

It is REALLY a smaller (and smaller) world: Presence and small screens

Cheryl Campanella Bracken, and Gary Pettey
Cleveland State University
{c.bracken@csuohio.edu, g.pettey@csuohio.edu}

Abstract

This study moved Presence into the realm of the smaller video format—comparing Apple iPod with a standard television presentation. Ninety-six students were exposed to one of two presentations on either an iPod or on a 32-inch television. Students saw either a 10-minute fast-paced (multiple cut) action sequence or a 10-minute slow-paced (long cut) conversation sequence from a feature length motion picture. The 2 x 2 design looked at differences in immersion, spatial presence and social realism. While previous research suggests that larger format presentations should generally result in higher levels of presence, this study found that subjects viewing the iPod reported higher levels of immersion. Social realism had a significant interaction with content/pace, and there was no significant difference between iPod and the 32-inch television in spatial presence.

The time to imagine is now. The mobile video industry is poised to boom. There are more mobile phones in the world than cinemas, televisions, and computers combined, and the proportion of those phones that are video- and net-enabled is growing rapidly (John Pace, 2006, pg 149).

1. Introduction

There has been an increase in the number of mobile devices for work [1] and for entertainment. To demonstrate entertainment uses, in 2006 the first annual International Portable Film Festival was launched [2]. However, even with such medium specific event there is some concern about re-hashing old content for a new medium. Karena cites film festival organizer Andrew Apostola as saying “What is the length of time people can watch a small format? I’m personally comfortable with up to a half an hour” [2, p. 60].

There have been numerous studies examining the use of small screen for work related activities. Additionally, smaller screen have been shown to lower task performance in PDA size devices [3-4] but with the ever increasing number of small screen being used for entertainment (i.e., Playstation Portable, Microsoft Zune, and Apple iPods) an investigation into the level of engagement with the small screen is a necessity. This study investigates audience responses to an

average size television and an iPod. The independent variables are screen size and content. The dependent variables include a variety of presence dimensions – specifically immersion, spatial/physical presence, and social realism.

One means to study audience engagement with these smaller screens is by exploring whether participants will report experiencing a sensation of presence while viewing these very small screens.

2. Presence

Audience members can experience a sensation of presence through the use of technology when they inaccurately perceive the role of the medium. There have been numerous definitions of presence put forth [5-8]. The current study defines presence as a perceptual process where the media user somehow looks past or overlooks the technology to experience the medium [9].

2.1. Presence and Television

Several studies have demonstrated that television can evoke sensations of presence in viewers [10-12]. Even prior to these studies addressing presence, earlier studies found that under certain conditions viewers can respond to objects and people on the screen as if they were real [13].

A common way to study presence and television has been to manipulate screen size. There are consistent findings that larger screens often lead to audience responses that are consistent with presence [14-15] or were classified as presence [12, 16-17].

2.2. Screen Size

The size of the television screen has been of interest to researchers since the early 1970s. Early studies focused on audience’s recollection of televised content and the impact of screen size. Recognition was to be better on larger screens [18]. It should be noted that the largest screen employed in this study was 23-inches.

More recent investigations have found that television viewers report larger images as being more realistic [12]; increased attention [15, 19-20]), better memory [5], and higher levels of arousal [12, 20-21] In almost all cases larger screen lead to higher levels of the dependent variables.

One experiment investigating television screen size and audience responses [20] used 3 different screen sizes (56-inch, 13-inch, and 2-inch picture heights) and found that attention and arousal were greater for the larger screens. The 2-inch screen was an LCD monitor (rather than the current iPod-type player). Further Reeves et al., argue that larger screen might demand more of audience members' attention because there is more area (or larger images) to be processed. The argument is linked to the development of visual perception with larger images being processed as a threat and therefore demanding more attention.

In 2004, an examination exploring whether small portable computer size screens with a screen size of 3.9" could elicit positive emotional responses and heighten arousal for audiences when viewing news [22]. While this study focused on motion of images on small screen, the findings were consistent with findings of television size screen studies. Namely, that audio/visual content can impact the level of pleasure and arousal experienced by the media user with a positive relationship found between larger screen sizes and media effects.

2.3. Presence and Screen Size

The studies that have explored screen size and presence have found consistent results that larger screen result in participants reporting higher levels of presence dimensions. Some examples include more enjoyment [12], immersion [23], spatial presence [24] and perceived realism [10].

Based on the findings of these studies and the nature of the screen included in the study, the following hypotheses are proposed:

Hypothesis 1a: Participants who watch the large screen will report higher levels of *immersion* than the participants who watched the smaller screen.

Hypothesis 1b: Participants who watch the large screen will report higher levels of *spatial presence* than the participants who watched the smaller screen.

Hypothesis 1c: Participants who watch the large screen will report higher levels of perceived *social realism* than the participants who watched the smaller screen.

3. Content/Pace

The pace of a television program has been shown to influence audience responses to television messages [25-26]. Pace has been found to influence of pacing on memory, with

faster pacing decreasing recognition of Public Service Announcements (PSAs) [27-28], and TV commercials [29-30]. It has also been shown to influence audience channel changing behaviors [26].

In an experiment manipulating pace, [25] found that increased pace increases arousal and attention in viewers. However, pace appears to have a threshold, if the pace is fast and the content arousing, then the participants were cognitively overloaded and beyond their ability to process the information (This study was conducted on a 19-inch television set). In 2003, similar results were found with television news [31]. Other researchers have identified certain types of programming that is likely to have a faster pace.

In fact programing genres have been connected to pace [32]. Action-adventure children's television programming was found to have significantly faster pacing than education programming [33]. Action programming appear to have a faster pace in adult content as well. Some researchers have proposed tha action adventure should be categorized as fast paced [34] Further, [35-36] found that such faster paced content is rated as more exciting by audiences. For these reasons the clips used in this study are identified by the content they contain, but the authors also acknowledge that the clips varying in pacing as well.

Based on these findings the following are offered:

RQ1: Will pace influence the sensations of presence reported by participants?

RQ2: Will there be an interaction between screen size and pace for presence?

4. Method

The overall design was a screen size x content/pacing (2 x 2) between-participant design. Both screen size and content/pace had two levels. The levels of screen size were large and small. The levels of content were action and conversation. Forty-eight participants watched a 10-minute film clip. The experiment received Institutional Review Board approval. Figure 1 presents the design.

	Television	iPod
Conversation	24 participants	24 participants
Action	24 participants	24 participants

Figure 1 2x2 Research Design

4.1. Stimulus

The video material was taken from the film *Ronin*. The movie released in 1998 was directed by John Frankenheimer and starred Robert DeNiro and an international cast. After viewing several movies that included both character conversational interaction and scenes with high action sequences without (or minimal) character conversation, this movie was selected for three reasons:

1. First, it was not a well known movie so most subjects would be unfamiliar with the context/story surrounding the 10 minute segment.
2. The director used long continuous shots during the character interaction (slower pacing) and multiple cuts (faster pacing) during the chase scene. Further, the chase sequence was shot without computer generate imagery (CGI).
3. The two 10 minute sequences were connected with the planning (character interaction) immediately preceding the chase. Further the two sequences were self contained and timed within 24 seconds of each other.

The content (pace) of each clip was different. The action drive clip was fast paced with frequent cuts and lots of movement on the screen. The conversation clip is presented in a much slower pace. The scenes features longer shot lengths and slower transitions.

4.2. Independent Variables

4.2.1. Screen Size The first independent variable was screen size (large versus small). Screen size was manipulated by having one group of participants view the clips on a large 32-inch (measured diagonally) television set. The other group watched on the clips on a small video capable iPod (2.5-inch screen).

4.2.2. Content/Pace The second independent variable was content (pace). Content was manipulated by having one group of participants watch the action driven clip. The clip featured a group of people firing guns at each other in a city street, followed by an extended car chase with a concluding gunfight (fast paced). The conversation driven clip contained some of the same characters sharing information and making plans (slow paced). The clips are contiguous in the actual film.

4.3. Dependent Variables

The amount of presence experienced by the participants was measured using a multidimensional presence scale [7, 10-11]. The presence dimensions included were immersion, spatial presence and perceptual realism and are detailed below.

4.3.1. Immersion. Immersion was measured by asking participants to respond to five statements using a scale from not at all (1) to very much (7). The immersion scale was developed to assess the extent to which audience members feel they are absorbed in the media programming. Examples of items include: "How involving was the video?", and "How engaging was the story." The scale had a Cronbach's alpha of .87.

4.3.2. Spatial Presence Participants responded from very strongly disagree (1) to very strongly agree (7) for three Likert-type statements designed to measure the extent to which television viewers feel a sense of sharing a physical space with the mediated environment [7]. Examples of the statements include: "How much did it seem as if the objects and the people you saw/heard had come to the place you were," and "How often when an object seemed to be headed toward you did you want to move out of its ways." The scale had a Cronbach's alpha was .90.

4.3.3. Social Realism Participants responded from very not at all (1) to very much (7) for six statements intended to measure the extent to which television viewers feel a sense of realism when viewing television. The four statements were "The events I saw/heard would occur in the real world," "The events I saw/heard could occur in the real world," "How relaxing was the experience?" and "The way the events I saw/heard occurred is a lot like the way they occur in the real world." The scale had a Cronbach's alpha was .77.

4.4. Participants

Undergraduate students were recruited from several social science courses to participate. Ninety-eight undergraduate students from introductory classes were given credit from their instructors for participation

4.4. Procedure

Each participant was met by the experimenter and escorted into a carpeted, 8 x 10 foot room that contained a television, a videocassette recorder, and a comfortable chair that faced the television screen. Various other amenities, such as a decorative table lamp and pictures on the wall, made the environment similar to a living room.

The participants who watched the iPod were also seated in a living room setting. The only difference between the conditions was the participants were asked to sit in the chair and provided with the iPod and headphones. The participants held the iPod for the duration of the viewing time.

The experimenter explained that the participant would be watching a 10-minute video clip and that after the clip they would exit the viewing room. After the participant exited the experiment room, the experimenter escorted the participant to a second room that contained tables and chairs. The

experimenter instructed the participant to sit at one of the table and to answer a paper-and-pencil questionnaire. The experimenter emphasized that there were no wrong answers and that the participant should follow the directions in the questionnaire. The entire procedure took about 35 minutes.

5. Results

Based on previous work, the Hypothesis 1a predicted that participants who watched the larger screen would report higher levels of immersion than participants who watched the smaller screen. Table 1 presents the results.

TABLE 1:
Descriptive Statistics for Immersion

Condition	Treatment	Treatment		
		<i>M</i>	<i>SD</i>	<i>N</i>
iPod	Character	25.25	7.28	24
	Action	29.42	5.78	24
	Total	27.33	6.84	48
TV	Character	25.52	8.30	24
	Action	22.63	8.28	24
	Total	24.10	8.33	48
Treatment	Character	25.39	7.74	48
	Action	26.02	7.85	48
	Total	25.70	7.76	96
		ANOVA		$R^2 = .10$
		<i>F</i>	<i>Sig</i>	
Screen Size	Main Effect	4.59		0.04
Treatment	Main Effect	0.18		0.68
	Interaction	5.38		0.02

In Table 1 we see that there is a significant difference for screen size and immersion, however, it is contrary to the prediction in Hypothesis 1a. The mean immersion score for those participants in the small screen group was significantly higher than for those in the larger screen group ($M = 27.33$ versus 24.10 ; $F = 4.59$; $p < .05$). This finding, then, is unexpected and may bear further examination.

Hypothesis 1b predicted that participants who viewed the larger screen would report higher levels of spatial presence than those viewing the smaller screen. Table 2 presents these results. Table 2 presents no support for Hypothesis 1b. There is no difference in spatial presence between those participants who viewed the larger screen and those of viewed the smaller screen.

TABLE 2:
Descriptive Statistics for Spatial Presence

Condition	Treatment	Treatment		
		<i>M</i>	<i>SD</i>	<i>N</i>
iPod	Character	18.54	9.46	24
	Action	16.00	8.64	24
	Total	17.27	9.05	48
TV	Character	19.17	8.96	24
	Action	16.67	9.98	24
	Total	17.92	9.47	48
Treatment	Character	18.85	9.12	48
	Action	16.33	9.24	48
	Total	17.59	9.22	96
		ANOVA		$R^2 = .02$
		<i>F</i>	<i>Sig</i>	
Screen Size	Main Effect	0.12		0.73
Treatment	Main Effect	1.77		0.19
	Interaction	0.00		0.99

Hypothesis 1c predicted based on previous findings that participants who view the larger screen would report higher levels of social realism than those who viewed the smaller screen. Table 3 presents the results. Table 3 presents no support for Hypothesis 1c. There is no difference in social realism between those participants who viewed the larger screen and those of viewed the smaller screen.

TABLE 3:
Descriptive Statistics for Social Realism

Condition	Treatment	Treatment		
		M	SD	N
iPod	Character	16.67	4.49	24
	Action	12.46	3.87	24
	Total	14.56	4.66	48
TV	Character	18.16	4.41	24
	Action	10.46	3.80	24
	Total	14.39	5.64	48
Treatment	Character	17.43	4.47	48
	Action	11.46	3.92	48
	Total	14.47	5.15	96
		ANOVA		$R^2 = .37$
		F	Sig	
Screen Size	Main Effect	0.09	0.78	
Treatment	Main Effect	49.76	0.00	
	Interaction	4.28	0.04	

RQ1 asked whether the content (pace) would make a difference in the various sensations of presence the participants would report. Taken as a main effect there were no significant differences in either reported levels of immersion or spatial presence. There was, however, a significant and large mean difference in the reporting of social realism. As the slower paced conversation-based clip showed much higher means ($M = 17.43$ versus 11.46 ;

$F = 49.76$; $p < .00$) (See Table 1), this might be seen as a validation of the experience for the participants—the conversation segment reflected reality as participants experience it, while the car chase and gunplay is primarily for the majority of people a mediated experience.

RQ2 wondered whether screen size would interact with the content. Again, spatial presence showed no differences under any conditions, but for both immersion and for social reality, screen size showed a significant interaction with the content the participants viewed.

For immersion, the interaction is a contingent condition. Participants in the fast paced, small screen condition reported the highest level of immersion ($M = 29.42$; see Table 1), while participants in the fast paced larger screen condition reported the lowest levels of immersion ($M = 22.63$) (See Table 2). There was essentially no difference in immersion for the slower paced, conversation conditions ($M = 25.25$ versus 25.52).

For social realism, the interaction is more complex (see Figure 2). Participants in the slower paced, larger screen condition reported the highest levels of social realism ($M = 18.16$; see Table 3); followed by the slower paced, smaller screen condition ($M = 16.67$), then the faster paced, smaller screen ($M = 12.46$) and finally the faster paced, large screen ($M = 10.46$).

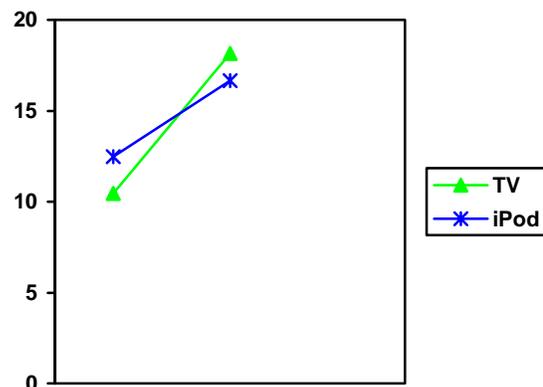


Figure 2 Interaction of Screen Size and Content/Pace for Social Realism

6. Discussion

The most noteworthy finding of the current study is the small screen (iPod) being reported as more immersive than the larger screen (32-inch television). This was the only main effect finding. There are several possibilities for why participants reported higher levels of immersion with the

small screen. First, watching video clips on an iPod was a new/novel experience for the majority of the participants; in fact, several commented that they did not know you could watch video on an iPod [39]. Novelty has been defined as anything “the breaks with expectation” [40, p. 122]. Another possibility may be intimacy; the participants were holding the iPod for the duration of the study [41]. Holding the iPod may also have had a stimulating physiological affect. It is physically more active than normal television watching. Lastly, the participants in the iPod condition heard the audio portion of the study through headphones. The use of headphones dilutes the sounds and distractions of the outside world and so the use of headphones might contribute to participants’ sense of immersion.

The lack of significant results for spatial presence and social realism may be explained by the larger screen television being of an average size television in the current market. Most studies that have found significant results for immersion [10] and social realism [10] have used much larger screens. The participants viewed video clips on a 65-inch screen. Since, the study was designed to test the participants’ responses to the iPod and therefore the size of the television was not deemed to be problematic. This lack of support for these hypotheses is contrary to earlier research findings for spatial presence [12] and social realism [10].

6.1. Interactions

While the interaction effect for immersion at first seems contrary to the existing body of literature on screen size which predicts larger screens/images would result in higher levels of immersion [12-13]. The findings are actually consistent with earlier research in regards to the large screen threshold [20]. It might be that the large screen television when combined with the fast paced action clip may overload the participants’ ability to process the information forcing them to disengage from the content. Since the iPod screen is so small, the action sequence may have remained attention grabbing to viewers without overloading them.

Social realism has a different pattern of interaction. The large screen slower paced character driven clip was judged to be more realistic to the participants. However, the large screen fast paced action clip was again rated the lowest on this dimension. The threshold explanation may also be relevant for this dimension as well. This has implications for the type of content that audience may prefer to watch on small screens. As more and more cell phones are used as mobile entertainment centers this may impact viewer choice. If content on smaller screens is less realistic (a view consistent with the Media Equation [42]) this could have an impact on other media effects. What happens when viewers watch violent content? Will this lessen the effect? What about effects linked to perceptions of the utility of the content?

6.2. Implications

The theoretical implications of these findings for presence research are significant. Researchers have already demonstrated the minimal non-verbal and text cues are necessary to induce sensations of presence. However, research with audio-visual content has continued to seek more (larger and stronger) sensory input for participants. The demonstration of presence sensations when viewing a 2.5-inch screen opens new areas of research for presence investigators. The findings provide support for some of the definitions of presence (particularly ISPR) and offers partial support for the Media Equation [42]. However, it brings into question - how small can screens be and still evoke sensations of presence? These results provide a starting point for understanding some of the psychological processing of small screens.

The results are also relevant to the increasing number of mobile media users. The iPods in this study have a 2.5-inch screen and many cell phones now offer broadband access or even satellite television service with screens measuring 1.5-inches. Will users be likely to use these extremely small screens to view a wide variety of content? Or as suggested by the results of this study will they select content to enhance presence sensations? The interaction of content and form found in this study suggests users may seek out content that may provide presence sensations. This is something that is of practical concern since mobile phones are being designed to allow more and more entertainment functions to occur in these extremely small formats.

6.3. Future Research

Many of the possible explanations provided above should be tested. The novelty effect of watch video clips on the iPod should be investigated. Secondly, the intimacy of holding the iPod for the duration of the viewing time should also be explored. Thirdly, the use of the headphones in the iPod condition could be balanced by using headphone with a television to attempt to compensate for the insulating effect of headphones. Lastly, varying content and clip lengths may result in viewer fatigue as was previously suggested [2].

Conclusions

This study is the first empirical investigation of small mobile screen for entertainment purposes. The findings suggest that users can and do experience sensations of Presence with very small screens and that they find such mobile mediums very immersing. There is however an interaction between form and content that merits further investigation.

References

[1] Christie, J., Klein, R. M. & Watters, C. (2004). A comparison of simple hierarchy and grid metaphors for option layouts on small-size screens. *International Journal of Human-Computer Studies*, 60(5/6), 564-585.

[2] Karena, C. (2006). Is that a film in your pocket, or are you just glad to see me. The International Portable Film Festival. *Screen Education*, 42, 60-61.

[3] Jones, S., Jones, M., Marsden, G., Patel, D., & Cockburn, A. (2005). An evaluation of integrated zooming and scrolling on small screens. *International Journal of Human-Computer Studies*, 63(3), 271-303.

[4] Parush, A., & Yuviler-Gavish, N. (2004). Web navigation structures in cellular phones: the depth/breadth trade-off issue. *International Journal of Human-Computer Studies*, 60(5/6), 853-771.

[5] Lee, K. M. (2004). Presence, Explicated. *Communication Theory*, 14, 27-50.

[6] Kim, T., & Biocca, F. (1997). Telepresence via Television: Two Dimensions of Telepresence May Have Different Connections to Memory and Persuasion. *Journal of Computer-Mediated Communication*, 3(2).

[7] Lombard, M., & Ditton, T.B. (1997b). At the Heart of It All: The Concept of Presence. *Journal of Computer-Mediated Communication*, 3(2).

[8] Witmer, B. G., & Singer, M. J. (1998). Measuring Presence in Virtual Environments: A Presence Questionnaire. *Presence: Teleoperators & Virtual Environments*, 7, 225-240.

[9] International Society for Presence Research. (2000). *the Concept of Presence: Explication Statement*. Retrieved March 29, 2007 from <http://ispr.info/>

[10] Bracken, C. C. (2005). Presence and image quality: The case of high definition television. *Media Psychology*, 7(2), 191-205.

[11] Bracken, C.C. (2006). Perceived source credibility of local television news: The impact of image quality and presence. *Journal of Broadcasting & Electronic Media*.

[12] Lombard, M., Reich, R., Grabe, M.E., Bracken, C. C., & Ditton T. B. (2000). Presence and Television. *Human Communication Research*, 26(1), 75-98.

[13] Grabe, M. E., Lombard, M., Reich, R. D., Bracken, C. C., & Ditton, T. B. (1999). Screen size and viewer responses to television: Research findings. *Visual Communication Quarterly*, 6(2), 4-9.

[14] Bocker, M., & Muhlbach, L. (1993). Communicative presence in video communications. *Proceedings of the human factors and ergonomics society 37th annual meeting*. Santa Monica, CA: The Human factors and ergonomics society, pp. 249-253.

[15] Reeves, B., Detenber, B., & Steuer, J. (1993). New televisions: The effects of big pictures and big sound on viewer responses to the screen. Paper presented to the Information Systems Division of the International Communication Association.

[16] Heeter, C. (1992). Being There: The subjective experience of presence. *Presence*, 1(2), 262-271.

[17] Lombard, M. (1995). Direct responses to people on the screen: Television and personal space. *Communication Research*, 22, 288-325.

[18] Lewin, E. P. (1972). *Some effects of television screen size and viewer distance on recognition of short sentences*. Unpublished Master's thesis, Temple University, Philadelphia, Pennsylvania, USA.

[19] Detenber, B. H., & Reeves, B. (1996). A bio-informational theory of emotion: Motion and image size effects on viewers. *Journal of Communication*, 46(3), 66-84.

[20] Reeves, B., Lang, A., Kim, E. Y., & Tatar, D. (1999). The Effects of Screen Size and Message Content on Attention and Arousal. *Media Psychology*, 1(1), 49 – 68.

[21] Lombard, M., Grabe, M. E., Reich, R. D., Bracken, C. C., & Ditton, T. B. (1996, August). *Screen size and viewer responses to television: A review of research*. Presented to the Theory and Methodology division at the annual conference of the Association for Education in Journalism and Mass Communication, Anaheim, CA.

[22] Ravaja, N. (2004). Effects of Image Motion on a Small Screen on Emotion, Attention, and Memory: Moving-Face versus Static-Face Newscaster. *Journal of Broadcasting & Electronic Media*, 48(1), 108-133.

[23] Bracken, C. C., & Botta, R. A. (2002, October). Presence: The debate between content and form. *Proceedings of the Fifth Annual International Meeting of the Presence Workshop, Porto, Portugal*, 353-363.

[24] IJsselsteijn, W.A., de Ridder, H., Freeman, J. & Avons, S.E. (2000). Presence: Concept, determinants and measurement. *Proceedings of the SPIE, Human Vision and Electronic Imaging V*, 3959-76.

[25] Lang, A., Bolls, P., Potter, R. F., & Kawahara, K. (1999). The effects of production pacing and arousing content on the information processing of television. *Journal of Broadcasting & Electronic Media*, 43 (4), 451-475.

[26] Lang, A., Shin, M., Bradley, S.D., Zheng, W., Lee, S., & Potter, D. (2005). Wait! Don't Turn That Dial! More Excitement to Come! The Effects of Story Length and Production Pacing in Local Television News on Channel Changing Behavior and Information Processing in a Free Choice Environment. *Journal of Broadcasting & Electronic Media*, 49(1), 3-22.

[27] Lang, A., Schwartz, N., Yongkuk, C., & Seungwhan, L. (2004). Processing Substance Abuse Messages: Production Pacing, Arousing Content, and Age. *Journal of Broadcasting & Electronic Media*, 48(1), 61-88.

[28] Lang, A., Yongkuk, C., Seungwhan, L., Schwartz, N., & Mija, S. (2005). It's an Arousing, Fast-Paced Kind of World: The Effects of Age and Sensation Seeking on the Information Processing of Substance-Abuse PSAs. *Media Psychology*, 7(4), 421-454.

[29] Yoon, K., Bolls, Paul. D., Muehling, D. D. (1999). The Effect of Involvement, Arousal, and Pace on Claim and Non-claim Components of Attitude. *Media Psychology*, 1(4), 331-353.

[30] Bolls, P. D., Muehling, D.D., Yoon, K. (2003). The effects of television commercial pacing on viewers' attention and memory. *Journal of Marketing Communications*, 9(1), 17-29.

[31] Grabe, M. E., Lang, A., & Zhao, X. (2003). News content and form. *Communication Research*, 30, 387-414.

- [32] Choi, Y. J., & Lee, J. H. (2005). *Concept Explication of Pacing*. Paper presented to the International Communication Association Annual Meeting, New York, NY.
- [33] McCollum, J. F., & Jennings, B. (2003). Pacing in children's television programming. *Mass Communication & Society*, 6(2), 115-136.
- [34] Whitaker, R. (1970). *The Language of Film*. Englewood Cliffs, NJ: Prentice-Hall.
- [35] Dancyger, K. (2002). *The techniques of film and video editing: History, theory, and practice* (Third Edition). San Diego, CA: Focal Press.
- [36] Schmitt, K., Anderson, D. R., & Collins, P. A. (1999). Form and content: Looking at visual features of television. *Developmental Psychology*, 35, 1156-1167.
- [39] Silverstone, R. (1999). What's new about new media? *New Media & Society*, 1(1), 10-13.
- [40] Mendelson, A. (2001). Effects of Novelty in News Photographs on Attention and Memory. *Media Psychology*, 3(2), 119-157.
- [41] Berry, R. (2006). Will the iPod kill the Radio Star? Profiling Podcasting as Radio. *Convergence*, 12(2), 143-162
- [42] Reeves, R. & Nass, C. (1996). *The Media Equation: How People Treat Computers, Television, and New Media Like Real People and Places*. Cambridge Publishing.