IMAP versus Traditional

An experimental study into the effectiveness, efficiency and appreciation of applying the Information Mapping (IMAP) method to pamphlets on HIV/AIDS in South Africa

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Preface

The present report symbolizes the end of a very important period in my life: my life as a student. During this seven years lasting period I carried out many assignments, gave various presentations, took a lot of examinations, and I wrote many reports, including many prefaces. For me the preface of a report was always the part that received the least attention; I usually dedicated the last 15 minutes before a deadline to quickly write it. Incorrectly, since the preface gives the opportunity to thank all people, who contributed to a particular study or report. The present preface is special for me and I have definitely dedicated more than 15 minutes to write it. It is special for me, since it will probably (and hopefully) be the last preface I will write for a long time, and since it completes a very special project for me, in which I (mostly) worked with great pleasure and to which many people in South Africa as well as in the Netherlands contributed one’s mite. Therefore I take the opportunity now to thank these people, because without their help I would not have been able to carry out this study and write the present report.

First of all, to my co-researcher Annet, I want to thank you very much for carrying out this project with me, for motivating me and for your continuous critical views. Although your “should we not change...?”, “but,...”, and “I have been thinking...” got on my nerves sometimes, we would never have been able to carry this project to a satisfactory conclusion without your attentive and wakeful attitude, that never lost sight of the practical side of the research. Besides the pleasant cooperation during the project, I also want to thank you for the great months we passed in Stellenbosch and travelling around. Of course, I dedicate a special thanks to all the dinners you cooked and for your famous currys: your currys are “baie lekker”!

Apart from Annet, I would not have been able to carry out this project without the help of my two supervisors Carel Jansen and Leon de Stadler. Carel, I would like to thank you for the time you always made available for helping and explaining, even during weekends or holidays, and for your critical views during the preparation and finishing of the project. Leon, I also would like to thank you for the time you made available in your extremely busy schedule, for your help during the preparation of the project, and for the helping hand you gave us to feel at home in Stellenbosch. I also want to thank Lize for making the beautiful graphic design of the Information Mapping pamphlets and Toby van Dyk for making the results of the TALL test available to us.

I also want to dedicate a few words to my dad for reading and criticizing parts of this report and to my friends, who always remained interested and supportive during this project, even though I did not have much time for them. Finally, Carlos, gracias por motivarme y seguir creyendo en mi poder para terminar este proyecto. TAM!

In conclusion, I hope you will enjoy reading the present report.

Bregje Keijsers
August, 2007
Abstract

South Africa is suffering one of the severest HIV/AIDS epidemics in the world. In order to prevent the further spread of HIV/AIDS in the country, effective communication, especially towards young South Africans, among whom 60% of new infections occur, is crucial. Unfortunately, the current prevention programmes, including health communication campaigns, do not seem to be successful: the number of HIV/AIDS infections still increases, leaving the suggestion that research into the possible improvement of HIV/AIDS communication should follow.

A method that might contribute to improved HIV/AIDS documents is the Information Mapping method. The Information Mapping method is a method of structured writing with specific layout characteristics. Information Mapping, Inc. claims that documents written according to the Information Mapping method are more effective and efficient, and are more appreciated than traditionally written documents. Although Information Mapping was initially meant for documents with primarily learning and reference purposes, the present study tests whether or not the method can also be used with success in the field of persuasive documents (in this case on HIV/AIDS documents), which intend to influence the reader’s opinion.

An important factor which interferes with effective communication on HIV/AIDS in South Africa is the linguistic diversity in the country. English is only one of the eleven official languages. Although only 8.2% of the population speaks English as a first language, it is the country’s primary language in government, business and commerce. English language proficiency, or more specifically the level of English reading skills of the South Africans, varies considerably, because many South Africans have English as their second or third language, and because large differences in educational levels still exist, partly due to the apartheid regime. Since the Information Mapping method changes traditional texts into more schematic and structured documents, it was expected that people with lower levels of reading skills would benefit relatively more from Information Mapping than people with higher levels of reading skills. Based on this expectation, it was tested to what extent applying the Information Mapping method to English pamphlets on HIV/AIDS would increase effectiveness, efficiency and/or appreciation amongst South African readers with different levels of English reading skills.

An experiment was carried out in which 101 students from Stellenbosch University (South Africa) worked with two text versions of two different texts: either an original version of text A and an Information Mapping version of text B or the other way around. The respondents were asked to find answers in the text to questions about various topics that were discussed, through which effectiveness and efficiency were measured. Furthermore the respondents were asked to fill in questionnaires to measure the appreciation about the texts.

The Information Mapping texts did not prove to consistently improve reader performance regarding effectiveness and efficiency as compared to the original texts, and the respondents did not consistently appreciate the Information text versions more than the original text versions. As expected, the level of English reading skills did appear to be related to the respondent’s scores on
effectiveness and efficiency. The higher the respondent’s level of English reading skills the more effective and efficient the respondents used the texts. Appreciation was not found to be related to the respondent’s level of English reading skills. No interaction effects of text version and level of English reading skills were found: students with lower levels of English reading skills did not benefit more or less from the Information Mapping texts or the traditional texts than students with higher levels of English readings skills.

The fact that no straightforward conclusions can be drawn as to the effect of text version on the dependent variables for effectiveness, efficiency and appreciation, can perhaps be explained by the characteristics of the texts used in this experiment. One of the traditional texts on HIV/AIDS (“The best of friends”) already had a clear inner and outer structure and was therefore similar to the Information Mapping text version in important aspects. A kind of ceiling effect might have occurred, resulting in a situation in which an Information Mapping text version could hardly perform better than a traditional text version. Besides, the number of words between the two texts appeared to differ considerably. That significant results were only found for text A (the longer text) confirms Horn’s (1992b) surmise that differences between Information Mapping texts and traditional texts can be found more easily when voluminous texts are being used. Other results might also have been found when more speakers of African languages would have participated in the experiment, since these individuals were found to have lower levels of English reading skills. In that case perhaps a more balanced distribution of the level of English reading skills might have been found and perhaps different results would have been revealed.
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1 Introduction

It is very unlikely that anybody in modern society would be unaware of the worldwide problems with respect to HIV/AIDS: at present HIV/AIDS is the most devastating health epidemic in the world, with an estimated 39.5 million people infected with HIV and about 2.9 million people dying of AIDS last year (UNAIDS/WHO, 2006).

AIDS is caused by the human immunodeficiency virus (HIV), which was detected by French scientists in the eighties. Once the virus enters the body it infects cells of the human immune system. An HIV infected person might not directly notice to be infected with HIV since in the early stages the virus does not give clear symptoms. When the virus continues destroying and impairing the individual’s immune system for a longer time, the immune system weakens and the individual becomes more susceptible for so-called opportunistic infections. Opportunistic infections can usually only affect the human body when the body’s defences are weakened. This stage of the HIV-infection is therefore called the acquired immunodeficiency syndrome, that is AIDS. It can take 10 to 15 years for an HIV-infected person to develop AIDS. So far, an HIV infected person or somebody living with AIDS cannot be cured, but since the early nineties antiretroviral drugs (ARV) are available that can slow down the replication of HIV in the human body and in such a way protect an HIV-infected person for a longer time against the transition from HIV to AIDS.

Although HIV/AIDS affects the whole world, South Africa is suffering one of the severest epidemics. In South Africa 5.5 million people were estimated to be living with HIV in 2005 (which is almost 12% of the population), and 320,000 persons died of AIDS related deaths in that same year (UNAIDS, 2006). In order to stop the spread of HIV/AIDS, education is considered as one of the most important instruments (Swanepoel, 2003). In South Africa the national government as well as over 600 specialized HIV/AIDS organizations put effort and money in HIV/AIDS prevention programmes, including health communication campaigns, using all types of media (such as pamphlets, advertisements, billboards, TV, and radio) to inform the South African population about HIV/AIDS.

The oldest organization for HIV/AIDS prevention is the Soul City Institute for Health and Development Communication established in 1992. Soul City is South Africa’s premier edutainment project, which integrates social and health issues into drama and entertainment formats such as the television and radio series Soul City (for adults) and Soul Buddyz (for children between 8 and 12 years old). In 1999 another large organization for HIV prevention was launched: loveLife, South Africa’s national HIV/AIDS prevention programme for youth between 12 and 17 years old. loveLife informs this particularly vulnerable group of pre- and newly sexually active South Africans by television series, various radio programmes, billboards, magazines, and booklets. The Khomanani campaign, the primary governmental HIV/AIDS campaign, only exists since 2001. Khomanani is funded and driven by the department of Health of the South African government, but two private communication companies have been contracted to develop and run the campaigns. The most recent HIV/AIDS prevention campaign “Take your relationship to another level” aims to encourage
Voluntary Counselling and Testing (VCT) among sexually active youth and uses pamphlets, and advertisements on radio and TV to reach the target audiences. Apart from these national organizations, many smaller organizations on regional and local level exist that develop small-scale prevention programmes in order to stop the spread of HIV/AIDS.

Although many organizations devote themselves to the education on HIV/AIDS, the current prevention programmes do not seem to be successful: the number of HIV/AIDS infected persons in the country still increases. The Aids Foundation of South Africa even explicitly stated that “the results of the campaigns and prevention programmes have been largely disappointing” (Swanepoel, 2003, n.p.). Why are these prevention programmes not effective? First of all, the lack of resources that most of the governmental and non-governmental agencies experience, limit the possibilities of high qualitative documents on HIV/AIDS. Furthermore, Swanepoel (2003) feels that the prevention programmes use too much mass media communications, while other communication channels, communication methods, and strategic means, such as investments in policy and infrastructure, are unused or underdeveloped. Another reason for the poor quality of the HIV/AIDS prevention programmes is the absence of literature on the evaluation of the programme documents. Should one use different writing styles for culturally divergent groups? Is it useful to include pictures in public information documents on HIV/AIDS, and if so, should one always include pictures or only for certain publics? Is it effective to use exemplars in public information documents on HIV/AIDS? And is it more or less effective for certain age groups? These are some of the questions that writers of public information documents on HIV/AIDS should be able to answer in order to develop effective prevention programmes. Since very little research existed to answer these types of questions, in 2003 three Dutch and three South African universities joined hands and set up the EPIDASA project.

The EPIDASA project aims to improve the Effectiveness of Public Information Documents on HIV/AIDS in South Africa (EPIDASA, 2006). Given this overall aim, it is necessary to generate knowledge about what choices with respect to content, structure, style, presentation and layout of documents on HIV/AIDS should be made, and which evaluation techniques should be used to improve the effectiveness of HIV/AIDS documents for the diverse cultural and demographic target groups in South Africa. From the start of the project various studies within this context have been performed by exchange students as well as Ph. D students. The EPIDASA studies have focused on one of the following five pivotal aspects: designing effective fear appeals, the role of peers and personas in HIV/AIDS documents, using verbal and visual presentations in instructional documents on HIV/AIDS, persuading South Africans to go for Volunteering Counselling and Testing (VCT), and designing and testing public information documents on HIV/AIDS. The present study has also been carried out within the EPIDASA context. It intends to reveal whether a method of structured writing can make HIV/AIDS documents more effective, more efficient and more appreciated. The method that has been tested is the Information Mapping method; it will be further explained in the next chapter.
2 Literature Review

In this chapter the Information Mapping method will be explained and existing research pertaining to the method will be discussed. The discussion of the possible advantages of the Information Mapping method on one hand, and South Africa’s HIV/AIDS communication problems on the other hand, result in the research question and hypotheses of the present study.

2.1 Information Mapping

The Information Mapping method was developed to make both reading and writing of a wide variety of complex information easier (Information Mapping, 2006a), or as Horn (1974), who developed the method, explains himself “to guide the writer and reader along the easiest pathway of communication” (p. 1). Information Mapping is also named a method of structured writing, which refers to the fixed format and clear instructions upon which Information Mapping documents are based. Information Mapping documents are written according to a set structure of information types and with specific lay-out characteristics (Le Pair, Jansen, Korzilius, van Gerdingen, de Graaf & Visser, 2006).

The Information Mapping method distinguishes seven types of information: procedure, process, structure, concept, principle, fact and classification. Each information type is represented in an Information Map and consists of a number of Information Blocks. Information Blocks are the basic elements of information organized around one single subject with one clear purpose (Namahn, 2001). Forty types of Information Blocks are distinguished (including introduction, definition, notation, and example) and all Information Blocks of a particular type are similar. This implies that "in an Information Block labelled ‘Definition’ you will find only sentences which define a specified term. [...]. Similarly an Example Block contains only sentences and diagrams which pertain to a specific example" (Horn, 1974, p. 2). In order to put the right information in the right place, seven principles have to be followed. First of all, the information has to be broken down into manageable basic units, named chunks. One or more chunks about the same subject with the same purpose make an Information Block. The information within an Information Block has to be relevant and each Information Block must be labelled with a title. These labels, titles and formats must be consistent. Where needed, abstract information must be illustrated with accessible details and concrete examples, which always must be integrated in the text. Finally, the Information Blocks must be hierarchically grouped and labelled into larger chunks: the Information Maps. Besides the seven principals, Information Mapping documents also have rules regarding layout. For example, all labels must be written in the left margin of the text, and all Information Blocks must be separated by horizontal lines. Furthermore, if an Information Map covers more than one page, the writer must write a reference ‘continued on next page’ on the bottom of each following page that is part of the same Information Map (Horn, 1976). By following these guidelines, a text can be written in a more schematic, structured and direct way (see figure 1 on next page for an example).
How to Prepare Data for an Audit

**Introduction**
One of the most important procedures in an audit is preparing the data. Careful preparation ensures that the data is correct and that each step has been carried out.

**Procedure**
Follow the steps below to prepare data for the audit.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | For data items selected for audit, obtain the following:  
• source document samples, and  
• run data from the computer room. |
| 2    | Verify the source documents sample by comparing the samples to the original list. |
| 3    | Record on a worksheet sufficient descriptive information to provide accurate identification for future audits.  
**Minimum Information Required**  
| Attributes of the sample | • Sales Territory  
• Effective data  
| Description of each data item | • Account Name  
• Account Number  
• Type of Business |
| 4    | Compare data samples to related documents and record on the worksheet any source of error or difference.  
**Compare**  
| Sample data | • programming instructions in effect when source document begun  
• company requests  
• statistical guidelines  
| Source data | run data printouts |
| 5    | Prepare a summary sheet that lists each difference or error found, and analyses each data item to compute accuracy ratios for the audit sample data items. |

**Final step**
Prepare to discuss your findings with company management. Be specific in both your report and the discussions.

**Note:** These discussions are important to point out errors and difficulties provide management with information to correct the errors.
2.2 Studies on Information Mapping

In 1999 Information Mapping, Inc.\textsuperscript{1} published an overview of 30 years of research into the Information Mapping method. This research overview suggests along with other results that the Information Mapping method makes written documents more efficient: reading speed, time-on-task, learning time, and time to retrieve information improve (Information Mapping, 1999). Besides, Information Mapping Inc. claims that the method makes texts more effective: accuracy, and learning/comprehension improve (Information Mapping, 1999). This overview also suggests that the Information Mapping text versions are more appreciated than normal text versions: more effective layout, higher user satisfaction, and higher preference for Information Mapping texts versus traditional texts are some of the results (Information Mapping, 1999). However, according to Jansen, Korzilius, Le Pair and Roest (2003) many of the studies from which the above-mentioned results proceed, are not scientifically convincing, since “often, little or no specific information is given about the design, implementation and results of the experiments” (p. 52). Kools, Ruiter, Van De Wiel and Kok (n.d.) agree on this and state that the studies “are not or difficult to trace […], little details about experimental design are given, and thus the effectiveness remains unclear” (p. 6). Hartley (1982) criticizes the accessibility of existing research, stating that “without having the actual studies available it is difficult for anyone to comment on them in detail” (p. 56). In addition to the poor quality and accessibility of existing research into the Information Mapping method, Hartley (1982) and Fields (1983) also criticize the quantity of available studies, since the method has been investigated only by few researchers. Based on these critics Jansen et al. (2003), Le Pair et al. (2006), and Kools et al. (n.d.) carried out experimental studies into the potential strengths and weaknesses of the Information Mapping method.

Jansen et al. (2003) tested three text versions (an original text version, an Information Mapping text version, and the original text version rewritten by an experienced writer) among Dutch subjects, all working for the same company. It was tested whether the text versions had different results on effectiveness (the number of correct answers), efficiency (the number of seconds a subject needed to find a correct answer) and appreciation (report mark). Regarding effectiveness and efficiency no significant differences were found between the three text versions. The Information Mapping text version was rated significantly higher than the rewritten text, but not significantly higher than the original text version. Jansen et al. (2003) conclude that “this study fails to substantiate the claim that the IMAP [Information Mapping] method results in texts that lead to improved reader performance” (p. 49).

Le Pair et al. (2006) performed three experiments to test the Information Mapping method. The first experiment aimed to find out whether a long Information Mapping text -in contrast with the study of Jansen et al. (2003), in which a relatively short text of three A4 pages was used- would result in higher effectiveness (the number of correct answers), efficiency (the number of minutes a subject needed to find a correct answer) and appreciation (report mark) in comparison to a traditional long text version. In contrast to the study of Jansen et al. (2003), the results of this

\textsuperscript{1} Information Mapping is a registered trademark of Information Mapping, Inc.
experiment showed that the respondents worked more effectively and efficiently with the Information Mapping text version and also appreciated the Information Mapping text version more. These results support Horn’s surmise that differences between Information Mapping texts and traditional texts can be found more easily when voluminous texts are being used, since as Horn (1992b) explains: “If the size of the document used for retrieval is very small […] and the time you allow is long enough, then you can expect that both the experimental and control groups will get approximately the same scores” (p. 30).

The second experiment by Le Pair et al. (2006) tested the effect of typical Information Mapping layout characteristics (including map titles, horizontal lines between Information Blocks, and block labels) on effectiveness, efficiency and appreciation (using the same definitions for the dependent variables as in the first experiment). This question was divided up into two experiments. The first experiment tested the effects of the omission of typical Information Mapping characteristics in an Information Mapping text. Three text versions were used: a traditional text version, an Information Mapping text version, and an Information Mapping text version without typical Information Mapping layout characteristics. The second experiment tested the effects of the addition of typical Information Mapping characteristics to a traditional text. This experiment used two text versions: a traditional text version, and a traditional text version with Information Mapping characteristics. In both experiments no significant differences regarding effectiveness were found. A positive effect of the typical Information Mapping characteristics on efficiency and appreciation was only found in the second experiment, but all Information Mapping text versions (with and without typical layout characteristics) scored significantly better on efficiency and appreciation than the traditional text versions. Since in general the scores on effectiveness were high, Le Pair et al. (2006) ascribe the lack of significant differences for this variable to a possible ceiling effect. Furthermore, it is concluded that it seems that if the Information Mapping method has an effect, the organization of the text as well as the layout characteristics can be the reasons for it. The third experiment that Le Pair et al. (2006) carried out, will be discussed in paragraph 2.5.

Information Mapping, Inc. (2006b) claims that the Information Mapping method “has been used successfully in a wide variety of documents in every industry” (n.p) and that “any business or technical information –whether intended for initial communication, education, training, reference, quick reference, or performance support- will benefit from the method” (n.p.). Some researchers, however, doubt if these statements are correct: as Hartley (1982) states, “many research workers are critical of the notion […] that one can provide a set of procedures –or guidelines- which will be uniformly applicable” (p. 54). According to Hartley (1982), Horn claims too much false precision. Hartley (1982) states that “it is not comforting to workers in the field to be told that there are a specific number of blocks which deal with a specific number of types of text. Nor is it comforting to find, if one looks into it, that these seemingly precise numbers have changed over time- for this contradicts the implied precision” (p. 55). More false precision seems to be created when one considers that Horn (1974) initially developed the method for science, technology and business documents, but now claims that the method can be used successfully in every industry (Information Mapping, Inc., 2006b). Although researchers doubt the uniform application of the
Information Mapping method, it remains an interesting issue as long as Horn’s claims have not been tested properly.

A business field where the effectiveness, efficiency and appreciation of documents are of great importance, is health education. Kools et al. (n.d.) state that “for health education materials, which may contain various kinds of information, readers may wish to read specific answers to questions they have, instead of reading it from start to finish” (p. 3). In a text written according to the Information Mapping method, “one can skim through the text, read it, and locate answers to questions that one sets oneself far more easily than one can with conventionally presented prose” (Hartley, 1982, p. 52). Therefore, Information Mapping might be a good tool to help the reader of health education material easily find the specific information he or she needs, and in such a way make health education texts more effective and efficient.

To our knowledge the only study that applied Information Mapping to health education texts was done by Kools et al. (n.d.). They carried out an experiment to test the effects of headings in a health education letter on healthy eating. Four text versions were compared: a traditional letter, a traditional letter without headings, an Information Mapping version in which the order of the information had been changed according to the Information Mapping principles, and an Information Mapping version in which the order of the information had not been changed (so similar to the traditional letter). Although no significant results were found regarding improved effectiveness (number of correct answers) or efficiency (search time needed to find an answer) for the Information Mapping text versions, Kools et al. did discover that “[…] subjective opinions proved in favour of the version with most headings” (p. 2), which was the Information Mapping text version written according to the Information Mapping principles. In this study the Information Mapping method did not make communication on health issues better, since it improved neither effectiveness nor efficiency. However, the research was based just on eighty respondents of whom six respondents were excluded (so less than twenty respondents per text version were left). Maes, Ummelen and Hoeken (1996) recommend that in this type of research (that tests the effects of specific text characteristics on the user) at least 25 respondents should use a text version to guarantee an adequate statistical power (the probability that a statistical significant test will correctly reject the null hypothesis). Since, to our knowledge, the research by Kools et al. (n.d.) has been the only research that applied Information Mapping to health education texts so far, and since the statistical power of this study is doubtful, the use of Information Mapping in health education documents remains an interesting field of study.

Most documents on health education are written with the purpose to persuade the reader into a certain type of health behaviour. The writer of persuasive documents intends to influence the reader’s opinion (Pander Maat, 1994). To our knowledge, no research into persuasive Information Mapping texts has been done so far: the experimental material of the studies by Jansen et al. (2003), Le Pair et al. (2006), and Kools et al. (n.d.) consisted of instructive and informative documents and all the studies published by Information Mapping, Inc. (1999) used instructive educational material like manuals and textbooks. What effects would Information Mapping have when used in documents with other purposes than instruction or information? Stated differently,
what would the effect of Information Mapping be when used in persuasive documents? To answer this question, persuasive texts on health education will be tested in this study.

2.3 HIV/AIDS in South Africa

At present many documents on health education are dedicated to the fight against HIV/AIDS, especially in South Africa, which in sheer numbers is considered as having one of the severest HIV epidemics in the world (UNAIDS/WHO, 2006). The largest group of people that gets infected with HIV in South Africa are young people between 15 and 25 years old: 60% of new infections occur in this age group (AIDS Foundation South Africa, 2006). loveLife\(^2\) (2004) carried out a national survey among young South Africans between 15 and 24 years old, in which all respondents were asked to complete a questionnaire and to have an HIV test. This survey shows that 10.2% of the respondents were HIV positive.

Various reasons exist for the high percentage of HIV positive infected youth. Lack of knowledge is one of the reasons: still 6% of the respondents said to believe “that there is nothing you can do to avoid HIV/AIDS” (loveLife, 2004, p. 51). Low perceived risk of infection is another reason why the number of HIV infected youth increases. 49% of young people who never use condoms and have more than one partner indicated that they felt at low risk of HIV infection. Without having received the results of the performed HIV test, 62% of the HIV positive youth even said “that they thought their chances were small or that they were at no risk of contracting HIV” (loveLife, 2004, p. 57). Another reason for increasing HIV infections among young people is denial of the HIV status. Although the majority of the respondents did report that they wanted to know their HIV status after having the HIV test, it was striking that “27% of HIV infected youth said they did not want to know their status” (loveLife, 2004, p. 57).

The above-mentioned figures are alarming and demonstrate that young South Africans are at great risk of being infected with HIV/AIDS. In order to fight the devastating epidemic of HIV/AIDS, effective communication especially towards young South African people is crucial. However, this is not easy in a culturally and linguistically diverse country like South Africa.

2.4 Cultural and linguistic diversity

South Africa is often called the Rainbow Nation, alluding to its mixture of cultures and languages. The largest group of South Africans are the Blacks or Africans (79.5%). The Whites are the second largest group (9.2%), followed by the Coloured (8.9%). The Indians/Asians (2.5%) are the smallest group of South Africans (Statistics South Africa, 2006). Within these groups a diversity of ethnic groups with different cultures exist. Due to South Africa’s cultural mixture, many different

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\(^2\) loveLife is South Africa’s national HIV prevention programme for youth.
languages are spoken in the country. The South African government acknowledges eleven official languages: English, Afrikaans and nine African languages. The language diversity of the South African population interferes with effective communication on HIV/AIDS, since messages on HIV/AIDS (written in one of the eleven languages) are not understood and interpreted in the same way by the entire population. Obviously, individuals with low language proficiency in a particular language will have more difficulties reading a message than individuals with high language proficiency in that language. Stated differently, the reader’s language proficiency influences his or her reading ability. Since Horn claims that Information Mapping documents are easier to read and reduce reading time (Information Mapping, 1999), it might be possible that individuals with low language proficiency have a better reading performance using Information Mapping documents compared to traditionally written documents. Whether or not the effect of language proficiency on reading performance differs for Information Mapping documents and traditional documents, has been investigated by few researchers.

2.5 Information Mapping and language proficiency

The third experiment, that Le Pair et al. (2006) performed (see paragraph 2.2 for the first and second experiment), tested the effects of an Information Mapping text among readers with different linguistic backgrounds. 44 employees of Dutch descent (who were born in the Netherlands) and 32 immigrants (who were born outside of the Netherlands, or at least one of their parents was), all working in the same company, participated in this study. Each subject was presented with two text versions of two different texts: an original text version A and an Information Mapping text version B or the other way around. The subjects performed different assignments through which the researchers measured their performance (correctness and speed) and the subjects also appreciated the text versions. The results of this research did not show significant differences in performance or appreciation between the traditional text versions and the Information Mapping text versions. The fact that no significant results were found, can perhaps be explained by the relatively short length of the testing material (one A4 page), since the information Mapping method seems to be more efficient and better appreciated with longer texts (Le Pair et al., 2006). Additionally, the relatively low education of the subjects involved might be an explanation for the lack of significant results, since the Information Mapping method might be more suitable for subjects with a certain level of education. A limitation in this research was the small number of respondents: each text version was only used by 19 respondents (from whom 11 subjects of Dutch descent and only 8 immigrants).

Burell (1978, In: Horn, 1992a) also tested the Information Mapping method, using the SAT score as an independent variable. He investigated the method among senior students at a medical college, both with SAT scores above and below the national mean, and their effectiveness regarding a three chapter document on critical nursing care. One of the chapters was accompanied

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3 SAT is a standardised test for college admissions in the United States. It consists of three major sections: Mathematics, Critical Reading and Writing.
by a self assessment guide written according to the Information Mapping method. In the post-test it appeared that the average scores of the Information Mapping version for the students with high SAT scores were 59% higher than the score of the standard version. For students with low SAT scores the Information Mapping version scored 53% higher than the standard version. Horn (1992a) attributes this success to the Information Mapping method, but as Jansen (2002) states, no attention is paid “to the obvious alternative explanation that the mere presence of the additional instructional manual was the cause of the improved test performance and that the format used to present this material hardly mattered” (p. 312).

Another study that relates the respondent’s level of reading skills to Information Mapping texts, was done by Baker (1988, In: Horn, 1992a). The experiment was carried out among 335 junior officers attending the Signal Officer Basic Course at Fort Gordon (USA). Baker used the Nelson-Denny Reading Test to determine the respondents’ level of reading skills. Based on the results of the reading comprehension part of this test, the respondents were divided into three reading ability groups: low, average and high. Equal numbers of subjects from each reading ability group were presented with one of three text versions: a normal text version, a normal text version with an advance organiser of about one page, or an Information Mapping text version. The groups could read the text version for as long as they wished. After reading the text, each individual did a recall test and a time application test in order to measure the respondent’s score on accuracy and efficiency. Neither an interaction effect of text version and reading skills, nor a main effect of text version was found in either of the tests, but the results did show a main effect of reading skills on both accuracy and efficiency: “subjects in the high reading ability group significantly outperformed the lower ability readers in reading time, recall score and application time” (Horn, 1992a, p. 61).

Although none of the above-mentioned studies show interaction effects of text version and reading skills, the question remains interesting if groups of readers with different reading skills might benefit more from Information Mapping texts than others. Since the Information Mapping method changes traditional texts into more schematic and structured documents, it might be that people with lower level of reading skills will benefit relatively more from the Information Mapping text versions than people with higher level of reading skills. An Information Mapping text explains the textual structure more visually by specific layout characteristics (horizontal lines between Information Blocks, map titles and Block labels) and will therefore make it easier for the reader to locate information. For individuals with lower levels of reading skills it might be easier to discover the text’s structure in an Information Mapping text version than in a traditional text version. For individuals with higher levels of reading skills, the difference between the Information Mapping text and the traditional text might be smaller, since these persons in general will have less difficulties discovering the text’s structure. This interaction between text version and level of reading skills may even be stronger when applying Information Mapping to health education texts, since in those texts the reader often looks for answers to specific questions, even though the texts may have persuasive purposes. Such a reader quickly skims and scans the text to find the information he or she needs, and thus makes more use of the structure of the text.
A limitation in the studies by Burell and Baker that could explain why no interaction effects were revealed, is that only one text was used to confirm or falsify their hypotheses. According to Meuffels and Van Den Bergh (2005) this is a flaw in many empirical document design studies: the explanatory variable in which the researcher is interested (in this case: text version) is investigated only based on one random factor (two versions of the same text). In such a so-called single message design the internal as well as the external validity of the research reduce, since the results of the research can be accidentally attributed to the random factor (the text). Can the effects found for the accidentally chosen text be generalised to all texts? The answer clearly will be no. To avoid this so-called ‘fixed-effect-fallacy’ Meuffels and Van Den Bergh state that a multiple message design in empirical linguistic research is a condition sine qua non. Stated differently, using more than one text to confirm or falsify a researcher’s hypotheses is essential in empirical linguistic research. Since neither Burell nor Baker used more than one text in their studies it remains interesting to investigate whether individuals with different levels of reading skills might benefit more or less from Information Mapping texts than from traditionally written texts. Obviously, the experiment must be based on a multiple message design.

### 2.6 English reading skills in South Africa

As mentioned before, South Africa counts eleven official languages: English, Afrikaans and nine indigenous African languages. Statistics South Africa (2004) reports that the most frequently spoken first home language of the South Africans in 2001 was IsiZulu (23.8%). This was followed by isiXhosa (17.6%) and Afrikaans (13.3%). English was only spoken as a first home language by a small minority of South Africans (8.2%). Although English is not nearly the home language that is most widely spoken by the South African population, it is most widely understood: English is the second language of the majority of South Africans (South African Government Services, 2006). English is also the country’s primary language of government, business, and commerce, it is a compulsory subject in all schools, and it is the medium of instruction in most schools and tertiary institutions. Although many South Africans at least speak and understand some English, their English language proficiency, or more specifically their level of English reading skills, varies considerably. This is caused by one main factor: education.

During South Africa’s apartheid regime from 1948 till 1994, different universities for different ethnic groups were created, separating the races geographically and privileging the interest of White South Africans (Fiske & Ladd, 2004). “Though a small black middle class was able to develop during the apartheid period, the vast majority of Africans emerged from apartheid with low educational attainment, low income, and a scarcity of job opportunities” (Fiske & Ladd, 2004, p. 14). At present the consequences of this period can still be seen in the level of education of different racial groups.
Table 1. Percentage of individuals aged 20+ per population group that did not get formal schooling, and percentage of individuals aged 20+ per population group that attained post-school or tertiary qualification in South Africa in 2001 (Statistics South Africa, 2005).

<table>
<thead>
<tr>
<th>Population Group</th>
<th>No formal schooling</th>
<th>Post-school or tertiary qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black South Africans</td>
<td>22.3%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Coloured South Africans</td>
<td>8.3%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Indian / Asian South Africans</td>
<td>5.3%</td>
<td>14.9%</td>
</tr>
<tr>
<td>White South Africans</td>
<td>1.4%</td>
<td>29.8%</td>
</tr>
</tbody>
</table>

Table 1 shows the percentages of South Africans older than 20 years and classified according to population group with no formal schooling versus those that gained post-school or tertiary qualification. The intermediary categories (some primary, complete primary, some secondary, and complete secondary schooling) are left aside to clearly demonstrate the differences in education between the population groups. The table shows that in 2001 22.3% of the Black South Africans reported not to have received any formal schooling, compared to 8.3% of the Coloured, 5.3% of the Indians/Asians and just 1.4% of the White South Africans. Regarding attainment of a higher education 5.2% of the Blacks, 4.9% of the Coloured, 14.9% of the Indians/Asians, and 29.8% of the Whites reported to have attained a post-school or tertiary qualification.

As a result of differences in educational levels, different levels of English reading skills appear in all layers of South African society, even among students. One would expect that students, who successfully finished secondary school and earned a good enough grade to go to university, would have a sufficient grade in English to be successful in university, but this is not the case. Van Dyk and Weideman (n.d.) mention low academic English language proficiency of non-native users of English as one of the reasons for the lack of academic success of many students at South African universities. “If one considers the number of first and second-language speakers of English and the relative success of each group at the end of their first and further years of study, it is apparent that a significantly larger proportion of mother-tongue students are successful” (van Dyk & Weideman, n.d., p. 2). Agar (1991) states that although differences between English first language (EL1) and English second language (EL2) South African students are not great, EL2 students do have lower scores in English than EL1 students. Van Heerden (1995) investigated the performance of Black University students in South Africa with English as a second language, and reported that Black students experienced problems, because most of them were not fluent in English. It appeared that most of the respondents spoke a fair amount of English, but this was not the case with regard to reading or writing the language. Van Dyk, project manager of the Test of Academic Literacy Levels (TALL) at three major South African universities (Stellenbosch University, the University of Pretoria and the North-West University) has similar findings. Based on the results from the English TALL test 2005 among first year students, Van Dyk (n.d.) concludes that South African students with an African language as their mother tongue (mostly Black students) result to have a much lower level of English proficiency than South African students with Afrikaans (mainly Whites and Coloureds) or English (mainly Indians/Asians) as their mother tongue.
Figure 2. Average score on the English TALL 2005 (in percentage) of students that have the same mother tongue (Van Dyk, n.d., p. 3).

Figure 2 explains Van Dyk’s conclusions, showing that students with an African language have the lowest average scores on the English TALL 2005 (61.82%), and that students with Afrikaans (74.09%), Afrikaans/English (80.30%), English (79.89%) or another language (77.68%) as their mother tongue have much higher average scores on the English TALL 2005.

Although the White and Coloured students (mostly with Afrikaans as a mother tongue) as well as the Black students (mostly with an African language as their mother tongue) all have English as a second or third language, the TALL 2005 shows that the average English language proficiency of the White students (77.15%) is higher than the language proficiency of the Coloured students (69.83%) and the Black African students (64.24%). It is assumed that this difference is caused by the (quality of the) education the White South Africans obtain compared to the Coloured and Black South Africans, which is still partially a result of the apartheid regime.

2.7 Research question and hypotheses

The studies discussed above show that differences in English proficiency between English first language speakers and English second language speakers appear among South African students. As Van Heerden (1995) concludes, most English second language speakers do speak a fair amount of English, but have difficulties reading and writing the language. Those students with low English proficiency might have difficulties with reading and understanding the essence of an English text, with distinguishing main and side points in an English text and with using the structure of the text to find specific information. Furthermore, these individuals might need more time to read an English text and might read it in a different way (for example reading the text form start to finish instead of skimming or scanning the text). For those with lower levels of English reading skills the Information Mapping method might facilitate the reading process. Since the Information Mapping method explains the structure of the text more visually and thereby makes it easier to skim and scan the text, people with lower levels of reading skills might benefit more from an Information
Mapping text than people with higher level or reading skills. To investigate this supposition, the following research question has been defined:

To what extent does the application of the Information Mapping method to pamphlets on HIV/AIDS increase effectiveness, efficiency and/or appreciation of these texts when compared to the traditionally written pamphlets, amongst South African students with different levels of English reading skills?

Based on the literature review the following results are expected:

- **Hypothesis 1** A main effect of text version
  Information Mapping texts will yield higher scores on effectiveness and lower scores on efficiency and will be more appreciated than traditional texts, irrespective of the student’s level of English reading skills⁴.

- **Hypothesis 2** A main effect of level of English reading skills
  Students with higher levels of English reading skills will have higher scores on effectiveness, lower scores on efficiency and will appreciate texts more than student with lower levels of English reading skills, irrespective of the text version they use⁴.

- **Hypothesis 3** An interaction effect of text version and level of English reading skills
  Students with lower levels of English reading skills will benefit differently from the Information Mapping texts or the traditional texts than students with higher levels of English reading skills, with respect to effectiveness, efficiency and appreciation.

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⁴ The higher an individual’s score on effectiveness, the more effective an individual uses a text version (see paragraph 3.4.1), and the lower an individual’s score on efficiency, the more efficient an individual uses a text version (see paragraph 3.4.2).
3 Method

In this study the effect of the independent variables text version and level of English reading skills on the dependent variables effectiveness, efficiency, and appreciation was tested in an experiment. The characteristics of this experiment will be discussed below.

3.1 Respondents

In this study 101 students from Stellenbosch University (South Africa) participated. Every year all new first year students at Stellenbosch University have to do the Test of Academic Literacy Levels (TALL) in Afrikaans and English. This literacy test measures the student’s level of reading skills as well as the level of writing skills. The TALL is a written test and consists of seven sections. Six sections aim to measure the student’s level of reading skills (including reading comprehension, knowledge of vocabulary, and text editing) and one section measures the level of writing skills. Since the test largely measures the level of reading skills, it was decided, with approval of Van Dyk, project manager of the literacy test, to use the student’s final score on the TALL as a measure of the respondent’s level of reading skills in this study.

Van Dyk provided the database with results of the English TALL from January 2005, which contained among other things the names, e-mail addresses, telephone numbers, and mother tongue of the students and obviously, the result on the TALL. Based on these data students were approached. An e-mail in Afrikaans (for students with Afrikaans as their mother tongue) or English (for all students with a mother tongue other than Afrikaans) was sent to all 1739 students who did the TALL in January 2005 to ask their voluntary and anonymous participation to the research. The e-mail explained what the experiment was about, when it would take place and every student was offered the possibility to reply the researcher by e-mail in case they did not want to participate in the study. Students who made known that they did not want to participate in the experiment were removed from the database and left out of consideration. A week later students who had not declined their possible participation, were approached by phone to make a personal appointment with the researcher to take part in the experiment. All experiments took place from Monday till Friday, from 8 a.m. till 9 p.m. In order to assure that a diverse group of students with different levels of reading skills would participate, it was tried to equally approach students with different mother tongues.

After an appointment with a student was made by phone, an e-mail was sent by the researcher to confirm the place, date, and time on which the experiment would take place. One day before the experiment would take place an sms was sent to the respondent’s mobile phone to remind the person of the scheduled meeting.

About 120 appointments were made and 101 students actually turned up at the time and place as arranged to participate in the experiment. These 101 students included 34 male students and 65
female students. The sex of 2 students was unknown. All participants studied in second year at Stellenbosch University and were between 19 years and 25 years old, with an average age of 20.2 years (SD = 0.98).

Table 2. Frequency and percentage of respondents that study at Faculty of Engineering, Faculty of Arts, Faculty of Agrisciences and the Faculty of Education.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Engineering</td>
<td>20</td>
<td>19.8%</td>
</tr>
<tr>
<td>Faculty of Arts</td>
<td>49</td>
<td>48.5%</td>
</tr>
<tr>
<td>Faculty of Agrisciences</td>
<td>30</td>
<td>29.7%</td>
</tr>
<tr>
<td>Faulty of Education</td>
<td>2</td>
<td>2.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>101</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 2 shows that the students studied at various faculties: 20 students studied at the faculty of Engineering, 49 students at the faculty of Arts, 30 students at the faculty of Agrisciences, and 2 students studied at the faculty of Education.

Table 3. Frequency and percentage of respondents that have Afrikaans, English, an African language or another language as their mother tongue.

<table>
<thead>
<tr>
<th>Language</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaans</td>
<td>44</td>
<td>43.6%</td>
</tr>
<tr>
<td>English</td>
<td>48</td>
<td>47.5%</td>
</tr>
<tr>
<td>African</td>
<td>5</td>
<td>5.0%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>4.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>101</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 3 shows that 44 participants had Afrikaans as their mother tongue, 48 participants spoke English as their mother tongue, 5 participants had an African language as their native language and 4 participants had another language as their mother tongue. Unfortunately only a small minority of students speaking an African language participated.

All participants in this study performed the TALL in January 2005 and obtained a final score between 0% and 100% on this test. This final score indicated the student’s level of English reading skills: the higher the final score on the TALL, the higher the student’s level of English reading skills.
Figure 3. Frequency of English Tall score in percentage subdivided according to the student’s mother tongue

Figure 3 shows the frequency of the student’s final scores on the English TALL in January 2005 subdivided according to the student’s mother tongue. The median of the TALL scores was 79%. With a percentile rank of 33%, 67% and 100% the students were classified into three groups. 33 students had a score lower than 76%, which was considered as a low level of English reading skills. Another 33 students had a score between 76% and 83%, being considered as a medium level of English reading skills, and 35 students had a score of 84% or higher, which was regarded as a high level of English reading skills.

3.2 Research material

Following the recommendations of Meuffels & Van den Bergh (2005), who strongly advise to use more than one text in empirical linguistic research in order to guarantee internal and external validity, the experimental material in this research consisted of two HIV/AIDS texts. Since at least 25 respondents per experimental condition were necessary (see paragraph 3.3), it was not feasible for the author of this thesis to test more than two texts in the experiment. However, this same experiment was also carried out by another student, Annet Philips, who tested two other texts. Considering these two studies together, the total experimental material consisted of four texts. The present report only concerns the study performed by the author of this thesis, based on two texts.

Text A was a pamphlet called "Let’s talk about it", produced by the Department of Health of South Africa. It dealt with instructions on how to communicate in difficult situations regarding love and sex and it explained how you can get to know yourself, how you can make good choices, how you can be assertive, and how to communicate well verbally and non-verbally. Although this pamphlet
does not directly inform on HIV/AIDS, it intends to convince the reader of the importance of open communication with a sexual partner, of the idea that sex is a personal choice and of the idea that each individual should take up a position about his or her sexual behaviour. Since open communication with a sexual partner and conscious choices regarding sexual behaviour are important aspects in the fight against the increasing number of HIV/AIDS infections, this pamphlet was considered to be a document on HIV/AIDS.

Text B was a pamphlet called “The best of friends, supporting a friend who is HIV-positive” (from now on “The best of friends”). This pamphlet was also produced by the Department of Health of South Africa and was part of the Khomanani\(^5\) campaign. This pamphlet explained how an HIV-infected friend might feel and how you can show understanding for your friend’s situation. It also gave guidelines on how to support, help and take care of a friend who is infected with HIV/AIDS.

These two pamphlets were chosen because they were both directed at young South Africans and were written in English. Furthermore, the texts had the same text length, namely eight pamphlet pages. Each original text had been rewritten into an Information Mapping text version by the author of this thesis. Mr. Notten, working for Information Mapping Nederland, adjusted the Information Mapping text versions more than once and eventually confirmed that the final text versions used in this research could be considered as correct applications of the Information Mapping method. Altogether the experimental material in this study consisted of two texts in four versions: the original text A (Original text A), the Information Mapping version of text A (IMAP text A), the original text B (Original text B), and the Information Mapping version of text B (IMAP text B). All text versions can be found in appendix A.

### 3.3 Research design

This experiment used a combination of a between-subjects design and a within-subjects design. Since this study aimed to reveal possible differences between the original text versions (Original text A and Original text B) and the Information Mapping text versions (IMAP text A and IMAP text B), it was important that each subject was shown with at least one Original text version and one Information Mapping text version. It was impossible to show the respondents more than two text versions, because then they would see two versions of the same text with the same content (both text versions of either text A or text B). The first text shown would in that case influence the subject’s score on effectiveness and efficiency. In order to eliminate such a carry-over effect, it was decided to show each subject either Original text A and IMAP text B, or Original text B and IMAP text A. The order in which the subjects received the text versions differed systematically: half of the group of subjects were presented first with text A, and the other half of the group of subjects were presented first with text B (table 4).

---

\(^5\)Khomanani is the South Africa’s primary governmental campaign on HIV/AIDS.
Table 4. Experimental design

<table>
<thead>
<tr>
<th>Order of presented text versions</th>
<th>Presented text versions</th>
<th>Original text A and IMAP text B</th>
<th>Original text B and IMAP text A</th>
</tr>
</thead>
<tbody>
<tr>
<td>First A, then B</td>
<td>25 respondents</td>
<td>26 respondents</td>
<td></td>
</tr>
<tr>
<td>First B, then A</td>
<td>25 respondents</td>
<td>25 respondents</td>
<td></td>
</tr>
</tbody>
</table>

Maes, Ummelen en Hoeken (1996) recommend that each text version should be used by a minimum of 25 subjects to guarantee an adequate statistical power. In this experiment at least 25 respondents were tested in each condition, which implies that each text version was used by at least 50 respondents.

For each text version (Original text A and IMAP text B or Original text B and IMAP text A) the respondent received six open-ended questions about the content of each text: two easy questions, two intermediate questions and two difficult questions. The classification into easy, intermediate and difficult questions was made by the author of this thesis in consultation with colleague researcher Annet Philips and Leon de Stadler, director of the Language Centre at Stellenbosch University. All answers to the six questions could be found literally in the text, but the answers to some questions were more difficult to find than the answers to other questions. Information Mapping is supposed to make it easier to locate information and find good answers in a text. Correct answers to easy questions might be found in both Original and Information Mapping text versions, but more correct answers to difficult questions might be found in the Information Mapping text versions. By distinguishing between easy, intermediate and difficult questions, it was intended to reveal possible specific differences between Information Mapping text versions and Original text versions. Furthermore, it was intended to avoid a possible ceiling effect for effectiveness as emerged in the second experiment by Le Pair et al. (2006). The six questions about each text can be found in figure 4.

Figure 4. Six questions about each text, classified into easy, intermediate and difficult questions

<table>
<thead>
<tr>
<th>Text A</th>
<th>Let's talk about it</th>
<th>Easy</th>
<th>Intermediate</th>
<th>Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>C</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text B</td>
<td>The best of friends</td>
<td>Easy</td>
<td>Intermediate</td>
<td>Difficult</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>C</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The location of the answers to the questions could differ for the Original text version and the Information Mapping text version. For example, the answer to question F could be found closely to the answer to question E in the Original version of text A, but in the Information Mapping version of text A these two answers could be found further apart. To avoid that a respondent would need more time to find the answer to the same question in a certain text version due to the order of the questions in relation to the organization of the text, a 6x6 Latin Square Design was used. This resulted in six different orders, in which the questions were presented to the respondents (figure 5).

Each order of questions was systematically applied at least 16 times and at least 8 times per text version.

3.4 Instrumentation

The way in which the dependent variables effectiveness, efficiency and appreciation were measured in this study is explained in the next three paragraphs.

3.4.1 Effectiveness

In this study effectiveness of a text version refers to the number of correctly answered questions. The more questions a respondent answered correctly, the more effective a text version was considered to be. However, effectiveness was measured in two ways: once without (Effectiveness 1) and once with (Effectiveness 2) considering the level of difficulty of the six questions.

**Effectiveness 1**

Effectiveness without considering the level of difficulty of the six questions was defined as the number of correct answers on a text version. This same definition was used by Jansen et al. (2003), and Le Pair et al. (2006). Each correctly answered question counted as one point. For a wrong answer a respondent got no points. To determine a subject’s score on Effectiveness 1, the next formula was used (SQ A stands for Score on Question A, SQ B stands for Score on Question B etcetera):

\[
\text{Effectiveness } 1 = \text{SQ A} + \text{SQ B} + \text{SQ C} + \text{SQ D} + \text{SQ E} + \text{SQ F}
\]
Effectiveness 1 (max. of 6) = (SQ A) + (SQ B) + (SQ C) + (SQ D) + (SQ E) + (SQ F)

Example
Respondent X correctly answered question A, question C, question E, and question F and answered question B and question D wrong.

This results in a score of 4 on Effectiveness 1 (1 + 0 + 1 + 0 + 1 + 1 = 4). The Effectiveness easy questions is 1 (1 + 0), the Effectiveness intermediate questions is 1 (1 + 0), and the Effectiveness difficult questions is 2 (SQ E + SQ F).

Besides the total score on Effectiveness 1, "Effectiveness easy questions", "Effectiveness intermediate questions", and "Effectiveness difficult questions" were treated as separate variables in the statistical analyses.

Effectiveness 2
The other way in which effectiveness was measured, was by taking the level of difficulty of the six questions into account. Since two easy questions (A and B), two intermediate questions (C and D) and two difficult questions (E and F) were distinguished, it was decided to base a respondent’s score on Effectiveness 2 on the types of questions this person correctly answered. Therefore "weighting factors" were related to each of the six questions. As with Effectiveness 1, a respondent got one point for a correct answer and no points for a wrong answer. However, in this case the correct answers to easy questions were multiplied by 1, the correct answers to intermediate questions were multiplied by 1.5 and the correct answers to difficult questions were multiplied by 2. By choosing these weighting factors the difficult questions weighed two times as heavily as the easy questions (and hence a respondent who correctly answered the two difficult questions obtained a score twice as high on effectiveness than a respondent who correctly answered the two easy questions). To determine a respondent’s score on Effectiveness 2, the next formula was used (SQ A stands for Score on Question A, SQ B stands for Score on Question B etcetera):

Effectiveness 2 (max. of 9) = (SQ A*1)+(SQ B*1)+(SQ C*1.5)+(SQ D*1.5)+(SQ E*2)+(SQ F*2)

Example
Respondent X correctly answered question A, question C, question E, and question F and answered question B and question D wrong.

This results in a score of 6.5 on Effectiveness 2 ((1*1) + (0*1) + (1*1.5) + (0*1.5) + (1*2) + (1*2) = 6.5).

3.4.2 Efficiency
Efficiency refers to the time a respondent needed to find a correct answer. The less time a respondent needed to find a correct answer to a question, the more efficient a text version was once without (Efficiency 1) and once with (Efficiency 2) considering the level of difficulty of the six
questions.

**Efficiency 1**

Efficiency without taking the level of difficulty of the six questions into account follows the definitions that Jansen et al. (2003), and Le Pair et al. (2006) used in their studies, as the average number of seconds a respondent needed to find a correct answer to a question in a text version. The number of seconds a respondent needed was only registered when a correct answer was given. When a respondent gave a wrong answer zero seconds were registered. The average number of seconds a respondent needed to find a correct answer to a question was calculated according to the next formula (NSQ A stands for Number of Seconds on Question A, NSQ B stands for Number of Seconds on Question B etcetera):

\[
\text{Efficiency 1} = \frac{(NSQ A) + (NSQ B) + (NSQ C) + (NSQ D) + (NSQ E) + (NSQ F)}{\text{Number of correctly answered questions}}
\]

**Example**

Respondent X correctly answered question A in 11 seconds, question D in 20 seconds and question F in 35 seconds and answered question B, question C and question E wrong.

This results in a score of 22 seconds on Efficiency 1 \((11 + 0 + 0 + 20 + 0 + 35)/3 = 22\) seconds. The Efficiency easy questions was 11 \(((11+0)/1)\), the efficiency intermediate questions was 20 \(((0+20)/1)\), and the efficiency difficult questions was 35 \(((0+35)/1)\).

Besides the total score on Efficiency 1, the separate scores on “Efficiency easy questions”, “Efficiency intermediate questions”, and “Efficiency difficult questions” were treated as separate variables in the statistical analyses.

**Efficiency 2**

The second way to measure efficiency was by including the level of difficulty of the six questions. In order to assess the number of seconds a respondent needed to find a correct answer to a question, each individual score of a respondent on a question was related to the group average for that question. Then, the same weighting factors as in Effectiveness 2 were applied to the efficiency scores. Of course, the less time a respondent needed to find an answer, the more efficient a text version was considered to be (in contrast to effectiveness, where a higher score indicated that a text version was used more effectively). Therefore, the weighting factors were applied in reversed order: the easy questions (A and B) were multiplied by 2, the intermediate questions (C and D) were multiplied by 1.5, and the difficult questions (E and F) were multiplied by 1. An example for question C:

\[
\text{Efficiency Score on Question C (ESQ C)} = \left(\frac{\text{Individual Number of Seconds Question C}}{\text{Group average Number of Seconds Question C}}\right) * 1.5
\]
The total score on Efficiency 2 consisted of the sum of each efficiency score per question divided by the number of correctly answered questions. The next formula was used to determine the respondent’s score on Efficiency 2 (in which ESQA A stands for Efficiency Score on Question A, ESQB B stands for Efficiency Score on Question B etcetera):

\[ \text{Efficiency 2} = \frac{(ESQA) + (ESQB) + (ESQC) + (ESQD) + (ESQE) + (ESQF)}{\text{Number of correctly answered questions}} \]

**Example**
Respondent X correctly answered question A in 11 seconds (with a group average of 22 seconds), question D in 50 seconds (with a group average of 56 seconds) and question F in 90 seconds (with a group average of 120 seconds) and answered question B, question C and question E wrong.

\[
\begin{align*}
ESQA &= \frac{11}{22} \times 2 = 1 \\
ESQB &= \frac{50}{56} \times 1.5 = 1.34 \\
ESQF &= \frac{90}{120} \times 1 = 0.75 \\
\end{align*}
\]
This resulted in a score of 1.03 on efficiency 2 \((1 + 0 + 1.34 + 0 + 0.75) / 3 = 1.03\).

### 3.4.3 Appreciation
Appreciation was measured by a questionnaire in order to find out how the respondents appreciated the text versions they had used. The respondents filled in a questionnaire for both presented text versions, so one for the Original text version and one for the Information Mapping text version. Both questionnaires were the same as regards content, but regarding vocabulary there were some differences in the names of text characteristics. These changes in vocabulary were necessary since Information Mapping, Inc. uses different names for text characteristics in Information Mapping texts compared to traditional texts. "Paragraph" in the questionnaire for the Original text versions was replaced by "text block" in the questionnaire for the Information Mapping text versions. Furthermore, “the position of the headings (on top of the paragraph)” in the questionnaire for the Original text versions was changed into "the position of the headings (on the left of the text blocks)” in the questionnaire for the Information Mapping text versions, and the "use of spacing between paragraphs” in the questionnaire for the Original text versions was changed into “the use of lines between the text blocks” in the questionnaire for the Information Mapping text versions.

The questionnaire consisted of three parts: overall impression, organization of the text, and style and layout.

**Overall impression**
The overall impression of the pamphlet was measured by two aspects. First the respondent’s overall opinion about the pamphlet was asked by three seven-point semantic differentials: “I think this brochure is very attractive vs. very unattractive, very clear vs. very unclear, and very easy to read vs. very difficult to read”. How the respondent appreciated the overview of the pamphlet’s purpose was measured by three seven-point Likert scales: “To me the purpose of the brochure is
clear”, “When I read this brochure, it was difficult for me to get an idea what this brochure was about”, and “When I read this brochure, I quickly got an idea what the text was about”.

**Organization of the text**

Seven aspects measured the organization of the text. First, four items on a seven-point semantic differential were asked about whether the content of the pamphlet was “very organised or very chaotic”, “very coherent or very incoherent”, “very structured or very unstructured”, and “very clear or very unclear”. Two items on a seven-point semantic differential concerned the importance of the information in the pamphlet. Was the difference between main points and side issues for the respondent “very hard to tell or very easy to tell” and “very evident or very vague”? The third aspect of the organization of the text concerned the paragraphs (for Original text versions) and text blocks (for Information Mapping text versions). By means of four items on a seven-point semantic differential the respondent was asked whether the paragraphs or text blocks in the pamphlet were “very easy to read vs. very difficult to read”, “very clear vs. very unclear”, “very attractive vs. very unattractive”, and “very short vs. very long”. Another aspect of the organization of the text dealt with the headings. Two items on a seven-point semantic differential asked the respondent whether the headings in the pamphlet were “very clear vs. very unclear” and “very attractive vs. very unattractive”. The appreciation of the position of the headings on top of the paragraphs (for Original text versions) and on the left of the text blocks (for Information Mapping text versions) was measured by three items on a seven-point semantic differential. Was the position of the headings “very pleasant vs. very unpleasant”, “very clear vs. very unclear”, and “very attractive vs. very unattractive”? The last two items on a seven-point Likert scale measured whether there was too much or too little information in the brochure, and whether there were too many or too few headings in the pamphlet.

**Style and layout**

The style and layout of the pamphlets was measured by five aspects, based on the questionnaire used by Laanstra (2005). Two items on a seven-point semantic differential concerned the attractiveness of the writing style. Did the respondent consider the writing style “very vibrant or very boring”, and “very attractive or very unattractive”? Two items on a semantic differential concerned the degree of formality of the writing style by asking whether the respondent considered the writing style “very formal or very informal”, and “very light-hearted or very serious”. Another aspect concerning the style and layout of the pamphlets was the use of spacing between paragraphs (for Original text version) and the use of lines between text blocks (for Information Mapping text versions). Did the respondent appreciate this aspect as “very pleasant or very unpleasant”, and as “very attractive or very unattractive”? The last two items on a seven-point Likert scale measured whether there were too many or too few words in one line in the pamphlet, and whether there was too little or too much text on one page in the pamphlet.

At the end of the questionnaire the respondent had the opportunity to write down additional comments on the pamphlets.
All the above-mentioned items of the questionnaire added up to the variable “Appreciation”, which appeared to be very reliable ($\alpha = .89$). Apart from the variable Appreciation based on the statements described above, the respondent was also asked to grade the pamphlet on a scale of 1 to 10 (1 = really bad, 10 = really good). This grade was treated as a separate variable “Appreciation by grade” in the statistical analyses.

All items measured with a seven-point semantic differential were alternatively put on the right or left side of the scale in the questionnaire and the items with a seven-point Likert scale were alternatively formulated positive or negative. This was done to keep the respondent active while filling in the questionnaire, since the wording of the questions had to be read closely in order to choose the most appropriate answer. The definition of appreciation and the final questionnaires for both Original text version and Information Mapping text version can be found in appendix B.

### 3.5 Pre-test

The four text versions, the six questions about each text version and the questionnaire to measure the respondent’s appreciation about each text version were pre-tested. Three students who studied at Stellenbosch University participated in the pre-test, which took place a few days before the actual experiments started, so that possible deficiencies in the research could still be improved.

The procedure of the pre-test was similar to the procedure that was to be followed during the actual experiments. The only differences were that a second researcher was present in the room to observe and evaluate the experiment and its procedure, and that the students who participated in the pre-test were asked to give comments and suggestions afterwards on how to improve the experiment.

Regarding the four text versions, the students did not have any comments or suggestions for improvement. Regarding the six questions, the students commented on the formulation of some questions. Based on these comments the wordings of a few questions were adapted. One of the students also commented that the order of the presented questions should be changed in order to avoid an “order-effect”. This suggestion was applied by means of a 6x6 Latin Square Design (see figure 5). The questionnaire about the pamphlets appeared to be too long, since the respondents took more than 10 minutes to fill it in. Based on this experience the questionnaire was shortened by leaving aside the following statements: “When I read this brochure, it was easy to develop an overview of the text”, “I think the text blocks are too short / I think the paragraphs are too short”, “I think the number of text blocks is too small / I think the number of paragraphs is too small”, and “I think the length of the headings is too long”. Apart from the elimination of these statements, for some statements the number of items on a scale was shortened. Regarding the respondent’s opinion about the headings in the brochure, the concepts “pleasant vs. unpleasant”, “easy to read vs. difficult to read”, and “too short vs. too long” were left aside. The question regarding the
writing style in the brochure was shortened by leaving “pleasant vs. unpleasant”, and “monotonous vs. varying” out of consideration.

3.6 Procedure

Each respondent got together with the researcher on an individual basis in a room of the faculty of Arts at Stellenbosch University, which was at the researcher’s disposal during the entire period of the experiments. The researcher and the respondent sat face to face at a table. First the researcher explained the respondent what the experiment was about and what procedure would be followed during the experiment. This explanation was based on a predetermined sheet so that the researcher would give the same instructions to all respondents. When the respondent did not have any questions about the procedure, the experiment started. From that moment no further explanations were given or questions were answered.

The respondent was presented with the first text version based on the predetermined experimental design (see table 4) and got one minute to take a look at the text and get familiar with it. After that the first question was presented based on one of the order of questions from the 6x6 Latin Square Design (see figure 5) and the respondent started to look for the answer in the text. All questions were printed on small cardboard cards of picture postcard size and were presented to the respondent by placing the cards on the table in front of the respondent. As soon as the question was placed on the table, the researcher started timing the number of seconds the respondent needed to find the answer to the question with a stopwatch. All answers had to be found literally in the text. As soon as an answer was found, the respondent had to say so and had to read the answer out aloud, pointing out the location of the answer in the text. Pointing out the location of the answer was required to avoid that a respondent could give an answer based on own knowledge or experience. The researcher stopped timing after the respondent read out aloud a complete answer, noted down whether the answer was correct and if so, the number of seconds the respondent needed was added. The decision whether an answer was correct or wrong was based on a predetermined list, in which all correct answers were exactly summed up. After noting down the respondent’s score on the first question, the second question was placed on the table in front of the respondent and the same procedure was followed. After answering the sixth question about the first text version, the respondent was presented with the second text version.

As with the first text version, the respondent got one minute to take a look at the text and get familiar with it, after which the first question was placed on the table in front of the respondent. The same procedure was followed as with the first text version. After answering the sixth question about the second text version, the respondent was asked to fill in two questionnaires. First the respondent filled in the questionnaire for the first text used, and subsequently the questionnaire for the second text used. It was chosen to measure the respondent’s appreciation of the text versions at the end of the experiment, because then the respondent had seen and worked with both text versions and could give a more profound judgement.
After filling in the questionnaires the researcher explained the respondent what the experiment tried to reveal. All four text versions were shown to demonstrate the differences between them. It was explained that the researcher noted down the number of correctly answered questions in order to measure whether a certain text version was more or less effective. Furthermore, the researcher elucidated that the time the respondent needed to find an answer was measured to find out whether one of the text versions was more or less efficient. Finally it was explained that the questionnaire was used to reveal whether or not preferences were given to a certain text version.

The experiments were carried out by two researchers: by the writer of this thesis and by colleague researcher Annet Philips. In order to assure that both researchers gave the same introduction and explanation about the experiment, that they both judged the same answers correct and wrong, and that they both timed the necessary number of seconds in the same way, the procedure was written down on predetermined sheets. During the experiments these guidelines were accurately followed by both researchers, so all experiments had the very same procedure. Each experiment took between 20 and 45 minutes, depending on the time respondents needed to find answers to the questions. No interfering factors arose during the experiments.

### 3.7 Data processing

The collected data were processed using SPSS 14.0, a program for statistical analysis. Each hypothesis was accepted or rejected based on statistical tests. The performed tests are discussed in reversed order, starting with the test for the most important hypothesis.

**Hypothesis 3 An interaction effect of text version and level of English reading skills**

In order to test the third hypothesis three multivariate analyses of Variance (Manova) were carried out per text. In these tests two independent variables were used: text version and level of English reading skills (on ordinal level). The dependent variables in the first Manova were the variables for effectiveness (Effectiveness 1, Effectiveness 2, Effectiveness easy questions, Effectiveness intermediate questions, and Effectiveness difficult questions). The second Manova tested the variables for efficiency (Efficiency 1, Efficiency 2, Efficiency easy questions, Efficiency intermediate questions, and Efficiency difficult questions), and in the third Manova the variables for appreciation (Appreciation and Appreciation by grade) were the dependent variables. The interaction effect was measured with a two-tailed test.

**Hypothesis 2 A main effect of level of English reading skills**

The same Manovas as described above were used to see whether or not a main effect of level of English reading skills on effectiveness, efficiency and appreciation occurred. Apart from the Manova, a correlation test was carried out to reveal whether there was a positive or negative relation between the respondent’s level of English reading skills and the score on the dependent variables for effectiveness, efficiency and appreciation. In the correlation analysis the variable level
of English reading skills was considered on interval level. Both main effects and correlations were tested with a one-tailed test.

**Hypothesis 1** A main effect of text version

The same Manovas as described above were used to see whether or not the variable text version had significant effects on effectiveness, efficiency and appreciation. This main effect was also tested with a one-tailed test.

The weighted variables Effectiveness 2 and Efficiency 2 were only included in the Manovas and correlation analyses when the classification into easy, intermediate and difficult questions appeared to be justifiable, or stated differently, when the results of the experiment showed that respondents found less correct answers and needed more time as the presumed level of difficulty of the questions increased. The classification into easy, intermediate and difficult questions was tested with paired-sampled T-tests. If the means for the variables Effectiveness easy questions, Effectiveness intermediate questions, and Effectiveness difficult questions on the one hand, and Efficiency easy questions, Efficiency intermediate questions, and Efficiency difficult questions on the other hand, appeared to differ significantly, Effectiveness 2 and Efficiency 2 as well as the separate variables were included in the statistical analyses. If not all three categories differed significantly, Effectiveness 2 and Efficiency 2 were only based on those variables that did show significant differences. If no significant differences between the mean scores of the easy questions, intermediate questions and difficult questions were found at all, all of the above-mentioned variables were left out of consideration.
4. Results

In this chapter the results of the statistical analyses are discussed. Before the results are presented, first an overview of the respondent’s characteristics subdivided according to the used text versions will be given in section 4.1. Then the results of the statistical analyses of text A “Let’s talk about it” are presented in section 4.2, followed by the results of text B “The best of friends” in section 4.3. Both section 4.2 and 4.3 begin with an overview of descriptive statistics of the dependent variables and end with the results of the statistical analyses per hypothesis.

4.1 Descriptive statistics respondents

The characteristics of the participants in this study were already described in paragraph 3.1. In this paragraph some respondents’ characteristics are presented again, but subdivided according to the text versions they used in the experiment.

The respondents who used Original text A and IMAP text B as well as the respondents who used Original text B and IMAP text A had the same average age of 20.2 years old, with just a slight difference in standard deviation (respectively 0.95 and 1.02). Table 5 shows an overview of the sex and the TALL scores of the respondents according to the text versions they used in the experiment.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Original text A and IMAP text B</th>
<th>Original text B and IMAP text A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
<td>Frequency</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>100%</td>
<td>21</td>
</tr>
<tr>
<td>Female</td>
<td>65</td>
<td>100%</td>
<td>28</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>100%</td>
<td>1</td>
</tr>
<tr>
<td>TALL score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>35</td>
<td>100%</td>
<td>15</td>
</tr>
<tr>
<td>Intermediate</td>
<td>31</td>
<td>100%</td>
<td>19</td>
</tr>
<tr>
<td>High</td>
<td>35</td>
<td>100%</td>
<td>16</td>
</tr>
</tbody>
</table>

62% of all male respondents used Original text A and IMAP text B and 38% of all male respondents used Original text B and IMAP text A. The female respondents were more equally distributed since 43% used Original text A and IMAP text B and 57% used Original text B and IMAP text A. The respondents who used Original text A and IMAP text B had an average TALL score of 77% (SD = 13.61) and the respondent who used Original text B and IMAP text A had an average TALL score of 76% (SD = 15.40). Table 5 shows that the respondents with low and high TALL scores were rather equally distributed over the text versions: 43% versus 57% for the respondents with low TALL scores and 46% versus 54% for the respondents with high TALL scores. The respondents with an intermediate score on the TALL test were less equally distributed: 61% used Original text A and IMAP text B and 39% used Original text B and IMAP text A.
Differences in respondents’ characteristics between the two groups (Original text A and IMAP text B or Original text B and IMAP text A) are due to the random distribution of the respondents.

4.2 Let’s talk about it

In this section the results for text A "Let’s talk about it" are presented.

4.2.1 Descriptive statistics dependent variables

In the statistical analyses for text A, the dependent variable Effectiveness 2, which includes the level of difficulty of the questions, is left out of consideration, because the classification into easy, intermediate and difficult questions did not meet the expectations.

Table 6. Average number of correctly answered questions and average number of seconds needed per question according to the level of difficulty of the questions for text A.

<table>
<thead>
<tr>
<th></th>
<th>Average number of correctly answered questions (effectiveness)</th>
<th>Average number of seconds needed per question (efficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy questions</td>
<td>1.69 (0.48)</td>
<td>34.49 (33.02)</td>
</tr>
<tr>
<td>Intermediate questions</td>
<td>1.58 (0.64)</td>
<td>35.09 (25.90)</td>
</tr>
<tr>
<td>Difficult questions</td>
<td>1.69 (0.65)</td>
<td>53.17 (37.53)</td>
</tr>
</tbody>
</table>

It was expected that less correct answers were found as the level of difficulty of the questions increased. Table 6 shows that this was not the case: respondents found an average of 1.69 correct answers to easy questions, 1.58 correct answers to intermediate questions and 1.69 correct answers to difficult questions. Additionally, the paired-sampled T-tests did not show significant differences between the mean scores of any of the three categories: the mean score of the easy questions compared to the intermediate questions (t (100) = 1.42, p = .08), the easy questions compared to the difficult questions (t (100) = 0.00, p = .50) and the intermediate questions compared to the difficult questions (t (100) = -1.35, p = .09) did not show significant differences.

Regarding efficiency, it was expected that respondents needed more time to find a correct answer as the level of difficulty of the questions increased. Table 6 suggests that this expectation was met: respondents needed an average of 34.49 seconds to find an answer to an easy question, 35.09 seconds to an intermediate question and 53.17 seconds to a difficult question. However, the paired-sampled T-tests only showed significant differences between the mean scores of the easy questions compared to the difficult questions (t (94) = -4.44, p < .001), and between the mean scores of the intermediate questions compared to the difficult questions (t (87) = -4.24, p < .001). No significant difference between the mean scores of the easy questions and the intermediate questions was found (t (91) = -0.06, p = .48). Based on these results it was decided to leave Efficiency intermediate questions out of consideration, and to include Efficiency 2, only based on Efficiency easy questions and Efficiency difficult questions, in the statistical analyses. Efficiency easy questions and Efficiency difficult questions were also included as separate variables.
In table 7 the mean, standard deviation, minimum score and maximum score of the dependent variables are presented per text version: for the Original text A and for the Information Mapping text A.

Table 7. Mean (standard deviation), minimum and maximum scores of Effectiveness 1 (0 = low, 6 = high), Efficiency 1 (the lower the number of seconds, the higher the efficiency), Efficiency 2 (the lower the number of seconds, the higher the efficiency), Efficiency easy questions (the lower the number of seconds, the higher the efficiency), Efficiency difficult questions (the lower the number of seconds, the higher the efficiency), Appreciation (1 = low, 7 = high), and Appreciation by grade (1= low, 10 = high) for Original text A and Information Mapping text A ("Let’s talk about it").

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original text A (N = 50)</th>
<th>IMAP text A (N = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effectiveness 1 (No. of correct answers)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>4.72 (1.13)</td>
<td>5.22 (0.94)</td>
</tr>
<tr>
<td><strong>Efficiency 1 (No. of seconds per question)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>40.46 (22.64)</td>
<td>42.04 (27.63)</td>
</tr>
<tr>
<td><strong>Efficiency 2 (No. of seconds per question based on easy and difficult questions including the level of difficulty)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>1.51 (0.89)</td>
<td>1.49 (1.13)</td>
</tr>
<tr>
<td><strong>Efficiency easy questions (No. of seconds per easy question)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>42.38 (32.53)</td>
<td>26.59 (31.91)</td>
</tr>
<tr>
<td><strong>Efficiency difficult questions (No. of seconds per difficult question)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>44.58 (34.73)</td>
<td>61.76 (38.59)</td>
</tr>
<tr>
<td><strong>Appreciation (based on all statements of the questionnaire)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>4.30 (0.82)</td>
<td>4.90 (0.89)</td>
</tr>
<tr>
<td><strong>Appreciation by grade (report mark)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original text A</td>
<td>6.05 (1.55)</td>
<td>6.55 (1.72)</td>
</tr>
</tbody>
</table>

4.2.2 Effects of text version

The results of the Manovas show that text version had a significant effect on Effectiveness 1 (F (1,95) = 6.88, p < .01). Respondents who used the Information Mapping text version found significantly more correct answers (M = 5.22, SD = 0.94) than respondents who used the Original text version (M = 4.72, SD = 1.13).

The Manovas did not show significant effects for Efficiency 1, Efficiency 2 and Efficiency difficult questions, but significant effects were found for the variable Efficiency easy questions (F (1,94) = 6.76, p < .01): respondents needed less time to find a correct answer in the Information Mapping text version (M = 26.59, SD = 31.91) compared to the Original text version (M = 42.38, SD = 32.53).

The results of the Manovas also show a significant effect of text version on Appreciation.
(F (1,95) = 12.57, p < .001): the respondents significantly appreciated the Information Mapping text version more (M = 4.90, SD = 0.89) than the Original text version (M = 4.30, SD = 0.82). For Appreciation by grade no significant effects of text version were found.

4.2.3 Effects of level of English reading skills

The effect of the level of English reading skills on the dependent variables was tested with Manovas; the relation between the level of English reading skills and the dependent variables was tested with a correlation analysis.

Manovas

The results of the Manovas do not show a significant effect of level of English reading skills on Effectiveness 1.

The Manovas only show a significant effect of level of English reading skills on the variable Efficiency difficult questions (F (2,90) = 2.89, p < .05). The post-hoc analysis shows that respondents with low levels of English reading skills (M = 67.69, SD = 49.29) needed significantly more time to find a correct answer to a difficult question than respondents with intermediate (M = 49.81, SD = 35.36) or high levels of English reading skills (M = 43.52, SD = 21.12). The post-hoc analysis did not show that respondents with intermediate levels of English reading skills needed significantly more time to find a correct answer than respondents with high levels of English reading skills. For Efficiency 1, Efficiency 2 and Efficiency easy questions no significant effects were found.

No significant effects of level of English reading skills on Appreciation by grade or on Appreciation were found.

Correlations

A statistically significant positive correlation was found between the level of English reading skills and Effectiveness 1 (r = .23, p < .05): the higher the respondent’s level of English reading skills, the higher the score on Effectiveness 1.

Statistically significant negative correlations were found between the level of English reading skills and Efficiency 1 (r = -.28, p < .01), as well as between the level of English reading skills and Efficiency 2 (r = -.31, p < .01). The correlation test also showed significant negative correlations for the variables Efficiency easy questions (r = -.19, p < .05) and Efficiency difficult questions (r = -.36, p < .001). The negative correlations indicate that respondents needed less time to find a correct answer to a question as their level of English reading skills increased.

No statistically significant correlations were found between the level of English reading skills and Appreciation by grade or between the level of English reading skills and Appreciation.
4.2.4 Interaction effects

No interaction effects of text version and level of English reading skills on any of the dependent variables were found: Effectiveness 1, Efficiency 1, and Efficiency 2 did not show significant interaction effects, neither did the variables Efficiency easy questions and Efficiency difficult questions. The variables Appreciation by grade and Appreciation did also not show significant interaction effects.

4.3 The best of friends

In this section the results for text B “The best of friends” are presented.

4.3.1 Descriptive statistics dependent variables

The results of text B did not completely meet the expectation that respondents would find less correct answers as the level of difficulty of the questions increased.

Table 8. Average number of correctly answered questions and average number of seconds needed per question according to the level of difficulty of the questions for text B.

<table>
<thead>
<tr>
<th></th>
<th>Average number of correctly answered questions (effectiveness)</th>
<th>Average number of seconds needed per question (efficiency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy questions</td>
<td>1.81 (0.46)</td>
<td>25.41 (12.66)</td>
</tr>
<tr>
<td>Intermediate questions</td>
<td>1.33 (0.63)</td>
<td>44.42 (32.69)</td>
</tr>
<tr>
<td>Difficult questions</td>
<td>1.34 (0.72)</td>
<td>53.37 (45.72)</td>
</tr>
</tbody>
</table>

Table 8 shows that an average of 1.81 correct answers were found to easy questions, 1.33 correct answers to intermediate questions and 1.34 correct answers to difficult questions. The paired-sampled T-tests only showed that the mean scores of the easy questions differed significantly from the intermediate questions (t (100) = 6.45, p < .001) and that the mean scores of the easy questions differed significantly from the difficult questions (t (100) = 6.43, p < .001). No significant difference between the mean scores of the intermediate questions and the difficult questions was found (t (100) = -10, p = .46). Based on these results it was decided to leave Effectiveness intermediate questions out of consideration, and to include Effectiveness 2, only based on Effectiveness easy questions and Effectiveness difficult questions, in the statistical analyses. Effectiveness easy questions and Effectiveness difficult questions were also included as separate variables.

Regarding efficiency, it was expected that respondents would need more time to find a correct answer to a question as the level of difficulty of the question increased. Table 8 suggests that this expectation was met: respondents needed an average of 25.41 seconds to find a correct answer to an easy question, 44.42 seconds for an intermediate question, and 53.37 seconds for a difficult question. However, the paired-sampled T-tests showed that significant differences between the mean scores were only found for the easy questions compared to the intermediate questions (t (88) = -5.60, p < .001), and for the easy questions compared to the difficult questions (t (84) = -6.36, p < .001). No significant difference was found between the mean scores of the intermediate
questions and the difficult questions \( t(76) = -0.84, p =.20 \). It was decided to leave Efficiency intermediate questions out of consideration, and to include Efficiency 2, only based on Efficiency easy questions and Efficiency difficult questions, in the statistical tests. Efficiency easy questions and Efficiency difficult questions were also included as separate variables.

Table 9 shows the mean, standard deviation, minimum and maximum scores of the dependent variables per text version: for both the Original text B and the Information Mapping text B.

| Table 9. Mean (standard deviation), minimum and maximum scores of Effectiveness 1 (0 = low, 6 = high), Effectiveness 2 (0 = low, 6 = high), Effectiveness easy questions (0 = low, 2 = high), Effectiveness difficult questions (0 = low, 2 = high), Efficiency 1 (the lower the number of seconds, the higher the efficiency), Efficiency 2 (the lower the number of seconds, the higher the efficiency), Efficiency easy questions (the lower the number of seconds, the higher the efficiency), Efficiency difficult questions (the lower the number of seconds, the higher the efficiency), Appreciation (1 = low, 7 = high), and Appreciation by grade (1 = low, 10 = high) for Original text B and Information Mapping text B (“The best of friends”). |
|-----------------|-----------------|-----------------|-----------------|
| **Effectiveness 1 (No. of correct answers)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 4.69 (0.99) | 2.0 | 6.0 |
| IMAP text B (N = 50) | 4.26 (1.29) | 1.0 | 6.0 |
| **Effectiveness 2 (No. of correct answers based on easy and difficult question including level of difficulty)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 4.94 (1.29) | 0.0 | 6.0 |
| IMAP text B (N = 50) | 4.02 (1.83) | 1.0 | 6.0 |
| **Effectiveness easy questions** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 1.84 (0.37) | 1.0 | 2.0 |
| IMAP text B (N = 50) | 1.78 (0.55) | 0.0 | 2.0 |
| **Effectiveness difficult questions** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 1.55 (0.61) | 0.0 | 2.0 |
| IMAP text B (N = 50) | 1.12 (0.77) | 0.0 | 2.0 |
| **Efficiency 1 (No. of seconds per question)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 36.54 (26.30) | 9.99 | 185.03 |
| IMAP text B (N = 50) | 45.55 (27.07) | 10.56 | 152.63 |
| **Efficiency 2 (No. of seconds per question based on easy and difficult questions including level of difficulty)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 1.62 (1.08) | 0.57 | 6.37 |
| IMAP text B (N = 50) | 1.74 (0.77) | 0.67 | 4.42 |
| **Efficiency easy questions (No. of seconds per easy question)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 21.79 (11.77) | 8.60 | 62.99 |
| IMAP text B (N = 47) | 29.34 (12.54) | 12.73 | 70.35 |
| **Efficiency difficult questions (No. of seconds per difficult question)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 48) | 43.78 (40.61) | 7.81 | 247.69 |
| IMAP text B (N = 38) | 65.47 (49.38) | 11.84 | 267.59 |
| **Appreciation (based on all statements of the questionnaire)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 5.05 (0.80) | 2.55 | 6.29 |
| IMAP text B (N = 50) | 5.16 (0.72) | 3.16 | 6.52 |
| **Appreciation by grade (report mark)** | **Mean (SD)** | **Minimum** | **Maximum** |
| Original text B (N = 51) | 7.32 (1.47) | 4.0 | 10.0 |
| IMAP text B (N = 49) | 7.52 (1.17) | 4.0 | 10.0 |
4.3.2 Effects of text version
The multivariate analyses of variance (Manovas) did not show significant effects of the independent variable text version on Effectiveness 1, Effectiveness 2, Effectiveness easy questions, or Effectiveness difficult questions.

No significant effects of text version were found on the dependent variables Efficiency 1, Efficiency 2, Efficiency easy questions, or Efficiency difficult questions.

Text version also appeared not to have significant effects on the variables Appreciation and Appreciation by grade.

4.3.3 Effects of level of English reading skills
The effect of the level of English reading skills on the dependent variables was tested with Manovas; the relation between the level of English reading skills and the dependent variables was tested with a correlation analysis.

**Manovas**
The Manovas show that the level of English reading skills had a significant effect on Effectiveness 1 (F (2,95) = 4.94, p < .01). A post-hoc analysis shows that respondents with intermediate levels of English reading skills (M = 4.52, SD = 1.23) appeared to find significantly more correct answers than respondents with low levels of English reading skills (M = 4.03, SD = 1.16) and that respondents with high levels of English reading skills (M = 4.86, SD = 0.97) found significantly more correct answers than the respondents with low levels of English reading skills (M = 4.03, SD = 1.16). That respondents with high levels of English reading skills found significantly more correct answers than respondents with intermediate levels of English reading skills was not found. For Effectiveness 2, significant effects of the level of English reading skills were also found. A post-hoc analysis only showed that respondents with high levels of English reading skills (M = 4.86, SD = 1.50) found significantly more correct answers than respondents with low levels of English reading skills (M = 4.15, SD = 1.70). It was not found that respondents with intermediate levels of English reading skills found significantly more correct answers than respondents with low levels of English reading skills, and that respondents with high levels of reading skills found significantly more correct answers than respondents with intermediate levels of English reading skills. For the variables Effectiveness easy questions and Effectiveness difficult questions no significant effects of level of English reading skills were found.

The respondents’ level of English reading skills did not show significant effects on the variables for Efficiency 1, Efficiency easy questions, or Efficiency difficult questions. However, for Efficiency 2 (F (2,93) = 2.84, p < .05) significant effects were found. The post-hoc analysis shows that respondents with high levels of English reading skills (M = 1.42, SD = 0.65) needed significantly less time to find a correct answer than respondents with low levels of English reading skills (M = 1.99, SD = 1.27). It was not found that respondents with intermediate levels of English reading skills needed significantly less time than respondents with low levels of English reading skills and
that respondents with high levels of English reading skills needed significantly less time than respondents with intermediate levels of English reading skills.

For the variables Appreciation by grade and Appreciation no significant effects of level of English reading skills were found.

Correlations
The correlation tests confirmed the previous results from the Manova for effectiveness: statistically significant positive correlations for Effectiveness 1 \((r = .32, p < .001)\) and for Effectiveness 2 \((r = .21, p < .05)\) were found. Furthermore, Effectiveness difficult questions appeared to correlate positively with the variable levels of English reading skills \((r = .21, p < .05)\). For Effectiveness easy questions no significant correlation was found.

The correlation test also showed a negative correlation between level of English reading skills and Efficiency 1 \((r = -.21, p < .05)\) and between the level of English reading skills and Efficiency 2 \((r = -.36, p < .001)\). Furthermore, a statistically significant negative correlation was found between the level of English reading skills and Efficiency easy questions \((r = -.23, p < .05)\) and between the level of English reading skills and Efficiency difficult questions \((r = -.19, p < .05)\).

For the variables that measure Appreciation by grade and Appreciation no statistically significant correlations with level of English reading skills were found.

4.3.4 Interaction effects
No interaction effects of text version and level of English reading skills on the variables for effectiveness were found. Effectiveness 1, Effectiveness 2, Effectiveness easy questions and Effectiveness difficult questions did not show significant interaction effects. No significant interaction effects were found either for the variables Efficiency 1, Efficiency 2, Efficiency easy questions, and Efficiency difficult questions. The variables for appreciation, Appreciation by grade and Appreciation did not significantly interact with text version and level of English reading skills either.
5. Conclusions and discussion

In this chapter the conclusions and discussion of this study are presented. Based on the results from the statistical analyses in the previous chapter, in section 5.1 conclusions and explanations for these conclusions are presented. A discussion of this study is presented in section 5.2.

5.1 Conclusions

This research aimed to reveal possible interaction effects of text version (Original vs. Information Mapping) and level of English reading skills on the dependent variables effectiveness, efficiency and appreciation. The research question was defined as follows:

*To what extent does applying the Information Mapping method to pamphlets on HIV/AIDS increase effectiveness, efficiency and/or appreciation of these texts when compared to the traditionally written pamphlets amongst South African students with different levels of English reading skills?*

In chapter 2 three hypotheses were formulated that reflected the expected outcomes of the research: a main effect of text version (Information Mapping versus Original), a main effect of level of English reading skills (low, intermediate and high), and an interaction effect of text version and level of English reading skills. Whether these hypotheses are to be accepted or rejected is discussed in the next three sections.

5.1.1 Hypothesis 1 Main effects of text version

From the results of the statistical analyses no straightforward conclusions can be drawn as to the effects of Information Mapping texts compared to Original texts on the respondent's scores for effectiveness, efficiency and appreciation. A main effect of text version on effectiveness 1 was only found for text A (Let's talk about it). The respondents found significantly more correct answers in the Information Mapping version of text A than in the Original version of text A.

Regarding Efficiency 1, the Manovas only showed one significant effect of text version. For text A (Let's talk about it) an effect of text version on Efficiency easy questions was found. Respondents needed significantly less time to find a correct answer to an easy question in the Information Mapping text version than in the Original text version.

Only one significant main effect of text version on appreciation was found: based on the outcomes of the questionnaire, the respondents appreciated the Information Mapping version of text A more than the Original version of text A.

Since the Information Mapping texts did not consistently improve reader performance regarding effectiveness and efficiency compared to the Original texts, and since the respondents did not
Conclusions and discussion

... consistently appreciate the Information text versions more than the Original text versions, hypothesis 1 has to be rejected.

Possible explanations for the conclusions regarding hypothesis 1
Significant effects of text version on effectiveness were only found for text A. Based on these unexpected results a closer look at the text versions was taken, which revealed that a possible explanation for the results can be found in the outer text structure (including titles, headings, and paragraphs) of the four text versions that were used in this experiment (see appendix A). The Original text version of text B (The best of friends) seems to be much more structured (and therefore already more similar to the Information Mapping text version) than the Original text version of text A (Let’s talk about it). Stated differently, the Original text version and the Information Mapping text version of text A seem to differ much more regarding the outer structure of the text than the two text versions of text B. Since the respondents were asked to find specific answers to specific questions, the outer structure of the text was a very important tool to guide them through the text. The structure of the Original text A seems to be unclear, and it is therefore possible that the respondents used the Information Mapping text A, which does have a clear structure, more effectively. The differences regarding outer structure between the two text versions of text B were less diverging. It is therefore possible that for this text no higher scores on effectiveness were found for the Information Mapping text version compared to the Original text version.

The same reasoning as for effectiveness might also explain that a significant effect of text version on Efficiency easy questions was only found for text A: respondents may have used the Information Mapping version of text A more efficiently, since the outer structure of the Information Mapping text version compared to the Original text version was clearer. The outer structure of the two text versions of text B was more similar, so that no higher scores on efficiency might have been found. That a significant effect for text A was only found for Efficiency easy questions and not for Efficiency 1, Efficiency 2 and Efficiency difficult questions is surprising. Future research might reveal causes for this unexpected result.

That a significant effect of text version on appreciation was only found for text A might also be explained following the same reasoning as discussed for effectiveness: the differences between the two text versions of text A seem to be more diverging than the differences between the two text versions of text B. As a result, significant effects might only have been found for text A. That a significant preference for the Information Mapping text version of text A was only revealed for the variable Appreciation, based on all statements of the questionnaire, and not for the variable Appreciation by grade, might be explained by the respondents’ response style. When grading a text with a report mark a respondent might be more conscious of its evaluation compared to when answering specific questions in a questionnaire.

Based on these explanations, it seems that in text B a kind of ceiling effect occurred, resulting in a situation in which the Information Mapping text version could hardly perform better than the original text version.
5.1.2 Hypothesis 2 Main effects of level of English reading skills

Conclusions from the Manovas

No straightforward conclusions can be drawn as to the effects of the level of English reading skills on effectiveness, efficiency and appreciation. For text B (The best of friends) statistically significant main effects of the level of English reading skills were found for Effectiveness 1 and Effectiveness 2 (for text A Effectiveness 2 was left out of consideration). Irrespective of what version of text B was used, respondents with high levels of English reading skills found significantly more correct answers than respondents with low levels of English reading skills and respondents with intermediate levels of English reading skills found significantly more correct answers than respondents with low levels of English reading skills. Furthermore, for text B a significant effect of level of English reading skills on Efficiency 2 was found. Respondents with low levels of English reading skills needed more time to find a correct answer in both versions of text B than respondents with high levels of English reading skills. Only one significant main effect was found for text A: an main effect of level of English reading skills on Efficiency difficult questions. Respondents with low levels of English reading skills needed significantly more time to find a correct answer to a difficult question compared to respondents with intermediate or high levels of English reading skills.

Conclusions from the correlation analyses

Although no straightforward main effects of level of English reading skills were found for text A and text B, the correlation tests did show a relation between the student’s level of English reading skills and the scores on effectiveness and efficiency for both text A and text B. For both texts the respondent’s level of English reading skills was positively correlated with the number of correct answers (Effectiveness 1), negatively correlated with the time a respondent needed per question (Efficiency 1), and negatively correlated with the time a respondent needed per question including the level of difficulty of the easy and difficult questions (Efficiency 2). Additionally, the respondent’s level of English reading skills was for both texts negatively correlated with Efficiency easy questions and Efficiency difficult questions. For text B (The best of friends) the levels of English reading skills was also positively correlated with Effectiveness 2 and Effectiveness difficult question (for text A these two variables were left out of consideration).

The essence of the test of hypothesis 2 (which stated that respondents with higher levels of English reading skills would have higher scores on effectiveness, lower scores on efficiency, and would appreciate texts more than student with lower levels of English reading skills) was to reveal whether or not a relation between level of English reading skills on the one hand and effectiveness, efficiency and appreciation on the other hand would exist. Although no straightforward main effects of level of English reading skills were found, the positive correlations with the variables for effectiveness and the negative correlations with the variables for efficiency do show a relation between these variables. For the variables for appreciation neither main effects nor correlations were found. Therefore hypothesis 2 can be accepted for the variables for effectiveness and efficiency, but it has to be rejected for the variables for appreciation.
Possible explanations for the conclusions regarding hypothesis 2
That no straightforward main effects of level of English reading skills on effectiveness, efficiency and appreciation were found, but correlations between level of English reading skills and effectiveness and efficiency did appear, can probably be explained by differences in the scale of measurement when performing an analysis of variance compared to a correlation analysis.

A possible explanation for the conclusion that neither a main effect nor a correlation of level of English reading skills and the variables for appreciation were found, may be that these variables are simply not related. Although it was expected that individuals with higher levels of English reading skills would appreciate texts more than individuals with lower levels of English reading skills, it is also imaginable that appreciation does not depend on one’s skills, but solely on other factors like personal taste and preferences. This reasoning might explain why no effects were found between the level of English reading skills and the variables for appreciation.

5.1.3 Hypothesis 3 Interaction effects
No interaction effects were found of text version and level of English reading skills on any of the dependent variables for effectiveness, efficiency and appreciation. These findings are in line with the results of the studies performed by Burell (1978, In: Horn, 1992a), Baker (1988, In: Horn, 1992a) and Le Pair et al. (2006). Based on these conclusions hypothesis 3 has to be rejected.

Possible explanations for the conclusions regarding hypothesis 3
One of the possible explanations for the outcome that no interaction effects were found, may be that in an analysis of variance the independent variable may only be measured on a nominal or ordinal scale. The respondent’s score on the TALL 2005, which was used as the measure for the respondent’s level of English reading skills, was a percentage between 0% and 100%. In order to measure possible interaction effects, these scores were classified into three groups (low, intermediate and high), through which some precision of the data was lost.

5.2 Discussion
Because unexpected results for text A compared to text B were found, a closer look was taken at the text versions used in this experiment. This revealed that, although both text A and text B consisted of 8 pamphlet pages, the number of words between the texts differed considerably: text A contained about 1900 words as compared to about 1200 words in text B. Since significant results in this experiment were primarily found for text A (the longer text), Horn’s (1992b) surmise that differences between Information Mapping texts and traditional texts can be found more easily when voluminous texts are being used, seems to be confirmed. These findings are also in line with the results of the first experiment carried out by Le Pair et al. (2006). Therefore, future research into the Information Mapping method should take text length into account.
Following the recommendations of Meuffels & Van den Bergh (2005), who strongly advise to use more than one text in empirical linguistic research in order to guarantee internal and external validity, the experimental material in this research included two HIV/AIDS texts (in four text versions). The inconsistent results that were found between the two texts may be explained by the fact that the two versions of text A were more diverging where the outer text structure is concerned than the two versions of text B. As a result other effects might have been found for text A compared to text B. The question arises what results would have been found if still other texts would have been used. If, for example, badly written or badly designed texts would have been used. Future research should be carried out to test whether or not different results would be revealed.

Only 5 students speaking an African language participated in the experiment compared to 44 Afrikaans speaking students, 48 English speaking students and 4 students with another first language (see table 3). Based on previous research of Van Heerden (1995), and Van Dyk (n.d.) the students who speak an African language were expected to have lower levels of English reading skills than the Afrikaans and English speaking students. The present research confirmed these expectations: all five respondents who speak an African language had scores lower than the median on the TALL 2005 (see figure 3). If a more balanced number of Afrikaans speaking, English speaking and speakers of African languages would have participated in this experiment, probably a more balanced distribution of levels of English reading skills would have been found. In that case perhaps more straightforward main effects of levels of English reading skills and an interaction effect of text version and levels of English reading skills might have been revealed. Future research should be carried out, in which more respondents with lower levels of English reading skills participate.

In the present experiment existing traditionally written texts on HIV/AIDS were rewritten into Information Mapping text versions. Although Information Mapping Nederland confirmed that the final text versions used in this experiment could be considered as correct applications of the Information Mapping method, the Information Mapping text versions would most probably have been different when they would not have been rewritten and based on the traditional texts. Some parts of the traditional texts had a less than perfect inner structure and parts of the content seemed to be out of place. During the process of rewriting the traditional texts into the Information Mapping text versions, it was sometimes difficult to make a logical and coherent story out of the content. An alternative for future research is to use newly written texts: both a traditional text writer and an Information Mapping text writer would receive the same assignment for writing an HIV/AIDS text and these resulting text versions would be used in the experiment. However, in that case careful watch must be kept to see that both traditional text and Information Mapping text will be similar as regards content, which might be rather difficult.

That no consistent conclusions can be drawn from the results of this experiment can also be caused by the types of texts used in this study: persuasive texts. Although Information Mapping, Inc. (2006b) claims that the method can be used successfully in a wide variety of documents in every industry, Horn (1975) initially stated that the method could best be used for training and teaching
purposes. It is therefore imaginable that Information Mapping might be more suitable for certain types of documents and possibly not for documents that intend to persuade the reader. However, since, to our knowledge, the present experiment is the only study that applied Information Mapping method to persuasive texts, more research with persuasive documents should be carried out before this surmise can be confirmed or rejected.

Future research that will test the Information Mapping method in persuasive documents should also concentrate on the typical goals that persuasive documents are intended to reach: changing beliefs, attitudes and behaviour of the readers. The present study defined effectiveness of a text only as the number of correct answers a respondent would find in a text. Since persuasive documents primarily have the purpose to change beliefs, attitudes and eventually behaviour of the reader, in future studies that compare traditional and Information Mapping persuasive texts effectiveness of persuasive documents should include measures for beliefs, attitudes and behavioural intentions.
References


Appendix A

Original Text A  Let’s talk about it

In this story let’s think of possible solutions. Remember to ask yourself:
Is my Decision:
Going to hurt me?
Going to hurt someone else?
Wrong? Will I feel sorry afterwards?
Going to disappoint my parents or family or other adults who are important to me?
Against the law or my religious beliefs?
Going to interfere with my goals in life?

For the story we used, here are a few alternative choices:
• I will talk to my boyfriend and tell him how I feel.
• I will go to the clinic and discuss contraception with the sister.
• I will discuss my difficult situation with one of my friends, my mother, father, one of my teachers or another adult who is important to me.
• Choose the solution that seems to be the best one for you; the one that has the most positive consequences.
• Do what you have decided to do. Implement your plan.

Choose yourself some time (a few weeks) and see how things turn out.

Think about the situation. Did it work well? Will you perhaps have to try one of your other possible solutions?

AIDS Helpline 0800 0123 77
Childline 0800 0555 55

Let’s talk about how to be firm

Assertiveness is the skill of standing up for your rights without putting down the rights of others. It is also something we do that helps us live by our choices. When one is in a difficult situation you often react in an aggressive manner you want to fight. Sometimes you don’t have the courage to do anything and you are just passive (doing nothing). Do you know of the skill called assertiveness?

This skill makes it possible for you to:
• Stand up for your rights, without putting down the rights of others.
• Respect yourself and others and expect others to respect you.
• Say “No” when you want to.
• Ask someone in a way that makes sure the other person can say “no”.
• Give your honest opinion on a matter.
• Listen to the other person’s side of the story.
• Discuss problems which may arise.
• Change your mind.
• Admit if there is something which you don’t understand.
• Admit if you were wrong and apologies.
• Do something to make it right - take responsibility for what you have done wrong.

When you share your assertiveness message your body language is important:
• Stand up straight, shoulders back
• Look the person in the eye
• Say what you want to say firmly and clearly.

Here are a few tips that can help you to be firm about your choices.
Sometimes it’s hard to keep to the choices you make because people want you to do things their way.
• Repeat what you want to say again and again, like a stock record until you have asserted yourself. “No thank you, I don’t smoke.” Repeat the same words if the person persists.
• Hide your hurt feelings and pretend to agree with the person who is putting you in a difficult situation. The other person does not get the satisfaction that you react by crying or losing your temper. “Yes, you are quite right. I suppose I am old-fashioned and I am sure you will have more fun with Susan/Chabu.”
• Question anyone who wants you to drink alcohol or use drugs and say that it will make you feel high and will make learning for the exams much easier.
• You ask: What’s so wrong about feeling high?”
• “What’s so bad about learning for the exams?”
• “No!” as though you mean it.
• Someone wants you to watch pornographic films.
• You say: “No, I don’t want to.”
• The person persists and you say firmly and clearly: “Didn’t you hear me? I said No.”
• Give positive alternatives. “I don’t think it is safe to go to that show. Let’s rather have our own small party here at home. We can dance and enjoy ourselves here.”

Even though we try really hard it is still possible to make mistakes. You can still be assertive after making a mistake. Mistakes are a normal part of life and those tips we have given you will help you to make less mistakes.

You are too special to allow any person to make you feel and uncomfortable or scared. You have the right to take action to protect yourself so that you will be physically and mentally healthy.

PRACTISE THESE LIFE SKILLS!

Let’s Talk about it...
Appendix B definition of appreciation and questionnaires

As we grew up, we encounter many situations that are difficult for us to handle. We live amongst many other people and we have to be able to get along with them. We also have to be able to protect ourselves from physical or mental harm. There are things we can learn to do, which will make life easier for us, which will give us confidence and will make us look forward to the future. These things which we can learn to do, are called LIFE SKILLS.

**Let's talk about knowing yourself**

One of the most important skills one should have, is the skill of knowing yourself. It is also called self-awareness. Ask yourself: Who am I really and what am I like?

- **My body:** Do I like what I see in the mirror, or is there something I would like to change? Do I care for my body by eating healthy food, exercising regularly, sleeping enough and taking time to relax? It is important to be able to accept yourself the way you are and feel positive about yourself. It helps to make you a happier person.

- **My mind:** Do I exercise my mind? Can I apply my mind to analyzing things? Which subjects do I like and what am I good at? You have to believe in yourself and that you can achieve certain goals.

- **My feelings:** Am I usually happy or sad? Do I worry a lot? Have I ever been in love and have I experienced sexual feelings? If you did, it's normal, but you should be able to control your feelings.

- **My relationships:** Do I get along with my family members and friends? Am I nice to be with? Can I have fun but be serious too? You should try to be helpful, friendly and caring, instead of selfish and moody.

**Let's talk about communication**

It is important for us to be able to communicate well, because it helps us to get along with people, to understand each other and to protect ourselves.

Communication is the skill which we use to provide information to engage in dialogue and debate on issues. Communication helps us share feelings, opinions and ideas. It provides opportunities for negotiation, expressing values and socialising.

It involves delivering a message and listening to a message in order to react to it. The way in which we communicate can be verbal (using words) or non-verbal (using facial expressions or bodily movements).

Good ways of delivering a message (saying what you want to say):

- Make it your own message by using words such as "I", "Me", "Mine".
- Describe your feelings (if necessary): "I am sad and that you are HIV-positive."
- Repeat your message in different ways: "You are still my friend."

- My talents: What am I good at? Am I good at something? Perhaps I am artistic or musical. Each of us is special in our own way. We need to recognise our talents.

- My spirit: Do I believe in someone bigger and stronger than myself? Do I pray and think? You will experience a lot of meaning in your life if you give time to your spiritual development.

Do you think you know yourself better now? We all have stronger and weaker points. It's possible to change some if we really want to. Focus on your positive aspects and accept what you cannot change about yourself.

- Make the message appropriate to the specific receiver: "There is a lot you can do to stay healthy."
- Ask for feedback concerning the way your message is being received: "How do you feel about it?"

Good ways of listening to a message (more than just hearing):

- Focus your attention on the speaker. Look at the person, maintain eye-contact, lean towards the person, and or smile, don't look around.
- Tune in and really try to understand. Look and listen to the way in which the person is speaking (facial expressions, body posture, using of hands and voice). Relate the person's ideas and feelings: "You are angry because you were falsely accused of stealing!"
- Ask for more information, opinions and feelings: "What happened? How do you feel about it?"
- Offer comments like: "I understand why you are upset. It's good that you told someone."

Communicating with "What, Why and How" messages if something is bothering you:

- WHAT: Say what behaviour is bothering you: "It bothers me if you want me to do drops."
- WHY: Say why it is bothering you: "I have great plans for the future and if I do drops, it can prevent me from achieving my goals!"
- HOW: Say how you would like the other person to behave instead. "I would like you to be friendly and do other fun things with me!"

Let's talk about choices

We know that you experience many choices and problems every day and that you don't always know how to handle them. You also have to make decisions about your future and other important issues. Do you know how to do it? Decision making involves making choices and solving problems are the skills of choosing situations. Some decisions are simple and their effects are not far reaching, like deciding what toothpaste to use or what to eat for breakfast. However, some decisions are difficult and complex and they may affect you for the rest of your life. What should you do when you are experiencing a really great problem or have to make an important decision?

Here are some tips in handling choices:

- Ask yourself: "What is the problem?" and also: "Why is it a problem for me?"

To illustrate what we mean we use this story: My boyfriend and I are getting really close in our relationship. We like each other, we share ideas and laugh a lot. Recently, our sexual feelings have started taking over and we are worked up when we are alone together. The problem is:

- I don't know if we will be able to avoid having sexual intercourse.
- What about my emotional status after having sex?
- If we do have sexual intercourse, I might fall pregnant and I am still at school. I am planning a great career and having a baby now may cut it short.
- I might also contract AIDS or even HIV/AIDS. I know that STIs can be cured, but there is no cure for HIV/AIDS and I am looking forward to living a long and happy life.
- What about the increased risk of cancer of the cervix?
- What happens if we do have sex and he breaks up with me? He might tell the others at school and guys will want to take me out for only one reason.
- What happens if my parents, family or my teachers find out? What will they think of me?

AIDS Helpline 0800 0123 22
Childline 0800 0555 55
### IMAP text A  Let’s talk about it

<table>
<thead>
<tr>
<th>Choosing solutions – making decisions, making choices, and solving problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is it?</strong></td>
</tr>
<tr>
<td>Decision making, making choices and solving problems are the skills of everyday life. An HIV-positive person has to make decisions and solve problems daily. Usually you are faced with many problems every day, so that you always know how to handle them.</td>
</tr>
<tr>
<td><strong>What is it about?</strong></td>
</tr>
<tr>
<td>Two types of problems exist:</td>
</tr>
<tr>
<td>1. Complex with clear-cut effects: data about your status.</td>
</tr>
<tr>
<td>2. Complex with unclear-cut effects: decisions about your status.</td>
</tr>
<tr>
<td><strong>What do you do?</strong></td>
</tr>
<tr>
<td>To choose a solution, consider the following:</td>
</tr>
<tr>
<td>1. What is the problem?</td>
</tr>
<tr>
<td>2. Why is it a problem?</td>
</tr>
<tr>
<td>3. What possible solutions in my present condition are available?</td>
</tr>
<tr>
<td>4. What do I want to do in the future?</td>
</tr>
<tr>
<td>5. What is my past?</td>
</tr>
<tr>
<td>6. What is the outcome?</td>
</tr>
<tr>
<td>7. What are the consequences of the decision?</td>
</tr>
<tr>
<td>8. What happened before?</td>
</tr>
<tr>
<td>9. What can I plan for the future?</td>
</tr>
<tr>
<td>10. What can I plan for the future?</td>
</tr>
<tr>
<td>11. What happens if I don’t make a decision?</td>
</tr>
<tr>
<td>12. What is the outcome if I make a decision?</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
</tr>
<tr>
<td>We are discussing the first steps to communicate.</td>
</tr>
<tr>
<td>My boyfriend and I are getting along. After our relationship, we had to discuss whether we should continue our relationship or not. We had to decide whether we would continue our relationship or not.</td>
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<th>Assertiveness – being firm</th>
</tr>
</thead>
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<td><strong>What is it?</strong></td>
</tr>
<tr>
<td>Assertiveness is the ability to stand up for your rights without putting down the rights of others. It is also something we do that helps us to be assertive.</td>
</tr>
<tr>
<td><strong>What do you do?</strong></td>
</tr>
<tr>
<td>Assertiveness is an important skill to have.</td>
</tr>
<tr>
<td>1. Stand firm for your rights without putting down the rights of others.</td>
</tr>
<tr>
<td>2. Respect yourself and others around you.</td>
</tr>
<tr>
<td>3. Express your needs in a respectful manner.</td>
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### Childline 0800 9555 55

### AIDS Hotline 0800 0123 22
Original text B  The best of friends
Appendix B definition of appreciation and questionnaires

The Meaning of True Friendship

We all value the fun and sharing of friendship, and we all have a list of people that we call ‘friends’. We enjoy sharing the good times with them, but will we still be friends during the bad times? And it is during these bad times that true friends are most needed.

Living with HIV

Becoming infected with HIV is one of the most devastating things that can happen to anybody. It is a growing problem, and most people know someone who is infected. The news of HIV infection is often taken with a range of reactions - shock, denial, anger, anxiety, guilt, panic, hysteria, weeping, depression.

It is a time when the infected person needs more support than ever. Yet, sadly, it is also the time when the infected person is turned away by friends and even family members.

Imagine that you tested HIV positive. How would you feel?

How do friends and family feel?

News of HIV infection also affects family and friends. Think about how you reacted to the news that a friend was HIV positive. Is it difficult to believe? It is normal for anyone to feel shocked and fearful of the unknown, to feel unable to accept the condition, or to discuss it openly. There is also a sense of wanting to help the infected person, but not knowing how to do this.

Support the infected

- Love and accept them as they are, without judgment.
- Behave in a normal way towards them.
- Listen to their problems and feelings.
- Help them to believe in themselves as worthy people who contribute to society.
- Encourage them to make plans, to have something to look forward to, and share their sense of achievement when those plans are realised.
- Make sure they receive spiritual care.
- Encourage others to treat them the same way that you do.

The Importance of Acceptance

Start by accepting the infected person as a worthy person who contributes to society. There is no reason why a person with HIV should not continue to live for many years, getting the most out of life and contributing to society in many ways. This is a challenge for the person with HIV but, with support and acceptance from friends and family, it is quite achievable.

Acceptance also means facing the reality that the person with HIV needs to make changes. They will need support and encouragement to do so. There are three areas where you can be a true friend:

- The only way to get HIV from an infected person is to share an infected needle or razor blade or have unprotected sex with them. Other than this, you are at no risk of being infected with HIV. So there is no reason to abandon your friend. They need love and care.
- Help and encourage your friend to continue working or studying as long as possible. This increases their sense of self-worth and achievement.
- Seek help from support groups, help lines, health clinics and faith-based organisations that offer support for people living with HIV/AIDS.

Understanding their World

- How do friends and family feel?
- The Importance of Acceptance
- Appendix B definition of appreciation and questionnaires

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IMAP text B  The best of friends

Showing support

What you should know

There is no reason why a person with HIV should not continue to live for many years, getting the most out of life and contributing to society in many ways. This is a challenge for the person with HIV but, with acceptance and support from friends and family, it is quite achievable.

It starts with acceptance

Before you can support the HIV-infected person, you will first need to accept him or her. Accept the infected person as a worthy person who contributes to society. Acceptance also means facing the reality that the person with HIV needs to make changes. They will need support and encouragement to do so.

Showing support, continued

How to support?

There are a number of ways to show support to an HIV-infected person:

- Take a positive approach towards the person and the condition.
- Love and accept them as they are, without judgment.
- Behave in a normal way towards them and encourage others to treat them the same way that you do.
- Listen to their problems and feelings, ask them how you can help, and say things like ‘I know that you’re going through a difficult time’.
- Help them to believe in themselves, as worthy people who contribute to society by encouraging them to continue working or studying as long as possible. This increases their sense of self-worth and achievement.
- Encourage them to make plans, to have something to look forward to, and share their sense of achievement when those plans are realised.
- Make sure they receive proper care.
- Think about what your friend needs, and offer it. Offer to help with housework, cooking, fetching and carrying, or doing shopping and errands. A small act or few words of encouragement can make a big difference.

Can you think of other ways to help and support someone with HIV?

Taking care of their health

What you should know

It is important that HIV-infected persons live a healthy life, since this helps the body to fight the development of AIDS. You can help your friend to take care of his/her health.

How to take care?

There are a number of ways to take care of the health of HIV-infected friends:

- Help your friend to reduce stress, by encouraging them to exercise, get enough sleep, and seek solutions for their problems.
- Help the person to eat healthy, nutritious food.
- Encourage your friend to avoid smoking and drinking.
- Encourage them to practice safe sex at all times, to avoid infecting others or re-infecting themselves. The more times a person gets infected with HIV, the stronger the virus becomes.
- Do not share personal items like razor blades or toothbrushes. This will protect both of you from the dangers of spreading the virus.
- Help your friend to go to the clinic or hospital for regular check-ups and medical advice. You may have to accompany your friend.
- Stay safe and clean up carefully if your friend is injured and bleeds. Use rubber gloves or plastic to protect yourself.

Do you know how to take care of your friend’s health now?
Appendix B definition of appreciation and questionnaires

Overview

True friends

We all value the fun and sharing of friendship, and we all have a list of people that we call friends. We enjoy sharing the good times with them, but will we still be friends during bad times? Yet it is during these bad times that true friends are most needed.

Are you a true friend, who is there for others when they need you? With care and support, people living with HIV can lead a happy life, and continue contributing to society. You can be a true friend, and help them to achieve this.

Remember: it’s not how long life is, it’s what you put into it that counts.

How to be a true friend

Being a true friend consists of the following factors, which will be discussed below:

- Understanding the HIV-infected
- Understanding family & friends
- Showing support
- Taking care of their health

Contact

How you ever thought about training in HIV/AIDS education, counseling, or care and support? If you’d like more details, or if you want more information on HIV/AIDS, please contact:

- AIDS Helpline 0800 012 322
- Circles of Support Hotline 0860 222 777

Understanding the HIV-infected person

What you should know

Becoming infected with HIV is one of most devastating things that can happen to anybody. It is a growing problem, and most people know someone who is infected.

Feelings of HIV-infected

The news of HIV infection is often taken with a range of reactions: shock, denial, anger, anxiety, guilt, panic, hysteria, weeping, and depression.

It is a time when the infected person needs more support than ever. Yet, sadly, it is also often the time when the infected person is turned away by friends and even family members.

Aida: There is no reason to abandon your friend. The only way to get HIV from an infected person is to share an infected needle or razor blade, or have unprotected sex with them. Other than this, you are at no risk of being infected with HIV. They need your love and care.

Understanding the family & friends

What you should know

News of HIV infection also affects family and friends. Their reactions are very common and natural. Unfortunately, they don’t help the person who is infected. In fact, turning away those with HIV causes them extra stress, which leaves their bodies less able to fight against the infection.

Feelings of family & friends

Family and friends of HIV-infected persons can have different feelings:

- Being afraid of contracting HIV from the infected person.
- Being shocked and afraid of the unknown.
- Being uncomfortable talking about sexuality, drug use, moral and religious beliefs that relate to HIV/AIDS.
- Being unable to accept the condition, or to discuss it openly.
- Having a sense of wanting to help the infected person, but not knowing how to do this.
- Feeling grief, anxiety and despair in watching a friend or loved one suffering.

Understanding their world

When dealing with those who are very close to someone with HIV, try to see the problem from their point of view.

- Each person reacts differently to the knowledge that they might lose a loved one, because we differ in personality, culture, how much we know about HIV, religious values or beliefs.
- The stigma and fear associated with HIV/AIDS means that many people don’t want to discuss it, nor to make preparations for death.
- When a community loses an infected person, care and support is often left to the immediate family.
- Often they have no training or resources to provide care. They need your help.
- Both the infected person and the caregivers might go through many changing emotions before they can accept the situation and begin to cope. Be patient and supportive.
- Caregivers often feel helpless and overwhelmed. They often lose friends and even the support of family members. But you can help...

Think about how you reacted to the news that a friend was HIV-positive. If you don’t know anybody who is HIV-positive, talk to someone who does.

continued on next page
Appendix B

Definition of appreciation

<table>
<thead>
<tr>
<th>Main aspects</th>
<th>What do we want to know?</th>
<th>How do we measure it?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall impression of the brochure</strong></td>
<td>• Overall opinion</td>
<td>I think the brochure is:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very attractive vs. very unattractive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very clear vs. very unclear</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very easy to read vs. very difficult to read</td>
</tr>
<tr>
<td></td>
<td>• Opinion about purpose of brochure</td>
<td>To me, the purpose of the brochure is clear.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- totally agree vs. totally disagree</td>
</tr>
<tr>
<td></td>
<td>• Opinion about overview of brochure</td>
<td>When I read this brochure, it was difficult for me to get an idea of what this</td>
</tr>
<tr>
<td></td>
<td></td>
<td>brochure was about.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- totally agree vs. totally disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When I read this brochure, I quickly got an idea what the text was about.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- totally agree vs. totally disagree</td>
</tr>
<tr>
<td></td>
<td>• Opinion about the brochure expressed in a grade from 1-10</td>
<td>If you could give a grade for this brochure what would it be on the scale of 1-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1 = really bad and 10 = really good)</td>
</tr>
<tr>
<td><strong>Organisation of the text</strong></td>
<td>• Opinion about the contents of the brochure</td>
<td>To me, the content of the brochure is:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very organised vs. very chaotic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very coherent vs. very incoherent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very structured vs. very unstructured</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very clear vs. very unclear</td>
</tr>
<tr>
<td></td>
<td>• Opinion whether important information is stressed or not.</td>
<td>The difference between main points and side issues in the brochure is:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- very easy to tell vs. very hard to tell</td>
</tr>
</tbody>
</table>
| **Overall opinion about text blocks vs. paragraphs** | **Information Mapping:**  
I think the text blocks (= text between two horizontal lines) are:  
- very easy to read vs. very difficult to read  
- very clear vs. very unclear  
- very attractive vs. very unattractive  
- too short vs. too long  
**Original:**  
I think the paragraph are:  
- very easy to read vs. very difficult to read  
- very clear vs. very unclear  
- very attractive vs. very unattractive  
- too short vs. too long |
| --- | --- |
| **Overall opinion about the headings** | **I think the headings in this brochure are:**  
- very clear vs. very unclear  
- very attractive vs. very unattractive |
| **Opinion about the position of the headings** | **Information Mapping:**  
I think the position of the headings (on the left of the text blocks) in this brochure is  
- very pleasant vs. very unpleasant  
- very clear vs. very unclear  
- very attractive vs. very unattractive  
**Original:**  
I think the position of the headings (on top of the paragraphs) in this brochure is:  
- very pleasant vs. very unpleasant  
- very clear vs. very unclear |
| **Style and layout** | **Opinion about amount of information** | There is too much information in this brochure  
- totally agree vs. totally disagree |
| --- | --- | --- |
| | **Opinion about the number of headings** | There are too few headings in this brochure  
- totally agree vs. totally disagree |
| **Opinion about the style of writing** | I think the writing style of this brochure is:  
- very vibrant vs. very boring  
- very formal vs. very informal  
- very light-hearted vs. very serious  
- very attractive vs. very unattractive |
| **Opinion about the use of lines vs. spacing between text blocks and paragraphs** | Information Mapping:  
I think the use of lines between text blocks in this brochure is:  
- very pleasant vs. very unpleasant  
- very attractive vs. very unattractive  
Original:  
I think the use of spacing between paragraphs is:  
- very pleasant vs. very unpleasant  
- very attractive vs. very unattractive |
| **Opinion about the number of words in one line.** | I think there are too many words in one line in this brochure:  
- totally agree vs. totally disagree |
| **Opinion about the amount of text in one page** | I think there is too little text on one page  
- totally agree vs. totally disagree |

NB. We have chosen not to set up questions about the graphics of the brochures, since these remain the same for both text versions.
### Questionnaire Original text version

<table>
<thead>
<tr>
<th>Studentnummer</th>
<th>Naam</th>
<th>Tekstversie</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A1 = Origineel Let's talk about it  
B1 = Origineel The best of friends  
C1 = Origineel What's right for me?  
D1 = Origineel Knowledge is power
Questionnaire
We would like to know what you thought about the brochure you just read. The following questions are divided into three subjects: overall impression, organisation of the text and style and layout. This questionnaire contains two types of questions.

For the first type of questions you need to give an answer on a 7-point scale. Example:

<table>
<thead>
<tr>
<th>I think my exam was.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>very easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>very difficult</td>
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<td>a bit difficult</td>
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<tr>
<td>not difficult, not easy</td>
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<td>a bit easy</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this question the numbers correspond to the following answers:

1 = very difficult
2 = difficult
3 = a bit difficult
4 = not difficult, not easy
5 = a bit easy
6 = easy
7 = very easy

For the second type of questions you will get a statement on which you have to agree or disagree. Example:

<table>
<thead>
<tr>
<th>I think my exam was difficult.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totally agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this question the numbers correspond to the following answers:

1 = totally agree
2 = agree
3 = partially agree
4 = not agree, not disagree
5 = partially disagree
6 = disagree
7 = totally disagree

You need to mark the answer that is closest to your personal opinion with a circle. You can only give one answer per question. When you want to change your answer, please mark the wrong answer with a cross.
Overall impression

1. I think this brochure is:
   a. very attractive 1 2 3 4 5 6 7 very unattractive
   b. very unclear 1 2 3 4 5 6 7 very clear
   c. very easy to read 1 2 3 4 5 6 7 very difficult to read

2. To me, the purpose of this brochure is clear.
   totally agree 1 2 3 4 5 6 7 totally disagree

3. When I read this brochure, it was difficult for me to get an idea of what this brochure was about.
   totally agree 1 2 3 4 5 6 7 totally disagree

4. When I read this brochure, I quickly got an idea what the text was about.
   totally agree 1 2 3 4 5 6 7 totally disagree

5. If you could give a grade for this brochure what would it be on the scale of 1 to 10 (1 = really bad and 10 = really good)? ______

Organisation of the text

6. To me, the content of this brochure is:
   a. very organised 1 2 3 4 5 6 7 very chaotic
   b. very incoherent 1 2 3 4 5 6 7 very coherent
   c. very structured 1 2 3 4 5 6 7 very unstructured
   d. very unclear 1 2 3 4 5 6 7 very clear

7. The difference between main points and side issues in this brochure is:
   a. very evident 1 2 3 4 5 6 7 very vague
   b. very hard to tell 1 2 3 4 5 6 7 very easy to tell

8. I think the paragraphs in this brochure are:
   a. very easy to read 1 2 3 4 5 6 7 very difficult to read
   b. very unclear 1 2 3 4 5 6 7 very clear
   c. very attractive 1 2 3 4 5 6 7 very unattractive
   d. too short 1 2 3 4 5 6 7 too long
9. I think the headings in this brochure are:
   a. very unclear  1  2  3  4  5  6  7  very clear
   b. very attractive  1  2  3  4  5  6  7  very unattractive

10. I think the position of the headings (on top of the paragraphs) in this brochure is:
    a. very unpleasant  1  2  3  4  5  6  7  very pleasant
    b. very clear  1  2  3  4  5  6  7  very unclear
    c. very unattractive  1  2  3  4  5  6  7  very attractive

11. There is too much information in this brochure:
    totally agree  1  2  3  4  5  6  7  totally disagree

12. I think there are too few headings in this brochure:
    totally agree  1  2  3  4  5  6  7  totally disagree

Style and layout

13. I think the writing style of this brochure is:
    a. very vibrant  1  2  3  4  5  6  7  very boring
    b. very formal  1  2  3  4  5  6  7  very informal
    c. very light-hearted  1  2  3  4  5  6  7  very serious
    d. very unattractive  1  2  3  4  5  6  7  very attractive

14. I think the use of spacing between the paragraphs in this brochure is:
    a. very pleasant  1  2  3  4  5  6  7  very unpleasant
    b. very unattractive  1  2  3  4  5  6  7  very attractive

15. I think there are too many words in one line in this brochure.
    totally agree  1  2  3  4  5  6  7  totally disagree

16. I think there is too little text on one page in this brochure.
    totally agree  1  2  3  4  5  6  7  totally disagree

Do you have any additional comments about the brochure?

Thanks for your cooperation!
Questionnaire IMAP text version

<table>
<thead>
<tr>
<th>Studentnummer</th>
</tr>
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<tbody>
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</table>

<table>
<thead>
<tr>
<th>Naam</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Tekstversie</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

A2 = IMAP Let's talk about it  
B2 = IMAP The best of friends

C2 = IMAP What's right for me?  
D2 = IMAP Knowledge is power
Questionnaire

We would like to know what you thought about the brochure you just read. The following questions are divided into three subjects: overall impression, organisation of the text and style and layout.

This questionnaire contains two types of questions.

For the first type of questions you need to give an answer on a 7-point scale. Example:

<table>
<thead>
<tr>
<th>I think my exam was.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>very easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>very difficult</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>difficult</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a bit difficult</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>not difficult, not easy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a bit easy</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>easy</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>very easy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this question the numbers correspond to the following answers:

1 = very difficult
2 = difficult
3 = a bit difficult
4 = not difficult, not easy
5 = a bit easy
6 = easy
7 = very easy

For the second type of questions you will get a statement on which you have to agree or disagree. Example:

<table>
<thead>
<tr>
<th>I think my exam was difficult.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totally agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partially agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not agree, not disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partially disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totally disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this question the numbers correspond to the following answers:

1 = totally agree
2 = agree
3 = partially agree
4 = not agree, not disagree
5 = partially disagree
6 = disagree
7 = totally disagree

You need to mark the answer that is closest to your personal opinion with a circle. You can only give one answer per question. When you want to change your answer, please mark the wrong answer with a cross.
Overall impression

1. I think this brochure is:
   a. very attractive 1 2 3 4 5 6 7 very unattractive
   b. very unclear 1 2 3 4 5 6 7 very clear
   c. very easy to read 1 2 3 4 5 6 7 very difficult to read

2. To me, the purpose of this brochure is clear.
   totally agree 1 2 3 4 5 6 7 totally disagree

3. When I read this brochure, it was difficult for me to get an idea of what this brochure was about.
   totally agree 1 2 3 4 5 6 7 totally disagree

4. When I read this brochure, I quickly got an idea what the text was about.
   totally agree 1 2 3 4 5 6 7 totally disagree

5. If you could give a grade for this brochure what would it be on the scale of 1 to 10 (1 = really bad and 10 = really good)? ______

Organisation of the text

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   d. very unclear 1 2 3 4 5 6 7 very clear

7. The difference between main points and side issues in this brochure is:
   a. very evident 1 2 3 4 5 6 7 very vague
   b. very hard too tell 1 2 3 4 5 6 7 very easy to tell

8. I think the text blocks (=text between two horizontal lines) in this brochure are:
   a. very easy to read 1 2 3 4 5 6 7 very difficult to read
   b. very unclear 1 2 3 4 5 6 7 very clear
   c. very attractive 1 2 3 4 5 6 7 very unattractive
   d. too short 1 2 3 4 5 6 7 too long

[Signature]
9. I think the headings in this brochure are:
   a. very unclear  1  2  3  4  5  6  7  very clear
   b. very attractive  1  2  3  4  5  6  7  very unattractive

10. I think the position of the headings (on the left of the text blocks) in this brochure is:
    a. very unpleasant  1  2  3  4  5  6  7  very pleasant
    b. very clear  1  2  3  4  5  6  7  very unclear
    c. very unattractive  1  2  3  4  5  6  7  very attractive

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Thanks for your cooperation!