Cognitive and Neuroscience

Influence of text cohesion on the persuasive power of expository text

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The present study examined how global text cohesion affects persuasion and memory for message arguments presented in expository text. Sixty-nine participants who held a neutral prior attitude towards NATO read a persuasive text about NATO that was either high or low in global cohesion. After reading, participants voted whether Finland should seek NATO membership and filled in an attitude questionnaire. After a 1-week delay they returned for a surprise recall task. The results showed that the high cohesion text was more persuasive than the low cohesion text. Moreover, attitude after reading but not text cohesion predicted later recall of the message arguments. The results show that global text cohesion increases text's persuasive power and that readers who form a positive attitude have better memory of the persuasive arguments after a delay than readers who are less persuaded.

Key words: Persuasion, attitudes, cohesion, expository text, text comprehension, recall.

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INTRODUCTION

Persuasion often occurs in discourse context: either in spoken discourse or in written media. For example, newspaper articles, information leaflets or infomercials may be written with the intention to persuade the reader. These kinds of texts fall into the genre of expository texts, which are typically written to convey new information to the reader. The question whether expository texts can be successfully used to modify readers’ attitudes has been troubling researchers for decades (e.g., Knower, 1936). Despite the long-standing interest in how people’s attitudes could be modified, the psychological mechanisms of persuasion are still a topic of discussion (see Petty & Briñol, 2008). The present study aimed at examining some factors that influence persuasion, namely how cohesion of a persuasive expository text influences attitude formation and memory for the message arguments.

In the following, we will first introduce models of attitude formation that provide a unifying theoretical framework for the present research. We then review previous studies on the effects of text cohesion on comprehension and persuasion, and the role of attitudes in text recall. Finally, we will describe the present study.

Models of persuasion

The dual process models of attitude change such as the Elaboration Likelihood Model (ELM, Petty & Cacioppo, 1986; Petty & Wegener, 1999) and the Heuristic-Systematic Model (HSM, Chaiken, 1980; Chen & Chaiken, 1999) assume that the persuasive power of a message depends on how carefully the information is processed. For example, ELM introduces two routes of information processing: the central route and the peripheral route. The central route refers to situations in which the message arguments are carefully and thoughtfully scrutinized and likely to be elaborated by the recipient. The peripheral route refers to situations in which the message arguments are not thoughtfully processed; evaluation of the message arguments is thus not based on careful consideration but relies on simple cues, such as the supposed credibility of the message source. Whether the message is processed with more or less thought depends on at least two factors: the person's motivation and ability to process the message. If the motivation to comprehend the message is high and the ability to process the message is also high, the message is likely to be carefully evaluated (i.e., the central route is used). On the other hand, if the motivation is high but the ability to process the message is low, less elaboration of the message arguments is likely to occur (i.e., the peripheral route is employed). In this case, the message may not influence the recipient’s attitude at all, and if it does have any effects, they are based on simple cues about the validity of the message source. In sum, the resulting attitude changes are smaller, weaker, and shorter-lived, if the message is processed via the peripheral route than via the central route.

HSM (Chaiken, 1980; Chen & Chaiken, 1999) also differentiates two types of processing. In their terminology, systematic processing refers to analytic and comprehensive processing of the message arguments (cf. the central route). Heuristic processing, on the other hand, refers to the use of simple rules of thumb (heuristics) in making judgments; this mode of processing places minimal demands on the message recipient (cf. the peripheral route).

According to both ELM and HSM, the same variable can serve either as a simple heuristic cue or as a factor that increases the amount of thinking, depending on the situation (see Petty & Briñol, 2008). For example, improving message comprehensibility may increase the likelihood that the reader carefully considers the arguments presented in a text. On the other hand, if the message is difficult to comprehend, the reader may not carefully consider the arguments but bases the evaluation of the arguments on a simple cue about the message credibility: for example, the reader may think that because the text is written so poorly, the source is not reliable (Ratneswar & Chaiken, 1991). Previous research

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suggests that poor message comprehensibility, as induced by limited exposure time to the written message (e.g., Ratneshwar & Chaiken, 1991), by poor sound quality of the auditory message (e.g., Eagly, 1974), or by complexity of the language used in the message (e.g., Hafer, Reynolds & Obertynski, 1996), reduces the likelihood of elaboration of the message arguments and weakens the message’s persuasive power.

Influence of text cohesion on comprehension

According to theories of text comprehension, comprehending a text means that the reader forms a coherent mental representation of it (see McNamara & Magliano, 2009). The memory representation of the text is assumed to consist of different levels (Kintsch, 1998): textbase consists of the propositions presented in the text and their relations, whereas situation model is constructed by integrating text information to the reader’s prior knowledge. Whether the reader is capable of constructing a coherent memory representation of the text depends on various reader- and text-related factors (McNamara & Magliano, 2009), such as the cohesion of the text (e.g., McNamara & Kintsch, 1996; McNamara, Kintsch, Songer & Kintsch, 1996; Ozuru, Dempsey & McNamara, 2009). Cohesion refers to the degree with which sentences within the text are connected to each other (i.e., local cohesion) and to the overall theme of the text (i.e., global cohesion). Local cohesion is influenced, for example, by argument overlap between consecutive sentences and presence (or absence) of connectives between text sentences. Global cohesion varies as a function of text characteristics that help readers link information spread across the text to each other and to the overall theme of the text. For example, headings and topic sentences in the beginning of text paragraphs signal readers that a new subtopic is coming up and give a preview of the contents of the following sentences, which helps readers in connecting the subsequent sentences to an overall theme of the text (Lemarié, Lorch, Eyrolle & Virbel, 2008; Lorch, 1989).

Previous research shows that high global cohesion (as induced by inserting headings and topic sentences in an expository text) helps especially readers who have little prior knowledge on the text’s topic in order to form a coherent mental representation of the text (e.g., McNamara & Kintsch, 1996; McNamara et al., 1996; Ozuru et al., 2009). These studies show that if a text lacks global cohesion devices and readers do not have sufficient prior knowledge to make connections between different pieces of information given in the text, comprehension will be poor. However, if readers have ample prior knowledge, they can “fill in” the gaps in the text and form a good memory representation of it. In other words, because headings and topic sentences make the relations between different pieces of text information explicit, they help especially low prior knowledge readers in forming a good memory representation of the text. Headings (Hyoïnä & Lorch, 2004) and topic sentences (Vauras, Hyöniä & Niemi, 1992) have also been shown to facilitate online text processing, suggesting that global cohesion devices insert their influence already during the course of reading.

Kamalski, Sanders and Lentz (2008b) examined the influence of text cohesion (by manipulating both local and global text cohesion) on memory representations constructed for “neutral” expository texts and persuasive texts. They found that highly cohesive persuasive texts resulted in better comprehension than less cohesive persuasive texts independent of the reader’s level of prior knowledge. Persuasive texts thus seem to differ from neutral texts in that for persuasive texts, high text cohesion always results in better comprehension than low text cohesion, irrespective of whether the reader has prior knowledge of the text topic or not.

Text cohesion and persuasive power of text

The models of persuasion (Chaiken, 1980; Chen & Chaiken, 1999; Petty & Cacioppo, 1986; Petty & Wegener, 1999) make the assumption that “deeper” (or more elaborate) processing is related to greater attitude change. Moreover, the ease of comprehending the message may also be used as a cue about the source credibility. Texts that are easier to comprehend and result in better comprehension (i.e., more complete and coherent memory representation) should be more persuasive than texts that are more difficult to comprehend and result in poorer comprehension. Text cohesion, and especially global text cohesion (see e.g., McNamara & Kintsch, 1996; McNamara et al., 1996; Ozuru et al., 2009) should thus increase the text’s persuasiveness. However, only a couple of previous studies have examined the influence of text cohesion on persuasion (Heller & Areni, 2004; Kamalski, Lentz, Sanders & Zwaan, 2008a), and the evidence from these studies is inconclusive.

Kamalski et al. (2008a) examined the influence of cohesion devices that reveal the writer’s persuasive intent (i.e., connectives such as therefore, and headings that clearly indicate the writer’s point of view) on persuasion and found that such bias caused a forewarning effect. The effect refers to a situation in which the person becomes aware of the persuasive intention and tries to protect his or her prior opinion against persuasion. In the Kamalski et al. (2008a) study, biased cohesion devices reduced the persuasive power of the text in comparison to neutral devices (i.e., connectives and headings that do not indicate the writer’s opinion). Most importantly to the present study, the text with neutral cohesion devices was no more persuasive than a text with no cohesion devices at all, suggesting that text cohesion does not increase the text’s persuasive power. However, in that study, prior attitudes towards the message topics were not controlled for. Prior beliefs are difficult to change; people who have strong prior attitudes may be more likely to be resistant to persuasion than people who do not possess a strong prior attitude (e.g., Pomerantz, Chaiken & Tordesillas, 1995), making it difficult or even impossible to observe (positive) persuasion effects if prior attitudes are strong.

The importance of the strength of prior attitudes on persuasion was demonstrated by Heller and Areni (2004). They examined whether biased cohesion devices (in comparison to neutral cohesion devices) influence comprehension and acceptance of advertising claims. They found that biased cohesion devices had a negative impact on comprehension and acceptance of the claims but only if the claims were against the reader’s prior beliefs. In other words, the forewarning effect reported by Kamalski et al. (2008a) was only observed for participants who had a prior opinion on the issue. Unfortunately, Heller and Areni did not include a low cohesion text condition in their study, which makes it difficult to conclude whether or not neutral cohesion devices increase persuasive power of the text in comparison to having no cohesion devices in the text.

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In the present study, we aimed to examine in more detail how global text cohesion influences the persuasive power of a text when readers do not have strong prior attitudes on the text topic. We expected that when readers lack strong prior opinions, a high global cohesion text would be more persuasive than a low cohesion text.

**Attitudes and memory for text**

In addition to examining the influence of text cohesion on readers’ attitudes we also were interested in how well readers remember the message arguments after a delay. This is an interesting question because if readers form a positive attitude and also have good memory of the message arguments, then the text can be thought to be particularly effective in persuading readers.

A general assumption about the relationship between attitudes and memory is that people have selective memory for ideas that conform with their attitudes. However, previous research suggests that the relationship between attitudes and memory is not necessarily that straightforward (see Eagly, Chen, Chaiken & Shaw-Barnes, 1999; Eagly, Kulesa, Chen & Chaiken, 2001; Roberts, 1985). With respect to text comprehension, Zimny and Robertson (1997) suggest that the attitude towards the text topic is stored in the memory as a part of the memory representation constructed of the text (Kintsch, 1998). Attitude may then later serve as a recall cue for text information, resulting under certain circumstances in selective recall of attitude-consistent text information. Thus, it can be expected that if readers form a positive attitude of the text’s topic, the attitude serves as a recall cue for the persuasive arguments presented in the text.

However, sometimes readers may engage in active processing of attitude-inconsistent information in order to protect their own position (e.g., Eagly, Kulesa, Brannon, Shaw & Hutson-Comeaux, 2000). In this case, recall of attitude-inconsistent text information is relatively good (see Eagly et al., 1999). For example, if the text induces a forewarning effect (cf. Kamalski et al., 2008a) and readers form a negative attitude towards the text topic, readers may still have a good memory of the persuasive arguments.

In the present study we examined how the attitude constructed during the course of reading is related to later recall of the persuasive message arguments. We expected that if attitude serves as a recall cue for text information, as suggested by Zimny and Robertson (1997), a strong positive (or negative) attitude formed during the course of reading should lead to better recall of the message arguments.

**The present study**

The purpose of the present study was to examine whether global text cohesion influences the persuasive power of expository texts. We were also interested in how well the readers are capable of recalling (persuasive) message arguments after a delay.

The attitude object in the present study was the potential NATO membership of Finland. At the moment, Finland is not a member of NATO. According to recent surveys (Ministry of Defense of Finland, 2007), the majority of Finns (69%) think that Finland should not seek NATO membership. In our study, we examined whether an expository text that provides positive information about NATO could persuade readers who do not have a strong prior opinion, or are indecisive about the NATO membership.

Based on a pretest, participants who had relatively little factual knowledge of NATO and who held a neutral prior attitude were selected to participate in the study. Half of the participants read a high global cohesion, half a low global cohesion expository text about potential influences of the NATO membership on Finland. The two texts included exactly the same information: the headings and subheadings used in the high cohesion version did not convey new information to the readers but rephrased the main point of the following paragraph. The low cohesion text was constructed from the high cohesion text by removing the headings and subheadings and by moving topic sentences from the beginning of the paragraphs to the middle of the paragraphs (see Ozuru et al., 2009).

After reading the participants were asked to mock-up vote whether Finland should apply for the membership, and their attitudes were measured with an attitude questionnaire. After a one-week delay participants returned for a surprise recall task.

We expected that global text cohesion would increase persuasion, that is, that the readers of the high cohesion text version will have more positive attitudes towards NATO after reading than participants who read the low cohesion text version. We also assumed that readers of the high cohesion text should have better memory for the main points presented in the text than readers of the low cohesion text. Moreover, we assumed that the attitude formed during reading would be related to the later recall of the text: a stronger attitude should be related to better recall of the persuasive arguments.

**METHOD**

**Participants**

A total of 109 participants, mainly university students and some community volunteers, participated in the pretest. They completed a questionnaire on NATO attitudes and prior knowledge on the topic. Based on the screening results, 69 individuals (34 women) who had a relatively neutral attitude towards NATO were selected to participate in the actual study. Participants were 19–30 years old.

**Materials**

**Attitude questionnaire.** A 10-item attitude questionnaire was constructed for the purpose of this study. The items were statements about NATO membership (e.g., The threat of terrorism in Finland would increase if Finland became a member of NATO). The statements were frequently presented in the public media and responding to them did not require prior knowledge on the topic. Half of the statements were positive about the NATO membership and half presented potential negative aspects of the NATO membership. Participants responded whether they agreed with each statement using a 7-point Likert scale (1 = strongly agree, 7 = strongly disagree). A mean score of all items was computed and used in the analyses. In order to examine the attitude questionnaire’s reliability, an electronic version of the questionnaire was constructed using an online survey tool (http://www.webropol.com). Seventy-six participants who did not participate in the actual study filled in the attitude questionnaire online. The mean in the reliability sample was 3.79 (SD = 0.92) and Cronbach’s α = 0.83.

In order to discourage memory-based responding in the post-test for participants who participated in the actual experiment, two versions of the attitude scale were created. Only the order of the items was different...
in the two versions, otherwise they were identical. Half of the participants filled in one version in the pretest, the other half the other version of the scale.

Participants were selected to participate in the actual experiment on the basis of the attitude questionnaire. The last item of the attitude scale (I think Finland should become a member of NATO) was treated as a critical item in selecting participants to the actual experiment: the response to this item had to be neutral (3–5) in order for the respondent to be selected. The overall mean attitude score of the participants selected to participate in the experiment varied between 3.10 (minimum score) and 5.00 (maximum score).

**Prior knowledge questionnaire.** A 20-item prior knowledge questionnaire was constructed to measure the amount of knowledge participants had about NATO. There were 14 statements to which participants responded either true, false, or I do not know (e.g., Finland has participated in military operations led by NATO), and 5 multiple choice questions (e.g., What is the core function of NATO as defined in the 5th article? a) collaboration in military defense, b) management of crisis situations, c) military union, d) improvement of political stability in the world, and e) I do not know). The final question asked participants to list all NATO member countries they knew. Participants were credited 1 point for each correct answer and deducted 1 point if they answered incorrectly. No points were credited nor deducted from “I do not know” answers. The maximum score was 26 points and the minimum score was 0 points.

In order to assess the prior knowledge questionnaire’s reliability, an electronic version of the questionnaire was constructed using an online survey tool (http://www.webropol.com). Seventy-six participants who did not participate in the actual study filled in the knowledge questionnaire online (the same participants also filled in the attitude questionnaire for reliability checking purposes, see above). Cronbach’s α was estimated to be 0.50. A possible reason for the relatively low α-level is that the questions in the knowledge questionnaire tap into different aspects of prior knowledge, and thus, the correlations between the items can be expected to be relatively low.

**Experimental texts.** The experimental texts were written for the purpose of this study; however, they closely resemble natural texts that are publicly available (e.g., on the internet), and which were used as information sources for the experimental materials. Before writing the materials, NATO-positive arguments were collected from the websites of the Finnish Business and Policy Forum and the Finnish Cadet Association. The high cohesion text version was written first using 19 NATO-positive arguments. The text was written as if its purpose was to provide information related to a referendum about the NATO membership of Finland. The overall tone of the text was positive towards NATO and it was intended to be persuasive. The structure of the high cohesion text version followed a typical expository text structure: a topic sentence (the main intended to be persuasive. The structure of the high cohesion text version was written first using 19 NATO-positive arguments, an electronic version of the questionnaire was constructed using an online survey tool (http://www.webropol.com). Seventy-six participants who did not participate in the actual study filled in the knowledge questionnaire online (the same participants also filled in the attitude questionnaire for reliability checking purposes, see above). Cronbach’s α was estimated to be 0.50. A possible reason for the relatively low α-level is that the questions in the knowledge questionnaire tap into different aspects of prior knowledge, and thus, the correlations between the items can be expected to be relatively low.

**Procedure**

The study was conducted in three phases. The pretest was done either individually or in small groups (a maximum of three people). First, participants filled in a background information sheet and then responded to the prior knowledge and the attitude questionnaires. This took approximately 10–15 minutes. Based on the pretest results, 69 participants were invited to participate in the actual experiment. The actual experiment took place 1–3 weeks after the pretest. Half of the participants were assigned to the high cohesion, half to the low cohesion text version condition. The assignment of the participants to the two groups was done so that if there were participants for whom either prior knowledge or attitude were close to the “extremes”, a roughly matching pair was found and they were assigned to different experimental conditions. Great care was taken to avoid assigning participants who had either very little or very much prior knowledge to the same group. Participants were told that they would read a text that provides information about Finland’s potential NATO membership, and they were instructed to read the text in order to be able to vote whether Finland should apply for the membership or not. No time limit was provided; the reading task lasted about 15–20 minutes. After reading, participants filled in a mock-up voting slip and the attitude questionnaire.

After a one-week delay participants returned for a surprise recall test. They were instructed to write down everything they could recall of the text they had read and to underline sentences in their recall that they thought represented the main points presented in the text. Participants could use as much time as they wanted for this task.

**RESULTS**

Data for one participant was dropped from the analyses because she had misunderstood the task instructions. Thus, in the final data set, there were 34 participants in both groups. Descriptive statistics of the two reader groups (high vs. low cohesion text version) are presented in Table 1. The matching of the groups with respect to prior knowledge and prior attitude had been successful: there were no group differences in the amount of prior knowledge or in the prior attitude (t(16) < 1).

**Influence of text cohesion on persuasion**

The attitude questionnaire data were analyzed with a 2 (Testing: before vs. after) × 2 (Text: high vs. low cohesion) mixed ANOVA, in which testing was a within-participants and text a between-participants factor. A significant main effect of testing indicated that attitudes were overall more positive after reading than prior reading, *F*(1,66) = 12.43, *p* = 0.001, *η*² = 0.16. More importantly, a significant Testing × Text interaction indicates that the attitudes of participants who read the high cohesion text version became more positive towards NATO after reading in comparison to the readers of the low cohesion text version, *F*(1,66) = 4.68, *p* = 0.034,

<table>
<thead>
<tr>
<th>Measure</th>
<th>High cohesion (N = 34)</th>
<th>Low cohesion (N = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior knowledge*</td>
<td>4.74 (4.26)</td>
<td>5.00 (3.00)</td>
</tr>
<tr>
<td>Prior attitude*</td>
<td>3.94 (0.51)</td>
<td>3.95 (0.52)</td>
</tr>
<tr>
<td>Attitude after reading*</td>
<td>4.43 (0.68)</td>
<td>4.07 (0.77)</td>
</tr>
<tr>
<td>Mock-up voting</td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>71</td>
</tr>
<tr>
<td>Text memory*</td>
<td>8.74 (3.60)</td>
<td>8.06 (3.63)</td>
</tr>
</tbody>
</table>

* Minimum score = -26, maximum score = 26.

* Minimum score = 1, maximum score = 7.

* Minimum score = 0, maximum score = 38.
\[ \eta_p^2 = 0.07. \] Pairwise comparisons indicated that the attitude change was significant only in the high cohesion text version group, \( t(33) = -4.71, p < 0.001. \) In the low cohesion text version group the attitudes did not change, \( t(33) = -0.86, p = 0.40. \)

The mock-up voting data were analyzed with a \( \chi^2 \) test. Looking at Table 1, it seems that participants who had read the high cohesion text version were more likely to vote yes (44%) than participants who read the low cohesion text version (29%). However, the \( \chi^2 \) test of independence failed to reach significance, \( \chi^2(1) = 1.58, p = 0.21. \)

Text recall

Finally, the text recall scores were analyzed. The recall protocols were scored for correctly recalled topic sentences, which contained the main points presented in the text. No verbatim recall was required; the participant was credited a point if the main idea of the topic sentence was mentioned. Another point was credited if the participant had correctly identified a main point as such by underlining it. There were 19 main points in the text; thus, the maximum score was 38. Three raters first scored 10 recalls together to form consistent rating criteria. Two independent raters then scored 16 recall protocols. The overall agreement between the two raters was 99%; inconsistencies were resolved via discussion. The two raters then scored independently the rest of the protocols.

The means of text memory scores in the high and low cohesion text version groups are presented in Table 1. The recall performance of the high cohesion text version group did not differ from that of the low cohesion text version group, \( t(66) = 0.77, p = 0.44. \) Thus, the readers of the low cohesion text version showed equally good recall of the main points presented in the text as the readers of the high cohesion text version.

In order to examine the factors influencing the recall performance in more detail, we computed a regression model in which the attitude before reading, prior knowledge, text type, and attitude after reading were used as predictors of recall performance. In order to examine the possibility that readers who have more prior knowledge would have relatively good recall of the incoherent text, we also included Prior knowledge \( \times \) Text type interaction term in the model. Text type was contrast coded (incoherent = -1, coherent = 1) and prior knowledge was centered. The initial analysis suggested that there was one outlier in the data (standardized residual > 3), which was removed from the final analysis. The correlations between the variables are presented in Table 2 and the regression coefficients are presented in Table 3 (Model 1). The model fitted the data well, \( F(5,61) = 2.93, p = 0.02, \) adjusted \( R^2 = 0.13. \) However, only attitude after reading predicted recall performance. In other words, a more positive attitude after reading the text was related to better recall of the main points one week later. Prior knowledge, attitude before reading and the text type did not have significant influences on the text recall performance over and above that of the attitude after reading.

We also conducted a regression analysis in which we used the mock-up voting instead of the attitude scores as predictors. Mock-up voting was dummy coded (yes = 1, no = 0). The correlation matrix is presented in Table 4 and the regression coefficients in Table 3 (Model 2). The model fitted the data well, \( F(4,63) = 3.07, p = 0.02, \) adjusted \( R^2 = 0.11. \) Only mock-up voting predicted text recall: readers who voted yes recalled significantly more main points of the text one week later. As in the analysis using the attitude scores as predictors, prior knowledge and the text type did not have a significant influence on the text recall performance over and above that of the attitude after reading as indexed by the mock-up vote.

### Table 2. Correlation coefficients between the variables used in the regression model (N = 67)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \beta )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior knowledge(^a)</td>
<td>0.106</td>
<td>0.846</td>
</tr>
<tr>
<td>Prior attitude</td>
<td>0.059</td>
<td>0.468</td>
</tr>
<tr>
<td>Text type(^b)</td>
<td>0.056</td>
<td>0.468</td>
</tr>
<tr>
<td>Attitude after reading</td>
<td>0.408</td>
<td>3.076*</td>
</tr>
<tr>
<td>Prior knowledge ( \times ) Text type</td>
<td>-0.045</td>
<td>-0.368</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \beta )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior knowledge(^a)</td>
<td>0.069</td>
<td>0.56</td>
</tr>
<tr>
<td>Text type(^b)</td>
<td>0.035</td>
<td>0.299</td>
</tr>
<tr>
<td>Mock-up vote(^c)</td>
<td>0.408</td>
<td>3.387*</td>
</tr>
<tr>
<td>Prior knowledge ( \times ) Text type</td>
<td>0.038</td>
<td>0.309</td>
</tr>
</tbody>
</table>

\(^a\) Centered.
\(^b\) Contrast coded: incoherent = -1, coherent = 1.
\(^c\) Dummy coded: 0 = no, 1 = yes.
\( p < 0.05. \)

### Table 3. Regression coefficients and \( t \) values for the predictors used in the regression models of recall performance

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \beta )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior knowledge</td>
<td>0.013</td>
<td>-</td>
</tr>
<tr>
<td>Text type</td>
<td>0.095</td>
<td>-0.036</td>
</tr>
<tr>
<td>Mock-up vote</td>
<td>0.393*</td>
<td>-0.165</td>
</tr>
<tr>
<td>Prior knowledge ( \times ) Text</td>
<td>-0.031</td>
<td>0.335*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \beta )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior knowledge</td>
<td>0.000</td>
<td>-</td>
</tr>
<tr>
<td>Text type</td>
<td>0.000</td>
<td>-</td>
</tr>
<tr>
<td>Mock-up vote</td>
<td>0.000</td>
<td>-</td>
</tr>
</tbody>
</table>

\( p = 0.02, \) adjusted \( R^2 = 0.11. \) Only mock-up voting predicted text recall: readers who voted yes recalled significantly more main points of the text one week later. As in the analysis using the attitude scores as predictors, prior knowledge and the text type did not have a significant influence on the text recall performance over and above that of the attitude after reading as indexed by the mock-up vote.

**DISCUSSION**

In the present study, we examined whether global text cohesion increases the persuasive power of an expository text. The results...
were straightforward: reading a high cohesion text in which headings and topic sentences mark the beginning of a new sub-topic and the relations of different text elements to each other and to the overall theme of the text resulted in more positive attitudes towards the text topic after reading than reading a low cohesion text. This finding was observed both in the attitude measure and in the mock-up votes, even though the latter measure was somewhat less sensitive to the manipulation (the correlation between the two measures is quite high, r = 0.72, which suggests that they tap into highly related constructs). The models of attitude formation offer two possible explanations for this finding (Chaiken, 1980; Chen & Chaiken, 1999; Petty & Cacioppo, 1986; Petty & Wegener, 1999). First, text cohesion may influence persuasion by increasing the systematic processing and comprehension of the message arguments. In other words, text cohesion facilitates the construction of a good memory representation of the text, and the better the comprehension of the message arguments, the more persuaded the reader becomes. Second, text cohesion may function as a cue about source credibility. Because high text cohesion facilitates comprehension, readers may consider the source of the high cohesion text as trustworthy and credible. In contrast, building a good memory representation of a low cohesion text is relatively difficult to achieve, and consequently, readers may judge the source as less trustworthy.

The present results are in contrast with those of a previous study (Kamalski et al., 2008a), which showed that cohesion devices have no influence or may even decrease the persuasive power of the text. However, in that study, prior attitudes were not controlled for, whereas in the present study all participants had a neutral prior position towards the text's topic. Heller and Areni (2004) showed that cohesion devices have a negative impact on the acceptance of the message arguments if the arguments go against the reader’s prior beliefs. Thus, if some participants in the Kamalski et al. study had negative prior attitudes, potential positive effects of cohesion devices on persuasion may have leveled off. Our results demonstrate that when readers do not have a strong prior opinion, cohesion devices increase persuasion.

Another question that was examined in the present study was how readers remember message arguments after a one-week delay. The results showed that the more positive the attitudes were after reading, the better the recall of the message arguments. In fact, attitude after reading was the only significant predictor of recall performance when attitude before reading, prior knowledge, and text type were entered to a regression model as predictors of recall performance. This finding is line with Zimny and Robertson (1997), who suggest that the attitude formed during the course of reading is stored as a part of the memory representation of the text. The positive attitude may thus have served as a retrieval cue for the persuasive message arguments presented in the text. Naturally, one should be cautious in inferring a causal relationship on the basis of correlational data: perhaps readers had better memory for message arguments after one-week delay because they had formed a positive attitude, or perhaps they had formed a positive attitude because they had encoded the message arguments to memory well enough to be able to recall them afterwards. Either way, the present results indicate that there is a clear relationship between attitude and memory, such that stronger (positive) attitudes are related to better memory for persuasive message arguments. It should be noted that in the present study, none of the participants developed a negative attitude towards the text topic, so it was impossible to examine whether a stronger negative attitude is also related to better memory of message arguments, even if the arguments challenge one’s own position.

We had expected that text cohesion would also influence text recall but we failed to find differences in recall between the high and low cohesion text versions. However, there are some factors that may explain why we failed to find a cohesion effect in recall. First of all, also in some previous studies (McNamara & Kintsch, 1996) only marginal effects of cohesion on recall have been reported. It has been suggested that recall tasks are mainly measures of the textbase representation and that some other measures tapping more into the situation model of the text would actually be better in revealing the influence of cohesion on text comprehension (e.g., Kamalski et al., 2008b; McNamara et al., 1996). Thus, in future studies, use of other measures that would directly tap into the situation model should be considered. An interesting avenue would be to use online processing paradigms, such as think-alouds or eye tracking, to examine how readers actually process persuasive arguments. Second, unlike in most of the previous studies, we used a delayed recall, in which participants returned for a surprise recall task one week after reading. Our results suggest that after such delay, the reader’s attitude is more important in what is recalled of the text than the original presentation format of the information. Third, the task instructions used in the present study may have diminished cohesion effects on recall. In our study, participants were told to read the text in order to be able to vote about Finland’s NATO membership, an important issue quite widely discussed in the Finnish media at the time of testing (and also at present). Thus, some readers were most likely highly motivated to make good sense of the message arguments, even if they were presented in the low cohesion text. This is a somewhat different situation compared to the studies in which the readers are instructed to read the text just for overall comprehension. Indeed, motivation to process the text is a crucial aspect in how well people remember message arguments (e.g., Eagly et al., 1999). It has been shown that if the attitude object is highly value-relevant or controversial, people are likely to carefully process also arguments that are against one’s prior beliefs. In other words, value-relevance and controversiality of the text topic may increase the likelihood that readers invest extra effort in processing message arguments. This is something that should be taken into consideration in future studies.

Various types of expository texts, such as newspaper articles, information leaflets or infomercials are commonly written with the intention to persuade the reader. It is important to understand how text characteristics (e.g., cohesion) and reader characteristics (e.g., strength of prior attitude) interact if the writer wants to convince the readers on an important topic (e.g., the importance of vaccination programs for public health). The present study shows that relatively simple modifications of the text may make a relatively big difference in how persuasive the text is.

Johanna K. Kaakin was supported by a grant from the Academy of Finland.
NOTES

1 When we compared the distribution of the votes separately in the two text groups, we found that for the readers of the high text cohesion version the votes were distributed evenly between yes and no votes, $\chi^2(1) = 1.58, p = 0.21$, whereas for the readers of the low text cohesion version the votes were significantly biased towards no, $\chi^2(1) = 5.77, p = 0.016$. However, because the “omnibus” analysis failed to reach significance, these results should be considered with some caution.

2 Several different measures were initially extracted from the recall data: number of main ideas recalled, number of correctly underlined main points, amount of detailed information recalled (i.e., number of ideas presented in the other sentences than the topic sentences), number of insertions from reader’s prior knowledge (i.e., ideas not presented in the text), and number of evaluative comments. However, none of these measures showed a difference between the two text versions, all $t < 2$.

3 We also considered the possibility that not only the strength of the positive attitude but the strength of the formed attitude, be it positive or negative, is related to the recall of the message arguments. To that end, we identified participants whose attitudes became more negative after reading than before reading ($N = 16$), did not change ($N = 3$), and became more positive after reading ($N = 49$). Looking at the attitude scores after reading for the negative change group ($M = 3.60, SD = 0.61$, on a scale from 1 to 7), it is evident that the readers whose attitudes shifted towards being more negative than before did not really become opponents of the NATO membership. Thus, we did not have data to examine the influence of the strength of the negative attitude on memory for message arguments.

REFERENCES


APPENDIX

Example paragraph of the coherent text

Finland as a collaborator and a potential member of NATO

Commitment to a common defense policy

As a member of the NATO Finland would not have to welcome foreign troops, military bases or nuclear weapons into the country against its own will. NATO appreciates well-grounded special requests of its member countries and special arrangements can be agreed on if necessary. If Finland decided to apply for NATO membership, the principle of ‘three
no’s” would most likely be applied: NATO does not have a need, intention or plans to place nuclear weapons in new member countries.

NATO expects its member countries to commit to the common defense policy. As a member of NATO Finland would participate in common defense operations and would in turn get support from NATO in a potential crisis situation. As a NATO member Finland should participate in common operational rehearsals and also organize rehearsals in its own territory. The most important thing Finland could contribute to NATO’s common defense is to be able to defend itself. Finland would also support other allies and participate in joint operations.

Note: Topic sentences are underlined for the sake of clarity. In the actual experimental materials no underlining was used.

Example paragraph of the incoherent text

NATO appreciates well-grounded special requests of its member countries and special arrangements can be agreed on if necessary. As a member of the NATO Finland would not have to welcome foreign troops, military bases or nuclear weapons into the country against its own will. If Finland decided to apply for NATO membership, the principle of “three no’s” would most likely be applied: NATO does not have a need, intention or plans to place nuclear weapons in new member countries.

As a member of NATO Finland would participate in common defense operations and would in turn get support from NATO in a potential crisis situation. NATO expects its member countries to commit to the common defense policy. As a NATO member Finland should participate in common operational rehearsals and also organize rehearsals in its own territory. The most important thing Finland could contribute to NATO’s common defense is to be able to defend itself. Finland would also support other allies and participate in joint operations.

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