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**How to present online information to older cancer patients**

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# Chapter 7

## The effect of narration style and age congruency in narrative communication on website satisfaction and recall of online health information

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The Dutch version of this article won the 2013 best article award for the best article published in *Tijdschrift voor Communicatiewetenschap*.

## **Abstract**

The effect of narration style and age congruency on website satisfaction and recall of information was tested in a 2 (narration style: conversational style vs. formal style) × 2 (age congruency: congruent vs. incongruent) experimental design ( $n = 275$ ). Conversational style was found to be an effective communication tool to predict recall of information. Age congruency had an effect on satisfaction with the emotional support from the website. Narrative engagement predicted both website satisfaction and recall of information, but did not mediate the relationship between narration style and the outcome variables. However, significant conditional mediation effects revealed that age congruency plays a moderating role in explaining the effects of narration style on website satisfaction and recall of online health information via narrative engagement. This study provides practical implications for developing online health messages for older adults.

## Introduction

The Internet offers a viable source for disseminating cancer information. In addition to finding information through online search engines, many hospitals also refer their patients to information on the Web, such as patient portals and hospital websites. This means that much information is primarily available online, and sometimes even exclusively online, which forces people to use the Internet to obtain crucial cancer information (Lippincott, 2004). This may be problematic for some groups, such as for an aging population. Although 81% of people aged between 65 and 75 had access to the Internet in 2012 (Statistics Netherlands, 2012), this does not necessarily mean that these older adults understand online health information. Not being able to understand online health information can lead to decreased satisfaction with the content of the health-related website (Parrott, Raup Krieger, Silk, & Egbert, 2008). Website satisfaction is a website user's "predispositions to respond favorably or unfavorably to web content" (Chen & Wells, 1999, p. 28). Website satisfaction is an important motivator for processing and learning information (Park & Lim, 2007). Furthermore, not being able to understand health information can also negatively influence recall of information (Wilson et al., 2010), which is the ability to correctly remember and reproduce information. Recall of information plays a crucial role in adequate disease management and adherence to medical regimes (Kravitz et al., 1993; Ley, 1988; Linn, Van Dijk, Smit, Jansen, & Van Weert, 2013).

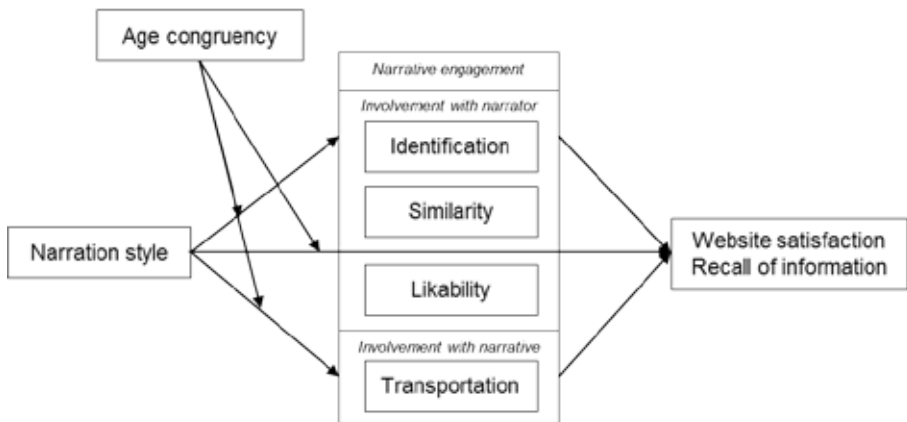
In order to enhance website satisfaction and recall of information among older adults, there is a need to develop effective strategies to present online health information in an attractive and clear manner. Health information is often provided at a too high reading level and is therefore not understandable for lay persons (McCray, 2005). One way to present information in a more comprehensible manner is through narrative health videos (Kreuter et al., 2007). A narrative is "a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed" (Hinyard & Kreuter, 2007, p. 778). Narrative health videos have been found to be an effective way to educate people about cancer-related information (Kreuter et al., 2010). As narrative engagement plays an important role in the effectiveness of the narrative (Wirth, 2006), it is important to study the role of narrative engagement (i.e., involvement with the narrator and involvement with the narrative) in online audiovisual health information. Therefore, the first aim of this study is to gain more insight into the effect of narrative engagement on website satisfaction and recall of cancer-related information.

Narrative communication often uses conversational style, which is a strategy where information is presented from a first-person perspective (Mayer, 2002). Although numerous studies have focused on the effects of narrative health communication (Hinyard & Kreuter, 2007), to date, the effects of conversational style remain unclear. Moreover, there is a lack of knowledge about how narratives can be effectively used as communication tools to provide older adults in particular with cancer information. Therefore, the current study will focus on the role of narration style and age congruency. Age congruency refers to the perceived similarity between the age of the narrator of the message and the age of the recipient of the message. We expect an interaction effect to occur between narration style and age congruency. Thus, the second aim of

this study is to examine the (interaction) effect of narration style and age congruency on website satisfaction and recall of cancer-related information.

Narrative engagement could also mediate the effect of narration style and age congruency on website satisfaction and recall of information. Our third and final aim of this study is to explore whether narrative engagement mediates the (interaction) effect of narration style and age congruency on website satisfaction and recall of cancer-related information.

To summarize, the current study investigates the effect of narration style and age congruency on website satisfaction and recall of information in audiovisual health information and the mediating role of narrative engagement. We will test this using a conditional mediation model, as proposed in Figure 7.1.



**Figure 7.1.** Conditional mediation model: The effect of narration style and age congruency on website satisfaction and recall of information via narrative engagement (i.e., involvement with the narrator: identification, perceived similarity, likability, and involvement with the narrative: transportation).

### The role of narrative engagement in narrative communication

The effectiveness of a narrative health video is, among other factors, influenced by the extent of narrative engagement (Wirth, 2006). Within narrative engagement, we can distinguish between involvement with the narrative’s character (the video narrator) and involvement with the narrative’s story (the narrative) (Slater & Rouner, 2002).

#### Involvement with the video narrator

Involvement with the video narrator can be conceptualized in a variety of ways. Murphy, Frank, Moran and Patnoe-Woodley (2011) distinguish between 1) identification with the narrator; 2) perceived similarity with the narrator; and 3) the likability of the narrator. Identification is defined as the imaginary process in which people merge with characters and share their knowledge, emotions, and goals (Cohen, 2001). Perceived similarity refers to the extent to which people perceive themselves as being similar (e.g., similar way of thinking) to the video narrator (Slater & Rouner, 2002).

Furthermore, likability is often defined as the extent to which the narrator in the video is seen as likable, friendly, and warm (Maccoby & Wilson, 1957; Reysen, 2005). Previous work has shown that involvement with the video narrator is an important predictor of satisfaction and recall of information. For instance, it was found that the more a person identified with a narrator, liked the narrator, and perceived the narrator as similar (i.e., involvement with the narrator), the more satisfied this person was with the information provided and the more this person recalled (Murphy et al., 2011). Therefore, we hypothesize that *involvement with the video narrator is positively related to website satisfaction (H1a) and recall of cancer-related information (H1b).*

### **Involvement with the narrative**

Other than involvement with the narrator of a story, involvement with the narrative itself is seen as an important predictor of narrative effects. The transportation-imagery model refers to this as transportation, which is the mental process in which people are immersed in the world of a story (Green & Brock, 2000). This model asserts that readers experience, to some extent, mental absorption into the story, whereby their thoughts, feelings, and attention are focused on the events occurring in the story (Green & Brock, 2000). Transportation can make abstract information, such as information about a lung cancer treatment, seem more like a real experience because of the concrete examples and vividness of the story's events (Green, 2004). Previous research has shown that involvement with the narrative is the best predictive narrative mechanism of satisfaction and recall of information (Murphy et al., 2011). Therefore, we expect that *involvement with the narrative is positively related to website satisfaction (H1c) and recall of cancer-related information (H1d).*

### **The role of narration style in narrative communication**

According to the cognitive theory of multimedia learning, conversational style refers to presenting information in a personalized conversational style in order to increase satisfaction and recall of information (Mayer, 2002). This strategy is often used in narrative communication, using personal stories or a description of an individual experience, e.g., providing information from a patient's perspective (Kreuter et al., 2007). A personalization effect occurs when people learn more deeply when information is presented in conversational style rather than in formal style (Mayer, 2002). Previous research has shown that conversational style can increase satisfaction with the message (Adams, Mayer, MacNamara, Koenig, & Wainess, 2012) and recall of information (McQueen, Kreuter, Kalesan, & Alcaraz, 2011). Therefore, we predict that *conversational style has a positive effect on website satisfaction (H2a) and recall of cancer-related information (H2b).*

### **The role of age congruency in narrative communication**

Perceived similarity between the video narrator and its recipient and identification are considered important predictors of involvement with the video narrator. Because of this perceived likeness, recipients are more likely to accept a message (Hinyard & Kreuter, 2007). This means that the effectiveness of narrative communication is determined by characteristics of the video narrator as well as by characteristics of the recipient. The

homophily literature explains that individuals with similar traits are more likely to have contact and share behavior patterns (McPherson, Smith-Lovin, & Cook, 2001). Age congruency could therefore play a role in the relationship between involvement with the video narrator (i.e., identification and perceived similarity) and website satisfaction and recall of information. Although this has not yet been examined, based on the homophily literature, we can expect that *age congruency has a positive effect on website satisfaction (H3a) and recall of cancer-related information (H3b)*.

Furthermore, we can expect an interaction effect between narration style and age congruency on website satisfaction and recall of information. Since we expect conversational style and age congruency to have a positive effect on website satisfaction and recall of information, we can assume that outcomes might be optimized when age congruency occurs while watching an audiovisual message presented in conversational style. Therefore, we hypothesize that *age-congruent audiovisual information presented in conversational style has a positive effect on website satisfaction (H4a) and recall of cancer-related information (H4b)*.

### **The mediating role of narrative engagement**

Narrative engagement (i.e., involvement with the video narrator and involvement with the narrative) is expected to be higher for audiovisual information presented in conversational style because this type of information is often perceived as more attractive than audiovisual information presented in formal style (Slater & Rouner, 2002). Therefore, we also hypothesize that *the effect of narration style on website satisfaction (H5a) and recall of cancer-related information (H5b) is mediated by narrative engagement*. Furthermore, *the effect of age congruency on website satisfaction (H5c) and recall of cancer-related information (H5d) is also expected to be mediated by narrative engagement*. Moreover, we predict that *the interaction effect between narration style and age congruency on website satisfaction (H5e) and recall of cancer-related information (H5f) is also mediated by narrative engagement*.

## **Method**

### **Design**

The effect of narration style and age congruency on website satisfaction and recall of information was tested in a 2 (narration style: conversational-styled vs. formal-styled audiovisual information) by 2 (age congruency: congruent vs. incongruent age) experimental design with narrative engagement as a possible mediator of these effects. For this experiment, we used a webpage of the Netherlands Cancer Institute (NKI) on which Radio Frequency Ablation (RFA) treatment was explained. RFA is a minimal invasive method to treat lung cancer. A special needle is inserted into the lung tumor to create heat and to destroy the cancer cells. Since RFA is a relatively unknown treatment, we expect the participants of this study to have little prior knowledge about the treatment, which enhances the validity of the recall measurement.

## Stimulus material

Four versions of the NKI webpage were created for this study. Each version presented a different video in which RFA treatment was explained, respectively, by, a younger physician, an older physician, a younger patient, and an older patient. Two professional actors played the roles of the physicians and patients, in which the first actor (39 years old) played the roles of the younger physician and patient, and the second actor (67 years old) played the roles of the older physician and patient. Narration style was manipulated by presenting information either through a formal, didactical manner by letting a physician presenting the RFA information (formal-styled condition), or by presenting information from a conversational, personal perspective by showing a patient's personal story regarding the RFA information (conversational-styled condition). The content and length of these four videos was kept constant across conditions. However, the conversational-styled video versions were presented from a first-person perspective and contained additional sentences to make the story more narrative (e.g., "fortunately, I did not experience any of those [complications]"). The physician was videotaped behind his desk, and the patient was filmed sitting on a couch. Although only male narrators were used in this experiment, no gender differences were found in participants' level of identification with the narrator,  $F(1, 269) = 0.06, p = .814, \eta_p^2 = .00$ , and their perceived similarity with the narrator,  $F(1, 269) = 0.09, p = .764, \eta_p^2 = .00$ .

## Participants and procedure

The online panel Panelclix was used to draw a representative sample of the Dutch population stratified on gender and age (< 65 vs.  $\geq 65$ ). The younger age group (< 65) was on average 41.19 years old ( $SD = 12.71$ ), and the older age group ( $\geq 65$ ) was on average 68.77 years old ( $SD = 3.58$ ). In total, 53.5% of the participants were male. Participants were excluded if they had prior knowledge about RFA treatment (i.e., scoring higher than 4 on a 7-point Likert scale about perceived RFA knowledge,  $n = 9$ ). After stratification, participants were randomly assigned to a video starring a younger doctor ( $n = 63$ ), an older doctor ( $n = 69$ ), a younger patient ( $n = 68$ ), or an older patient ( $n = 75$ ). This video was part of the NKI webpage including textual information about RFA, and was only accessible through the online questionnaire that was sent out to the participants. To ensure that information was learned from the video rather than the textual information on the webpage, participants were first exposed to the video-only information without the context of the NKI webpage. After exposure to the video, questions about the content of the video followed (recall). Next, participants were able to view the complete NKI webpage including both video and textual information, followed by questions on website satisfaction. The questionnaire ended with questions on background characteristics, narrative engagement, and a manipulation check.

## Measures

### Website satisfaction

Website satisfaction was measured by the Website Satisfaction Scale (Website Satisfaction Scale, WSS: Bol et al., 2013), which is based on items of the website attitude scale (Chen & Wells, 1999) and items of the Leisure Satisfaction Scale (LSS:



Beard & Ragheb, 1980). The scale consists of three reliable subscales: satisfaction with the comprehensibility of the website (3 items,  $\alpha = .90$ ), satisfaction with the attractiveness of the website (5 items,  $\alpha = .80$ ), and satisfaction with the emotional support from the website (4 items,  $\alpha = .94$ ). Examples of items of these subscales are, respectively, “the readability of the website is good,” “the website looks nice,” and “the website increases self-confidence,” measured on a 7-point Likert scale (1 = totally disagree, 7 = totally agree).

### ***Recall of cancer-related information***

Recall of information was measured by an adapted version of the Netherlands Patient Information Recall Questionnaire (NPIRQ: Jansen, Van Weert, et al., 2008). Using the RFA text information, eleven open-ended questions were developed, such as “How much time does RFA treatment take?”. All questions were provided with the answer options “not discussed,” “discussed, but I can’t remember the details,” and “discussed, namely...” Based on a codebook, recall scores were allocated to all answers (0 = not recalled, 1 = recalled partially, 2 = recalled correctly). Recall scores of 43 cases (15.6%) were double coded by two independent coders and this resulted in good inter-rater reliability (mean  $\kappa = .85$ , range .59 – 1.00). The 11 questions were computed into a total recall score, ranging from 0 to 22. Additionally, recall scores were transformed into percentages of correctly recalled information for interpretation purposes.

### ***Narrative engagement***

Narrative engagement was measured using four measures of narrative engagement constructs: identification, perceived similarity, and likability (involvement with the video’s narrator), and transportation (involvement with the narrative). As a test of conceptual distinction, a PCA was conducted with items of all scales which confirmed the distinction between the four theoretical constructs. However, two items – one perceived similarity item and one transportation item – showed overlap with another dimension (i.e., “the video affected me emotionally” and “Person X thinks like me”). To increase the convergence validity of the four scales, these two items were removed from further analysis. The four scales explained 70.3% of the variance in the 19 items.

**Identification.** Identification with the video narrator was measured using six items of the identification scale of Cohen (2001). Four items were not included since they did not apply well to stories presented in video form (Kreuter et al., 2008). Identification items included “while viewing I could feel the emotions Character X portrayed” and were measured on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). All six identification items loaded on one factor, explaining 40.9% of the variance and represented a reliable identification scale ( $\alpha = .92$ ).

**Perceived similarity.** The extent to which people perceive themselves as similar to the video narrator was measured using three items of the attitude homophily scale (McCroskey, Richmond, & Daly, 1975). The scale included items such as “Person X is like me” and all items were measured on a 7-point Likert scale (1 = totally disagree, 7 = totally agree). The items in the scale loaded on one factor explaining 8.5% of the variance ( $EV = 1.62$ ) and formed a reliable scale ( $\alpha = .67$ ).

**Likability.** The validated Reysen likability scale was used to measure the likability of the video's narrator (Reysen, 2005). This scale consists of four items, such as "Person X is friendly" measured on a 7-point Likert scale (1 = totally disagree, 7 = totally agree) and was found to be a reliable scale ( $\alpha = .94$ ). The scale explained 9.2% of the variance in the four items ( $EV = 1.75$ ).

**Transportation.** Involvement with the narrative (i.e., transportation) was measured with the transportation scale (Green & Brock, 2000). Four items that were not applicable to the narratives presented in video form were not included into the scale. Therefore, the transportation scale consisted of six items, such as "I was mentally involved in the video's narrative while watching it" using a 7-point Likert scale (1 = not at all, 7 = very much). The transportation scale explained 11.7% of the variance and the six transportation items produced an internally consistent scale ( $\alpha = .84$ ).

### **Manipulation check**

As a test of successful manipulation, two measures for narration style and age congruency were included in the questionnaire. Narration style was measured using nine items, including both conversational style items (5 items, e.g., "the video shows personal experience,"  $\alpha = .86$ ) and formal style items (4 items, e.g., "the video shows professional expertise,"  $\alpha = .73$ ). Age congruency was assessed through a single-item question "Person X has a similar age like me." Using this question and the participant's age, it was checked whether the younger video narrator was perceived as younger than the older video narrator, and vice versa. All items were measured on a 7-point Likert scale (1 = totally disagree, 7 = totally agree).

### **Background variables**

The following background characteristics of the participants were assessed: gender, age, education level, Internet use, and prior knowledge about lung cancer and RFA treatment. Internet use was assessed by the number of hours spent per week on average using the Internet. Prior knowledge about lung cancer and RFA were measured with two seven-point Likert scale questions about the perceived medical knowledge participants had about lung cancer and RFA treatment (1 = no knowledge, 7 = much knowledge).

### **Statistical analysis**

To assess successful randomization, F-statistics and Chi-square statistics were executed. We used Hayes' PROCESS macro, Model 12 (Hayes, 2012) to test the conditional mediation model. This macro allows us to calculate the path coefficients of a model in which multiple mediators and moderators are simultaneously tested. PROCESS provides coefficients of the *direct* effects of the independent variables on the mediators (a-paths), the mediators on the dependent variables (b-paths), the independent variables on the dependent variables (c-paths), as well as the coefficients of the *indirect* effects of the independent variables on the dependent variables through the mediators (c'-paths). In this study, the a-paths referred to the (interaction) effects of narration style and age congruency on narrative engagement. The b-paths reflected the effects of narrative engagement on website satisfaction and recall of information.

The c-paths were the (interaction) effects of narration style and age congruency on website satisfaction and recall of information. The c'-paths referred to the indirect (conditional) effects of narration style and age congruency on website satisfaction and recall of information through narrative engagement. All total and indirect effects were subjected to bootstrap analyses with 5,000 bootstrap samples and a 95% Confidence Interval (CI). Since age congruency consisted of two factors (i.e., age of the video narrator and age of the recipient), three independent variables were simultaneously included in the model to test the effect of narration style and age congruency. Because PROCESS only allows one independent variable in the model, narration style (dichotomous variable, 0 = formal style, 1 = conversational style) was chosen as the independent variable, age of the video's narrator (dichotomous variable, 0 = younger narrator, 1 = older narrator) as moderator of the direct and indirect effects of narration style, and age of the recipient (dichotomous variable, 0 = younger [ $< 65$  yrs.], 1 = older [ $\geq 65$  yrs.]) as moderator of the interaction effects between narration style and age of the video narrator. We tested the model four times: one for each dependent variable, i.e., satisfaction with the comprehensibility, satisfaction with the attractiveness, satisfaction with the emotional support from the website, and recall of information. Identification, perceived similarity, likability, and transportation were considered as parallel mediators in the model.

## Results

### Randomization

The four experimental conditions did not significantly differ in gender,  $\chi^2(3) = 2.45, p = .485$ , age,  $F(3, 271) = 0.92, p = .430, \eta_p^2 = .01$ , education level,  $\chi^2(6) = 4.50, p = .610$ , Internet use,  $F(3, 262) = 0.57, p = .639, \eta_p^2 = .01$ , prior knowledge about lung cancer,  $F(3, 271) = 1.32, p = .269, \eta_p^2 = .01$ , and prior knowledge about RFA,  $F(3, 271) = 0.43, p = .735, \eta_p^2 = .01$ . Based on these results, no covariates were taken into further analysis.

### Manipulation checks

The videos in which a doctor (formal-styled versions) explained RFA information differed from the videos in which a patient (conversational-styled versions) explained the same information on both formal style items,  $F(1, 268) = 6.20, p = .013, \eta_p^2 = .02$ , and conversational style items,  $F(1, 268) = 12.24, p = .001, \eta_p^2 = .04$ . As intended, the patient videos were evaluated as being more conversational than the doctor videos (resp.  $M = 4.76, SD = 1.16$  and  $M = 4.27, SD = 1.13$ ), whereas the doctor videos were rated as being more formal than the patient videos (resp.  $M = 5.38, SD = 1.03$  and  $M = 5.10, SD = 0.99$ ). Successful manipulation was also found for age congruency,  $F(1, 267) = 52.56, p < .001, \eta_p^2 = .16$ . Simple effects analysis showed that younger recipients perceived their age as significantly similar to the younger video narrator compared to older recipients,  $F(1, 268) = 31.94, p < .001$  (resp.  $M = 3.68, SD = 1.43$  and  $M = 1.89, SD = 1.06$ ). Likewise, older recipients perceived their age as significantly similar to the older video narrator compared to younger recipients,  $F(1, 268) = 11.08, p = .001$  (resp.  $M = 4.25, SD = 1.61$  and  $M = 3.30, SD = 1.88$ ).

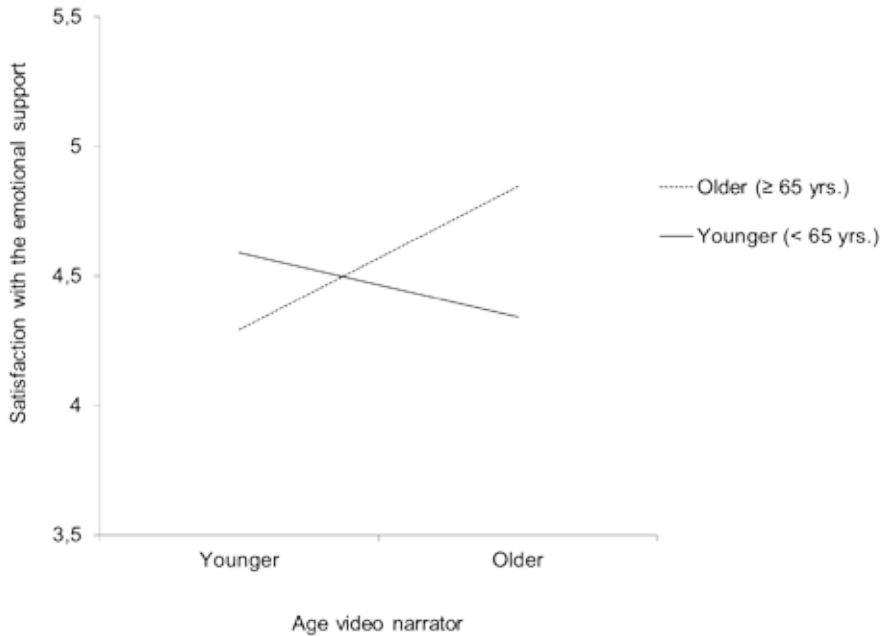
### **Direct effects of narrative engagement on website satisfaction and recall of information**

Mixed results were found with respect to the effects of involvement with the video narrator on website satisfaction (H1a) and recall of information (H1b). Identification with the video narrator was negatively associated with satisfaction with the comprehensibility of the website ( $b = -0.14$ ,  $SE = 0.05$ ,  $p = .010$ ) and recall of information ( $b = -1.30$ ,  $SE = 0.25$ ,  $p < .001$ ), but positively related to satisfaction with the emotional support from the website ( $b = 0.31$ ,  $SE = 0.07$ ,  $p < .001$ ). These findings suggest that satisfaction with the comprehensibility and attractiveness of the website decreased and recall of information declined when recipients identified more with the video narrators. Nevertheless, identification also led to higher levels of satisfaction with the emotional support from the website. Likability predicted both website satisfaction and recall of information in a positive sense. The more likable the video narrator was perceived, the more satisfied recipients were with the comprehensibility ( $b = 0.35$ ,  $SE = 0.07$ ,  $p < .001$ ), attractiveness ( $b = 0.32$ ,  $SE = 0.06$ ,  $p < .001$ ), and emotional support ( $b = 0.38$ ,  $SE = 0.08$ ,  $p < .001$ ), and the more they recalled of the information ( $b = 0.93$ ,  $SE = 0.30$ ,  $p = .003$ ). Perceived similarity had no significant effect on website satisfaction and recall of information.

Involvement with the narrative (transportation) positively predicted satisfaction with the comprehensibility ( $b = 0.36$ ,  $SE = 0.06$ ,  $p < .001$ ), satisfaction with the attractiveness ( $b = 0.13$ ,  $SE = 0.05$ ,  $p = .013$ ), and recall of information ( $b = 2.60$ ,  $SE = 0.27$ ,  $p < .001$ ). An increased level of transportation resulted in higher satisfaction with the comprehensibility and attractiveness of the website (H1c) as well as better recall of information (H1d).

### **Direct effects of narration style and age congruency on website satisfaction and recall of information**

In contrast with our expectations of H2a, conversational-styled information did not significantly increase website satisfaction compared to formal-styled information ( $b_{\text{comprehensibility}} = -0.25$ ,  $SE = 0.20$ ,  $p = .224$ ;  $b_{\text{attractiveness}} = -0.27$ ,  $SE = 0.19$ ,  $p = .160$ ;  $b_{\text{emotional support}} = -0.38$ ,  $SE = 0.25$ ,  $p = .129$ ). Results did show a main effect of narration style on recall of information (H2b). Recall of information significantly improved when RFA information was presented in conversational style compared to formal style ( $b = 1.99$ ,  $SE = 0.95$ ,  $p = .037$ ). As expected, age congruency predicted website satisfaction (H3a). Specifically, age congruency positively influenced satisfaction with the emotional support from the website ( $b = 0.89$ ,  $SE = 0.39$ ,  $p = .023$ ). Older adults perceived more emotional support from the website when viewing an older video narrator than when viewing a younger narrator ( $b = 0.55$ ,  $SE = 0.20$ ,  $p = .008$ ). Moreover, older recipients were also more satisfied with the emotional support from the website when viewing an older video narrator than when younger recipients viewed an older narrator ( $b = 0.50$ ,  $SE = 0.19$ ,  $p = .008$ ). This age congruency effect is visualized in Figure 7.2. Furthermore, although we expected to find improved recall of information as a result of age congruency between the recipient's age and narrator's age (H3b), our data did not support this expectation ( $b = -1.88$ ,  $SE = 1.47$ ,  $p = .204$ ).



**Figure 7.2.** The effect of age congruency on satisfaction with the emotional support from the website.

The predicted interaction effect between narration style and age congruency on website satisfaction (H4a) was not supported. Nevertheless, we found an interaction effect between narration style and age congruency on recall of information (H4b). Recall of information significantly improved when younger recipients viewed a conversational-styled video starring a younger video narrator compared to any other combination of the recipient's age and the video narrator's age ( $b = 1.99$ ,  $SE = 0.95$ ,  $p = .037$ ). Table 7.1 presents all direct effects of narration style, age congruency, and narrative engagement on website satisfaction and recall of information.

**Table 7.1.** Direct effects of narration style, age congruency, and narrative engagement (involvement with the video narrator: identification, perceived similarity, likability, and involvement with the narrative: transportation) on website satisfaction (comprehensibility, attractiveness and emotional support) and recall of information

	Comprehen- sibility	Attractive- ness	Emotional support	Recall of information
	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )
Constant	2.78 (0.31)	2.72 (0.29)	1.50 (0.39)	-4.55 (1.47)
Independent variables				
Narration style (NS)	-0.25 (0.20)	-0.27 (0,19)	-0.38 (0.25)	1.99 (0.95)*
Age congruency (AC)	0.36 (0.31)	0.19 (0,30)	0.89 (0.39)*	-1.88 (1.47)
NS × AC	-0.13 (0.43)	0.27 (0,41)	-0.25 (0.53)	2.50 (2.01)
Mediators				
Identification	-0.14 (0.05)**	-0.01 (0.05)	0,31 (0.07)***	-1.30 (0.25)***
Perceived similarity	0.03 (0.05)	0.00 (0.05)	0,01 (0.06)	-0.19 (0.23)
Likability	0.35 (0.07)***	0.32 (0.06)***	0,38 (0.08)***	0.93 (0.30)**
Transportation	0.36 (0.06)***	0.13 (0.05)*	0,04 (0.07)	2.60 (0.27)***

*Note.* The unstandardized b-coefficients reflect c-paths for the (interactions between) independent variables and b-paths for the mediators (standard error between parentheses). Significant b-paths and c-paths are elaborated upon in the text. Abbreviations. NS, narration style. AC, age congruency. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### Indirect and conditional indirect effects on website satisfaction and recall of information

The effect of narration style on website satisfaction (H5a) and recall of information (H5b) was not mediated by narrative engagement. This was also the case for the relationship between age congruency and website satisfaction (H5c) and recall of information (H5d). Nevertheless, we found conditional mediation effects: the relationship between narration style, website satisfaction and recall of information appeared to depend upon age congruency (H5e and H5f). The conditional mediation effects were only found when a younger recipient viewed a younger video narrator. Under those conditions, the effects of narration style on satisfaction with the comprehensibility of the website and recall of information were negatively mediated by identification with the video narrator (resp.  $b = -0.08$ ,  $SE = 0.05$ , 95% BC [-0.22, -0.01] and  $b = -0.75$ ,  $SE = 0.38$ , 95% BC [-1.64, -0.12]), whereas satisfaction with the emotional support from the website was positively mediated by identification ( $b = 0.18$ ,  $SE = 0.10$ , 95% BC [0.02, 0.43]). These findings suggest that conversational-styled health information videos starring a younger narrator increase levels of identification among younger recipients. Consequently, this resulted in enhanced satisfaction with the emotional support from the website, but in decreased satisfaction with the comprehensibility and declined recall of information. Furthermore, the effect of narration style was positively mediated by the likability of the video narrator. Similarly, this was only the case for younger recipients viewing a younger video narrator. These

mediating effects were found for satisfaction with the comprehensibility ( $b = 0.15$ ,  $SE = 0.08$ , 95% BC [0.01, 0.34]), satisfaction with the attractiveness ( $b = 0.13$ ,  $SE = 0.07$ , 95% BC [0.01, 0.30]), satisfaction with the emotional support ( $b = 0.16$ ,  $SE = 0.09$ , 95% BC [0.01, 0.39]), and recall of information ( $b = 0.39$ ,  $SE = 0.26$ , 95% BC [0.02, 1.07]). For younger recipients, conversational-styled information led to higher levels of identification and likability of the video narrator. Consequently, this resulted in enhanced satisfaction with the emotional support from the website, and for likability as well in enhanced satisfaction with the attractiveness and comprehensibility of the website and improved recall of information. An overview of the (conditional) mediation effects can be found in Table 7.2.

**Table 7.2.** Indirect and conditional indirect effects of narration style and age congruency on website satisfaction (comprehensibility, attractiveness and emotional support) and recall of information via narrative engagement (involvement with the video narrator: identification, perceived similarity, likability, and involvement with the narrative: transportation)

	Comprehensibility		Attractiveness		Emotional support		Recall of information	
	$b$ (SE)	[95% BC]	$b$ (SE)	[95% BC]	$b$ (SE)	[95% BC]	$b$ (SE)	[95% BC]
Identification	-0.12 (0.10)	[-0.41; 0.02]	-0.01 (0.06)	[-0.19; 0.07]	0.26 (0.21)	[-0.09; 0.74]	-1.10 (0.84)	[-2.92; 0.43]
Conditional effect	-0.08 (0.05)	[-0.22; -0.01]	-0.01 (0.04)	[-0.10; 0.05]	0.18 (0.10)	[0.02; 0.43]	-0.75 (0.38)	[-1.64; -0.12]
Perceived similarity	0.00 (0.03)	[-0.06; 0.09]	0.00 (0.03)	[-0.07; 0.07]	0.00 (0.21)	[-0.08; 0.74]	-0.01 (0.17)	[-0.48; 0.27]
Likability	0.22 (0.19)	[-0.12; 0.63]	0.20 (0.17)	[-0.09; 0.57]	0.23 (0.06)	[-0.11; 0.24]	0.58 (0.55)	[-0.23; 1.93]
Conditional effect	0.15 (0.08)	[0.01; 0.34]	0.13 (0.07)	[0.01; 0.30]	0.16 (0.09)	[0.01; 0.39]	0.39 (0.26)	[0.02; 1.07]
Transportation	0.13 (0.21)	[-0.25; 0.58]	0.05 (0.09)	[-0.07; 0.30]	0.02 (0.04)	[-0.05; 0.10]	0.94 (1.51)	[-2.01; 3.95]

Note. 5,000 bootstrap samples with a 95% confidence interval. The unstandardized b-coefficients in this table reflect the c' paths of the indirect effects of the independent variables on the dependent variables via the mediators. The conditional indirect effects of narration style on the dependent variables were only significant when it concerned a younger age of both the video narrator and receiver. Effects were significant when confidence intervals did not overlap zero. BC, bias corrected confidence interval.

## Discussion

This study examined the effects of narration style and age congruency and the role of narrative engagement on website satisfaction and recall of online health information. The first aim of this study was to examine the role of narrative engagement in narrative communication. We expected that involvement with the video narrator would lead to enhanced website satisfaction (H1a) and improved recall of information (H1b). Our results showed that likability of the video narrator led to both higher satisfaction with the comprehensibility, the attractiveness, and emotional support from the website, as well as better recall of information. Identification with the video narrator also increased satisfaction with the emotional support from the website; however, at the same time, it decreased satisfaction with the comprehensibility and recall of information. Involvement with the narrative was positively associated with website satisfaction (H1c) as well as recall of information (H1d).

The second aim of this study was to test the (interaction) effects of narration style and age congruency. Our study showed that conversational-styled health videos were not beneficial for increasing website satisfaction (H2a), but did improve recall of information (H2b). Thus, we found support for the assumption that online health media presented in conversational style foster deeper learning of information, as proposed in the cognitive theory of multimedia learning (Mayer, 2002). On the contrary, age congruency positively influenced website satisfaction (H3a), but not recall of information (H3b). Furthermore, we found that older recipients were especially satisfied with the emotional support from the website when they viewed an older video narrator. Although age congruency did not affect recall of information (H3b), we did find an interaction effect between narration style and age congruency: younger recipients recall information better when they were exposed to a conversational-styled video starring a younger narrator (H4b). This interaction effect was not found with regard to website satisfaction (H4a).

The third and final aim of this study was to investigate whether narrative engagement would mediate the (interaction) effect between narration style and age congruency on website satisfaction and recall of information. Although narrative engagement did not mediate the interaction of narration style and age congruency with website satisfaction (H5a and H5c, respectively) and recall of information (H5b and H5d, respectively), results showed conditional mediation effects. Conversational-styled information only affected website satisfaction (H5e) and recall of health information (H5f) under the condition that younger recipients viewed a younger video narrator. These conditional effects were found when the recipients was involved with the video narrator; in other words, when the recipient identified with and liked the narrator. Higher levels of identification and likability resulted in enhanced satisfaction with the emotional support from the website. Furthermore, likability enhanced satisfaction with the comprehensibility and attractiveness of the website and improved recall. Identification also led to lower levels of satisfaction with the comprehensibility and lower recall of information.

The results of this study give insight into how to use narration style, age congruency, and narrative engagement in health videos to improve online health information for older adults. These results, however, do not provide a complete overview of other elements that might be used to optimize the effectiveness of narrative



communication. Previous research has indicated that preexisting similarity between a narrative character and the recipient of a narrative especially increase narrative effects when the preexisting similarity is on a story-relevant dimension rather than on a simple demographic characteristic (Green, 2006). A study among older adults showed that people attach more value to affective aspects in life as one ages (Carstensen, Fung, & Charles, 2003). Compared to our informational perspective taken in the video, the narrative effects might have been stronger for the older adult sample if the online health video had contained more affective elements, such as story elements about emotional connections with family members or friends. Future research should focus on other narrative elements that contribute to effective online health communication to effectively tailor narrative communication to the intended audience (Green, 2008).

Despite these limitations, our results show that conversational-styled information improves recall of information, age congruency enhances satisfaction with the emotional support from the website, and likability of the video narrator increases satisfaction with comprehensibility, attractiveness, and emotional support, as well as recall of information. These findings are worth reporting, considering the lack of empirical studies investigating narration style and age congruency in narrative communication. From a theoretical perspective, our findings provide insight into the underlying mechanisms of website satisfaction and recall of health information. The effect of conversational style emphasizes the importance of personalized elements in online health communication (Mayer, 2002). In addition, age congruency plays an important role in the way information could be effectively presented, in particular to enhance satisfaction with the emotional support from the website among older adults. These older-aged recipients were more satisfied with the emotional support when they viewed a younger video narrator. Moreover, it seems crucial to select likable video narrators to optimize website satisfaction and recall of information. These results provide practical implications for the development of online health videos. This study, therefore, shows novel insight into effective communication strategies to present online health information to older adults.