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Effects of Narrative Transportation on Persuasion: A Meta-Analysis

Tom van Laer

Assistant Professor of Marketing

Department of Marketing, ESCP Europe, 527 Finchley Road, London NW3 7BG, United

Kingdom

Tel.: +44 20 74 43 88 00; Fax: +44 20 74 43 88 74; E-mail address: tvanlaer@escpeurope.eu

Ko de Ruyter

Professor of Interactive Marketing

Department of Marketing & Supply Chain Management, Maastricht University, P.O. Box 616,

6200 MD Maastricht, the Netherlands

Tel.: +31 433 88 38 39; Fax: +31 433 88 49 18; E-mail address:

k.deruyter@maastrichtuniversity.nl

Martin Wetzels

Professor of Marketing Research

Department of Marketing & Supply Chain Management, Maastricht University, P.O. Box 616,

6200 MD Maastricht, the Netherlands

Tel.: +31 433 88 38 39; Fax: +31 433 88 49 18; E-mail address:

m.wetzels@maastrichtuniversity.nl

Effects of Narrative Transportation on Persuasion: A Meta-Analysis

This meta-analytic review covered a decade of research on the transportation–persuasion relationship. Transportation occurs when consumers mentally enter a world evoked by a narrative. Story topic familiarity and transportability had the greatest influence. These findings put a spotlight on the importance of the consumer in the narrative persuasion process.

The impact of narrative transportation on persuasion continues to attract research attention (e.g., Escalas 2004; Escalas 2007; Green and Brock 2000, 2002; Slater and Rouner 2002). When consumers lose themselves in a story, their attitudes and intentions change to reflect that story (Green 2008). Since Green and Brock (2000) initiated quantitative transportation research, many studies have investigated narratives, how they transport consumers, and how they change consumers' views. Furthermore, recent developments have enhanced the significance of transportation effects, including interactive video games (Baranowski et al. 2008), narrative advertising (Chang 2009), and reality TV (Hall 2009). Thus, transportation demands theoretical and applied research attention (Singhal and Rogers 2002).

Despite notable strides, extant transportation literature remains fragmented, in terms of both its conceptual breadth and its empirical findings (e.g., Green, Brock, and Kaufman 2004; Moyer-Gusé 2008; Nabi and Kremer 2004). A comprehensive synthesis that can unify and advance the field after a decade of transportation research is thus needed. Therefore, this research pursues three objectives: (1) develop a conceptual framework integrating the antecedents and consequences of the transportation effect; (2) empirically assess a model derived through a quantitative meta-analysis; and (3) uncover issues that deserve further attention.

We seek meaningful relationships of transportation with affective and cognitive responses, attitudes, and intentions. In line with the postulates of transportation theory (Green 2008; Green and Brock 2002), our meta-analytic model comprises the story, medium, and consumer attributes as the antecedents of the transportation effect. Finally, our model considers methodological factors in prior studies (see Figure 1).

[Insert Figure 1 about here]

METHOD

To appear in our meta-analysis, a study must include transportation as a key variable. A vast array of experimental designs is acceptable. We limited our search to literature published after Green and Brock's (2000) empirical operationalization. Our search produced 12 unpublished and 187 published articles (including book sections) related to transportation.

We analyzed 287 effect sizes. To ensure the independence of the effect sizes, we applied Johnson and Eagly's (1989) technique. Two expert researchers classified the multitude of dependent variables reported in the identified studies, using four categories: affective response, cognitive response, attitude, and intention. These expert coders achieved acceptable agreement levels (Cohen's $\kappa = .74$, $p < .001$) but disagreed on 54 variables (18.8%).

For these 54 variables, 189 undergraduate students served as the coders. Each variable was summarized in several sentences and included on a questionnaire. The questionnaire instructed respondents to read each variable description carefully and decide which of the outcome categories it represented, as described at the top of the questionnaire. Respondents coded the variables and we entered the mode into the analysis. We provide some illustrative examples in Table 1.

[Insert Table 1 about here]

The effect size statistic contrasts groups on their mean transportation and outcome scores. The Pearson correlation provides the effect size indicator. We calculated not only the sample-weighted, reliability-adjusted r but also the conservative random effect z (Hunter and Schmidt 2004). To determine the presence of heterogeneity, we used the Q_{Within} statistic (Huedo-Medina et al. 2006). In addition, we determined the file drawer N , or the number of studies with a zero effect size required to reduce the mean effect size to a probability level of $\alpha = .05$ (Rosenthal 1991). The Q_{Between} statistic tests whether the size of the effect differs across factor levels (Borenstein et al. 2009; Hedges and Olkin 1985).

RESULTS

Transportation had significant, positive on affective responses (file drawer $N = 2,955$), cognitive responses (file drawer $N = 330$), attitudes (file drawer $N = 8,001$), and intentions (file drawer $N = 3,304$; see Table 2). Because we determined positive main effects for all outcomes, we could merge the correlations of transportation with the four outcome variables into an overall persuasive transportation effect.

[Insert Table 2 about here]

The transportation effect varied for chronology and intrusiveness. However, character similarity did not have an effect. The transportation effect was also greater with greater media readability. However, richness did not enhance the transportation effect. The transportation effect further differed depending on consumers' familiarity and transportability. However, no significant effect emerged for attention (see Table 3).

[Insert Table 3 about here]

Finally, transportation occurs when a study uses participant distraction, simple observation, or in-story perspective manipulation; assigns participants randomly; focuses on a communication or marketing domain; provides incentives; and includes highly educated, young, male participants (see Table 4).

[Insert Table 4 about here]

DISCUSSION

This research underscores the robustness of the effect of narrative transportation and builds on previous research to refine extant understanding. Transportation has a significant impact on each stage of narrative processing, from mental processing invested to empathize with story characters to changes in consumers' beliefs. Moreover, transportation's effect appears influenced by key variables, such as the consumer's familiarity with the story topic and chronic propensity to be transported. These findings have implications for not only persuasion research but communication practices overall—as demonstrated by the growing popularity of public narratives. As consumers increasingly experience transportation in their dealings with persuasive narratives, it becomes increasingly important to understand the processes underlying narrative communication. We have identified some research paths and thus hope to have enabled scholars and practitioners alike to see the way forward as well.

Table 1

Definitions, operationalizations, and measures of each variable

Variable		Definition	Operationalization (representative papers)
Transportation		The extent to which (a) a consumer empathizes with the story characters and (b) his or her imagination is activated by the story plot, which leads him or her to experience suspended reality during the story interaction.	Transportation scale (e.g., Chang 2009; Green 2004; Green and Brock 2000; LaMarre and Landreville 2009; Wang and Calder 2009) Emotional involvement scale (e.g., Argo, Zhu, and Dahl 2008; Morgan, Movius, and Cody 2009); Experiential immersion scale (e.g., Bracken 2006; Chang 2008).
Story	Empathetic characters	Distinctive narrative personalities whose beliefs and feelings a consumer can share.	Instructions about how to read the story, encouraging consumers to empathize with the story characters (e.g., Green and Brock 2000); Similarity between main character and consumer demographics (e.g., sexual orientation, Green 2004; gender, Slater and Rouner 2002). Telling the story from different points of view (e.g., either interaction partner, de Graaf et al. 2007; first- versus second-person, West, Huber, and Min 2004).
	Imaginable plot	A series of events that happens in a described	Instructions about how to read the story, encouraging

		narrative setting, of which a consumer can generate vivid images.	consumers to imagine the story plot (e.g., Schlosser 2003); Telling the story using vivid descriptions of the story plot (e.g., Escalas 2004).
Medium	Readability	The ease with which a consumer can process and understand the narrative.	Field of view (e.g., ranging from 53.1 to 14.8 degrees, Bracken 2006) Font clarity (e.g., white versus gray, Vaughn et al. 2007).
	Richness	The degree of informational cues the medium offers.	Variety of channels (e.g., HDTV versus NTSC, Bracken 2006; written versus spoken, Braverman 2008; written versus filmed, Green et al. 2008; drawn, photographed, or animated, van den Hende et al. 2007).
Consumer	Attention	The degree to which a consumer's concentration is focused on the narrative.	Instructions about how to read the story, either inhibiting (e.g., Escalas 2007; Green 2004; Green and Brock 2000) or encouraging (e.g., Schlosser 2003, Study 4; Vaughn et al. 2007, Study 1) the amount of attention consumers pay to the story.
	Familiarity	The degree to which a consumer has prior knowledge about or personal experience with the story topic.	Familiarity with the story topic test (e.g., relevant knowledge about Greek life in American colleges, Green 2004); Fit between story topic and consumer characteristics (e.g., having read the book before seeing the movie, Green et al. 2008; being an organ donor, Morgan et al. 2009).

	Transportability	The personality trait reflecting the propensity for a consumer to become transported into the narrative.	Transportability scale (e.g., Dal Cin 2005; Dal Cin, Zanna, and Fong 2004) Affect intensity scale (e.g., Escalas, Moore, and Britton 2004) Empathic ability scale (e.g., Mar et al. 2006).
Affective response	Emotions or feelings towards a particular entity elicited by the narrative.	Thought-listing technique (e.g., Argo et al. 2008) Various scales (e.g., upbeat and warm, Escalas et al. 2004; disgust and guilt, LaMarre and Landreville 2009).	
Cognitive response	Beliefs about a particular entity elicited by the narrative.	“Pinocchio” or false note-circling technique (e.g., Green and Brock 2000, Study 2 and 4) Story-relevant true statements (e.g., doctors work hard, Morgan et al. 2009) Story-relevant false statements (e.g., people can recover from brain death, Morgan et al. 2009); Thought-listing technique (e.g., Chang 2009; Escalas 2007; Green and Brock 2000, Study 1; Shrum, Burroughs, and Rindfleisch 2005; van Laer 2005).	
Attitude	An evaluation of a particular entity with some degree of favor or disfavor.	Real-world attitude scales (e.g., justice, Green and Brock 2000; materialism, Shrum 2009) Attitudes toward the story	

		(topic) scales (e.g., digital cameras, Schlosser 2003; bottled water, Wang and Calder 2006);
		Story-relevant perception scales (e.g., learning, Morgan et al. 2009; informativeness, van den Hende et al. 2007).
Intention	A willingness to perform a particular behavior.	Various scales (e.g., drinking moderation, Braverman 2008; political discussion, Landreville and LaMarre 2010; organ donation, Morgan et al. 2009; purchase, Schlosser 2003; choice, West et al. 2004).

Table 2

Consequences influenced by transportation

Consequences	N	k	r_u	SE_{r_u}	r	SE_r	ρ	SE_ρ	CI	z	FD
Affective response	4,383	36	.12	.02	.13	.03	.11	.03	.06–.16	4.43***	71
Cognitive response	2,609	18	.07	.04	.08	.04	.07	.04	.00–.14	1.99*	59
Attitude	9,446	76	.09	.02	.11	.02	.11	.02	.08–.14	6.91***	159
Intention	1,579	15	.23	.04	.22	.04	.22	.04	.14–.29	5.67***	48

N = number of participants in the original studies; k = number of effect sizes; r_u = unadjusted mean correlation; SE_{r_u} = standard error of unadjusted correlation; r = sample-weighted mean correlation; SE_r = standard error of sample-weighted correlation; ρ = reliability-adjusted, sample-weighted mean correlation; SE_ρ = standard error of reliability-adjusted, sample-weighted correlation; CI = lower and upper limit of the 95% confidence interval around the reliability-adjusted, sample-weighted mean correlation; z = test of null (two-tailed); FD = file drawer N giving an indication of publication bias.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Transportation influenced by story, medium, and consumer

Antecedents	N	k	r_u	SE_{r_u}	r	SE_r	ρ	SE_ρ	CI	z	FD
Story	15,977	127	.09	.01	.10	.01	.10	.01	.07–.12	7.66***	393
Empathetic characters	5,944	43	.10	.02	.11	.02	.11	.02	.07–.15	5.27***	185
Imaginable plot	10,033	84	.08	.02	.09	.02	.09	.02	.06–.12	5.60***	254
Medium	3,026	21	.04	.02	.06	.02	.05	.02	.00–.09	2.15*	88
Readability	1,229	8	.09	.02	.09	.02	.09	.03	.04–.14	3.64***	20
Richness	1,797	13	.18	.08	.20	.09	.19	.11	-.04–.40	1.61	35
Consumer	5,583	43	.13	.02	.14	.02	.17	.02	.12–.21	6.76***	195
Attention	2,346	20	.06	.03	.06	.04	.06	.04	-.01–.14	1.62	44
Familiarity	2,849	20	.20	.04	.21	.04	.22	.04	.16–.29	6.61***	56
Transportability	388	6	.22	.12	.23	.13	.27	.08	.11–.42	3.29**	11

N = number of participants in the original studies; k = number of effect sizes; r_u = unadjusted mean correlation; SE_{r_u} = standard error of unadjusted correlation; r = sample-weighted mean correlation; SE_r = standard error of sample-weighted correlation; ρ = reliability-adjusted, sample-weighted mean correlation; SE_ρ = standard error of reliability-adjusted, sample-weighted correlation; CI = lower and upper limit of the 95% confidence interval around the reliability-adjusted, sample-weighted mean correlation; z = test of null (two-tailed); FD = file drawer N giving an indication of publication bias.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

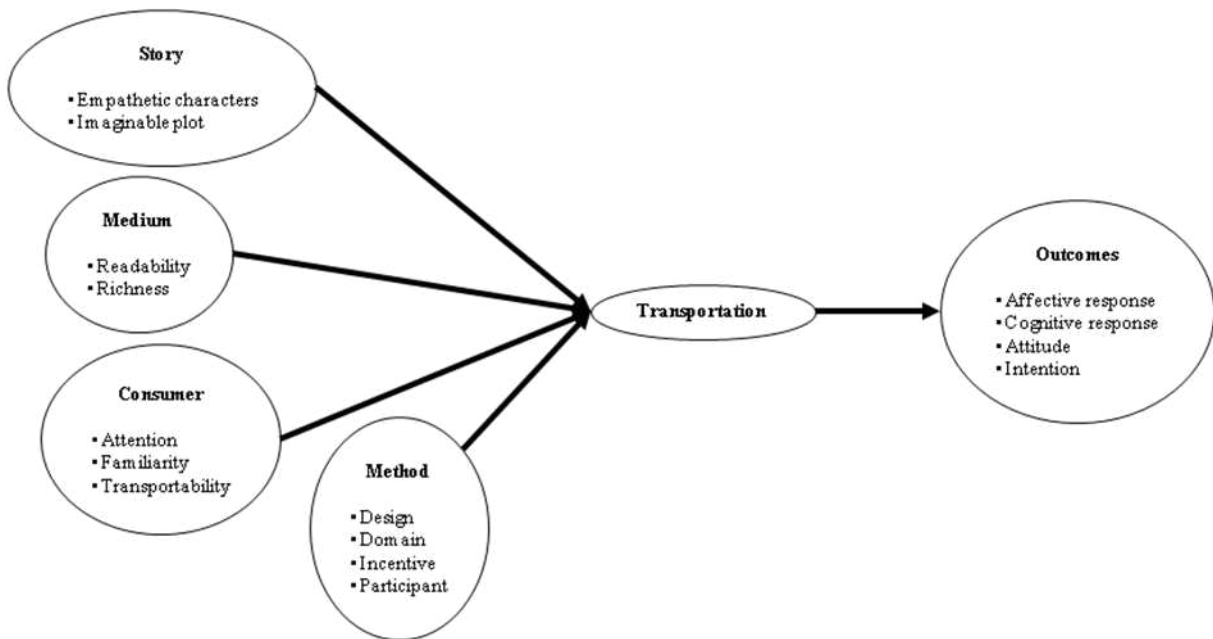
Transportation influenced by design, domain, incentive, and participant education, age, and gender

Antecedents	N	k	r_u	SE_{r_u}	r	SE_r	ρ	SE_ρ	CI	z	FD
Design	12,023	89	.10	.03	.10	.04	.07	.02	.04-.10	4.78****	203
Random	9,636	72	.11	.02	.11	.03	.13	.03	.07-.19	3.18**	128
Nonrandom	2,387	17	.08	.03	.09	.04	.05	.02	.02-.08	6.33****	66
Domain	15,132	120	.12	.05	.13	.06	.09	.02	.07-.12	6.97****	588
Communication	6,241	49	.10	.02	.11	.03	.12	.02	.08-.15	6.33****	197
Marketing	5,920	46	.08	.03	.09	.03	.10	.03	.04-.16	3.27**	190
Psychology	2,586	21	.03	.02	.03	.04	.04	.03	-.01-.09	1.52	40
Technology	385	5	.25	.12	.28	.14	.18	.12	-.07-.41	1.41	9
Incentives	16,918	132	.09	.03	.10	.03	.10	.02	.07-.13	6.81****	315
Incentive	12,852	100	.12	.02	.13	.02	.14	.02	.10-.18	6.67****	248
No incentive	4,066	32	.05	.04	.06	.04	.06	.02	.02-.10	2.99**	77
Participant education	18,048	141	.10	.02	.11	.03	.06	.01	.05-.08	12.05****	380
Graduate	2,243	17	.14	.04	.15	.05	.11	.02	.06-.15	4.64****	52
Undergraduate	15,319	120	.10	.02	.11	.02	.12	.02	.08-.16	6.05****	331
Not university educated	486	5	.05	.01	.06	.01	.06	.01	.05-.07	10.00****	17
Participant age	18,273	146	-.0008	.00	-.0003	.00	-.0009	.00	-.0016--.0003	-2.72*	365
Participant gender	18,273	146	-.2643	.00	-.2758	.01	-.1803	.01	-.2090--.1517	-12.34****	972

N = number of participants in the original studies; k = number of effect sizes; r_u = unadjusted mean correlation; SE_{r_u} = standard error of unadjusted correlation; r = sample-weighted mean correlation; SE_r = standard error of sample-weighted correlation; ρ = reliability-adjusted, sample-weighted mean correlation; SE_ρ = standard error of reliability-adjusted, sample-weighted correlation; CI = lower and upper limit of the 95% confidence interval around the reliability-adjusted, sample-weighted mean correlation; z = test of null (two-tailed); FD = file drawer N giving an indication of publication bias.

* $p < .05$. ** $p < .01$. *** $p < .001$.

FIGURE 1
META-ANALYTIC MODEL



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