Is it how we tell them about alcohol? The role of presentation formats in health education materials for lower educated students
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Citation for published version (APA):
Zebregs, S. (2016). Is it how we tell them about alcohol? The role of presentation formats in health education materials for lower educated students

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Chapter 2: The effects of narrative versus non-narrative information in school health education about alcohol drinking for low educated adolescents

Abstract

This study compares the use of a narrative information format in school health education about drinking alcohol with the traditionally used non-narrative information format amongst a sample of low educated adolescents. Narrative information is suggested to be more enjoyable, but may not always be as effective as non-narrative information. An experiment was conducted amongst 296 students (age 11-14) of the lowest levels of the Dutch secondary education system. Results showed immediate effects on knowledge and attitude, which did not differ between conditions. There were no effects on intention. Hence, both types of information are equally effective for this target group.

An adapted version of this chapter is published as:
Introduction

While low educated adolescents more likely than higher educated adolescents to engage in heavy drinking (Kepper, Monshouwer, Van Dorsselaer, & Vollebergh, 2011), most school health education materials are mainly tested amongst higher educated students (e.g., Cuijpers, Jonkers, De Weerdt, & De Jong, 2002; Gray, Anderman, & O’Connell, 2001). As a result, little knowledge exists about the effectiveness of these materials for lower educated target groups. Effects are likely to be different for them, because members of these target groups are generally less intelligent and have less cognitive processing capacities (Hunt, 2005; Van Dijk & Tellegen, 2004). This lack of knowledge hinders the development of effective health education materials for lower educated adolescents and provides them with a disadvantage, because they may have fewer possibilities to learn about the negative consequences of drinking alcohol. It is therefore important to examine the effectiveness of health education materials amongst low educated adolescents.

Although these are not yet tested amongst low educated adolescents the existing literature on persuasive communication does offer suggestions for message strategies that could help to create effective health education materials for this specific target group. One of these strategies is the use of narrative information instead of the non-narrative information that is traditionally applied in health education materials (Hinyard & Kreuter, 2007). Narrative information contains cohesive stories describing a setting and episode from the perspective of one or more protagonists, often providing information about goals, plans, actions, and outcomes (Kopfman, Smith, Ah Yun, & Hodges, 1998). Non-narrative information, on the other hand, is presented in an abstract, general manner, using logical reasoning and factual information (Lemal & Van den Bulck, 2010).

Using narrative information is considered to make texts more enjoyable (Green, Brock, & Kaufman, 2004). As a result, the use of narrative information could help to make the educational material less of a burden and therefore increase students’ motivation to read it (Land, 2009). This may be particularly relevant for low educated students, because information processing, and consequently learning, is more cognitively demanding for them than for high educated students (Hunt, 2005). However, an important question is how the effects of the narrative information format in school education materials relate to the effects of the non-narrative information format that is traditionally used. In the context of school health education this concerns learning effects (e.g., knowledge about alcohol use consequences) as well as persuasive effects on behavioural determi-
nants (e.g., attitude and behavioural intention). Scholars have suggested that narrative information may be superior to non-narrative information to influence these variables in a way that it merits the additional costs that are involved with the development of narrative information (Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013). Moreover, narrative information formats have been successfully tested in education-entertainment formats, often distributed via entertainment media (e.g., Vaughan, Rogers, Singhal, & Swalehe, 2005; Volk et al., 2008). However, the effects of narrative and non-narrative information have not been compared in the context of school health education for low educated adolescents before. Hence, it is unknown whether narrative or non-narrative information in health education materials has the strongest impact on low educated students and whether this differs across outcome variables.

To gain more insight into the differential impact of narrative and non-narrative information, we aim to compare their learning and persuasive effects in the context of school health education about alcohol for low educated adolescents. We will do so using written materials. The effects in this study will be examined immediately after exposure and approximately four weeks later. Through this study we make an important contribution to the existing knowledge about the usage of different information types in health education.

Learning effects

The aim of school health education is to educate students about the negative consequences that they may experience from drinking alcohol. If the materials are successful, the information from the materials is properly stored in memory and can be retrieved at a later moment in time (Radvansky, 2011). While research has shown that people can learn from narrative information (Murphy, Frank, Moran, & Patnoe-Woodley, 2011), the current literature offers contradicting views on whether narrative information can be expected to have a stronger learning effect than non-narrative information (Land, 2009). On the one hand, narrative information is suggested to be effective by modelling behaviour and allowing for vicarious learning, so people can experience what the consequences of behaviour are without performing it themselves (Bandura, 2001). As such, narrative information is more vivid than non-narrative information in which the consequences would be described in a more abstract manner (Green, 2008). Vividness is considered to establish more diverse associations in memory (Nisbett & Ross, 1980). Information that is stored in memory with more associations and as a consequence more likely to be activated and retrieved when needed (Klimesch, 1994; Radvansky, 2011). Therefore, narrative information
could have a stronger learning effect than non-narrative information. On the other hand, it is also suggested that in an educational context narrative information could have a seductive details effect that would make it less effective than non-narrative information (Land, 2009; Land, Sanders, & Van den Bergh, 2008). According to the seductive details hypothesis, narratives contain interesting but irrelevant details. Such details may distract students’ attention from the information that is relevant. As a result, they may remember less of the relevant details (Garner, Gillingham, & White, 1989; Mayer, 2002).

In this study we will specifically examine the effects of written materials. The impact of written materials is likely to differ from the impact of film, because written materials require more visualizing and imagination (e.g., Mayer, 2005). Therefore, we will focus on the results of previous studies that applied written texts. To our knowledge, only one study compared narrative with non-narrative information in written school education materials amongst pre-vocational students. This study found evidence that supported the seductive details hypothesis (Land et al, 2008). Although the study by Land and colleagues (2008) did not examine health information but topics from a history course, by lack of other previous evidence we hypothesize that non-narrative information will have a stronger learning effect than narrative information for school health education material as well.

\[ H1: \text{School health education materials containing non-narrative information have a stronger effect on knowledge than school health education materials containing narrative information.} \]

**Persuasive effects**

Although we expect non-narrative information to have a stronger learning effect than narrative information, this does not imply that similar effects can be expected on attitude and behavioural intention. Persuasion is suggested to involve a special form of learning. This means that the information that people learn needs to be integrated with a person’s current beliefs. If the newly learned information contradicts these beliefs, this information may be disregarded (Hovland, Janis, & Kelley, 1953). Hence, it is more difficult to persuade people than to educate them and materials that have a stronger effect on knowledge do not necessarily have a stronger persuasive effect.

In the case of the comparison between narrative and non-narrative information it is likely that non-narrative information will have a stronger learning effect,
while narrative information has a stronger persuasive effect. It is suggested that people generally consume narrative information with the goal to get entertained (Slater & Rouner, 2002). While having this goal, people are presumed to get engaged with the story and to identify themselves with the characters in the narrative (Moyer-Gusé, 2008). As a consequence, they are assumed to pay less attention to the persuasive intentions behind the message and engage in less critical processing. This makes them more likely to accept the knowledge they learned instead of disregarding it based on contradictions with their existing beliefs (Slater & Rouner, 2002).

Based on the theoretical assumptions above, it could be expected that school health education materials about substance use are more persuasive when they contain narrative instead of non-narrative information. To our knowledge, there are no previous studies that have compared the persuasiveness of narratives with non-narratives in school health education materials, although two studies did make this comparison with written materials in the context of health promotion messages. One study about skin cancer prevention was conducted amongst college students (Lemal & Van den Bulck, 2010). This study contained conditions with narrative information or non-narrative information as well as a control condition without any information. The results showed that students in the narrative condition engaged in significantly more self-examination and information searching, and talked significantly more about skin cancer to their family than students in the control condition. Students in the non-narrative condition only engaged in significantly more information searching than students in the control condition. There were, however, no significant differences between the narrative and the non-narrative condition. In another study Janssen and colleagues (2013) found that sunbed users felt significantly more vulnerable after receiving a narrative message than after receiving a non-narrative message. In line with the theoretical assumptions, these two studies showed some, although weak, evidence that narrative information is more effective than non-narrative information.

In our study we will focus on students’ attitude towards drinking and intention to drink alcohol, as these are perceived to be the important determinants of their future behaviour (Ajzen, 1991). Although previous studies on narrative versus non-narrative health information have not examined effects on health behaviour attitude, based on theory and the scarce evidence, we expect narrative information to have a stronger effect on this variable.
**H2:** School health education materials containing narrative information have a stronger effect on attitude towards alcohol than school health education materials containing non-narrative information.

Finally, in line with the results of previous research, we expect narrative information to have a stronger impact on students’ intention to drink alcohol than non-narrative information.

**H3:** School health education materials containing narrative information have a stronger effect on intention to drink alcohol than school health education materials containing non-narrative information.

**Method**

At Dutch secondary schools we conducted a three-wave experiment with two conditions (non-narrative information vs. narrative information). The experiment included a pre-measurement (T1), an immediate post-measurement (T2), and a delayed post-measurement (T3). The interval between waves was approximately four weeks.

**Materials**

To manipulate the information format the stimulus materials existed of two booklets, which were based on existing health education materials from the Dutch Trimbos Institute’s “Healthy School and Drugs” program. One booklet contained information about alcohol in a non-narrative form, while the other contained the exact same information in a narrative form. Each booklet contained five pages of texts addressing the negative consequences of alcohol consumption and five pages of exercises. Narrative information naturally contains information about the setting and perspective of the protagonists, and provides information about actions, and outcomes, whereas non-narrative information does not (Kopsman et al., 1998; Lemal & Van den Bulck, 2010). Consequently, the average number of words per page differed between the narrative ($M = 149.20; SD = 10.92$) and non-narrative information ($M = 64.40; SD = 13.83$) condition. In both booklets there were fully identical exercises following each text page. These exercises were included with the purpose to raise the ecological validity of the experiment, because this is common in school health education materials and is part of all materials of the “Healthy School and Drugs” program.
Sample size

We estimated a required sample size based on a small between conditions effect of Cohen’s $f = .10$. Meta-analyses have shown that studies on message factors generally find small effect (O’Keefe, 2013). We conducted a power calculation for a repeated measures analysis of variance with within-between subject interaction with three waves, two conditions, and two school levels, assuming a .5 correlation between repeated measures. The calculation revealed that given an alpha of .05 and a required power of .80, we would require a minimum total sample of 232 participants.

Participants

First year students of both special education schools and pre-vocational schools participated in this study (age 11-14). Special education schools form a level below the lowest mainstream level of the Dutch secondary education system. This school level is intended for students with severe learning difficulties who are only allowed to enrol if they meet special requirements, of which an IQ between 60 and 75 is the most important one. Because students at special education schools require much individual attention, groups usually contain ten students at most. The aim at these schools is to prepare students for the job market. Pre-vocational schools form the lowest mainstream level of the Dutch secondary education system. Within the pre-vocational schools we sampled particularly classes that included students within a special support program. Students in this program receive additional support, because they have learning difficulties that disable them to perform at a sufficient level without this additional support. These students can enrol in the support program after receiving advice from their school. Students usually continue to enrol in vocational education after finishing pre-vocational school.

Six special education schools and six pre-vocational schools participated. In total 170 special education school students and 184 pre-vocational school students entered the randomization process. Eventually, 158 special education school students and 159 pre-vocational school students completed all three waves. The students who dropped out at special education schools were equally divided over the conditions ($n = 6$ per condition). At pre-vocational school level more students dropped out in the narrative information condition ($n = 17$) than in the non-narrative condition ($n = 8$). All dropouts were caused by the absence of students in class due to illness or other obligations. The higher number of dropouts in the narrative information conditions at pre-vocational schools was due to
Table 1.
Overview of demographics: gender, age, gender, country of birth, primary language at home, and religion.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>51.0%</td>
</tr>
<tr>
<td>Girls</td>
<td>49.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>2.4%</td>
</tr>
<tr>
<td>12</td>
<td>50.3%</td>
</tr>
<tr>
<td>13</td>
<td>45.9%</td>
</tr>
<tr>
<td>14</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country of birth</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>93.9%</td>
</tr>
<tr>
<td>Turkey</td>
<td>0.7%</td>
</tr>
<tr>
<td>Other</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary language at home</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>86.1%</td>
</tr>
<tr>
<td>Turkish</td>
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</tr>
<tr>
<td>Arab</td>
<td>2.7%</td>
</tr>
<tr>
<td>Berber</td>
<td>1.7%</td>
</tr>
<tr>
<td>Papiamento</td>
<td>6.5%</td>
</tr>
<tr>
<td>Other</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religion</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No religion</td>
<td>50.9%</td>
</tr>
<tr>
<td>Catholic</td>
<td>28.2%</td>
</tr>
<tr>
<td>Protestant</td>
<td>4.5%</td>
</tr>
<tr>
<td>Muslim</td>
<td>12.0%</td>
</tr>
<tr>
<td>Hindu</td>
<td>1.4%</td>
</tr>
<tr>
<td>Buddhist</td>
<td>1.0%</td>
</tr>
<tr>
<td>Jewish</td>
<td>0.7%</td>
</tr>
<tr>
<td>Other</td>
<td>1.4%</td>
</tr>
</tbody>
</table>
the same reasons. At T1 the dropout students had significantly more experience with drinking alcohol (44.4%) than the students who completed all three waves (30.8%; $\chi^2 = 15.83; p = .045$). Before the analyses 13 special education school students and eight pre-vocational school students were removed from the sample because of missing values. Our final sample contained 145 special education school students and 151 pre-vocational school students.

The sample contained a nearly equal number of boys and girls. On average the students were twelve and a half years old. The largest share of participants was born in the Netherlands, and spoke mainly Dutch at home. About half of the participants indicated to have no religion. The largest groups of religious participants in our sample were Catholics and Muslims. Chi-square tests indicated that these numbers did not differ between conditions or school levels ($p$'s > .05; see table 1).

The ethical committee of the first author's affiliation institution approved this study. In accordance with the procedures of the ethical committee, we informed parents before the study started through an information letter and provided them with the opportunity to refuse the participation of their child. The rejection rate was below five per cent.

**Procedure**

All data for this study were collected in a classroom setting. At the first wave, the students received instructions as a group, after which they individually completed the questionnaire. The questionnaire contained items about the dependent and control variables and took about 25 minutes to complete.

The second wave took place about four weeks after the first wave. At this wave classes were randomly assigned to one of the conditions. There were slightly more students in the narrative condition ($n = 161$) than the non-narrative condition ($n = 135$). At the start of the session of the second wave, students received instructions as a group. Hereafter, they individually completed the booklet of the condition they were assigned to, which took about 15 minutes. After finishing the booklet, students handed it in and received the questionnaire. It took the students about 20 minutes to complete the questionnaire, which contained items about the dependent variables.

Finally, the third wave took place about four weeks after the second wave. After receiving instructions as a group, the students completed a questionnaire. This
questionnaire took about 20 minutes for the students to complete.

Measures

The participants responded to items about several determinants of drinking behaviour at each wave. We adapted all measures to the abilities of the low educated adolescents in our samples. Below we describe the measures that we included in our analyses.

Knowledge. To measure knowledge we used an open-ended question, which asked the participants to write down as many negative consequences of drinking alcohol that they knew. Two coders coded how many negative consequences the students wrote down. The inter-coder reliability was examined by computing the correlation between coders at each wave (T1: \( r = .98; p < .001 \). T2: \( r = .98; p < .001 \). T3: \( r = .99; p < .001 \)). In case of differences between coders the responses were examined and discussed until agreement was reached. The number of negative consequences was used as a measure of knowledge (T1: \( M = 3.08; SD = 1.50 \). T2: \( M = 3.64; SD = 1.60 \). T3: \( M = 2.95; SD = 1.46 \)).

Attitude towards alcohol. At each wave attitude towards alcohol was measured through five semantic differential items, based on Ajzen (2006). The sentence “I find alcohol drinking...” was followed by the items: negative–positive, unenjoyable–enjoyable, unwise–wise, unpleasant–pleasant, and bad–good. All items were measured on a four-point scale ranging from 1 to 4. We averaged all items per wave to create an indicator of attitude towards alcohol (T1: \( \alpha = .92; M = 1.77; SD = .71 \). T2: \( \alpha = .92; M = 1.65; SD = .67 \). T3: \( \alpha = .93; M = 1.71; SD = .70 \)).

Intention to drink alcohol. We measured intention to drink alcohol at each wave through the statements “I plan to drink alcohol”, “I plan to drink alcohol in the upcoming month”, and “I plan to drink alcohol in the upcoming year” (Ajzen, 2006). Participants responded through a four-point scale ranging from 1 (no, certainly not) to 4 (yes, certainly). We averaged all statements per wave to create an indicator of intention to drink alcohol (T1: \( \alpha = .76; M = 1.67; SD = .68 \). T2: \( \alpha = .81; M = 1.65; SD = .70 \). T3: \( \alpha = .82; M = 1.71; SD = .74 \)).

Control variables. To measure students’ past behaviour we included two questions at T1 to control for possible differences in behaviour between conditions and school levels. First, we measured how often students consumed alcohol through a closed-ended question with the response categories never, 1–3 days per year, 4–days per year, 1 day per month, 2–3 days per month, 1 day per week, and more
than 1 day per week. Second, we asked the students on how many days they had consumed alcohol during the past month.

Analyses

We examined all our hypotheses through repeated measures analyses of variance in SPSS 20. In all analyses we included information type (non-narratives vs. narratives) and school level (special education vs. pre-vocational schools) as between-subjects factors. Contrasts were computed using a Bonferroni correction for multiple comparisons.

Results

At the baseline measurement, on average the students knew about three negative consequences of consuming alcohol, had a slightly negative attitude towards alcohol, and a low intention to consume alcohol (see Table 2). In addition, most of the participants indicated that they never consumed alcohol ($n = 197; 66.6\%$). The largest share of the participants who consumed alcohol indicated to do this at one to ten days per year ($n = 64; 21.6\%$), while about one out of ten students consumed alcohol once a month or more ($n = 26; 8.8\%$). Some of the students who participated in this study indicated to have consumed alcohol in the past month ($n = 51; 16.0\%$). In most cases this was on one day ($n = 30; 9.5\%$). Chi-square tests indicated that there were no differences in previous behaviour between conditions or school levels ($\rho's > .05$).

Main analyses

Our first hypothesis predicted that school health education materials containing non-narrative information would have a stronger effect on knowledge than school health education materials containing narrative information. The results showed that averaged over both conditions knowledge changed significantly over time ($F(2,584) = 24.65, \rho < .001, \eta^2 = .078$). Contrasts revealed that students had significantly more knowledge at T2 than at T1 and at T3, but there was no difference between T1 and T3 (see table 2). The interaction test between time and information type revealed that this learning effect did not differ between conditions ($F(2,584) = 1.13, \rho = .323, \eta^2 = .004$). School level, which we controlled for in our analyses, had no influence on any of these effects ($\rho's > .05$). Based on these findings we conclude that the health education materials had an equally strong immediate effect on knowledge in both conditions that did not persist until T3. Hence, our first hypothesis was rejected.
Table 2.
Estimated means and standard errors of knowledge, attitude towards alcohol and intention to drink alcohol per wave.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>3.14 (.9)a</td>
<td>3.66 (.09)</td>
<td>2.99 (.08)a</td>
</tr>
<tr>
<td>Attitude towards alcohol</td>
<td>1.78 (.04)a</td>
<td>1.67 (.04)</td>
<td>1.73 (.04)a</td>
</tr>
<tr>
<td>Intention to drink alcohol</td>
<td>1.69 (.04)a</td>
<td>1.67 (.04)a</td>
<td>1.73 (.04)a</td>
</tr>
</tbody>
</table>

Note. Superscript indicates group means that do not differ significantly ($p > .05$) between waves.

Hypothesis 2 predicted that school health education materials containing narrative information would have a stronger effect on attitude towards alcohol than school health education materials containing non-narrative information. For attitude, there was a significant main effect of time ($F(2,584) = 8.52, p < .001, \eta^2 = .028$). Contrasts showed that students had a significantly more negative attitude towards alcohol at T2 than at T1 and at T3, while there was no difference between T1 and T3 (see table 2). There was no significant interaction between time and information type ($F(2,584) = .32, p = .729, \eta^2 = .001$), which indicates that there was no difference between conditions. None of the effects were influenced by school level ($p's > .05$). We conclude that similar to knowledge there was an equally strong immediate effect on attitude in both conditions, which did not persist over time. Therefore, our second hypothesis was rejected.

Finally, our third hypothesis predicted that school health education materials containing narrative information would have a stronger effect on intention to drink alcohol than school health education materials containing non-narrative information. Unlike students’ knowledge and attitude, intention to drink alcohol did not change over time ($F(2,584) = 2.43, p = .089, \eta^2 = .008$). In addition, interaction between time and information type was not significant ($F(2,584) = .34, p = .715, \eta^2 = .001$). Again there were no differences between school levels ($p's > .05$). Because there was no change in intention to drink alcohol in both conditions, hypothesis 3 was rejected.

Discussion

The aim of this study was to compare the learning and persuasive effects of narrative and non-narrative information in school health education about alcohol for low educated adolescents. We expected that non-narrative information would have a stronger learning effect than narrative information. For attitude towards alcohol and intention to drink alcohol, on the other hand, we expected
that narrative information would have a stronger effect than non-narrative information. The results showed that there were immediate effects on knowledge and attitude towards alcohol, both in a more healthy direction, but these did not differ between conditions and did not persist over time. For intention to drink alcohol we did not find any significant effects.

Our current results suggest that both types of information have an equally strong immediate learning effect. These findings contradict the outcomes of Land and colleagues’ (2008) study, on which our first hypothesis was based. She found that non-narrative information had a stronger learning effect than narrative information. The interesting but irrelevant seductive details in narrative information were suggested to cause this difference between conditions in her study. Therefore, a potential explanation for the lack of a difference between conditions might be that there were no sufficiently interesting but seductive details in our narrative that could take attention away from the relevant knowledge. Consequently, we wondered what factors determine whether information about the context and characters in narrative information will be seductive details. One determinant may be the level of prominence in the narrative of the information that is targeted in the knowledge items of the questionnaire. This information may have been more prominent in our study than in Land’s study. In our study, the knowledge questions targeted the outcomes of the behaviour of the characters in the narrative. Because these outcomes were at the core of the plot, the targeted knowledge was prominent in the narrative information. In the study by Land and colleagues (2008), on the other hand, the knowledge questions often asked about smaller details, like comments that characters made during a conversation in which also several other comments were made. As a result, the targeted knowledge was less related to outcomes of the actions of characters and less central in the plot. Therefore, it may have been harder for the students to determine which details in the narrative were relevant.

In addition to the learning effects, we examined whether the persuasive advantage shown for narratives in an education-entertainment context could be transferred to a school education context. As the results showed, there was no difference in effects on attitude and behavioural intention between conditions. Because of the educational context students may not have processed the narrative information with the purpose to get entertained, but in the same manner as they processed non-narrative information. Slater and Rouner (2002) have suggested that this may occur when people are aware of the persuasive intent of a narrative. An item in our questionnaire measuring students’ perception of the persuasive intent (range: 1 – 4) showed that most participants were aware of the
persuasive purpose of these materials, no matter whether narrative ($M = 3.13; SD = .98$) or non-narrative information ($M = 3.03; SD = 1.00$) was used. The mean scores on this variable did not differ between conditions or school levels ($p's > .05$). Hence, we conclude that in a school context narrative information in health education materials is not likely to have a stronger persuasive effect than non-narrative information because in this context the persuasive intent is probably more obvious to most students.

Furthermore, narrative information is suggested to be particularly beneficial for persuasive effects when the target group is likely to hold beliefs that contradict the message. Such groups are particularly likely to be resistant to the message. If people process narrative information with the goal to get entertained, they are supposed to generate less arguments against the message and, consequently, to be less resistant than if they would receive non-narrative information (Slater & Rouner, 2002). Hence, narrative information could be expected to be more effective than non-narrative information when the message is counterattitudinal. The students in our sample, however, engaged in little counterarguing, regardless of being in the narrative ($M = 1.86; SD = .89$; range: 1-4) or non-narrative condition ($M = 1.86; SD = .91$). The mean scores on counterarguing did not differ significantly ($p's > .05$) between conditions of school levels. The un favourable alcohol attitude and low intention to drink alcohol scores at the baseline measurement suggests that students in our population hold beliefs, which are in line with the information in health education. Therefore, it was not likely that the students in our sample would be resistant, no matter the information type that was used. In a situation like this narrative information will not provide a persuasive advantage, which may also have accounted for the lack of differences between the conditions in this study.

A limitation of our study was the difference in text length between conditions. Narrative information typically is lengthier than non-narrative information because it contains background information about, for example, the context and the characters. This additional information is necessary to create a narrative, but makes it impossible to compare it to a non-narrative format without having a length difference. Of course, the non-narrative format could be lengthened as well, but this would either add additional new information or introduce a dose effect due to repetition of the same arguments.

**Implications**

Based on the explanations we offer for our findings we have three suggestions
for future studies. First, research should focus on the characteristics of narratives that influence whether relevant information will be recognized as such or not. As we have argued above, the level of prominence of information that is targeted in knowledge questions may be one of these determinants, but this should be further tested. As a result, we may gain more insights into how people learn from narrative information and more understanding about the use of narrative information in health education materials. Second, future studies should examine the goals students have while they process narrative information in educational materials and whether this influences the effects. For example, if students read narrative information with the goal to get entertained, they may generate less counterarguments than they would if their goal was to get informed. Therefore, students’ processing goals is an important factor to consider. Third, there is currently little understanding about the effect of narrative and non-narrative information formats in situations where the message is proattitudinal. As we have mentioned before, previous studies suggested narrative information to be particularly beneficial in situations where the message is counterattitudinal. However, as proattitudinal non-narrative messages are found to be useful for reinforcing existing attitudes (Petty & Cacioppo, 1979), this may as well be true for proattitudinal narrative information. Through the reinforcement the strength of the existing attitude may increase. Attitudes that are more strongly held are found to be more persistent over time and have a stronger impact on behaviour (Petty, Haugtvedt, & Smith, 1995). However, such reinforcement effects may be examined more effectively through measures of attitude strength instead of attitude valence (Krosnick & Petty, 1995). Because we did not include measures of attitude strength in our questionnaire, we cannot provide any insights into whether narrative or non-narrative information is more effective for reinforcing existing attitudes. Hence, researchers should conduct comparative research in which they examine the impact of proattitudinal narrative and non-narrative information on attitude strength. Such studies could reveal whether narrative information can also be applied for reinforcing existing beliefs and how this effect relates to the impact of proattitudinal non-narrative information.

This study also has some implications that professionals should consider when they develop health education materials about alcohol for low educated students. Based on our current findings it is not possible to advise either the narrative or the non-narrative information format to establish stronger learning effects. For persuasive effects, we have suggested that the processing goal to get informed, instead of being entertained, that students have in school inhibited the persuasive advantage of narrative information. We have also discussed that this processing goal is likely to be influenced by students’ awareness of the persuasive
intent. Therefore, when selecting an information format for health education materials, developers should consider students’ awareness of the persuasive intent and whether they could be expected to process narrative information with the goal to get entertained. If students are not likely to have the goal to get entertained, then the selection of an information format could be based on other criteria than effectiveness. As we have mentioned in the introduction, low educated students are expected to perceive narrative information to be more enjoyable and less of a burden to process. Therefore, possible criteria could be the appreciation of an information format and the required effort to process information in a particular format. Insights into these criteria could be obtained by pretesting different formats during the development process.

From a policy perspective, it is also important to consider the costs for the developing materials. Narrative materials are typically more expensive to develop than non-narrative materials and here should be an increase in effectiveness that merits such additional costs (Murphy et al., 2013). From this point of view, the current results may be perceived as an argument not to favour the financing of materials containing narrative information instead of materials containing non-narrative information. Other criteria may nevertheless make policy makers favour materials containing narrative information. For example, if narrative information is more appreciated, this could result in higher self-administered exposure, which is also important to consider.

**Conclusion**

We believe our study makes an important contribution to the existing knowledge about health education materials. No previous studies on health education materials have examined the effects of different types of information in the context of school health education about alcohol. We provide important insights by showing that both narrative and non-narrative information can be expected to have a similar immediate effect on knowledge and attitude for the topic of alcohol. These results, and the findings of previous studies (e.g., Lemal & Van den Bulck, 2010; Zebregs, Van den Putte, Neijens, & De Graaf, 2015), raise the question whether narrative information can always be expected to be superior over other information formats as is suggested by scholars from the field of narrative persuasion (Murphy et al., 2013). We have offered theoretical suggestions to establish a more nuanced perception of the conditions under which narrative information can be expected to be more effective than non-narrative information. Examining our suggestions in future studies will help to further extend the existing knowledge about different information types in health education.
and the possibilities to develop effective materials for low educated adolescents. In addition, we have considered the implications of our findings for policy decisions, which will help to make more informed choices about financing more expensive materials containing narratives.
References


Chapter 2


O’Keefe, D. J. (2013). The relative persuasiveness of different message types does not vary as a function of the persuasive outcome assessed. *Communication Yearbook 37*, 37, 221-250.


