Comparing the Effects of Transportation and Central Processing on Current and Future Beneficial Organizational Behaviors

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Abstract

Central Processing, a theoretical concept of persuasion from the Elaboration Likelihood Model, concerns analytical processing of new information and examines attitude change though logical consideration and evaluation of arguments. Transportation, applied to persuasion, postulates influence occurs through reduced negative cognitive responding, realism of experience, and strong affective responses. This study investigates whether Central Processing or Transportation better predicts both current and future beneficial organizational behaviors. Results show: (a) participants who centrally processed the message were more likely to engage in both current and future behaviors, (b) participants transported into the narrative of the message were more likely to engage in both current and future behaviors, and (c) Central Processing has a greater influence on future behaviors than Transportation.

Keywords: **transportation, persuasion, central processing**

Presence has emerged as a critical concept for understanding persons' responses to mediated content. In general, presence refers to a psychological state in which media users voluntarily suspend the experience of mediation in order to feel a sense of connection with the mediated content they are using (Pettey, Bracken, Rubenking, Buncher, & Gress, 2010). Transportation, which is being absorbed into the narrative world of the program, has received particular attention as way to study narrative persuasion. Recently scholars have argued that applications of concepts such as Transportation have been limited to particular contexts (e.g. entertainment), and have called for studies that explore alternative research contexts. We answer this call by examining the possible effect Transportation may have on message receivers' current and future behaviors.

Specifically, we develop and test a model that incorporates both Central Processing and Transportation that explains receivers' likelihood to behave in certain ways. Central Processing, which is a concept from the Elaboration Likelihood Model (ELM), concerns analytical processing of new information through the dual-process model of persuasion and examines attitude change through central processing, or the logical consideration and evaluation of arguments (Petty, Cacioppo, & Schumann, 1983). Conversely, the Transportation approach to persuasion postulates that change occurs through lower cognitive analytical analysis, greater realism of experience, and strong affective responses (Green & Brock, 2000). To date, no studies have simultaneously tested the contrasting influences suggested by these two theories with non-entertainment content. We begin by reviewing literature concerning Central Processing and Transportation, and specify hypotheses. Next, we describe a study that tests the hypotheses, followed by a summary of the results. We conclude with a discussion of the theoretical and organizational implications of the findings.

1.1. Central Processing

The Elaboration Likelihood Model (ELM) argues a person processes new information by either a *central route* or a *peripheral route* (Petty, Cacioppo, & Goldman, 1981). When a person processes information peripherally, he/she will tend to examine a message quickly and focus on simple cues to help make their decision or form an opinion (Petty, Cacioppo, & Schumann, 1983), and may feel that the more arguments embedded in a message, the more convincing it seems (Petty & Cacioppo, 1984). Additionally, when a person peripherally processes, he or she will more likely succumb to persuasion via cues such as body language, physical appeal, sex appeal, distractions, and expert or celebrity testimonials. For example, a person faced with the decision of purchasing a particular beauty product or shampoo may use the communicator's attractiveness as an argument for the product (Kahle & Homer, 1985).

Alternatively, Central Processing is characterized by careful and skillful evaluation of a message, where the receiver ponders the message sender's ideas in order to relate the information to their own knowledge and values (Cacioppo & Petty, 1989; Wood, Rhodes, & Biek, 1995). A message receiver will generally process new information centrally when he/she feels highly involved and knowledgeable about an issue of importance in or relevant to his/her own life. Attitudes formed through the central route tend to be held with greater certainty and more accessibility than attitudes formed through the peripheral route (Krosnick & Petty, 1995). Petty, Haugtvedt, & Smith found that attitudes changed through central route thinking proved more stable and more likely to hold constant over time than those formed through peripheral processing (1995). When a person feels highly involved in an issue, persuasion will more often occur though the use of a well organized argument from a creditable source (Petty, Cacioppo, & Schumann, 1983), possibly because knowledgeable people typically have a higher need for cognition. Cacioppo and Petty found that people who score high on the need for cognition scale prefer complex to simple problems and tend to prefer central to

peripheral processing (1982). As a person's degree of Central Processing increases, the impact of peripheral cues on persuasion decreases (Petty, Cacioppo, & Goldman, 1981).

Based on existing research, we propose the following hypotheses about the relationship between central processing and current and future beneficial behaviors. Current beneficial behaviors are actions a person is already taking that benefit an organization, while future beneficial behaviors are actions a person intends to take that benefit an organization. Behavior and behavioral intention are often a major goal of persuasion (Perloff, 2008) and likely to be associated with the type of effortful thinking indicative of central processing. We therefore predict:

H1a: Participants who centrally process a message will be more likely to engage in current beneficial behaviors.

H1b: Participants who centrally process a message will likely to intend to engage in future beneficial behaviors.

1.2. Transportation

The Transportation Model, developed by Green & Brock, explains the distinct mental process that occurs when a person feels so absorbed into a narrative or "lost" in a story world, that he or she may show effects of the story in their real-world beliefs (Green et al., 2000). Transportation has been identified as a key mechanism of narrative persuasion, and stories are taken to facilitate persuasion through Transportation into the narrative. Transported individuals often adopt attitudes and beliefs implied by a narrative (Dal Cin, Zanna, & Fong, 2004; Escalas, 2004; Green, 2004; Green & Brock, 2000; Wang & Calder 2006), because a transported person feels cognitively and emotionally involved in the story. He or she may lose track of time, fail to notice events going on around them, and experience vivid mental images of settings and characters (Green, 2008; Green, Garst, & Brock, 2002; Green & Brock, 2000; 2002).

As a tripartite formula of persuasive communication, Transportation requires an integrative melding of attention, emotional involvement, and cognitive ability focused on story events (Green & Brock, 2000; Nell, 1988). Transportation into the narrative contributes to persuasion by effecting a person's ability and motivation. People generally feel less able to reject or argue information they receive while transported, as a result of using a high level of cognitive capacity to mentally create the narrative. Also, a person has less motivation to present a counter argument because constant interruptions would decrease Transportation by interfering with the person's immersion in the narrative (Gilbert, 1991).

For Transportation to occur, the receiver must create some narrative world through imagination and invoke characters and settings, not merely emotions (Green & Brock, 2002). MacInnis & Price define imagery as a process that represents sensory information in working memory (1987). Taylor & Schneider, argue the capacity to simulate or imagine events may serve as one of the most distinctive and important features of cognition (1989). Mental simulations most commonly occur in the form of stories or narratives (Fiske, 1993; Polkinghorne, 1991). It has been argued that stories prevail as the most natural mode of thought and people do not need to learn how to immerse themselves in stories. Individuals easily understand stories and learn from them beginning at a young age. Many psychologists have argued the ideology of thought as fundamentally narrative in form (Schank & Abelson, 1995).

The narrative structure of stories consists of two important elements. First, narrative thought organizes events in terms of chronology; things occur over time, and configured in narratives as episodes, each with a beginning, middle, and end (Fiske, 1993). Secondly, narrative thought structures story elements into an organized framework that establish relationships between the elements and allows for causal inference (Bruner, 1990). Narrative story organization incorporates general knowledge about human goal-oriented action episodes that consist of a goal, action, and an outcome (Pennington & Hastie, 1986; Stein & Albro, 1997). The ability to transport into other worlds remains fundamental to an individual's ability to think about possible past, present, and future selves, or the need to construct possible futures in order to plan ahead (Leary & Buttermore, 2003). People tend to simulate events, focusing on goals, behaviors, and outcomes, and subsequently create stories where he or she will assume the role of the main character and frequently think about their own actual or potential behaviors. Bone & Ellen found that imagery increases when radio advertisements encourage participants to "imagine themselves" using a product (versus imagining someone else) and that imagery affects attitude toward the ad (1992).

Three outcomes have been found as a result of feeling transported into a narrative world. First, the individual's loses accessibility of his or her world of origin because they exchange the level of awareness in the physical world for a heightened awareness in the imaginary world. A disconnect with the world of origin occurs on both the physical and the psychological level. On the physical level, an individual may lose track of time and space and loose sense of events happening around them while transported (Green & Brock, 2002). At the psychological level, an individual may feel mentally distanced from reality and less likely to from counter arguments for information they receive (Singer, King, Green, & Barr, 2002).

Secondly, the transported individual experiences strong emotions and motivation. Once transported into a narrative, individuals usually desire for the protagonists to have favorable outcomes (Polichak & Gerrig, 2002). A transported reader suspends normal assumptions and treats the narrative as a frame of reference (Strange, 2002), and may sometime attribute information gained in the narrative as

derived from a factual source (Gromet, Green, & Sabini, 2005). In a recent study Green, reported a positive correlation between Transportation and perceived realism (2004).

In the third outcome of Transportation, the message receiver experiences alteration at the individual level. In general, transported people hold differing beliefs based on the information presented in the narrative (Green & Brock, 2002), upon reentering the real world, the individual has been transformed as a consequence of merging him or herself with a story character (Oatley, 1999).

The second set of hypotheses in this study examines the relationship between Transportation and the participants' Current Behavior and Future Beneficial Behavior Intentions. Transportation has most frequently been studied in the domain of attitude change, with transported readers showing more story-consistent beliefs and opinions than their less transported counterparts. The adoption of a character's thoughts, goals, emotions, behaviors, and such vicarious experiences require the reader or viewer to leave his or her physical, social, and psychological reality behind in favor of the world of the narrative and its inhabitants (Green, Brock, & Kaufman, 2004). Mental simulation or imagination can lead to higher assessed probability estimates of simulated events and positive changes in attitudes, brand evaluations, and actual behavior, through self-relevant and repeated simulation (Anderson, 1983; Carroll, 1978; Gregory, Cialdini, & Carpenter, 1982).

Transportation has been found to play a role in one's enjoyment of a narrative (Wied, Zillmann, & Ordman, 1994); individuals who showed high levels of Transportation or enjoyment reported that they would recommend the story to someone else and would pay a greater amount of money to read a sequel to the story (Green, Brock, & Kaufman, 2004). Transportation may lead to enjoyment because it provides the opportunity for identity play, which may help a person to plan for his or her own Future. Transportation, which in turn can open the doors to exploring and experimenting with other possible-selves that an individual might become, wish to become, or fear becoming (Markus & Nurius, 1986). Transported individuals may have a greater affinity for story character and thus more swayed by the feelings or beliefs expressed by those characters (Green et. al., 2000). Based on this rational, we hypothesize that:

H2a: Participants transported into the narrative of the message will be more likely to engage in current beneficial behaviors.

H2b: Participants transported into the narrative of the message will be more likely to intend to engage in future beneficial behaviors

Since there has been little research done directly comparing model of persuasion, we are interested in comparing the impact of each model on willingness to engage in message consistent behaviors. Thus, we are interested in the following research questions:

RQ1a: Will Central Processing or Transportation have a greater influence on current beneficial behaviors?

RQ1b: Will Central Processing or Transportation have a greater influence on intended future beneficial behaviors?

2. Method

The data we use here was collected as part of a larger study investigating strategies for introducing a university's mission statement to students. The larger study was a 3 x 2 design with three framing conditions and two channel conditions. The framing conditions were: (a) thematic frame (Entman, 1993), where attention was called to important aspects of themes in the mission message; (b) episodic frame (Iyengar, 1991), which provided a narrative telling the story of a disadvantaged student who succeeded at the university, and (c) control frame, which introduced the mission message. Each of the conditions contained the mission statement:

Our mission is to encourage excellence, diversity, and engaged learning by providing a contemporary and accessible education in the arts, sciences, humanities and professions, and by conducting research, scholarship, and creative activity across these branches of knowledge. We endeavor to serve and engage the public and prepare our students to lead productive, responsible and satisfying lives in the region and global society.

The channel conditions were video versus text. For the video condition, the University President was recruited and agreed to be videotaped presenting the message for each of the three conditions. He began each recording with "Hello, I'm XXXXX XXXXX, President of XXXXX XXXX XXXX). For the text condition, the script of the corresponding video condition was placed onto Presidential Letterhead. Further, the text began by identifying the President as the source. It is important to note that participants were randomly assigned to conditions, so any possible influence of these factors on the analysis reported here will be evenly distributed.

2.1. Sample and Procedures

Participants for this study were university students, recruited from undergraduate communication classes at a large mid-western urban university in the United States. The total sample size was 182 participants (70 males: 38.5%; 111 females: 61%; one participant did not report their gender: .5%), ranging from 17 to 61 years of age (M=26.8 years, SD=10.04). One-hundred and seven of the participants reported being White (59%), forty-seven participants reported being Black or African American (26%), six participants reported being Asian (3.3%), 1.5 % reported being Hispanic, 6.5% reported "other," and 3.3% did not respond to this question.

The experiment took place in private room. Participants were then randomly assigned to one of six computer stations, each of which had a 17" flat-screen color monitor. Survey Monkey was used to collect data. The monitor had the first question of the survey, which asked "Do you know the University's Mission Statement?" If a participant responded "Yes," he or she was asked to provide the mission statement in the space provided on screen.

A researcher then brought up either one of the videos or one of the print conditions, and asked the participant to either view or read the introduction. Those viewing the video were given headphones. After viewing or reading the introduction, a researcher then brought up an outcome survey, which participants then completed.

2.2. Measures

2.2.1. Central Processing. We measured the extent to which participants centrally processed the mission message using the Personal Involvement Inventory (Zaichkowsky, 1985), which provides an indication of a participant's intellectual arousal or interest (Munson & McQuarrie, 1987) in the message and assesses whether a message is relevant or important to the receiver of the message. We take higher personal involvement to indicate that a message was more centrally processed. The Personal Involvement Inventory is a 20-item semantic differential scale with seven points between the bipolar items. Participants judge the item being evaluated (in this case, the mission statement) against 20 descriptive scales. Examples of the items include "Important-Unimportant," "Trivial-Fundamental," and "Boring-Interesting". Cronbach's alpha for the instrument was .97.

2.2.2. Transportation. We measured Transportation with Green and Brock's (2000) instrument, where participants rated their level of agreement with statements, ranging from "Strongly Disagree (1)" to "Strongly Agree (5)." Example statements include: "The content seemed believable to me," "I felt as though I was in the same space as the characters and/or objects," and "I responded emotionally." Cronbach's alpha for the instrument was .73.

2.2.3. Current Behavior. We measured current behavior with 11 seven-point Likert type items where participants were asked to indicate their level of agreement with a variety of statements (1 = strongly disagree, 7= strongly agree). Examples items include: "I currently attend (university) sporting events," "I regularly wear (university) clothing," "I participate in extracurricular activities at (the university)," and "When I talk about Xxxx University to my friends, I say mostly positive things." Responses were averaged, and Cronbach's alpha for Current Behavior was.87.

2.2.4. Future Behavioral Intentions. We measured future behavioral intentions with five seven-point Likert type items where participants were asked to indicate their level of agreement with a variety of statements (1 = strongly disagree, 7= strongly agree). Example items include "I will donate money to (the University) in the Future," "I will join a (University) alumni group in the Future," "After I establish myself in my career, I will support (the University) students." Responses were averaged, and Cronbach's alpha for Future Behavioral Intentions was .87.

2.2.5. Source Credibility. Since source credibility is a critical to persuasion, we included this variable as a control in our analysis. We measured source credibility using McCroskey's 12-item Semantic Differential Scale (Rubin, Palmgreen, & Sypher, 1994). This is a 12 item scale, with seven points between the anchors of the items. The authority and characters dimensions of credibility are each measured with 6 items respectively. Examples of the items for the authoritative dimension include "Reliable-Unreliable," "Intelligent-Unintelligent," and "Qualified-Unqualified." Examples of the items for the character dimension include "Pleasant-Unpleasant," "Selfish-Unselfish," and "Valuable-Worthless." In our data set, authoritative and character credibility were highly inter-correlated (r =.751**, $p < .01$). Therefore, we averaged all 12 items to measure general credibility. The Cronbach's alpha for the combined credibility scale was .93.

3. Analysis

We tested hypotheses using two sets of regressions, each of which contained three models. The first set (see Table 2), tested hypotheses 1a and 2a with a regression with Current Behavior as the dependent variable and the independent variables of Involvement and Transportation, with Source Credibility as a control. The first two models included only Involvement or Transportation, while the third included all three.

The second set (see Table 2), tested hypotheses 1b and 2b with a regression with the Intended Future Behavior as the dependent variable and the independent variables of Involvement and Transportation, with Source Credibility as a control. Again, the first two models included Involvement or Transportation, while the third included all three. This allows us to be sure results were stable.

RQ1a asked whether Central Processing or Transportation would have a stronger influence on Current Beneficial Behaviors. To answer this question, we calculated and compared the size of the correlations between the two independent variables and this dependent variables, providing an indication of which has a stronger association. We followed the same procedure to answer RQ1b, which asked whether Central Processing or Transportation would have a stronger influence on Intended Future Beneficial Behaviors.

Table 1. Means, Standard Deviations and Correlations

M	SD	Continuous Variables	1.	2.	3.	4.	5.
5.07	1.32	1. Involvement	-	.361**	.324**	.470**	.409**
3.70	1.09	2. Transportation		-	.319**	.312**	.414**
4.30	1.27	3. Current *Behavior*			-	.544**	.179**
4.77	1.21	4. Future *Behavior*				-	.272**
5.63	1.00	5. Credibility					-

*p< .05, **p< .01*

4. Results

Table 1 provides the means, standard deviations, and inter-correlations for the continuous variables. Notable points of interest from the data analysis show a high correlation between all of the continuous variables ($p < .01$). Central Processing and Current Behavior were significantly correlated ($r = .324^{**}$, $p < .01$), as were Transportation and Current Behavior ($r = .319^{**}$, $p < .01$). Further, Central Processing and Future Behavioral Intentions were highly correlated ($r = .470^{**}$, $p < .01$), as were while Transportation and Future Behavioral Intentions ($r = .312^{**}$, $p < .01$).

Table 2 summarizes the results of the regressions testing Hypotheses 1a and 2a, while Table 3 summarizes results testing Hypotheses 1b and 2b. Hypothesis 1a predicts those participants who Centrally Processed the message will be more likely to engage in Current Beneficial Behavior; results in Table 2, Model 3 support this hypothesis ($\beta = .216$, $p < .01$). Hypothesis 1b predicted those participants who Centrally Processed the message would more likely in engage in Future Beneficial Behavior; results in Table 3, Model 3 proved significant ($\beta = .403$, $p < .01$). Hypothesis 2a predicts those participants Transported into the narrative of the message would more likely engage in Current Beneficial Behavior; results in Table 2, Model 3 support this hypothesis ($\beta = .224$, $p < .01$). Hypothesis 2b predicts those participants Transported into the narrative of the message would be more likely to engage in Future Beneficial Behaviors;

results in Table 2, Model 3 support this hypothesis ($\beta = .161$, $p < .05$).

Research Question 1a asks whether Central Processing or Transportation would have a greater influence on Current Beneficial Behavior. Results show that the correlations between the independent variables (Central Processing and Transportation) and Current Behavior were very similar ($r =.324$, $p < .05$ for Central Processing; $r = .319$, $p < .05$ for Transportation). Research Question 1b asks whether Central Processing or Transportation would have a greater influence on Future Beneficial Behavioral Intentions. Results show that Central Processing has a substantially greater effect on Future Beneficial Behavioral Intentions ($r =.470$, $p < .95$) compared to Transportation ($r =.312$, $p < .05$).

5. Discussion

Our primary goal with this study is to contribute to the emerging research demonstrating the efficacy of Presence in general, and Transportation to in particular, to understanding a variety of social phenomena. Specifically, we investigate the relative effect of two approaches (Central Processing and Transportation) for understand current and future beneficial behaviors. This study yielded multiple interesting results.

5.1. Central Processing

Participants who centrally processed the message

Table 2. Regression Models; Hypotheses 1a and 2a; Current Behavior DV

	Model 1	Model 2	Model 3
Involvement	.271** (.070)	_____	.216** (.071)
Transportation	_____	.284** (.087)	.224** (.088)
Credibility	-.068 (.093)	-.061 (.094)	-.006 (.096)
R^2	.093**	.099**	.136**

Notes: * p < .05, **p < .01
Standardized coefficients (beta) reported
Standard errors in parentheses

Table 3. Regression Models; Hypotheses 1b and 2b; Future Behavior DV

	Model 1	Model 2	Model 3
Involvement	.441** (.059)	_____ __	.403** (.060)
Transportation	_____ __	.256** (.085)	.161* (.075)
Credibility	-.092 (.079)	-.166* (.078)	-.040 (.082)
R^2	.236**	.128**	.256**

Notes: * p < .05, **p < .01
Standardized coefficients (beta) reported
Standard errors in parentheses

were more likely to engage in current beneficial behavior and intend to engage in future beneficial behaviors. Central processing involves analytical processing of new information (Petty, Cacioppo, & Schumann, 1983) and receivers pondering the message sender's ideas in order to relate the information to their own knowledge and values (Cacioppo & Petty, 1989; Wood, Rhodes, & Biek, 1995). Receivers generally process new information centrally when it is relevant to their lives and they feel highly involved and knowledgeable about the issue (Krosnick & Petty, 1995; Petty, Haugtvedt & Smith, 1995). In our study, the mission message was reflective of participants' lived experiences on a daily basis. This resulted in the observed association with behaviors.

5.2. Transportation Theory

Participants transported into the narrative of the message also proved more likely to engage in current beneficial behaviors and intend to engage in future beneficial behaviors. This may be because participants related the themes and characters in the message to their own experiences to better understand their own lives (Giles, 2002). Green and Brock (2004) argued the ease with which individuals relate to story characters may be a natural extension of individuals' need to understand real others in their social world. Transportation can open the doors to exploring and experimenting with other possible-selves that an individual might become, wish to become, or fear becoming (Markus & Nurius, 1986), which may have an effect of a person's current behaviors and future behavioral intentions.

5.3. Research Questions

We also asked if Central Processing or Transportation would have a greater association with current behaviors (RQ1a) and future behavioral intentions (RQ1b). We found little difference in the associations with current behaviors, but substantial differences for future behaviors. Specifically, Central Processing was more strongly associated with future behavior (r= .470, p <.01) than Transportation (r= .312, p <.01). This may be due to the inherent difference between current and future behaviors. Current behaviors include things such as attending sporting events and wearing university clothing. While these are important indicators of engagement in and identification with a university, they do not require much commitment. However, the future behavioral intentions measure asked about much more involved issues such as donating money in the future and willingness to hire university graduates in the future. These types of issues may have stimulated greater central processing, which would be reflected in these correlations.

5.4. Limitations and Future Research

The primary limitation of the study is that the sample was comprised of college students. Future research should replicate these findings in a non-university setting with a more diverse demographic to improve external validity. Secondly, we did not measure actual behavior; future research could track participants over time to see if behavioral intentions developed into actual behaviors. Third, Central Processing and Transportation offer contrasting mechanisms for explaining attitude change and behaviors. Our study suggests these two influences are having simultaneous influence, but we are unable to determine which persons may be being influenced by which. Receivers can process any communicative stimulus either centrally or peripherally, depending on their involvement in the issue (Chaiken, Duckworth, & Darke, 1999; Soldat, Sinclair, & Mark, 1997), and tend to use peripheral processing when the topic or issue does not seem relevant or important to their daily life (Petty, Cacioppo, & Goldman, 1981). Conversely, receivers may be transported in such a way that critical thought is suspended. Future research may wish to examine individual factors influencing who is more likely to be influenced by each of these mechanisms.

6. Conclusion

The current study expands the study of presence into behavioral intentions. Specifically, this study investigated whether Central Processing or Transportation better predicts both current and future beneficial organizational behaviors. The results demonstrated the people who reported being transported were more likely to engage in current and future behaviors. A similar pattern was found for participants who reported centrally processing the media message. The results suggest that additional research on the impact of presence and transportation should focus on behavioral intentions and behaviors using non-fiction messages.

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