lead to subjects reporting greater amounts of presence.

*Image size.* It is accepted that larger screen sizes increase the likelihood that television viewers' will experience a sense of presence (Lombard & Ditton, 1997). Grabe, et al. (1999) state "There is substantial evidence for the idea that larger screens promote perceived realism of media content and perceptions of presence" (p. 5). One reason it has been assumed that larger images evoke a sense of presence is because they fill a greater percentage of viewers' field of vision (Reeves & Nass,

1996). Television viewers also respond to larger images as more realistic (Lombard, et al., 2000). While there are numerous screen size studies that have examined the role of image size on various media effects (see Detenber & Reeves, 1996; Reeves, Lang, Kim, & Tatar, 1999), there are very few that have focused upon screen size and presence. Some examples of screen size studies include the early work on screen size and viewing distances (Hatada, Sakata, & Kushaka, 1980[1]; Lund, 1983). Other early work includes an experiment that examined the interaction of screen size (20-, 42-, or 70-inch) and the type of content viewed. The participants reported feeling more fatigue and dizziness when watching fast moving scenes (horse racing) on the larger screens. More recently, screen size studies focus on whether differences in screen size affect attention (Detenber & Reeves, 1996; Reeves, Detenber, & Steuer, 1993; Reeves, Lang, Kim, & Tatar, 1999), memory (Kim & Biocca, 1997), and arousal (Lombard, Grabe, et al. 1996, Lombard, Reich, et al, 2000; Reeves, Lang, Kim, & Tatar, 1999).

*Image size and presence.* Several studies have examined the relationship between image size and presence. Lombard (1995) found that participants' who viewed people on large versus small screens evaluated the people seen on larger screens more positively. Additionally, viewing images on larger screens lead to increased arousal (measured with galvanic skin response [GSR]) in participants

[1] While this study did not focus on the concept of presence, the results provided evidence that increasing the visual angle (larger screen size and closer viewing distances) lead to an increase in subjective evaluation of the sensation of reality.

(Lombard, et al, 2000). Lombard, et al also found participants' reported higher levels of enjoyment, and a sense of presence (immersion) when viewing a larger screen.

H1: Participants who watch television on the large screen will report higher levels of presence than viewers who watch television images on the smaller screen.

*Image quality.*

Even less empirical research has been conducted on image quality, in part due to the difficulty of obtaining or creating stimuli. However, the results are also consistent. Neuman (1990) found viewers' preferred larger images with any image resolution. However, for 35-inch and 180-inch television displays, the participants rated the image quality as better and had a more positive overall reaction. In an experiment investigating the level of presence experienced by viewers while watching high definition television (HDTV) versus standard television (NTSC) images, Bracken (2002) found that image quality contributed to participants' reporting higher levels of presence.

H2: Participants who watch television images in HDTV will report more of a sense of presence than viewers who watch images in standard resolution (NTSC) television.

With support for hypotheses 1 and 2, we expect

H3: Participants who watch television images in HDTV on the larger screen will report higher levels of presence than participants who watch HDTV images on the small screen, images on the large screen in standard resolution (NTSC), or standard resolution images on the small screen.

*Presence and Content*

Content has been identified as a contributor to viewers' sensations of presence (IJsselsteijn, de Ridder, Freeman, & Avons, 2000; Lombard & Ditton, 1997). Television content is less interactive than previous media content used to explore sensations of presence (virtual reality, MUDs, video games). To date, most studies exploring television and presence, have employed visual stimuli that seemed the seemed likely to evoke a sense of presence (i.e., content that contains quick cuts) with the goal of demonstrating television could evoke a sense of presence. The variety of content available to television viewers' has yet to be investigated to see if all television content provides viewers with sensations of presence. However, previous research suggests that television audiences will experience different levels of presence when viewing different types of content. For example, point of view movement (POV) was found to increase viewers' sense of immersion (Lombard, Reich, et al, 2000). Using more neutral content (documentary footage of Japan) Bracken (2002) explored viewers' sensations of presence when viewing HDTV versus standard (NTSC) images. She found that while viewers who watched the HDTV images reported more presence, they reported the same content as both exciting and relaxing. In an experiment to investigate viewers' physiological and reported sensations of presence, Dillon, Keogh, Freeman, and Davidoff (2001) employed two different content types (1) a relaxing boat ride and (2) a rally sequence. They found that the relaxing boat sequence evoked more of a sense of presence than the rally sequence, suggesting that content need not be action in

order to evoke presence. Moreover, the results found by Dillon, et al. (2001) suggest that there is an interaction between content and form. Additionally, Reeves, et al (1999) suggest that the interaction between form and content merits further investigation.

RQ1: Is there a difference in the level of reported sensations of presence based on different types of content (action adventure versus drama).

RQ2: Is there a difference between the level of reported sensations of presence for the interaction of form and the various content types?

RQ3: Is there a difference between the participants' general sensations of presence (measured via the pretest) and those reported after being exposed to either action adventure or drama content?

## *Method*

In a 2 (image quality) x 2 (screen size) x 2 (content) factorial design, participants were randomly assigned to watch HDTV or analog (NTSC) television images (image quality); on either a large (65-inch) or small (32-inch) HD compatible television set (screen size); with one of two content types (action-adventure or drama). HDTV is used because high definition television provides both larger screen sizes and improved image quality. Specifically, the participants watched "Terminator 2" in the action adventure condition and "Dirty Dancing" in the drama condition. These particular films were chosen due to the restrictive programming available in HDTV. These particular types of content were chosen to represent the range of programming the viewers' are likely to watch. This study uses a between subjects

design to examine the influence of form (image quality and screen size) versus content.

Prior to the experiment, participants completed a questionnaire to collect information on viewing habits, size of television most often watched, and their general sensations of presence.

After viewing the television images, the participants completed a paper-and-pencil questionnaire measuring several dimensions of presence: immersion, engagement, perceptual realism, social richness, social presence, social realism, and spatial presence, along with items that are part of another study.

The experiment is still in the data collection stage. However, the results of this experiment will contribute to our knowledge of what encourages a sensation of presence in television viewers. Specifically, the results will provide evidence about the relationship between television form and content. Additionally, the results provide a preview of the potential for experiencing of greater levels of presence in the home viewing environment as the United States moves ever closer to the conversion to High Definition Television.

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