



## Master Thesis

# **“I’m happy I chose this study program!”**

Influence of first-person perspective narratives on future students’ attitude towards a study program

by

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## **Abstract**

Study program brochures by Dutch universities often contain an experience-based narrative in a first-person perspective by a current student, next to the factual information about the study program. This study investigated the influence of such a first-person perspective narrative on the information processing and attitude towards the study program by future students. 95 participants read a study program brochure, either with a first-person perspective narrative or without such a narrative. Contrary to the hypotheses based on transportation theory and the elaboration-likelihood model, results showed that there was no difference in information recall or attitude towards the study program between readers who read the study program brochure with or without the narrative. This indicated that the narrative in the study program brochure did not cause transportation of the reader and that the narrative did not have an effect on the readers' motivation to cognitively elaborate on the materials.

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# 1. Introduction

On an everyday basis, people need to make many choices. Some of these decisions are more important than other decisions. For example, choosing what book to buy for reading during the weekend is less important than choosing for which study program to apply. People do not only need to make many decisions, often they must choose between many different options. If you would like to buy a classic literature/fiction book off amazon.com, there are 298,024 titles to choose from<sup>1</sup> and if you would like to choose a bachelor program in The Netherlands, there are 404 bachelors at 14 different universities to choose from (1cijferHO2016, 2016). Some of the decisions people need to make are from a commercial nature whereas other decisions are non-commercial. The previously mentioned decisions for books and study programs are both commercial, since you have to pay the book seller or the university once the decision is made. A non-commercial decision is, for example, choosing what clothes to wear today, since you do not have to pay when you are choosing clothing from your own wardrobe.

When people are making a commercial decision, the providers of these options must present information that gives them a positive attitude towards their option to prevent them from choosing a competitor's option. Often, this is realized by presenting positive experiences from people that already chose that option in the past. For book stores this includes recommendations by other readers and positive book reviews, and for universities this includes experiences by current students and alumni.

Although books and study programs are both commercial decisions for which the providers try to establish a positive attitude, the choice for a study program is different from the choice for a book. Besides establishing a positive attitude towards the study program, universities must also inform the future students well enough to help them make the right decision. There are high governmental and societal costs related to students that make a wrong study program decision and quit the program. In The Netherlands, during the last decade attention is raised for the responsibility that universities have in helping students make the right choice (Van Horsen, 25 May 2010; De Raat, 19 April 2016).

For choosing books, it has already been shown that book reviews indeed have a positive effect on the buyers' attitude, which leads to an increase in sales (Sorensen & Rasmussen, 2004). However, since universities must not only supply information to persuade future students but also to inform them, they are clearly different from other types of commercial decisions and thus the results for choosing a book cannot be extended without question to choosing a study program. Therefore, this study looks at promotional materials for study programs by universities and their influence on future students' attitudes. The next section describes the materials that universities use to inform and persuade future students.

## 1.1 Types of promotional materials used by universities

Dutch universities use similar types of communication to inform future students about their bachelor programs. For most students, the first step in orientation towards different bachelor programs is to read several brochures and visit websites. When they have selected a few study programs they are interested in, the next step is to gain more in depth information about the study program by going to Open-Door days, talking to parents and friends, and going to a try-out day (Dutch: *meeloopdag*). Since brochures are the first

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<sup>1</sup> This is the number of classic literature/fiction books on the website [www.amazon.com](http://www.amazon.com) on 15 May 2017.

introduction to study programs, the focus of the current study will be on the information that is conveyed there.

Bloemen and Dellaert (2000) investigated the motives of secondary school students for enrolling in their current study program. They found that 94.9% of the pre-university students think the study program is interesting, making that the most important reason to choose their program. Next to the motives to choose a study program, Bloemen and Dellaert (2000) also asked which sources the secondary school students used to obtain their information from. The two most important sources for secondary school students are Open-Door days (selected by 80.2%) and brochures (63.7%). It is thus very likely that the idea that a study program is interesting is derived from information provided by these two sources.

Because study program brochures are an important source of information for future students in order to choose their study program, it is important for universities to make these brochures as interesting as possible to attract students. When looking at several different brochures by universities in The Netherlands, it is striking that the appearances of these brochures are quite similar. Each university displays their own identity in the layout, but all universities make use of similar types of information. They usually present a short overview of the study program, mentioning the official name of the program, the duration, the study load per week, the types of classes and assessments and the number of students enrolled. Next to the short overview, the prospective students are given information on the field of study, what they should be interested in, how admission takes place, and what the further study and career possibilities are. Besides this type of factual information, most universities choose to include an experience-based narrative written by a current student in the brochure. These narratives are typically between four and six sentences, in which the student explains why they chose that specific bachelor program and what they currently think of the program. Sometimes these narratives also include information on what the student found difficult when they started (e.g. *We had to read at least 150 pages a week*) and how they have overcome that difficulty (e.g. *I learned how to distinguish the important parts from the less important parts of the texts*). The short experience-based narratives are accompanied by the name of the student, the year they are in, and a portrait photo. Furthermore, the narratives are told in a first-person perspective, as if the current student is speaking directly to the reader.

It is especially interesting that study program brochures use a first-person perspective narrative next to their factual information, since there are theories and experimental findings that have suggested that using a narrative to convey information has a different effect on the reader's information processing and attitude towards the information than using a non-narrative factual text. In the following section I will elaborate on the theory of narrative transportation, which identifies the effects that narratives can have on the readers' attitudes.

## **1.2 Narrative Transportation**

Transportation theory (Green & Brock, 2000; 2002) was developed with the concept of narrative transportation in mind. This concept is based on the description by Gerrig (1993, as cited in Green & Brock, 2000):

"Someone ('the traveler') is transported, by some means of transportation, as a result of performing certain actions. The traveler goes some distance from his or her

world of origin, which makes some aspects of the world of origin inaccessible. The traveler returns to the world of origin, somewhat changed by the journey.” (p.10-11)

The first main aspect in this description is that the traveler needs to undertake certain actions to become transported. For example, a reader must read the text or a watcher must watch the movie or performance to become transported<sup>2</sup>. The second main aspect is that the reader goes to a separate narrative world. This means that some aspects of the world of origin become inaccessible, such as realizing that there are people in the chair next to you and knowing that animals cannot talk. The final main aspect in the description is that the reader will return to the original world somewhat changed by the journey. The reader will have taken new information, new beliefs or attitudes with them after reading the story.

### *1.2.1 Components of narrative transportation*

Although the description above gives a conceptual image of what transportation is, it does not identify when a reader is transported or clarify what aspects should be present in the text or in the reader to enable transportation. Green and Brock (2000) identified three main components of being transported, namely imagery, affect and attentional focus. All three components are related to the loss of aspects of the world of origin in Gerrig’s description. These main components have also been used to develop a questionnaire to measure the level of transportation (Green, 1996; Green & Brock, 2000).

In their later publication of transportation theory (Green & Brock, 2002), they argue that imagery is the very most important aspect of a text, in order to let the text allow for the reader to become transported. A text is considered to be imagery-evoking when its content and/or language allows for or even encourages images to be formed, recalled and recognized. These images are ‘mental contents that possess sensory qualities in the absence of external stimuli that provoke the relevant senses’ (Green & Brock, 2002, p. 321), meaning that the reader should be able to recall the image without experiencing the relevant stimulus (i.e. without reading the text) again. It should be noted that mental images are mental content in any sensory modality, they do not only have to be visual images.

Naturally, the ability to transport into a narrative is not only determined by the text itself, but also by attributes of the reader. Just as the text should contain image-provoking content or language, the reader needs to be able to create mental images. A reader that is able to create vivid mental images more easily will find themselves also more easily transported into a narrative. However, this does not mean that readers with low imagery skill will not be able to experience narrative transportation. Another attribute of the reader that influences the possibility of narrative transportation is the reader’s absorption ability. A reader has a high absorption ability if they can lose awareness of themselves easily. In that case the reader can read a narrative and feels as if they themselves are experiencing the events in the narrative. Absorption ability, just as imagery skill, increases the likelihood of being transported to the narrative world.

### *1.2.2 Consequences of narrative transportation*

As seen in the description of Gerrig (1993) before, after transportation, the reader returns to the world of origin somewhat changed by the journey. To determine what ‘somewhat

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<sup>2</sup> Although ‘the traveler’ can refer to an individual performing different actions (such as reading, watching and listening), I will refer to the traveler as *the reader*.

changed' means in terms of consequences, Green and Brock (2000) have conducted four experiments in which the participants read a narrative followed by questions about their beliefs and attitudes.

In their first experiment, Green and Brock (2000) found that highly transported readers showed more story-consistent beliefs and more positive attitudes towards the characters in the story after reading. Furthermore, the participant's level of transportation was not influenced by the story being fiction or nonfiction. On top of the findings in the first experiment, the second experiment showed that highly transported readers identified less contradicting materials in the text than readers with lower transportation levels. According to the authors, this suggests that one possible manner in which narrative transportation leads to changed beliefs is by reduced discounting processes. When readers are transported into the story, they become less critical and are less likely to recognize reasoning mistakes and therefore more likely to go with the belief in the story. A follow-up experiment with a larger sample replicated the results from experiment 1 and 2.

The first three experiments showed a correlation between transportation levels and story-consistent beliefs, but not yet causation. In experiment 4, they provide evidence for causation by manipulating the reading instructions. The aim was for the reading instructions to independently manipulate transportation levels. In other words, transportation levels in this experiment were not only influenced by the story and the reader, but also by a third factor: the given instructions. The results showed that the given instructions were indeed able to influence the transportation levels; the group of readers that were given the instruction to identify grammar and vocabulary that they thought would be difficult for fourth graders showed lower transportation levels than the group of readers that did not receive those instructions. Furthermore, the group that received the manipulated instructions and showed lower transportation levels also showed less story-consistent beliefs and less positive attitudes towards the story character than the group that did not receive the manipulated instructions.

Thus, the experiments by Green and Brock (2000) show that the consequence of narrative transportation indeed involves increased story-consistent beliefs and attitudes. Furthermore, experiment 2 suggests a means by which this could happen. Namely, higher transportation is associated with a lower likelihood to identify reasoning mistakes. Readers become transported in the story and are less critical towards the arguments that are presented, leading to more acceptance of the story-consistent beliefs.

### *1.2.3 The role of identification*

Next to reduced discounting processes, another proposed mechanism by which narrative transportation can lead to increased story-consistent beliefs and attitudes is identification (Green, 2006). Green describes identification as "relating to characters, caring about them, and putting oneself in the character's place" (2006, p. 166). Since transportation is related to more positive attitudes towards the characters in the story (Green & Brock, 2000), Green (2006) argues that factors that ease the identification with characters (such as similarities in age and gender), can facilitate transportation and by doing so, facilitate the change of beliefs and attitudes. A correlation between identification with characters and the amount of story-consistent beliefs has been found in a study using a film narrative (Igartua, 2010).

In order to find whether there is also a causal link between character identification and story-consistent beliefs, De Graaf et al. (2012) conducted a study. In their study, the level of identification was manipulated by the use of different perspectives. For a story about

two sisters, two versions were written; one which was told from the first sister's perspective and the other which was told from the second sister's perspective. They showed that readers identified more with the sister whose perspective was used than they identified with the other sister. Thus, manipulation of identification by using different perspectives was successful. Next to this causal link between perspective and identification, they also found a direct link between character perspective and attitudes that are consistent with that character. This effect between character perspective and attitude change is mediated by character identification, indicating that identification indeed acts as a mechanism by which narrative transportation can lead to story-consistent beliefs and attitudes.

In the stories used by De Graaf et al. (2012), perspective is only used to let the reader see the events through the one or the other character's eyes, with both versions of the story being told from a first-person perspective. Segal et al. (1997) have investigated how, next to a first-person perspective narrative, a third-person perspective narrative can influence identification. A narrative written in the first person presents the actions from the character's point of view, while a narrative written in the third person presents the actions as if observed from a distance. In a third-person perspective there is also room for the reader to observe thoughts and actions of multiple characters. Segal et al. (1997) therefore hypothesized that readers identify more with the main character when it is written in first-person perspective than when it is written in third-person perspective. This hypothesis is supported by the results of their experiment using two versions (first-person and third-person perspective) of three different texts.

#### *1.2.4 Narrative transportation and study program brochures*

The theory of narrative transportation as outlined above provides a lead on how first-person perspective narratives in study program brochures can influence the readers of these brochures. The experiments by Green and Brock (2000) have shown that narrative transportation can also take place for nonfictional narratives, as are the narratives in study program brochures. Furthermore, the narratives in study program brochures allow for mental images and involve affect, by describing experiences and difficulties the student has been through<sup>3</sup>. Since those narratives are also often written in a first-person perspective, identification with the story-telling student is encouraged. Therefore, the narratives can transport the readers into the narrative world, leading to more story-consistent beliefs which is in this case a more positive attitude towards the study program. This positive attitude towards the study program can be mediated by the reduced discounting processes proposed by Green and Brock (2000) or by identification, as proposed by De Graaf et al. (2012).

### **1.3 Attitude change**

In the previous section, it has been shown that narratives can be effective tools to change beliefs and attitudes, as explained by transportation theory. Next to this theory that specifically targets persuasion by narrative texts, there is also a theory about attitude change and persuasion in general. This is the elaboration likelihood model, developed by Petty and Cacioppo (1986), that focusses on how attitude change is realized. In the

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<sup>3</sup> Short examples are "Because I attend seminars with the same students for the entire year, there is a very familiar and informal atmosphere" (Universiteit Utrecht, no date a, p. 3) and "With other students we practice onto each other, for example taking each other's blood pressure. That is a little awkward in the beginning, ..." (Universiteit Utrecht, no date b, p. 3).



following sections I will describe this model and show how it can be applied to the first-person perspective narratives in study program brochures.

### *1.3.1 Elaboration Likelihood model*

Petty and Cacioppo (1986) have developed the elaboration likelihood model (ELM). This model aims to provide a general framework of attitude change. A key term in this framework is *elaboration*, meaning 'the extent to which a person thinks about the issue-relevant arguments contained in a message' (p. 128). Thus, if the reader makes associations with other relevant knowledge, makes inferences on the basis of these associations, accesses relevant experiences from memory, makes a mental picture of the situation and so on, the reader elaborates highly on the presented persuasive information. Elaboration exists on a range from no elaboration at all to very high elaboration. For example, a person looking to buy an everyday outfit is expected to elaborate less than a person looking to buy an outfit for a job interview, since an outfit for a job interview is more important than an everyday outfit. The job applicant is likely to think about which outfit fits the company and the job he is applying to, which outfits he has seen other people wearing to job interviews, how the interviewers will be dressed and so on. The shopper for an everyday outfit is less likely to elaborate on their purchase to the same extent as the job applicant.

Based upon the elaboration by the reader, the ELM framework consists of two routes to persuasion. When high elaboration takes place, the reader will follow the central route in the model. In the central route, the reader is both motivated and able to process and thus cognitive processing takes place. Motivation to process the material can come from different sources, such as the personal relevance or general subject curiosity. The ability to process depends both on the reader (e.g. age, previous knowledge), the text (e.g. comprehensibility) and the surroundings (e.g. noise distractions). The outcome of the central route is then that the reader will change their attitude, either positively or negatively depending on the outcome of their cognitive elaboration. In the case of the job applicant, the motivation to process the information about different outfits is high, due to the importance choosing a correct outfit. Therefore, the job applicant will follow the central route and obtain a positive or negative attitude towards the different outfits, based on the outcome of the cognitive processing.

The other route in the ELM framework is the peripheral route. A reader follows the peripheral route to persuasion when they are either not motivated or not able to elaborate on the text, and there is a peripheral cue present. This peripheral cue can be anything that can change the attitude of the reader without cognitive elaboration, e.g. number of arguments in the text, expert sources, attractiveness of the text and so on. However, if the reader is not motivated or able to elaborate on the text and there is no peripheral cue present, they will not change their initial attitude. As described before, the shopper for everyday outfits is expected to display much less cognitive elaboration than the job applicant. The shopper simply needs an outfit to wear and it is less important what the exact outfit looks like. He is not motivated to process all information on the different outfits and he might make his choice based upon the attractiveness of the model showing of the outfit, how many other people are buying that outfit and so on. These peripheral cues can give him a positive or negative attitude towards the outfit.

Although both the central and the peripheral route lead to persuasion, the resulted attitude change is not the same in both routes. Petty and Cacioppo (1986) reason that when the reader elaborates highly, they have to consult and modify their memory much more often than when the reader relies on a simple cue. The result of that is that the memory trace is

greater and thus the information more accessible when the reader followed the central route to persuasion than when they follow the peripheral route. Fazio, Chen, McDonel, and Sherman (1982) have shown that when the information supporting the attitude is more accessible, the attitude itself is also more accessible. This means that the attitude change following the central route is more stable over time than the attitude change following the peripheral route. In other words, the job applicant maintains his positive attitude towards the chosen outfit longer than the shopper for everyday outfits, since he has elaborated highly on his choice. Another consequence in the difference of accessibility is that a more accessible attitude can more easily guide a change in behavior than when the attitude is less accessible. Thus, when following the central route, the reader is more likely to act upon their changed attitude than when following the peripheral route.

### *1.3.2 Elaboration-likelihood model and study program brochures*

When applying the ELM framework to study program brochures, there are several manners in which the first-person perspective narrative in the study program brochure can influence the reader. In general, it can be reasoned that information about future study programs is highly relevant to the intended readers (pre-university students), therefore it is expected that the readers elaborate cognitive on the material and thus follow the central route.

There are two ways in which the narrative in a study program can influence this general reasoning. The narrative can act as a peripheral cue and can lead the readers that were not elaborating very highly to following the peripheral route. In that case, the readers are expected not to change their attitude based on their cognitive elaboration but on how much they like the narrative or the story-teller. In other words, the attitude towards the peripheral cue determines their attitude towards the study program. Alternatively, based upon the findings of transportation theory, the narrative in the study program brochure can increase the reader's motivation to process the information. This additional motivation leads to increased elaboration and therefore leads to the readers following the central route. In this case, the outcome of the cognitive elaboration determines their attitude towards the study program. In both cases, the attitude towards the study program can either be positive or negative.

## **1.4 Hypotheses**

In the previous sections, transportation theory and the elaboration-likelihood model have been discussed in order to identify how attitude change can be realized by narratives. Both theories can be applied to study program brochures as described in section 1.1. The main question in the current study is how a first-person perspective narrative in study program brochures influences the processing of the information and the attitude towards the study program.

Following the reasoning under transportation theory (section 1.2.4), it can be expected that readers of a study program brochure with the first-person perspective narrative experience more transportation than readers of a brochure without this narrative. When the readers become transported, their critical thoughts are diminished and they adopt the implicit positive attitude towards the study program. This leads to the following hypothesis.

### *Hypothesis 1*

Readers of a study program brochure with a first-person perspective narrative have more positive attitudes towards the study program than readers of a study program brochure without a first-person perspective narrative.

When applying the ELM to study program brochures, there are two opposing ideas on how the narrative in a study program brochure influences the processing of the information. Following the reasoning in section 1.2.2, the narrative can either decrease the reader's motivation to elaborate and therefore decrease cognitive processing or the narrative can increase the motivation to elaborate and therefore increase cognitive processing. Since increased cognitive processing is related to a greater memory trace, the increase or decrease of cognitive processing can be measured by recall tasks (Craig & Lockhart, 1972). This leads to the following two opposing hypotheses.

*Hypothesis 2a*

Readers of a study program brochure with a narrative are more likely to follow the peripheral route in the ELM and therefore score worse on recall tasks than readers of a study program brochure without a narrative.

*Hypothesis 2b*

Readers of a study program brochure with a narrative are more likely to follow the central route in the ELM and therefore score better on recall tasks than readers of a study program brochure without a narrative.

## 2. Methods

### 2.1 Participants

Participants were recruited via teachers of Dutch language at a secondary school. The experiment was conducted during their Dutch classes. Participation in the study was voluntary and participants did not any monetary compensation. All participants were pre-university students in the 10th or 11th grade (4 and 5 VWO in the Dutch education system). The sample consisted of four classes with a total of 95 participants (57.9% female). Their age ranged from 15.5 to 19.3, with an average of 16.9 (SD = 0.71). Furthermore, 63.2% of the participants followed the natural science track (in Dutch: *Natuur & Gezondheid* or *Natuur & Techniek*), and 36.8% followed the social science track (in Dutch: *Cultuur & Maatschappij* or *Economie & Maatschappij*).

Participants were assigned to the test condition or control condition based on their seating arrangement, in such a way that a test condition participant was always seated next to a control condition participant and vice versa. This resulted in 46 participants in the test condition and 49 participants in the control condition.

### 2.2 Materials

Two versions of a brochure for the bachelor program *Medische Communicatie en Besliskunde* (EN: Medical Communication and Decision Science) were developed (see appendices A and B). This is a non-existing bachelor program in The Netherlands. One of the advantages of a non-existing program are that the participants are unlikely to have knowledge of or an attitude towards the program. Furthermore, by developing a brochure for a non-existing program, the study program's content can be made broader and more interdisciplinary in order to be attractive to a larger group of pre-university students.

The brochure is made in such a way that it resembles the brochure type as used by Dutch universities. It consists of a general part (223 words) with the study program's title, a picture and information about the field of study, what the student should be interested in, what further study and career opportunities there are, which prior education students should have to be admissible, and a short overview of facts, such as starting date, duration,

official languages, and used methods of education. In the test version of the brochure, a narrative by a current student is added next to the general information. As is the case for most Dutch bachelor program brochures, the narrating student is introduced by a brief paragraph with personal information (26 words) and a photo. The following narrative (162 words) is told from a first-person perspective. The narrative is not only focused on her experiences as a student, but it also adds new information about the study program (such as the number of students in classes). In the control version of the brochure, additional informative text (91 words) is added instead of the first-person perspective narrative. This text does not provide subjective experiences and is not told in first-person perspective, but it contains the same additional factual information as the narrative. Furthermore, in the control version the photo of the student is replaced by a photo of a university library. Both brochures were printed as a flyer on one A4 page.

## 2.3 Procedure

The experimental procedure was approved by the ethics committee (ETCL) of the Utrecht Institute of Linguistics (UiL-OTS). Participants were tested in a class room setting in groups ranging from 27 to 41 students. Before the start of the experiment, the participants were instructed to take as long as they wanted to read the brochure of a study program, in order to find out whether it is something they would like to study. When a participant was finished reading the brochure, they would hand the brochure in and receive a questionnaire package with three tasks. For completing the tasks in the questionnaire package, the participants were explicitly instructed not to go back to a task once they completed it. Including the instructions, the experiment took 20-25 minutes to complete.

The questionnaire package consisted of three written tasks, with each task on a new page. Task 1 was a free recall task in which participants are invited to write down everything they remembered about the study program *Medische Communicatie en Besliskunde* and participants were encouraged to write as much as they could. Task 2 (table 1) consisted of eight true/false questions, of which half of the information (answer to four questions) could be found in the general information part of the brochure and the other half of the information in the target part. Task 3 (table 2) was an attitude task, consisting of six statements that participants answered on a seven-point scale (ranging from *fully disagree* to *fully agree*). The first three statements referred to the attitude towards the brochure itself, while the last three statements referred to the attitude towards the study program. For the attitude towards the study program it was chosen to inquire how likely the participants were to look for more information about the program rather than asking directly whether they would want to apply to the program, since the goal of study brochures is to be the first step in the information process. The final page in the questionnaire package asked the participants to write down their background information.

**Table 1 – True-false questions recall task**

	<i>The flyer stated that...</i>	<i>Answer</i>	<i>Answer source</i>
1	students often follow-up the bachelor by a master program	true	general part
2	you must have chosen biology as a final exam subject to be admissible	false	general part
3	students and teachers do not get to know each other well	false	target part
4	the discipline of <i>Medical Communication and Decision Science</i> uses knowledge from sociology	false	general part
5	doing an internship in the third year is mandatory	false	target part
6	it is mandatory to follow a course within the area of communication science	true	target part
7	the main languages are English and Dutch	true	general part
8	classes are always taught in small groups	true	target part

**Table 2 – Statements in the attitude task** – The statements are answered on a seven-point scale, with 1 corresponding to *fully disagree* and 7 corresponding to *fully agree*.

	<i>Statement</i>	<i>Refers to attitude towards</i>
1	I thought that the information about the study program was interesting	the brochure
2	I disliked reading the brochure	the brochure
3	The information about the study program has surprised me in a positive manner	the brochure
4	It is likely that I'll visit the website for more information about the study program	the study program
5	As a result of reading this information, I would like to visit an Open-Door Day	the study program
6	As a result of reading this information, I would recommend a friend to consider this study program	the study program

## 3. Results

### 3.1 Overview of the analyses

#### 3.1.1 Scoring the free-recall task

In the scoring sheet for the free-recall task, each paragraph in the brochure is identified as a separate region (see table 3). Therefore, the general part of the brochure consists of five regions, coded as general region A (GA) to general region E (GE). The target part of the brochure consists of two regions, coded as target region A (TA) and target region B (TB). Depending on the content of the region, each region is described by two to eight content points. Ten participants are scored by two raters, reaching an inter-rater agreement of 98.9%. The full scoring sheet can be found in appendix C.

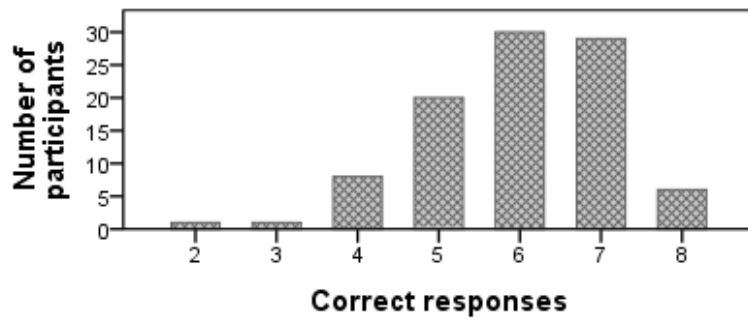
**Table 3 – Overview of separate regions used for scoring the free-recall task** – The regions correspond to the paragraphs in the study brochure. Each region is divided into specific content points.

<i>General region</i>		<i>Target region</i>	
GA	Field of study	TA	Small-scale education
GB	What the student should be interested in	TB	Structure of the study program
GC	Career opportunities		
GD	Admission requirements		
GE	Overview of facts		

#### 3.1.2 Excluded participants

In order to ensure that participants attentively read the brochure and completed the tasks to the best of their abilities, participants were only included for analyses when they answered at least six out of the eight (75%) true/false questions (task 2) correctly. Participants who did not fill out anything in response to the free recall question (task 1) were also excluded.

In total, 30 participants answered less than six true/false questions correctly (task 2) and are therefore excluded from further analysis. Figure 1 shows how many true/false questions were answered correctly by participants. Additionally, one participant did not provide any answer to the free recall task (task 1) and is also excluded from further analyses. This leaves a total of 64 to be analyzed participants of which 32 have read the brochure including the narrative text (test condition) and 32 have read the brochure without the narrative (control condition).



**Figure 1 – Correct responses to true/false questions** – A total number of 95 participants answered the true/false questions.

### 3.1.3 Overview of the statistical analyses

In order to answer the research question, two Multivariate Analyses of Variance (MANOVAs) were conducted<sup>4</sup>. In the first analysis, the independent variable was *brochure type* (narrative condition vs. control condition) and the dependent variables were *total recall*, *attitude towards brochure* and *attitude towards the study program*. The first dependent variable was based on the free-recall task and the last two dependent variables were based on the attitude task. In order to answer the research question in more detail, the second MANOVA was conducted to further investigate the processing of information. The independent variable in this analysis was again *brochure type*, while the dependent variables were *general region recall* and *target region recall*. These dependent variables were also based on the free-recall task (see section 3.1.1).

## 3.2 Effect of brochure type on processing and attitude

### 3.2.1 Outliers

For each dependent variable, values that deviate more than 2 standard deviations from the mean were considered outliers. On the basis of the *total recall* scores ( $M = 5.5$ ,  $SD = 2.85$ ), the scores of two participants were considered outliers. On the basis of the *attitude towards brochure* ( $M = 4.1$ ,  $SD = 0.82$ ) and *attitude towards study program* ( $M = 2.1$ ,  $SD = 0.97$ ), the scores of one participant were considered outliers. The outliers were not included in the following analysis, therefore 4.7% of the data was discarded.

<sup>4</sup> MANOVA is a strong statistical tool to compare groups on multiple dependent variables. It has two main advantages over conducting multiple ANOVAs. Firstly, if multiple ANOVAs are conducted, the type I error (rejecting a true null hypothesis) will be inflated. For example, if four ANOVAs are conducted, the chance of at least making one type I error increases from 0.05 to  $1 - 0.95^4 = 18.5\%$ . By conducting one MANOVA instead of four ANOVAs, the chance of a type I error stays 0.05. Secondly, if multiple ANOVAs are carried out, each ANOVA tests the differences between groups on only one dependent variable. However, if multiple dependent variables exist, it is very well possible that also differences in multivariate space exist. Even when ANOVAs do not show any difference between groups in univariate space, it is still possible that there is a difference in multivariate space. Conducting a MANOVA instead of an ANOVA can identify this difference in multivariate space. Often a MANOVA is followed up by multiple ANOVAs in order to find the source of the difference in multivariate space. However, it is important only to conduct these multiple ANOVAs when a statistically significant difference in multivariate space has been found. If that is not the case, any statistically significant differences in univariate space are likely to be an artifact of the inflated type I error rate.

### 3.2.2 Multivariate analysis

Table 4 shows the average scores for *total recall*, *attitude towards brochure* and *attitude towards study program*. It can be seen that the differences between the mean values for the different brochure types were rather small compared to the standard deviations. Using Pillai's trace, there was no significant effect of brochure type on total recall, attitude towards brochure and attitude towards study program,  $V = 0.064$ ,  $F(3,57) = 1.292$ ,  $p = .286$ ,  $\eta^2 = .064$ . There was thus also no effect of total recall ( $F(1,59) = 2.896$ ,  $p = .094$ ,  $\eta^2 = 0.47$ ), attitude towards brochure ( $F(1,59) = 0.358$ ,  $p = .552$ ,  $\eta^2 = 0.01$ ) and attitude towards study program ( $F(1,59) = 0.152$ ,  $p = .698$ ,  $\eta^2 < 0.01$ ) in univariate space. No post-hoc tests were performed.

**Table 4 – Average scores for the dependent variables** – Total recall is given in number of items recalled and the attitudes towards the flyer and the study program are given on a scale from 1 (negative attitude) to 7 (positive attitude). The standard deviation is provided in brackets.

	<i>Narrative condition</i>	<i>Control condition</i>
<i>Total recall</i>	4.7 (2.71)	5.8 (2.52)
<i>Attitude towards brochure</i>	4.1 (0.73)	4.0 (0.71)
<i>Attitude towards study program</i>	2.0 (0.84)	2.1 (0.66)

## 3.3 Effect of brochure type on information recalled

### 3.3.1 Outliers

For each dependent variable, values that deviate more than 2 standard deviations from the mean were considered outliers. On the basis of *general region recall* scores ( $M = 3.9$ ,  $SD = 2.21$ ), the scores of three participants were outliers and on the basis of *target region recall* scores ( $M = 1.6$ ,  $SD = 1.56$ ), the scores of three other participants were outliers. The outliers were not included in the following analysis, therefore 9.4% of the data was discarded.

### 3.3.2 Multivariate analysis

Table 5 shows the average times that a content item from the general region and from the target region was recalled. Using Pillai's trace, there was no significant effect of brochure type on the general region recall and target region recall,  $V = .087$ ,  $F(2,55) = 2.620$ ,  $p = .082$ ,  $\eta^2 = .087$ . There was thus also no effect of general region recall ( $F(1,56) = 3.164$ ,  $p = .081$ ,  $\eta^2 = 0.053$ ) and target region recall ( $F(1,56) = 2.428$ ,  $p = .125$ ,  $\eta^2 = 0.042$ ) in univariate space.

**Table 5 – Average items recalled for the general region and the target region** – The standard deviation is provided in brackets.

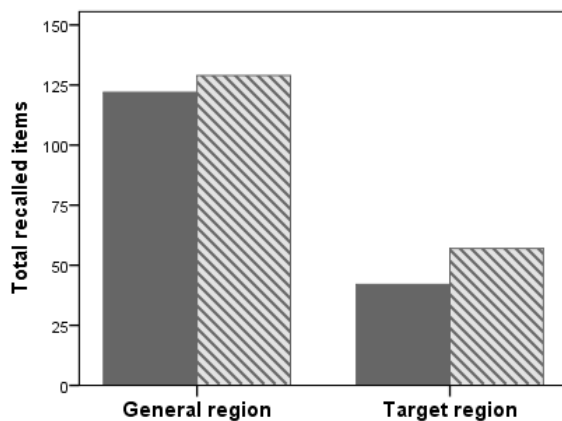
	<i>Narrative condition</i>	<i>Control condition</i>
<i>General region recall</i>	3.3 (1.76)	4.2 (2.14)
<i>Target region recall</i>	1.0 (1.19)	1.5 (1.25)

### 3.4 Exploratory investigations

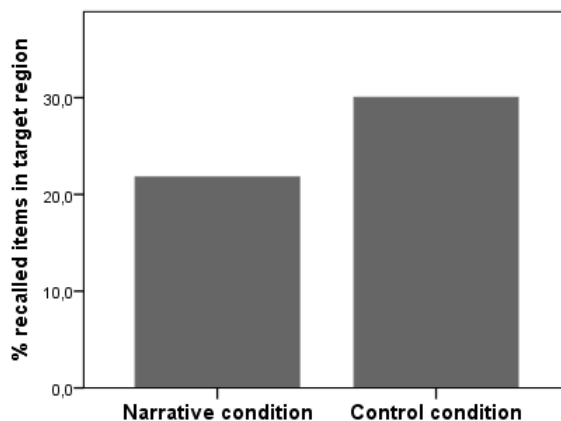
In addition to the planned analyses to answer the research question, I also conducted exploratory analyses for a thorough investigation of the data. In the following sections I looked at the number of recalled items per region for both conditions, the scores on the true/false questions and the reliability of the grouping of the attitude questions

#### 3.4.1 Free-recall task

In figure 2 the total frequencies of recalled items per region are displayed. Note that the number of participants in both conditions was equal. From the figure it could seem that the difference between the brochure types was larger for the target region than for the general region, but a two-way ANOVA with *brochure type* and *region* as fixed factors and the *recalled items* as dependent variable did not reveal an interaction effect ( $F(1,124) = 0.135$ ,  $p = .714$ ). The main effect of *region* is significant, as could be expected from the graph ( $F(1,124) = 48.849$ ,  $p < .001$ ). The main effect of *brochure type* is not significant,  $F(1,124) = 1.023$ ,  $p = .314$ .



**Figure 2 – Total frequencies of recalled items per region per brochure type** – The even grey bars represent the narrative brochure type and the striped bars represent the control condition. The graph shows absolute frequencies, but note that the number of participants in each group is the same.



**Figure 3 – Percentage of recalled items in the target region** – The bars show the percentage of total recalled items that are based on the target region in the brochure.

For a thorough investigation of the data, not only the absolute number of recalled items per region should be analyzed, but also the number of recalled items relative to the total recalled items should be investigated. Figure 3 shows the recalled items for the target area as a percentage of the total recalled items for each condition. The figure displays that readers of the brochure without the narrative seemed to recall relatively more items from the target region than readers that read the brochure with the narrative. However, this difference between the narrative condition ( $M = 21.8$ ,  $SD = 25.2$ ) and the control condition ( $M = 30.0$ ,  $SD = 24.6$ ) was not significant, as an independent t-test showed ( $t(62) = -1.323$ ,  $p = .191$ ).

#### 3.4.2 True/false questions

In the main analysis, the true/false questions were only used to exclude participants based on their inattentive reading. However, since half of the questions were based on the general region and half of the questions were based on the target region, the performance of the participants on these questions could be valuable for exploratory data investigation.



Table 6 shows the average number of correct answers to the true/false questions per region and per brochure type. A two-way ANOVA showed a significant main effect of region on the average number of correct answers ( $F(1,124) = 4.468$ ,  $p = .037$ ), indicating that readers answered the true/false questions about the general region more correctly than the true/false questions about the target region. The main effect of brochure type on the average number of correct answers was not significant,  $F(1,124) = 0.020$ ,  $p = .888$ . The interaction effect between region and brochure type was also not significant ( $F(1,124) = 3.356$ ,  $p = .069$ ).

**Table 6 – Average number of correct answers to true/false questions** – The standard deviation is provided in brackets. Note that there are four true/false questions per region.

	<i>Narrative condition</i>	<i>Control condition</i>
<i>General region</i>	3.3 (0.60)	3.5 (0.67)
<i>Target region</i>	3.3 (0.64)	3.1 (0.59)

### 3.4.3 Attitude questions

The aim of the six attitude questions was to fall into two categories; the first three questions would measure the attitude towards the brochure and last three questions would measure the attitude towards the study program (see table 2). Therefore, it would be expected that there were positive correlations within the first three questions and positive correlations within the last three questions.

Reliability analysis shows that the attitude towards the brochure (based on questions 1-3) has a poor reliability, with Cronbach's  $\alpha = .49$ . Table 7 shows the inter-item correlation matrix for the questions on the attitude towards the brochure. The correlations with question 2 were negative or very low, suggesting that the measure of attitude towards the brochure would become more reliable when question 2 was excluded. Upon excluding question 2, the reliability indeed increased and became acceptable (Cronbach's  $\alpha = .75$ ).

Reliability analysis shows that the attitude towards the study program (based on questions 4-6) has an acceptable reliability, with Cronbach's  $\alpha = .72$ . Table 8 shows the inter-item correlation matrix for the question on the attitude towards the study program. It can be seen that the correlations were moderately positive, thus there was no reason to exclude one of the questions.

**Table 7 – Inter-item correlation matrix for attitude towards brochure**

<i>Question</i>	<i>1</i>	<i>2</i>	<i>3</i>
<i>1</i>	1.000	-0.025	0.601
<i>2</i>	-0.025	1.000	0.034
<i>3</i>	0.601	0.034	1.000

**Table 8 – Inter-item correlation matrix for attitude towards study program**

<i>Question</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>4</i>	1.000	0.671	0.355
<i>5</i>	0.671	1.000	0.434
<i>6</i>	0.355	0.434	1.000

If question 2 is excluded from the attitude towards the brochure scale, a new MANOVA (similar to section 3.2.2) using Pillai's Trace also shows no significant effect of brochure type on total recall, attitude towards brochure and attitude towards study program,  $V = 0.054$ ,  $F(3,57) = 1.075$ ,  $p = .367$ ,  $\eta^2 = .054$ .

## 4. Discussion

The main aim of the current study was to investigate the influence of first-person perspective narratives in study program brochures, since many Dutch universities use these narratives in their information brochures. Based on transportation theory, the first hypothesis was that readers of a study program brochure with a first-person perspective narrative have more positive attitudes towards the study program than readers of a study program brochure without the narrative. The results showed that there is no difference between attitudes towards the study program between readers of the narrative version and the non-narrative version of the study program brochure. One of the possible explanations for this finding was that the narrative in the brochure was not narrative-like enough to be able to allow for transportation. Green and Brock (2002) described the essence of a narrative as "a story that raises unanswered questions, unresolved conflicts, and/or depicts not yet completed activity" (p. 320). The narrative in the study program brochure could be able to raise unanswered questions<sup>5</sup>, but these unanswered questions were not crucial to follow the narrative. Therefore, it cannot be assumed that unanswered questions were raised by all readers. Clearly, there were no unresolved conflicts depicted in the narrative. It could be argued that there was a not yet completed activity in the narrative, since the student has not finished the study program yet. However, it was not essential to the story whether the student had finished the study program or not. Thus, it is debatable whether the narrative in the study brochure could be viewed as a narrative as defined in transportation theory. Even if transportation could not have taken place, it could still be expected that readers of the brochure with the narrative show more positive attitudes than readers of the brochure without the narrative, since De Graaf et al. (2012) found a direct link between identification and character-consistent attitudes. Another explanation for the lack of difference in attitudes towards the study program could be that the positive attitude towards the study program was not present enough in the narrative. The narrative was implicitly positive, since the student did not mention any negative aspects of the study program. In the narratives used by De Graaf et al. (2012), the character's attitude was more present in the narrative, since their attitude clashed with the attitude of the other character.

The second hypothesis consisted of two opposing hypotheses, namely that readers of a study program brochure with a narrative score *worse* on the recall task (as a result of following the peripheral route in ELM) than readers of the brochure without the narrative, or that the readers of the brochure with the narrative score *better* on the recall task (as a result of following the central route in ELM) than readers of the brochure without the narrative. The results showed no difference in scores on the free-recall task between the readers of the narrative version and the non-narrative version of the brochure. Furthermore, results showed that there was also no difference in the source of the information (general region vs. narrative/non-narrative region) that was recalled and that also the scores on the true/false questions did not differ. Thus, the results confirm neither of the two opposing hypotheses. This outcome suggests that the amount of cognitive elaboration on the material was equal for the readers of the brochure with and without the narrative, indicating that the readers followed the same route in the ELM model, which could be either the central or the peripheral route. The presence of a narrative in a study program brochure was not strong enough to increase or decrease cognitive elaboration.

Before starting the analyses, one observation stood out: a large number of excluded participants. Most of the excluded participants were based on a low score on true/false questions. This low score indicated that the participants did not read the study program

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<sup>5</sup> Such as 'Why did she decide to do an internship?' or 'Why did decision-making models not suit her?'

brochure attentively or that they did not fill out the tasks to the best of their abilities. This observation could be explained by the testing conditions, since the experiment was conducted in a class room situation without external motivation which is usually present in secondary schools (in the form of graded assignments or tests). The participants' performance could have been increased by monetary compensation (Brase, 2009), leading to less excluded participants. The low number of participants included in the analyses and the small sizes of the anticipated effects, lead to an underpowered study. Therefore, it is possible that the narrative in the study brochure had an effect on information processing or the attitude towards the study program, but that this effect was not identified due to the small amount of data.

After the planned analyses, exploratory analyses were conducted. These exploratory analyses of the data did not lead to new hypotheses. There was one interaction effect that could reach significance if the study was not underpowered, namely the interaction effect of region and condition on the performance of true/false questions. However, if this effect on the performance of true/false questions is not accompanied by a similar effect in the free-recall task, it would be difficult to explain the effect in relation to the research question.

The current study had several limitations that can be addressed in future research. In transportation theory as well as the ELM, the characteristics of the text are not the only characteristics that influence transportation and cognitive elaboration, respectively. Both transportation and cognitive elaboration are also influenced by characteristics of the reader. A characteristic of the reader that influences transportation is the imagery-skill of the reader (Green & Brock, 2002), with high imagery-skill increasing the likelihood of transportation taking place. A reader characteristic that influences cognitive elaboration is the need for cognition (Petty & Cacioppo, 1986). A high need for cognition indicates that the reader is likely to elaborate because they feel the need to structure and understand the world around them, increasing the likelihood of the reader following the central pathway in the ELM. It is possible that these individual differences in imagery-skill and need for cognition are larger than an effect of the narrative in the study program brochure, thereby masking it. It would be interesting for future research to take these individual differences into account in order to find out whether there is truly no effect of a narrative in study program brochures on information processing and attitudes.

Another limitation of the current study is that the effect of identification with the character in the narrative on the attitude towards the study program cannot be investigated, since the non-narrative version of does not have a character. Future research can further investigate the influence of narratives in study program brochures on processing and attitudes, by not only comparing a brochure with a narrative and a non-narrative, but also including a brochure with a third-person perspective narrative. Readers can more easily identify with a character when the narrative is written in a first-person perspective than a third-person perspective (Segal et al. 1997), leading to the hypothesis that readers of the third-person perspective show less positive attitudes towards the study program than readers of the first-person perspective.

A final suggestion for future research is to include a second measure point in time for the attitude task. With a second measure point, it becomes possible to not only investigate the short-term effects on the readers' attitude towards the study program, but also to investigate the longer-term effects on the attitude. Based on the ELM (Petty & Cacioppo, 1986), it is expected that readers who elaborated highly on the material, show more stable long-term effects than readers who changed their attitude upon a peripheral cue.

The outcomes of this study did not show a positive or negative effect of the first-person perspective narrative that is often used in study program brochures by Dutch universities on the processing of the information in the brochure or the attitude towards the study program or the brochure itself. Therefore, the study does not provide a reason in favor of or against the use of narratives in the study program brochures with the aim to encourage the readers to find more information or apply for the study program.

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## Appendix A – Study program brochure (narrative version)



# Medische Communicatie en Besliskunde

### Het vakgebied

Hoe maak je specialistische medische informatie begrijpelijk voor een patiënt? Welke informatie is er nodig om een weloverwogen beslissing voor een behandeling te maken? Hoe gaan patiënten om met onzekerheid en risico in hun beslissing? In dit vakgebied wordt kennis uit de psychologie, communicatiewetenschappen en besliskundige modellen gecombineerd en toegepast op vraagstukken uit de medische wereld.

### Is het iets voor jou?

Ben je nieuwsgierig naar hoe mensen communiceren en afwegingen maken, vind je het uitdagend om deze wetenschappelijke inzichten toe te passen in de praktijk en raak je niet in paniek bij het zien van getallen? Dan is *Medische Communicatie en Besliskunde* misschien iets voor jou!

### Wat kan ik ermee?

Na de bachelor stromen veel studenten door naar een master. Een afgestudeerd besliskundige of communicatiedeskundige heeft een sterke methodologische achtergrond en weet het onderzoek te vertalen naar de praktijk. Daardoor zijn zij uiterst geschikt voor banen als onderzoeker bij een universiteit of een ziekenhuis, maar bijvoorbeeld ook als beleidsadviseur.

### Toelatingseisen

Alle vwo-profielen met wiskunde A of B geven toegang tot deze studie. Sommige andere diploma's kunnen ook toegang geven, eventueel met aanvullende eisen. Bekijk de website voor meer informatie over deze toelatingseisen.

### In het kort

- Start: september
- Duur: 3 jaar (180 ECTS)
- Titulatuur: Bachelor of Science (BSc)
- Taal: Nederlands en Engels
- Werkvormen: hoorcollege, werkcollege en onderzoeksprojecten



Lotte Peeters is een tweedejaarsstudent *Medische Communicatie en Besliskunde* en vertelt graag over haar ervaringen tot nu toe. Voor meer ervaringen van studenten, bekijk de website.

“Ik heb gekozen voor deze studie omdat ik geïnteresseerd ben in hoe mensen beïnvloed worden in hun keuzes. De studie is kleinschalig, zo heb ik nooit les met meer dan 20 studenten en daardoor leer ik mijn studiegenoten en docenten goed kennen. Voor volgend jaar heb ik ervoor gekozen om stage te lopen. Ik ga dat doen in een onderzoeksgroep van een van mijn docenten. Doordat we veel persoonlijk contact tijdens de colleges hadden, wist hij precies wat voor stage ik graag zou willen doen. Sommige studiegenoten kiezen voor extra vakken in plaats van een stage.

In het eerste jaar krijg je een breed overzicht van het vakgebied en heb ik verplichte vakken gevolgd over psychologie, onderzoeksmethoden & statistiek, communicatiewetenschappen, modelleren en de medische wereld. Daarna kiest iedereen zijn eigen traject en heb ik gekozen voor een focus op de psychologie van beslissingsprocessen. De besliskundige modellen lagen mij niet, dus daar heb ik na mijn eerste jaar niets meer mee gedaan.”



## Appendix B – Study program brochure (control version)



# Medische Communicatie en Besliskunde

### Het vakgebied

Hoe maak je specialistische medische informatie begrijpelijk voor een patiënt? Welke informatie is er nodig om een weloverwogen beslissing voor een behandeling te maken? Hoe gaan patiënten om met onzekerheid en risico in hun beslissing? In dit vakgebied wordt kennis uit de psychologie, communicatiewetenschappen en besliskundige modellen gecombineerd en toegepast op vraagstukken uit de medische wereld.

### Is het iets voor jou?

Ben je nieuwsgierig naar hoe mensen communiceren en afwegingen maken, vind je het uitdagend om deze wetenschappelijke inzichten toe te passen in de praktijk en raak je niet in paniek bij het zien van getallen? Dan is *Medische Communicatie en Besliskunde* misschien iets voor jou!

### Wat kan ik ermee?

Na de bachelor stromen veel studenten door naar een master. Een afgestudeerd besliskundige of communicatiedeskundige heeft een sterke methodologische achtergrond en weet het onderzoek te vertalen naar de praktijk. Daardoor zijn zij uiterst geschikt voor banen als onderzoeker bij een universiteit of een ziekenhuis, maar bijvoorbeeld ook als beleidsadviseur.

### Toelatingseisen

Alle vwo-profielen met wiskunde A of B geven toegang tot deze studie. Sommige andere diploma's kunnen ook toegang geven, eventueel met aanvullende eisen. Bekijk de website voor meer informatie over deze toelatingseisen.

### In het kort

- Start: september
- Duur: 3 jaar (180 ECTS)
- Titulatuur: Bachelor of Science (BSc)
- Taal: Nederlands en Engels
- Werkvormen: hoorcollege, werkcollege en onderzoeksprojecten



### Hoe ziet de studie eruit?

Al het onderwijs wordt gegeven in kleine groepen, nooit groter dan 20 studenten. Dat geeft zowel studenten als docenten de gelegenheid om elkaar te leren kennen.

In het eerste jaar krijgen alle studenten een breed overzicht van het vakgebied, met verplichte vakken op het gebied van psychologie, onderzoeksmethoden & statistiek, communicatiewetenschappen, modelleren en de medische wereld. Daarna volgt een individueel traject waarin studenten hun eigen programma en bijbehorende vakken kunnen samenstellen. In het derde jaar is er een optionele stage waar de student onderzoekservaring kan opdoen.



## **Appendix C – Scoring sheet for free-recall task**

Inhoudspunten voor het algemene deel, per regio:

GA1 kennis uit psychologie  
GA2 kennis uit communicatiewetenschappen  
GA3 kennis uit besliskundige modellen  
GA4 kennis toegepast op medische wereld  
GB1 nieuwsgierig naar hoe mensen communiceren en afwegingen maken  
GB2 wil wetenschappelijke inzichten toepassen in praktijk  
GB3 niet in paniek raken bij getallen  
GC1 veel studenten stromen door naar master  
GC2 banen als onderzoeker of beleidsadviseur  
GD1 alle vwo-profielen met wiskunde A of B  
GD2 andere diploma's met evt. aanvullende eisen  
GE1 start in september  
GE2 3 jaar / 180 erts  
GE3 titel: Bachelor of Science  
GE4 Nederlands en Engels  
GE5 hoorcollege, werkcollege en onderzoeksprojecten

Inhoudspunten voor het target deel, per regio:

TA1 kleinschalig  
TA2 nooit meer dan 20 studenten  
TA3 studenten en docenten leren elkaar goed kennen  
TB1 verplichte vakken in het eerste jaar  
TB2 vakken over psychologie  
TB3 vakken over onderzoeksmethoden & statistiek  
TB4 vakken over communicatiewetenschappen  
TB5 vakken over modelleren  
TB6 vakken over medische wereld  
TB7 individueel traject (met keuzevakken)  
TB8 (optionele) stage (in het derde jaar)

Elk inhoudspunt kan maximaal 1 scorepunt opleveren.