Does culture matter?

Importance assessment and judgment by Swedish and Dutch laymen in non-routine organizational decision-making.

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Summary

This report is the result of a bachelor thesis that I carried out. The research is a follow-up of Heerkens' (2003) research on importance assessment. Importance assessment and judgment are part of the decision-making process. Importance assessment is the cognitive process of a subject thinking about what is important to him. When the importance of an attribute is assessed it can be judged, for example in comparison to another attribute (relative importance). The focus of this research is on the rationality with which the subjects engage in these cognitive activities. I compared Dutch and Swedish subjects to each other to study whether culture influences rationality in importance assessment and judgment. The data for this descriptive and explorative study were collected through think-aloud experiments with 18 Dutch and 10 Swedish subjects. The 18 Dutch experiments were conducted by Heerkens for his research. The ten Swedish experiments were held in Umeå, North Sweden. Both groups of subjects were business students and were considered to be laymen regarding the decision they had to make. The decision that had to be made concerned an acquisition of capital goods in an organization context.

Three research questions were formulated. First the two cultures, Dutch and Swedish, were compared to each other. They appear to be very similar, especially with respect to the cultural dimensions identified by Hofstede (1984, 2001) and Trompenaars (1993). Both countries score very low on masculinity, high on individualism and low on power distance. The Netherlands score higher on long-term orientation and uncertainty avoidance than Sweden. Furthermore, Swedes are 'lagom', industrious and orderly, whereas Dutch are pragmatic.

The second research question that is answered in this report concerns the directly observable differences and similarities between Swedish and Dutch subjects regarding rationality in the importance assessment and weighing process. Twenty-two indicators have been identified for rationality, which is defined as 'structured, well-organized and goal-oriented problem solving'. The scope of this report is limited to 'well-organized and goal-oriented problem solving', with well-organized consisting of three main indicators: the consistent use of systems, models and methods; reducing the complexity of processing attributes (by striving for comprehensiveness, avoiding interdependence and redundancy) and reducing the complexity of assigning weights. Goal-oriented problem solving consists of indicators which directly enhance the fulfilment of the assignment. When looking at the results it can be said that Swedes and Dutch score similar (no significant differences) on 14 out of 22 indicators. Some significant differences could be found as well. First of all, the Dutch seem to be more occupied with the importance judgment than the Swedes. Furthermore they more often use models or tools to organize their process and they strive for redundancy-avoidance more often than the Swedes. The Swedes on the other hand, are more goal-oriented and pay more attention to being comprehensive.

The last research question focuses on explaining the similarities and differences that were found by the cultural differences that were identified by the answer to the first research question. Unfortunately almost none of the differences could be explained from the literature. This is due to the relatively new subject. Different views exist on the influence of culture on decision-making, but no research has been found regarding the influence of culture on rationality in importance assessment and judgment. Some partial explanations for our results were found. First of all, the goal-oriented behavior displayed by the Swedes can be explained by their focus on orderliness and law-abidance. The Dutch inclination towards assigning weights to subattributes more often than Swedes can be explained by the individualistic nature of the Dutch society. More new questions arose during this research than could be answered, so further research regarding this link between culture, rationality and importance assessment and judgment is necessary to further explain the results of this study. Replicating these experiments with subjects from different cultures and comparing the results with each other might enhance this.

Preface

This report represents the final part of my bachelor program in Business Administration, my bachelor thesis. I started looking for a bachelor assignment in September 2006 and found an interesting research by Heerkens on modeling importance assessment processes in organizational decision-making. After having taken several courses in Psychology as part of the minor, my curiosity was evoked. This assignment would be perfect to integrate my interest and knowledge in Psychology and Business Administration.

A second reason for choosing this assignment arose from my desire to study abroad as an exchange student. My wish was to study in Umeå, Sweden, during one semester. After a first meeting with one of my supervisors, Hans Heerkens, it became clear that it was possible to reformulate the assignment so that Swedish and Dutch subjects could be compared to each other. From January till June 2007 I took courses at the Umeå Universitet, in northern Sweden. During May and June 2007 I held ten think-aloud experiments with Swedish Business students. During July and August I typed these audio-files into written documents. In September 2007 I started taking master courses. After some interruptions I resumed working on this thesis in April 2008. Several different analyses were carried out on the think-aloud protocols before it was decided to focus on rationality.

Even though this report is written by me, it wouldn't have been possible without the inspiration, assistance and encouragement of several people. First of all, I would like to thank my supervisors Hans Heerkens for his inexhaustible enthusiasm and encouragement of using my creativity with respect to this assignment. Martin Stienstra for sharing his knowledge and insights regarding culture and useful advice. Furthermore, I would like to thank my Swedish subjects and friends for participating in this research and for making the time that I spent in Sweden 'jätteku l'! Last but not least, I would like to thank my parents, family, friends and colleagues for their encouragement, empathy and desired distraction offered during the process.

All that remains now is to wish you a pleasant journey while reading my bachelor report.

Bianca Hartjes
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1 Introduction and problem statement

1.1 Introduction

Every person and every institution or organization is confronted with more or less important decisions on a daily basis. Decisions that can have a major impact on a person's life or on the company's profit. For example, deciding which bachelor program to study, or whether to make a trip around the world. Deciding to have children, or deciding not to have them. In organizations decisions may regard the small things such as buying new supply closets or new desks, or more important decisions involving which applicants to hire, which goods to produce or sell. When deciding which applicant to hire a company might need to choose between several candidates (alternatives). How does one decide for one alternative over the other? An extensive body of research has been conducted on decision-making and several aspects of this process. Which factors influence decision-making? Which factors determine which choice alternative (e.g. applicant) is chosen by a subject? However, less is known about the actual cognitive activities subjects carry out when coming to a decision. On which 'elements' do these alternatives differ? These 'elements' are called 'attributes' in this research. How do subjects determine the importance of different attributes in order to make a decision between several alternatives? The example of this section is the choice between several applicants. What are the relevant attributes here? One of the attributes might be the applicant's educational level, or the work experience of the applicant. Probably some of the applicants score higher on the educational level, whereas others have more work experience. When this is the case, the decision-maker has to decide which attribute (i.e. education vs. work experience) is more important in order to choose between the different alternatives (i.e. applicants). This process, determining or assessing the importance of attributes, is subject to the research by Heerkens (2003). Identifying the way people assess importance and other cognitive activities people engage in during decision-making, increase understanding of these activities and the errors occurring when executing these activities. Hopefully, by understanding the mistakes that are made, they can be eliminated and the decision-making process can be improved. Improving the decision-making process will result in better outcomes, which is beneficial for both organizational and individual decision-making.

With this research I hope to contribute to the scientific knowledge of importance assessment processes as identified by Heerkens (2003). Several factors have been stated to be potential causes of bias during decision-making processes. I will look into the role of culture on importance assessment processes. In the next section I will explore the scope of this research a bit more detailed.

1.2 Problem statement

This research is a follow-up of the research by Heerkens (2003) and by Richters (2008). Heerkens (2003) conducted the initial research on 'modeling importance assessment processes in non-routine decision problems' with a sample of eighteen Dutch students (all studying at the University of Twente). He carried out an explorative study with think-aloud experiments to identify the cognitive activities performed by Dutch laymen while assessing and judging importance of two attributes in order to make a non-routine business decision. He developed the Weight Assessment Model (WAM) consisting of different phases and activities subjects go through and engage in during the importance assessment process. Besides the interesting findings resulting from this research, many new questions arose during his research. One of the issues was whether this model (WAM) could be found merely in Dutch students' cognitive processes or that they could be replicated for subjects from other cultures as well. Richters (2008) conducted the experiments with Australian subjects to find out whether culture matters and if so, to what extent? The same study has been carried out in other countries as well, such as Germany and Pakistan.

Several preliminary analyses were conducted on the think-aloud protocols. After extensive discussion, it was decided to focus on rationality, or more specifically: the extent of rationality in the process of assessing and judging importance. One of the reasons to focus on rationality, was to enhance compatibility with the research by Richters (2008) who looked into rationality as well. Another motive arose from the cultural perspective. Both Swedish and Dutch people seem to be concerned with abiding by laws and regulations, even though there is an excessive number of (legal and behavioral) rules. This tendency toward orderliness and inclination of structure might be put to practice when weighing attributes as well.

Thus, I decided to replicate the think-aloud experiments with Swedish students, mainly focusing on the rationality of the importance assessment and judgment processes. Are there any differences or similarities in

the extent of rationality in the way Swedish and Dutch students assess and judge importance of attributes? This leads to the following problem statement:

Which differences and similarities can be observed between Dutch and Swedish subjects when it comes to the process of assessing and judging importance of attributes regarding a non-routine business decision; which subjects behave more rational; and does culture account for this?

In order to answer this problem statement, I formulated the following research questions:
1: Which differences and similarities can be observed between the Dutch and Swedish national culture?
2: What are the directly observable differences and similarities between the Dutch and Swedish subjects in the process of assessing and judging importance with respect to rationality?
3: Which cultural differences and similarities account for the differences and similarities between the Dutch and Swedish rationality in assessing and judging importance?

1.3 Structure of this report

Now that the problem statement and research questions have been defined, I will outline the structure of this report. The structure of this report corresponds to the three research questions to a large extent. First of all, I will discuss some literature on several relevant topics, starting with decision-making and importance assessment. Then I will present some theory on rationality. Subsequently, the concept culture will be explored and the Dutch and Swedish culture will be compared to each other. Finally, the link between culture and importance assessment and judgment will be discussed to formulate some expectations.
In chapter 3 the methodology will be presented consisting of the research plan, research method and data collection and lastly the operationalization of the variables. In chapter 4 the results will be presented and subsequently clarified and explained by referring back to the theory as discussed in chapter 2.
In the last chapter I will outline the conclusions and the implications for further research.

2. Theoretical Framework

In this chapter I will outline some theories concerning the topic of my research. Once again, this research is about the importance assessment process of laymen actors in making a non-routine business decision.
Two elements that will be highlighted in this chapter are: decision-making and the importance assessment process. Furthermore I will briefly discuss Heerkens' Weight Assessment Model (WAM) (Heerkens, 2003). This chapter will be concluded with some theory on culture and rationality.

2.1. Decision-making theory

Before I will proceed to elaborate on the different aspects of importance assessment processes, I will explore some definitions of decision-making. There is a lot of literature available on this topic, but I will only look into those definitions that are related to this research on importance assessment processes.
According to Fitz-Gerald & Tracy (2008) 'decision-making is the process of making choices among competing actions given incoming information', where a superior decision entails one 'that increases the chances of a good outcome'. Several strategies can be employed to come to a decision. Different circumstances can influence which strategy is applied to make a decision. Factors like context, cognitive style, culture, risk and information sources and personal biases can make a decision rational or emotional, logical or intuitive (Fitz-Gerald & Tracy, 2008). According to Bettman et al, factors determining the choice strategy applied are: the relative importance of various possible goals of the strategy (e.g. importance and irreversibility of the choice); individual characteristics (e.g. experience and training); emotion; environmental factors (e.g. amount of information available, having to provide justification for choice and time pressure) and the complexity of the problem (Bettman, Luce & Payne, 1998, cited in Heerkens, 2003).
Decision-making is not always simple. Besides the factors mentioned above influencing the rationality or logic of decision-making and the choice strategy used, there is the uncertainty about the exact outcomes of the decision to be made. Some external factors might influence our actions or decisions unwillingly (e.g. economic recession). Furthermore, we are regularly debating with ourselves how much we are willing to give up of one attribute in favor of another attribute (Shafir et al, 1993). The possible decision-outcomes are called 'alternatives', whereas 'attributes' are the elements on which the alternatives score differently. For example, how much safety are we willing to give up for a lower price for a car? Evidently, the attribute 'safety' can exist of several sub-attributes like seatbelts, abs-brakes etc, which can be taken into account when making the decision as well. Different alternatives (i.e. different cars) can have different scores on the several attributes taken into consideration. Depending on the choice strategy the scores of these alternatives on the attributes can lead to a weight for these alternatives, which leads to a decision with a certain outcome.
After having identified some factors influencing the process of decision-making, the question remaining of interest for this specific research is: what kind of influence, if any, does culture have on decision-making in this context? There are several views on this topic, varying from the universalistic view till the dispositionalist stance and different theories in between. I will explore some theories in section 2.4 Theory on Culture.

2.2 Importance Assessment Process & Weight Assessment Model (WAM)

In the previous section I discussed several issues concerning the decision-making process. In this section I will look into one specific part of the decision-making process, videlicet the importance assessment process. Importance is the relative influence of the attribute concerned on the attractiveness (in the eyes of the decision-maker) of each of the alternatives to be chosen from (Heerkens, 2003 p13; Fischer, 1995). "An attribute is said to be important if a change in the individual's perception of that product attribute leads to a change in the attitude toward the product" (Jaccard et al, 1986). Importance assessment is the cognitive process of an actor when thinking about how important an attribute is to him (Heerkens, p10). Determining importance of attributes is importance judgment and not importance assessment. Importance judgment is the result of importance assessment. For example, deciding which attribute is more important, safety or price, is importance judgment, whereas the cognitive process of assessing the importance of each of the attributes is called importance assessment (Heerkens, 2003). To make a decision, one needs to identify the attractiveness of alternatives. In order to do that one needs to apply a certain choice strategy to decide on a weighing structure. To realize that one needs to score the attributes and assign weights (importance judgment). To deduce at importance judgment one has to assess the importance of the attributes first. To clarify the position of the importance assessment process in the decision-making process, I used a figure from Heerkens' dissertation on this subject (Figure 1).

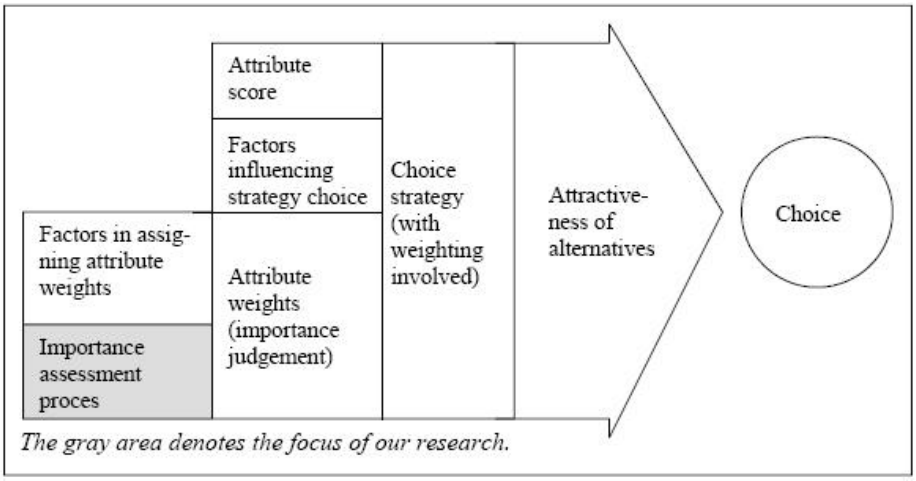


Figure 1: Position of importance assessment in the decision making process (derived from Heerkens, 2003 p.2)

To elucidate this process I will provide an example (see Figure 2) which is used by Heerkens (2006) as well. Imagine having to buy a new car. Different wishes and needs might influence the importance of various attributes, like the need for a car to drive the kids to school on the one hand, and the wish to possess a race-car on the other hand (importance assessment). The subject might decide that the number of seats in a car is more important than the maximum speed that can be achieved (importance judgment). When looking at a Ferrari and a Volksvagen, the Ferrari has two seats while the Volksvagen accommodates up to five people but is slower than the Ferrari. Since the number of seats is more important, I will buy the Volksvagen.

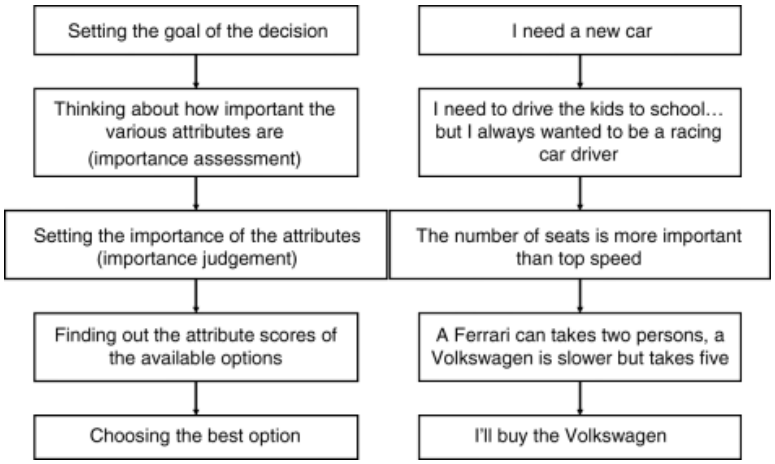


Figure 2: An illustration of importance assessment in the decision making process (derived from Heerkens, 2006)

2.2.2 Weight Assessment Model (WAM)

In his research Heerkens presents the Weight Assessment Model (WAM) (Heerkens, 2003) consisting of seven phases and six auxiliary activities subjects go through when assessing importance of the attributes. These seven phases are divided into three clusters. Table 1 shows these three clusters and seven phases of the WAM as identified by Heerkens; Table 2 displays the six auxiliary activities.

Cluster	Phase Name
Structuring Cluster	1 Problem Identification
	2 (Sub-) attribute processing
Weighing Cluster	3 Absolute sub-attribute weighing
	4 Homogeneous sub-attribute weighing
	5 Heterogeneous sub-attribute weighing
	6 Attribute Weighing
Evaluation Cluster	7 Evaluation

Table 1: The phases of the Weight Assessment Model (Heerkens, 2003)

In the structuring clusters defining of the problem takes place in phase 1 and in phase 2 subjects engage in framing, giving the attributes more precise meaning. Heerkens (2003) distinguishes five different ways of processing attributes: Decomposing (splitting the main attribute in several sub-attributes), re-formulating (renaming an attribute while the meaning remains similar), concretizing (lower the level of abstraction, but still remaining the same content), integrating (taken two or more subattributes and integrate them into a new one) or making more abstract (complement of concretizing, thus to higher the level of abstraction).
In the second cluster different types of weighing occur, such as weighing an individual subattribute on its own (absolute (sub)attribute weighing), or comparing two different sub-attributes to each other (homogeneous and heterogeneous sub-attribute weighing). The last phase in the weighing cluster, phase 6 attribute weighing concerns the weighing of the main attributes (in our research safety and passenger comfort). Another distinction that can be made in the weighing cluster is the method of assigning weights to attributes and sub-attributes and the relation between weights on these two levels of attributes, which can be conducted in four different ways:

- Giving weights to attributes without considering sub-attributes
- Giving weights to sub-attributes first and then aggregate these weights to attribute weights
- Weighing sub-attributes without giving weights to attributes
- Weighing attributes first and then deriving weights for the sub-attributes (Heerkens 2003, p14)

The subjects applying method 1 or 2 are considered to be holists (actually weighing the main attributes in the final weighing), while subjects applying the third method are reductionists (merely weighing on subattribute-level). The fourth method is possible as well, although coming up with weights for subattributes after defining weights for the main attributes seems very irrational and futile in the context of this research, where the goal is to define weights for the main attributes. One of the indicators used in our research is determining whether the relationship meant in method 2 (assigning weights to sub-attributes which lead to weights for the main attributes) is present in the weighing process of the subjects. Furthermore, a second indicator we used to determine the extent of rationality in importance assessment is the weighing of the main attributes in the final weighing (which is the goal of the assignment), thus whether subjects are holists (weighing main attributes) or reductionists (merely weighing sub-attributes in final weighing). I will further elaborate on the indicators for rationality in section 4.3.
The last cluster of the WAM, evaluation, depicts the evaluation or reflection by the subject on his own process, the activities and the outcomes (Heerkens, 2003). The evaluation cluster will not be covered in this report. My focus will be on the structuring and the weighing clusters. The reason for focusing merely on these clusters is that the second phase ((sub-)attribute processing) has been identified as being an important phase considering the amount of time spent by the subjects on this phase (Heerkens, 2003). Furthermore, to reduce the complexity of this research and taking into account the limited time available, I will confine to the core part of the WAM: the structuring and weighing clusters.

Activity number	Activity name
1	Alternative judging
2	Attribute scoring
3	Activity planning
4	Information assessment
5	Weighing procedure design
6	Expressing emotions

Table 2: Auxiliary Activities of the WAM (Heerkens, 2006)

As stated before, besides the seven phases of the WAM, six auxiliary activities were identified by Heerkens as well (Heerkens, 2003; 2006). These activities were observed when studying the think-aloud protocols of the Dutch subjects and occurred during several phases (activity planning and information assessment), or did not pertain to the assignment or be part of the weighing process (e.g. alternative judging, attribute scoring, weighing procedure design). The first activity is alternative judging. Despite it not being part of the assignment, subjects can make judgments about the attractiveness of different alternatives (in our research, the minibuses used as example to enhance the envisioning of the concept minibus or comparing a minibus with other modes of transport). The second activity, attribute scoring, corresponds with the first activity, with subjects judging how different alternatives (e.g. two minibuses or a minibus and a train) would score on certain attributes. Activity planning, activity three, concerns the planning of how to execute (a phase of) the assignment, which can occur or be repeated during several phases. The fourth activity is information assessment with subjects

assessing the (quality of the) available information and the information that is lacking according to them. Weighing procedure design concerns the subject's effort to translate the case to reality and therefore suggesting which steps or action should be taken if this assignment were to be executed in a real life situation. The last activity is expressing emotions like feeling discomfort or difficulty of solving the problem (executing the assignment), which might influence the self-confidence of the subject, and subsequently might possibly affect the weighing process.

2.3 Rationality

As mentioned before, in this research on importance assessment processes, my focus will be on rationality. More specifically, I want to find out whether Swedish people are more or less rational than Dutch people in the process of importance assessment concerning non-routine decision making. In order to examine this, I will define rationality. In the next chapter I will elaborate on research methods and identify which indicators will be used to measure the extent of rationality applied by the subjects.

2.3.1 Rationality: a definition

Rationality has been subject in scientific research and thus literature for several decades and therefore several definitions are available as well. Three of these definitions are:

- *'When making a decision, a rational actor would, ideally, consider all possible alternatives and their consequences before choosing the best solution'* (Simon, 1957)
- *'Rationality is the notion that a person is largely entitled to his or her own views or preferences, but that these should cohere, should adhere to basic rules of logic and probability theory, and should not be formed or changed based on immaterial factors related to, for example, mood, context, or mode of presentation'* (Shafir & LeBoeuf, 2002)
- *'Rational decision making is choosing the alternative with the highest attractiveness, where the attractiveness is established by multiplying the score on each attribute of an alternative by the weight, adding the results and the attractiveness is calculated.* $U = \sum_{i=1}^{n} A_i W_j$ (Keeney & Raiffa, 1976)

These three definitions approach rationality differently. Simon's definition emphasizes the attempt to be complete, to take all alternatives into account, whereas the definition by Shafir & LeBoeuf stresses that rationality is a way of reasoning in accordance with logic and probability theory and independent of immaterial environmental factors influencing the individual. Keeney & Raiffa present a formula (utility function) to calculate which attribute is most attractive, using the subject's own preferences, and they state that subjects behaving rationally choose this alternative (outcome of the function) over the other alternative(s). However, in practice people might behave irrational (due to any of the factors mentioned earlier which influence the decision-making process) and choose an alternative which is less attractive according to the formula.
In this report I will work with a definition used by Richters (Richters, 2008), which integrates some aspects of the three definitions mentioned above. Richters (2008) conducted one of the follow-up researches of Heerkens' research on importance assessment (Heerkens, 2003). Richters focussed on rationality in importance assessment processes and compared Dutch and Australian subjects to each other. In order to make my report and findings compatible to hers, I strive to be consistent with her definition and elaboration of rationality. The definition of rationality used by Richters is the following: *'Problem-solving in a structured, well-organized and goal-oriented way'* (Richters, 2008). This definition includes Simon's (1957) emphasis on comprehensiveness and Keeney and Raiffa's (1976) relation between the scores of sub attributes and the final weighing. The main reason for choosing the same definition and methods as Richters (2008) is to enhance the possibility to compare Australian subjects with Swedish subjects as well, which might be interesting for future research. I will elaborate on the indicators of rationality in section 3.3.

2.3.2 Rationality in importance assessment process

Now that rationality has been defined and the scope of this research has been clarified, the indicators will be identified. The definition consists of three parts: *'Problem-solving in a* ***structured****,* ***well-organized*** *and* ***goal-oriented*** *way'*. First I will elaborate some more on these three indicators. Secondly, I will identify sub-indicators for each of the indicators (see chapter 3). Finally, I will check the Dutch and Swedish protocols for these indicators in order to arrive at a statement about the extent of rationality present within these protocols. These findings will be discussed in chapter 4.
The first indicator is *structure*. The definition of structured problem solving as meant here is that the subject goes through the process of importance assessment rationally, not incrementally. In other words, does the

subject proceed to the next phase after having completed the previous phase? Put in the context of this research: are the phases of the WAM finished sequentially (Heerkens, 2003); does the subject start with phase 1 (problem identification) and finish with phase 7 (evaluation). Or is there iteration taking place between phases and thus is the importance assessment process more incremental (and therefore less rational)? Even though this is a very interesting issue to explore further, I will not look into this element since the scope of this report is limited to the structuring and weighing cluster (partly due to time limitations) and in order to determine whether the subjects proceeds the phases sequentially, we would have to look at the evaluation cluster as well. The definition of 'structured problem solving' as used here is very restricted and merely applies to the way a subject carries out the phases of the WAM (rational vs incremental). Other elements which could be part of 'structured problem solving' were assigned to the indicator 'well-organized', to be able to include them in the research after all.

Secondly, to be rational the process of problem-solving should be *well-organized*. Well-organized is a broad term. In this report it will be limited to these indicators: explicating the methods applied and being consistent in the system and methods used and reducing complexity (for both the structuring and the weighing cluster). Thus, the more the subject explicates the methods it applied, the more well-organized and rational the importance assessment process will be. Furthermore, being consistent with the methods and system used facilitates working in an organized and rational way. This consistent use of methods, models and systems could have been used as an indicator for 'structured problem solving'. However, since that indicator was excluded due to the scope of this research, we will include it in the indicator 'well-organized problem solving', which can be justified as well, since the consistent use of models and methods helps to better organize the decision-making process. The other indicators, reducing complexity in the structuring consequently the weighing cluster enhances completing the assignment. By setting a framework of possible options (attributes or weight ranges) which can be taken into account the complexity will be reduced into a limited range of options. It is impossible for human cognition to take all alternatives and attributes into account, since humans are boundedly rational and therefore limited in solving complicated problems (Simon, 1957). Therefore purposely creating the boundaries for the scope of the assignment will reduce this complexity and enhance executing the assignment more easily.

The last indicator is *goal-oriented*, which means that the subject is making choices and acts in a way which makes fulfilling the goal of the assignment more easily attainable. Every action taken and every choice made should be deliberately in line with the ultimate goal of the assignment.

In order to determine the extent of rationality in the importance assessment process of the Dutch and Swedish subjects, these two elements (well-organized and goal-oriented problem solving) have to be elaborated into measurable indicators that can be easily observed from the protocols. These indicators will be presented in chapter 3 (methodology). After having briefly discussed the indicators of rationality which will be the focus of my research, I will proceed with exploring some theories on culture and subsequently examine the link between rationality, culture and importance assessment.

2.4 Theory on Culture

2.4.1. What is culture?

What is culture? Culture is a term that is extensively researched and used within different disciplines or fields of study, such as anthropology, sociology, psychology, biology and management studies. The term culture has different meanings in these different fields of study. Several authors have attempted to define culture, either through dimensions in which cultures differ from each other, or by identifying the elements that build the concept 'culture'. Some use very distinct visual samples like an onion (Hofstede, 1997; Trompenaars, 1993) or an iceberg (Schneider, 1997). In this research I will compare some findings of different authors and try to create a framework that I intend to apply to the Swedish and Dutch data (thereby I implicitly assume that there is such a thing as 'national culture', following Hofstede, which will be argued later on in this section) and explain the differences and/or similarities in the extent of rationality used by both groups of respondents in their decision-making process, more specifically, their importance assessment process.

2.4.1.1. Culture: a definition

As stated before, culture has been discussed in several fields of study. I will only pay attention to the definitions used in research within the areas of organizational psychology and management studies.

Schein (1990) defines culture as '(a) a pattern of basic assumptions, (b) invented, discovered, or developed by a given group, (c) as it learns to cope with its problems of external adaptation and internal integration, (d) that has worked well enough to be considered valid and therefore (e) is to be taught to new members as the (f) correct way to perceive, think and feel in relation to those problems' (Schein, 1990 p111)

One of the widely known authors in these areas is Hofstede. He defines culture as being the 'collective programming of the mind which distinguishes the members of one group or society from those of another (…) [this] collective component shared in the minds of otherwise different individuals and is absent in the minds of individuals belonging to a different society' (Hofstede, 1984). Furthermore, according to Hofstede (1984) the concept 'culture' can be compared to an onion, with several layers, all representing different constructs such as values and beliefs deriving from some collective basic assumptions, which are reflected in behavior and institutions. The outer layer concerns the explicated elements of culture, which can be observed, whereas the inner layers are implicit, residing in people's mind (Hofstede, 1984). This onion-diagram (Figure 3) by Hofstede has merely three layers, whereas other diagrams are available which give a more detailed view of these three layers, e.g. Bunkowske's 'Cultural Onion Diagram' (2002)[1], see Figure 4. Bunkowske (2002) renamed the three layers into 'foundational level', 'evaluating level' and 'actualizing level'. The foundation level is the most inner circle, consisting of a mental map which forms the 'basis for thinking that organizes a society's entire perspective on reality' (Bunkowske, 2002). The middle rings (evaluating level) represent Hofstede's layer of values, and consists of beliefs, values and feelings, which determine the scale of good to bad, true to false and the scale of emotions. The outer layer (actualizing level) represents the behaviors and artifacts displayed by the society (Bunkowske, 2002).

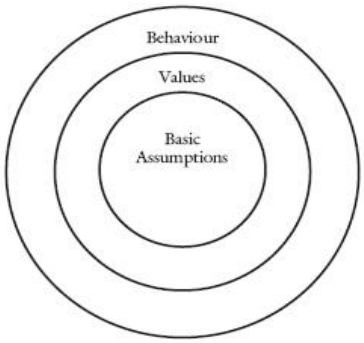


Figure 3: Culture according to Hofstede existing of different layers (Hofstede, 1984)

Figure 4: "Cultural Onion Diagram" according to Bunkowske (2002)

The onion diagrams presented above (Figure 3 and Figure 4) show that only the outer layer is observable, or explicit. The other layers of the onion are not visible, and can only be identified by "delayering" the onion (i.e. to comprehend a culture, one needs to understand the basic assumptions and values and beliefs upon which the behavior and artifacts are based).

Another way of visualizing the concept of culture is done by Schneider (1997). He proposes culture being similar to an iceberg; only one-ninth of the iceberg is visible above the surface of the water (explicit), whereas eight-ninth is invisible (implicit), or resting beneath the surface. The cultural iceberg is used and adapted by several authors and has been published on numerous websites (and included in presentations or online-workshops on cross-cultural understanding/communication). Two examples of the cultural iceberg can be found in Figure 5 and Figure 6. The iceberg in Figure 5 is modified from Weaver (1998) by Culbertson (2002)[2]. Figure 6 is another adapted version of Schneider's iceberg and is published on the website of the University of Rice as part of a training program to improve cross cultural knowledge and skills[3].

[1] [Eugene Bunkowske, Ph.D., developed the "Cultural Onion Diagram" during his early years as Graduate Professor of Biblical Missiology at Concordia Theological Seminary.] http://www.csp.edu/maco/Courses/573/Microsoft_Word_-_Oni.pdf Accessed on February 25th, 2009

[2] Modified from Gary R. Weaver, "Understanding and Coping with Cross-cultural Adjustment Stress" in Gary R. Weaver, editor, Culture, Communication and Conflict: Readings in Intercultural Relations, second edition (Simon & Schuster Publishing, 1998) Article by Howard Culbertson. For more original content like this, visit: http://home.snu.edu/~hculbert Picture copied from: http://home.snu.edu/~hculbert/iceberg.htm (Accessed on February 26th, 2009)

[3] Derived from http://culture101.rice.edu/culture.cfm?doc_id=8637 (Accessed on February 26th,2009) part of an online guideline to improve cross culture awareness and knowledge. This presentation is created by the University of Rice, based on several authors.

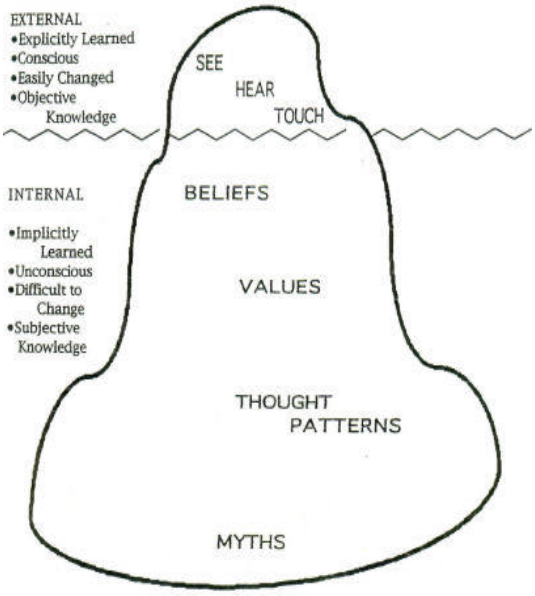


Figure 5: Cultural Iceberg (by Culbertson)

Figure 6: Cultural Iceberg (by University of Rice)

When comparing the onion diagram and the iceberg, it becomes clear that the basic assumptions about the concept of culture are quite similar. Both theories acknowledge that most building blocks of culture are internalized in people's minds (values, beliefs, thoughts and assumptions) and only a small portion is explicated into observable behavior and artifacts. Furthermore, both theories stress the major influence of these implicit/internal elements of culture (e.g. beliefs and values) on the behavior displayed by these actors, and the difficulty of understanding, let alone changing, these implicit elements.
One other interesting issue I would like to address briefly here is the position of decision-making processes and problem solving approaches within this iceberg-model. According to the iceberg in Figure 6, these processes can be found below the surface, thus, being influenced by the values, beliefs and mental map of the actor within a certain culture. So, the basic assumptions, values and norms of a culture provide the base for the mental map which influences the decision-making processes, implicating cultural differences in decision-making processes. I will elaborate somewhat more on this issue in section 2.4.2.

2.4.1.2. Dimensions of culture

After having identified the different building blocks of culture and having discussed two different models representing these building blocks, I will look into another aspect that is widely researched by different authors: dimensions of culture. These dimensions represent the way a 'culture' (in this specific case, national cultures) handles fundamental problems of the society, such as human inequality. How do the society's values score on these dimensions? Which 'certain states of affairs [are being preferred] over others' (Hofstede, 2001) in different countries? Thus, how does the culture cope with and value social problems like human equality. In this section I will discuss the dimensions of Hofstede (1984; 1991), Trompenaars (1993) and Brett (2001).

Hofstede

First, I will look into Hofstede's dimensions. His theory is widely known and discussed. Hofstede (1984; 1991) collected data from employees working for IBM in 64 different countries. The employees were stated to hold similar occupational positions and all employed in subsidiaries of IBM. The data were based on questionnaires about values filled out by employees (Hofstede, 1984). One important remark is that Hofstede intends to compare different national cultures to each other, thus assuming that there is such a thing as national culture.
The first dimension Hofstede discusses is "Individualism versus Collectivism" (Hofstede, 1984), which is the "degree of interdependence a society maintains among individuals. It relates to people's self-concept: 'I' or 'we'" (Hofstede, 1984). The more individualistic the society, the looser the relationships an individual has with others (e.g. relatives).
The second dimension is "Power Distance", which can be large or small. Large Power Distance societies are characterized by hierarchy and inequalities which are accepted by the people, whereas small Power Distance enhances the desire for "power equalization and justification for power inequalities" (Hofstede, 1984)

"Uncertainty Avoidance" is the third dimension Hofstede distinguishes, representing the "degree to which the members of a society feel uncomfortable with uncertainty and ambiguity (…) how a society reacts to the fact that time only runs one way and that the future is unknown" (Hofstede 1984). The higher the Uncertainty Avoidance of a society, the more rigidity in rules and intolerance towards deviating ideas and people. The lower the Uncertainty Avoidance, the more relaxed people are and the less hierarchical and behavioral rules exist.
Hofstede's fourth dimension is "Masculinity versus Femininity", with masculinity representing a society focused on "achievement, heroism, assertiveness and material success" and a feminine society being more focused on "relationships, modesty, caring for the weak and the quality of life" (Hofstede, 1984). Furthermore, this dimension corresponds to the way social roles are assigned to females and males (Hofstede, 1984)
The fifth dimension "Long-term Orientation" was found in follow-up research among students in twenty-three countries (Hofstede, 1991). Hofstede discusses that Long-term Orientation is "associated with thrift and perseverance", while Short-term Orientation is focused on "tradition, fulfilling social obligations and protecting one's face" (Hofstede, 1991)

Trompenaars

A second author discussing culture in terms of dimensions is Trompenaars (1993). He included nine countries in the research he conducted, USA, The Netherlands, Sweden, Austria, Greece, Venezuela, Spain, Italy and Singapore. He presents seven dimensions, some more or less similar to Hofstede's dimensions as discussed above. Trompenaars (1993) argues that the assumptions people make are inherited in a culture and can be described according to seven dimensions:

- universalism versus particularism
- individualism versus communitarianism
- neutral versus emotional
- specific versus diffuse
- achievement versus ascription
- sequential versus synchronic (passage of time)
- internalist versus externalist (natural environment) (Trompenaars, 1993)

The first dimension ("universalism versus particularism") states that people can judge based on universally agreed standards or on the obligations and unique circumstances of a relationship (Trompenaars, 1993). The second dimension, "individualism versus communitarianism", corresponds with Hofstede's first dimension. The third dimension is "neutral versus emotional", where neutralists embrace objectivity and detachment from others and affectivists advocate the expression of feelings (Trompenaars, 1993). "Specific versus diffuse", dimension four, with specifists encouraging explicit, delineated and regulated relationships and diffuse-oriented people stressing "the real and personal contact of the whole person" (Trompenaars, 1993). The fifth dimension is the last dimension concerning relationships with others, focusing on how societies confer status, either through achievement (capabilities, recent accomplishments and past record) or through ascription (social position, gender, age, association with important others) (Trompenaars, 1993).
The sixth dimension identified by Trompenaars (1993) concerns time, more specifically how a society views time (past, present, future), which can be seen as linear (sequential) or cyclic (synchronic). The final dimension is "internalist versus externalist" which relates to the role of the natural environment. Internalists state that the individual itself has most influence on his life, whereas externalist argue that nature is more powerful than the individual and should be feared or emulated (Trompenaars, 1993).

Brett

The third and last author I will discuss is Brett (2001). She distinguishes three dimensions of culture. The first dimension refers to motivation, the second to influence and the third to communication. Brett researched cultural differences and its influence on negotiation strategies. The motivation can be either individual or collective, the influence egalitarian or hierarchistic and the communication direct or indirect. An individualist orientation views others as being competitors, strives for enhancing personal gain and is considered to be independent from others. A collectivist orientation however, views other people as cooperators, strives for social interaction to improve group welfare. The second dimension defines the way people influence others, either by striving for equality in political, economical, social and civil rights for all people, or by exploiting their superiority (hierarchical) and social status. The communication dimension refers to the way people exchange information, either directly (explicitly, direct, not affected by situational constraints), or more indirect (tacit information exchange, such as storytelling) (Brett, 2001).

Comparing Hofstede to Trompenaars and Brett

After having discussed the different dimensions of these three authors, I will compare them to find out how they correspond to each other. All authors analyze culture on country level, thus assuming that a country has a 'national culture'. McSweeney (2002) criticizes Hofstede's research to national cultures. He argues that Hofstede incorrectly assumes that the organizational culture and occupational culture are equal within all subsidiaries of IBM, all over the world. Furthermore, Hofstede talks about national cultures but applies it to states or countries, not to nations, while it is understandable to assume that there are differences between these regions or nations within states or countries. McSweeney illustrates this misinterpretation of national culture by referring to Great Britain, which consists out of three nations: England, Wales, and Scotland, while Hofstede addresses Great Britain merely as one entity (McSweeney, 2002). Even though Hofstede's theory on cultural dimensions (and by association the assumption of Trompenaars and Brett of suggesting the existing of national cultures) might have been criticized, the dimensions provide a useful guideline in explaining parts of culture, taking into account that there might be sub-cultures existing within a country.

Table 3 provides an overview of the dimensions by the three authors. Hofstede's dimension "Individualism vs. Collectivism" corresponds with those of Trompenaars and Brett. Hofstede's "Power Distance" conforms to Brett's dimension of "Egalitarianism vs. Hierarchy", whereas a society with a high power distance embraces hierarchy whereas a society with low power distance advocates equality for all people in all sorts of rights (egalitarianism). "Masculinity vs. Femininity" partly corresponds with Trompenaars' "Achievement vs. Ascription". Although the main purpose of the latter dimension is to distinguish between status that is achieved and status that is ascribed to individuals, the foundation upon which this 'status' is based shows resemblance with the masculinity dimension of Hofstede. While status by Achievement is mainly about what the individual actually achieved, the status that is ascribed ("Ascription") to the individual is based upon the person he/she is (age, class, gender, education etc). This corresponds with the societal norms Hofstede identified for masculine and feminine societies (Hofstede, 2001 p.299). Masculine societies stress what you do (i.e. achieve) and feminine societies focus on who you are. Evidently this is only a minor part of the 'Achievement vs Ascription' dimension of Trompenaars. Other interpretations and relations between these two dimensions are possible as well. However, in the interest of this research to working towards a framework of culture to identify cultural differences, I will merely focus on this link.

The dimension "Uncertainty Avoidance" corresponds to three dimensions by Trompenaars. "Neutral vs. Emotional" matches with part of coping with uncertainty. In societies with high uncertainty avoidance behavior expression of emotions is tolerated as a means of coping with ambiguity and uncertainty. In low uncertainty avoiding societies expressing emotions and affection is not tolerated and sometimes found to be immature and inappropriate. Furthermore, people belonging to low uncertainty avoidance society seem to believe in luck and fate and strongly feel that nature influences life and humans should adapt to these situations when they arise, which corresponds with the externalist end of Trompenaars "Internalist vs. Externalist" dimension. Internalists try to control life and decrease insecurities by thinking and planning ahead and fighting against influences of nature, while not believing in fate or luck, but emphasizing the possibility of man controlling and creating his own destiny (high uncertainty avoidance behavior). Moreover, the value and experience of time ("Sequential vs. Synchronic") resembles the notion of time in "Uncertainty Avoidance" as well. In high uncertainty avoidance societies people tend to see time as scarce and linear (sequential) which make people more hurried. In societies with low uncertainty avoidance people experience 'time as a framework for orientation rather than something to be mastered' (Hofstede, 1984) and it is viewed as being circular (synchronic) leading to people being more relaxed.

Hofstede (1984, 1991)	Trompenaars (1993)	Brett (2001)
Individualism – Collectivism	Individualism – Communitarianism	Individual-Collective oriented
Power Distance		Egalitarianism-Hierarchy
Masculinity – Femininity	Achievement-Ascription	
Uncertainty Avoidance	Neutral – Emotional Internalist – Externalist Sequential – Synchronic	
Long-term Orientation		
	Universalism – Particularism	
	Specific – Diffuse	
		Direct – Indirect Communication

Table 3: Comparing Hofstede to Trompenaars and Brett

2.4.1.3. Dutch & Swedish culture

In the previous section I discussed three theories on the dimensions of culture, by Hofstede (1984, 1991), Trompenaars (1993) and Brett (2001) and compared these to each other. The next step would be to identify how the Dutch and the Swedish culture score on these dimensions. Figure 7 shows the results of the Netherlands and Sweden on Hofstede's dimensions. The top two figures are the individual scores for both countries; the lower figure compares the two countries to each other[4]. The table in figure 5 compares the values for Sweden and the Netherlands with those for the 'world' (average scores of all the countries that were included in the study).

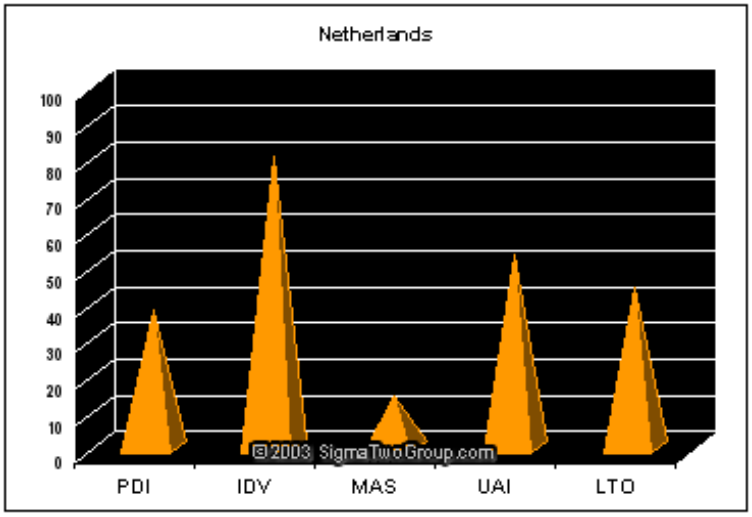
According to the dimensions of Hofstede & Trompenaars

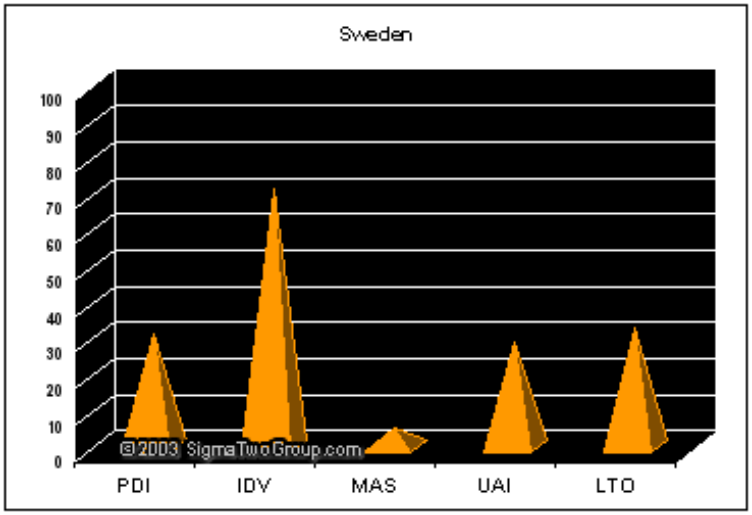
When looking at the figures, one of the first things that draws the attention is that the Dutch and Swedish culture seem to be very much alike, with most scores very close to each other. The scores for power distance are lower than average, which indicates that there is a desire for equality within the society for all people, and inequalities need to be justified. Furthermore, the two countries can be said to be very individualistic (the Netherlands even more so than Sweden), being independent and looking for personal gain and privacy. Both countries are very feminine, with Sweden being the most feminine country of all, which means that the differences between and discrimination on gender and race is very low. The social system of both countries can be typified as a welfare-state, which embraces and strives for solidarity between and equality among people, enhanced by a strong social justice system which helps out the needy people (Hofstede, 1984).
The largest differences between the two countries can be found on the "uncertainty avoidance"-dimension. Sweden scores very low, which means that it is more relaxed towards uncertainty and has fewer hierarchical and behavioral rules. The Netherlands is less relaxed and tends to control this uncertainty by making rules, laws and regulations (Hofstede, 1984; website). This high uncertainty avoidance also allows for more tolerance towards the expression of emotions, compared to societies with low certainty avoidance. Regarding long-term orientation, the Netherlands is very similar to the world's average. Sweden is a little less long-term oriented and therefore probably a bit more relying on traditions and social obligations (Hofstede, 1991).
According to Trompenaars, Sweden and the Netherlands are very similar as well on the dimensions he defined. Both are characterized as being "Left Brain"; which consists of a combination of being universalist, individualist, neutral, specific, attributing status by achievement, future-oriented, and nature as a dominant influence on an individual's life (externalist) (Trompenaars, 1993; cited in Hofstede, 1996). One remarkable issue is that Sweden and the Netherlands score very low on Hofstede's masculinity, but simultaneously seem to be acquiring status from achievements by Trompenaars' dimension. Achievement is said to be typical for masculinity according to Hofstede. However, as mentioned these two dimensions are not completely similar, but are related to each other to some extent. Thus, while status in Sweden and the Netherlands is not ascribed, but achieved, most individuals should be able to achieve this status. Equality is highly valued in both countries, so when focusing on achieving status race, gender and age should not make a difference in accomplishing it. Besides the content-related difference between the two dimensions (and thus the corresponding scores of countries on these dimensions) the different research sample might provide an explanation as well.

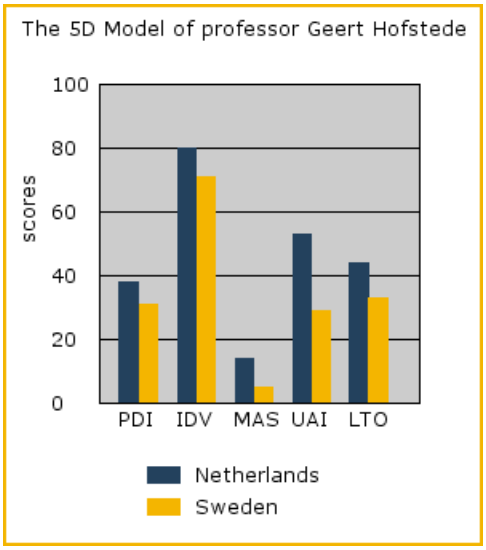
"Swedishness"

From the results of Hofstede and Trompenaars the two countries seem to be very similar to each other on most of the dimensions. However, the question that arises is whether there are some other characteristics, besides those measured by the dimensions and layers of culture as mentioned before, of both countries that can be said to be 'typically Swedish' respectively 'typically Dutch'. When searching for 'Swedishness' or 'Swedish culture' in a search engine, several results pop up. One is a book by Åke Daun called 'Swedish Mentality'[5]. He tries to find out whether a 'Swedish Mentality' exists; 'what are the typical ways of thinking, behaving, forms of socializing and patterns of communication and sets of values and perspectives?' The data for his research were collected from immigrants with a 'fairly negative perception of Swedes' and the data might be further biased towards the male population of the urban middle class (Daun, 1996, cited in Kristoffersen, 2007). Daun states that culture is expressed through feelings and reason in the relations between

[4] These figures were derived from http://www.geert-hofstede.com/hofstede_dimensions.php and http://www.geert-hofstede.com/geert_hofstede_resources.shtml, accessed on February 25th, 2009
[5] I had no access to the book, so I used the summary made by Karen Lisbeth Kristoffersen (2007) of the book 'Swedish Mentality' by Åke Daun (1996)







	PDI	DV	MAS	UAI	LTO
Netherlands	38	80	14	53	44
Sweden	31	71	5	29	33
World	55	43	50	64	45

Figure 7: Scores on Hofstede's dimensions (derived from www.geert-hofstede.com)

people (Daun, 1996, cited in Kristoffersen, 2007) and found the following six elements in the Swedish culture:

- Shyness
- Modesty
- Independence
- Avoidance of conflict
- Honesty

Homogeneity Swedes try to control their emotions and tend to prevent spontaneous expression of these emotions, which can be seen by others as 'being cold and stiff'; while for Swedes it is a sign of maturity and acting according to generally accepted norms (Daun, 1996, cited in Kristoffersen, 2007). Furthermore, Swedes tend to be rational, practical and orderly. There is no room for dreaminess or intuition, one has to be down-to-earth and use common-sense.

Swedes have much faith in the state for guaranteeing satisfactory living conditions and the civilians live up to the rules and regulations set by institutions. Moreover, the Swedish culture is dominated by Protestantism, which has led to a 'puritan morality which demands humility and where happiness is conceived as a gift'. Labor is considered to enhance pleasure and give meaning to life (be 'duktig', meaning capable or industrious), not a means that can provide status. More importantly, a Swede is supposed to be modest and avoid extremes in all parts of life. Do not expose yourself, or think highly of yourself compared to others (Law of Jante). The keyword in Swedish culture is "Lagom" meaning 'middle-road', 'sufficient', 'just-enough', or in-between, more or less average, blending in, avoiding extremes. One very specific illustration of the concept of "Lagom" is a box of milk with a medium amount of fat, called 'mittemellan', which would mean 'centre middle', so the centre of the average, in between fat and low-fat (being extremes). Everyone is considered to be equal, men and women, Swedes and foreigners. So Swedes are striving to be 'duktig', but modest about that, and trying to blend in and live 'lagom' (Daun, 1996, cited in Kristoffersen, 2007; Wikipedia 2009 [6]).

Barinaga (1999) discussed the existence of Swedishness as well. She discussed the meaning of different words, like 'ensamhet' (loneliness/solitude), jamlikhet (equality), enighet (consensus), lagom (just right) and förnuftstanken (sense of rationality) which could be building blocks of the Swedish culture. Ensamhet for example, is positive in Sweden, because it suggests inner peace, independence and personal strength which is highly valued and taught very early in life (Barinaga, 1999). Everyone needs inner peace and independence and one should respects other people's peace and independence as well. The other words have been discussed above while looking into the findings of Daun (Daun, 1996, cited in Kristoffersen, 2007), with jamlikhet (equality) being spread across sexes and races, enighet (consensus) being preferred over conflict, so harmony is better is than conflict, lagom (just right) being a standard to live up to and förnuftstanken (sense of rationality) leading Swedes to use common-sense and strive for order and reason in problem-solving and in life (Barinaga, 1999).

"Going Dutch"

Several authors have tried to identify some characteristics of Swedes and Swedish culture; some of their findings are discussed above. What about the Dutch culture? Besides the scores on Hofstede's dimensions and the characterization of Trompenaars, is there anything else that can be said to be 'typically Dutch'? Terms like 'going Dutch' tend to provide a confirmative answer. Stephenson (1989) discusses some examples of words and attitudes which are typically Dutch according to him. He states that one of the things distinguishing the Dutch culture from other Western cultures (e.g. Britain, Canada, USA) is the absence of queuing, standing in line. Dutch people tend to gather around in a place (e.g. a restaurant) and shout 'me' when the person behind the counter asks who is next in line. Even though the Dutch do not queue, one is still supposed to wait his turn, by observing who was already waiting when one entered the store. Furthermore, Stephenson (1989) looks into some Dutch words such as 'samenleving' (society), 'samenwonen' (cohabiting) and 'samenwerken' (cooperating), whereas 'samen' means together (i.e.: together living; together dwelling, together working). This concept of 'samen' is applied in even more situations, the so-called 'going Dutch', where costs are shared equally, 'sam-sam'. Thus there are signs of independence and individualism in the Dutch culture, but this coexists with an emphasis on more collective ideals as well, following from words such as 'samenleving' and 'samenwerken', where the focus is on doing something together. Another word which is typical for the Dutch culture is 'gezellig' (Stephenson, 1989), which means 'cozy' and 'implies intimate sociability, usually within a warm interior, whether it be a house, a cafe, or the woody interior of a Dutch pub, or even a boat'. With the high population density and the relatively small country everyone and everything is physically proximate and

[6] Some information on Swedish culture and the meaning of words like 'lagom' and 'Jante Law' can be found on www.wikipedia.com ; search for 'culture of Sweden', 'lagom'

thus intimate, enhancing the feeling of 'gezellig', even though Dutch citizens might feel smothered by this proximity of other people every now and then (Stephenson, 1989).
Furthermore, Dutch people always seem to be in a hurry. Their calendars are filled with all sorts of appointments and schedules (time to work, meet friends, go to the gym) and prevent them from being flexible with time. Moreover, the Dutch are very punctual and being late is considered to be impolite [7].
Egalitarianism is strongly valued in the Netherlands, not only represented by the democratic Polder model-system, but also in other aspects of life and work. For example, one of the former prime ministers rode his bicycle to work, which is typical for the Dutch, demonstrating 'he's just like the rest of us'. Within companies all employees (including lower level employees) are said to be important to the organization. In order to realize visions and ideas, these need to be accepted by the whole organization (Den Hartog et al, 1999).
Similar to the Swedish notion of the Law of Jante, the Dutch tend to 'denigrate high achievers' (Den Hartog et al, 1999). Even when performing better than others, one is unlikely to be seen as a hero. Thinking highly of oneself is considered to be arrogant and inappropriate (Den Hartog et al, 1999).
Another similarity with the Swedish culture is the concept of 'live and let live' with every person having an own piece of personal space while respecting that of others. When traveling by public transport one might notice Dutch people to look for a seat where they can sit by themselves, not communicating with other passengers (this behavior is displayed by Swedes as well). This can come across as being rude and uninterested, however when approaching a Dutch person one might be surprised by the friendliness of the Dutch [8].
A last characteristic of the Dutch culture is the pragmatic behavior and legislation, especially with regards to soft drugs, euthanasia and prostitution and sex education. In most countries taboos exist regarding these topics, but in the Netherlands it is (partly) legalized. The way of reasoning is that controlling and monitoring it (e.g. soft drugs) is better than to forbid it. For example, if prostitution were illegal it would go underground and prostitutes would be worse off, being abused, underpaid and at risk to get STD's (because of a lack of protection and medical care). With prostitution being legalized it is easier to monitor this business, to avoid abuse and to provide medical care [9].

In this section I identified the different layers and dimensions of culture introduced by different authors. Furthermore, I presented the scores on these dimensions for Sweden and the Netherlands and discussed some other characteristics that can be said to be typically Swedish or Dutch. The next step would be to link culture and decision-making processes, more specifically, the influence of culture on rational behavior in assessing and judging importance.

2.4.2 Influence of culture on process of decision-making

After having discussed the different elements and dimensions of culture, the remaining issue of major interest for this research is whether culture has any influence on the process of decision-making, or more specifically: on the extent of rationality in assessing and judging importance of attributes.
There are several authors discussing the influence of culture on decision making, ranging from the universalists (e.g. Locke, Hume and Mill) who advocate that culture does not influence decision-making, because 'basic processes such as categorization, learning, inductive and deductive inference, and causal reasoning are generally presumed to be the same among all human groups' (Nisbett et al, 2001, p291) to dispositionalists (e.g. Hofstede). The dispositionalistic view argues that culture always influences decision-making. Between these two extremes there are varying degrees to which culture influences decision-making. One theory that discusses this possibility of culture influencing decision-making is presented by Briley, Morris and Simonson (Briley et al, 2000).

2.4.2.1 Culture influences decision-making under certain circumstances (contingency-view)

'Cultural knowledge is a lens that colors people's perception of objects and messages in the environment' (McCracken, 1986, cited in Briley et al, 2000). Briley et al (2000) discuss that cultural knowledge is more dynamic than this lens that is supposed to be 'ever-present' and continually shaping the individual's view of the world. One should look at 'interactions of these [cultural] backgrounds with conditions that bring cultural knowledge into activation' (Briley et al, 2000, p158). They emphasize the existence of culture-based decision

[7] Derived from http://www.everyculture.com/Na-Ni/The-Netherlands.html, accessed on 24th of March 2009
[8] Derived from http://www.thehollandring.com/dutchculture.shtml, accessed on March 24th 2009
[9] Derived from http://www.thehollandring.com/dutchculture.shtml, accessed on March 24th 2009

rules which might affect the actual decision and they introduce a third theory on the influence of culture on decision-making. Besides the universalist theory, which states that culture does not influence decision-making, and the dispositionalist view, culture does always influence decision-making, there is a view in between: 'culture is influential when some aspects of the decision task require that decision makers draw on knowledge structures that differ cross-culturally' (Briley et al, 2000). This occurs when subjects need to provide reasons for their choices, which leads to using 'salient, verbalizable and compelling principles', which might affect the actual decision made, in some cases even resulting in the more inferior alternative to be chosen. Levine et al (1996), state that when subjects are asked to analyse the reasons for their preference of one attribute over another the 'variability and inconsistency in the weighing of stimulus information' increases compared to subjects who do not need to provide this (Levine et al, 1996). Thus, providing reasons for their preferences leads to disruptive effects on attitude judgments (Wilson & Schooler, 1991, cited in Levine et al, 1996). An explanation provided by Nisbett & Wilson (1977) is that subjects do not have 'perfect access to the actual reasons for their preferences'. Therefore, when asked for an explanation, they come up with 'verbalizable, accessible, plausible and/or self-enhancing' reasons. What is considered plausible or acceptable, or even self-enhancing, might differ with the norms, beliefs and values of different cultures. Hence, asking subjects to explain or clarify their choice might influence or change the outcome of the decision-making process, because the subjects 'access decision rules, many of which are culturally conferred' (Briley et al, 2000). Concluding, individuals possess a particular cultural construct, which will be activated and acted upon by asking them to provide reasons for the choice they make (Briley et al, 2000). This view on culture and decision-making is presented below in Figure 8, as well as the dispositionalist view (green line). The research by Briley et al (2000) studied East-Asian and North-American subjects when confronted with choosing between two conflicting options and the effect of providing reasons on the importance judgment. The question arising is whether the Dutch and Swedish culture differ in their effect on importance judgment when subjects are (implicitly) asked to explain their choices or whether they display similar behavior due to the resemblance of the two 'national cultures'.

Additional research by Peng & Nisbett (1999) states that the difference mentioned before regarding 'reasoning about contradiction is guided by tacit ontologies or folk wisdom about the nature of the world (…) [with] Chinese [believing] the world is in constant flux and that the part cannot be understood except in relation to the whole' (Nakamura, 1964/1978 cited in Peng & Nisbett, 1999). Americans, on the other hand, can be considered to be reductionists, taking the object from its context and discuss or analyze its behavior in isolation (Peng & Nisbett, 1999). Individualistic cultures tend to embrace independence and loose relationships. Besides the relationships between people, the relations in general between an object and its environment are loose as well. Individualists view the world as consisting of an infinite number of objects which can be judged separately. When applying this to our research one might expect Swedes and the Dutch to be reductionists rather than holists considering their highly individualistic culture (according to Hofstede and Trompenaars) which corresponds with the American culture. Translating this into the weighing process, both groups of subjects are expected to weight the sub-attributes instead of, or besides the main attributes. When subjects fail to assign weights to the main attributes at all, this is considered less rational, since it is not in accordance with the assignment (for a full description of the assignment, see Appendix B).

Moreover, when confronted with a decision between contradicting choice-alternatives Chinese tend to find truth in both alternatives and search for a compromise, whereas Americans choose the differentiation approach, deciding for one alternative. According to the Western tradition contradictory alternatives do not correspond with the laws of formal logic; merely one of the two alternatives can be true (Peng & Nisbett, 1999). Applying this to our research it can be said that safety and passenger comfort are contradictory options in deciding which one is more important. Thus when assessing and judging importance of these two attributes, Dutch and Swedish subjects are expected to assign extreme weights to each attribute, since they are both part of the Western world and thus Western logic. However, Swedes might be inclining towards more compromising weights than Dutch subjects, due to their attitude towards harmony and 'lagom', implicating a tendency toward 'the middle'.

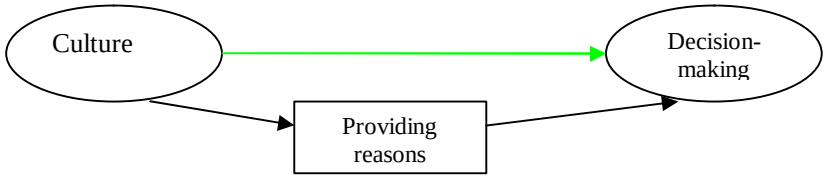


Figure 8: Relation between culture and decision-making (the green arrow is dispositionalistic view; black is contingency-theory of Briley et al, 2000)

2.4.2.2 Culture influences decision-making (dispositionalistic view)

According to De Laguna (1949) whose theory is in line with the dispositionalist view, culture and rationality are closely related: 'It is through his membership in a social community and his participation in the cultural tradition – his "enculturation" - that the human being develops his congenital rationality and becomes a man'. Every culture has it own norms, values, beliefs, ideas and ideals and habits which lead to different ways of thinking and behavior (De Laguna, 1949). Thus an individual's rationality is shaped by the culture he matures in. Some authors (e.g. Vitell et al (1993) and Lu et al (1999)) supporting the dispositionalist stance have applied the dimensions by Hofstede to the process of ethical decision-making, comparing two very different cultures (scoring contradictory on Hofstede's dimensions) and various components of their process of ethical decision-making. People from different cultures differ in their 'traditions, heritages, rituals, customs and religions (…) moral standards, beliefs and behaviors (…), [culture] impacts what is perceived as right/wrong, acceptable/unacceptable and ethical/unethical' (Lu et al, 1999). Lu et al (1999) looked into the differences between U.S. and Taiwanese employees' rules of behavior and codes of ethics (deontological norms) and 'the importance they place on their own interests versus interests of three other stakeholders (customers, colleagues and company)' (Lu et al, 1999). They formed several expectations of the influence of the scores on different dimensions on ethical behavior, however neither the U.S. nor Taiwan could be said to behave more unethically than the other, implicating that differences in power distance, individualism and uncertainty avoidance do not necessarily lead to differences in ethical decision-making. However, Lu et al (1999) did observe a difference between collectivists and individualists regarding whose interests they valued mostly, with the collectivists placing greater value on the interests of their colleagues and the company and the individualists focusing on their own interests. Although the research of Vitell et al (1993) and Lu et al (1999) focuse son ethical decision-making, their findings might be valid for decision-making processes more generally as well. For example, when applying it to our research, looking at the perspective (e.g. company, customer and driver) taken by the subject in deciding which attribute (safety vs. passenger comfort) is more important, might differ between individualistic and collectivistic cultures, with collectivistic-oriented people focusing on various perspectives such as that of the driver, the management of the company and the customer.
Furthermore, Shafir and LeBoeuf (2002) state that 'rationality requires that judgments and decisions be far-sighted, contemplated in the aggregate, and made from a global perspective. Instead, research shows that they are often myopic and contemplated from a narrow and local perspective', which implicates that rational decision-making is influenced by local perspectives arising from dominating local norms, values and behaviors which vary across cultures (red. cultural differences).

2.4.2.3 Culture and mental models

A different approach of how culture influences decision making is proposed by Hutchins and Hazlehurst (1991, cited in Henrich et al, 1999) who state that cultural evolution provides simple mental models, decreasing the number of available choices in explicit decision-making. Cultural knowledge is the sum of all the knowledge that has been explicated by the carriers of this culture (people) and which has been transferred to other (generations of) members over time. This cultural knowledge provides the people with knowledge of certain topics, leading to mental models partly filled in, thus limiting the choices to those that fit with the cultural mental model (Hutchins and Hazlehurst, 1991, cited in Henrich et al, 1999). Cultural knowledge will differ from one 'culture' to another. Mental models provide a framework representing the world surrounding us, including the (cause-and-effect) relations between different elements and perceptive guidelines about people's acts and the consequences of these acts. Moreover, it shapes the behavior and defines the way people carry out tasks and solve problems[10]. It influences the decision-making process. Since mental models vary across cultures, I

[10] http://en.wikipedia.org/wiki/Mental_model Accessed on April 22, 2009

assume that decision-making, or problem solving, would differ across cultures as well. Given that the world is perceived in different ways across cultures, the problem solving might be affected as well. When replicating Hofstede's typology of national cultures, one might expect the mental models to vary between countries. While following this line of reasoning, one might even assume the more collectivistic cultures to have developed more extensive cultural mental models than individualistic cultures, due to the larger reliance on others respectively on oneself. Furthermore, the extent of uncertainty avoidance might be related to the evolution of a cultural mental model as well, with high uncertainty avoidance societies trying to control uncertainties and setting up rules and regulations to realize this, inherently influencing the mental map of people. On the other hand, people belonging to a culture which displays low uncertainty avoiding behavior tend to cope with the situation at the moment of occurrence, not relying on the preset rules and regulations of coping with this 'problem', but merely improvising or relying on past experiences with comparable situations. I expect that the more rules and regulations are set by societies, the more programmed the framework is which is used as a reference for thinking by the subjects. Considering the difference in uncertainty avoidance between Sweden (29) and the Netherlands (53) it might be expected that the mental models are more preset by society in the Dutch culture than in the Swedish culture. For example, one might suppose that the Dutch are very pragmatic in their thinking and behavior, due to the pragmatic way of coping with issues such as soft drugs and prostitution by the Dutch government as discussed in section 2.4.1. This might enhance the use of cognitive maps, boking for causes and effects when having to make a decision. So how does this influence the importance assessment process? Referring back to the indicators that were identified to increase rationality of the importance assessment process, the use of methods and models, e.g. mental models, is part of the first indicator of 'well-organized problem solving'. Using a mental model to organize the weighing process increases the rationality. As stated before, the Dutch subjects are expected to make use of mental models more often than Swedish subjects, therefore the weighing process of Dutch subjects will be more rational than that of the Swedes.

2.4.2.4 Concluding: the influence of culture on importance assessment and judgment

Two different views (contingency and dispositionalistic view) have been discussed, both of them relevant for this research in which the effect of culture on rational decision-making is investigated. (The third view, universalistic view, has been only briefly mentioned in section 2.4.2.) However, a direct relation between culture and rationality in importance assessment and judgment was not found. The subject is relatively new and unexplored. Some interesting matters arose regarding culture and different aspects of the decision-making process. Despite the lack of a direct link, some of the theories found regarding this topic provided helpful indications which can be developed into expectations concerning the effect of importance assessment and judgment. In this section I will summarize these theories and formulate expectations that help answer the research questions.

First of all, the assignment our subjects had to execute is the weighing of two attributes. Besides, the task was assigned to them by the management of the company and they are explicitly asked to be as precise as possible in their weighing 'so it can be explained to the management' (for a complete description of the assignment see Appendix). This closely resembles the need to provide reasons, since subjects tend to explain and defend their choices to increase understanding by the management. Following this line of reasoning it can be expected that due to the tendency of people to provide 'verbalizable, plausible or accessible' reasons, the importance judgment might be less rational. The reasons provided are culturally conferred and based on 'norms as to what is acceptable and persuasive' (Briley et al, 2000). However, not all reasons that may be provided will lead to less rationality. According to the large resemblance of the Dutch and Swedish cultures I expect the importance judgment of the two groups of subjects to be relatively equally effected by this. Since it is impossible to determine the extent of rationality that was lost because of the need to provide reasons (there is no set of data available to compare our data with), we can merely state that the extent of rationality in the weighing process might have been influenced by the need to clarify the choices made. Further research is needed to provide more insight into the effect of providing reason on specific indicators of rationality.

Furthermore, a second interesting element of the task is the choice that has to be made between two (partly) contradicting options, i.e. safety versus passenger comfort. Following the theory of Peng & Nisbett (1999) it can be hypothesized that both Swedish and Dutch subjects tend to act in accordance with this so-called "Western thinking" and thus would be expected to decide almost completely for one of the two attributes (i.e. assigning a high weight to one of the two attributes). However, according to Daun (Daun, 1996, cited in Kristoffersen, 2007) and Barinaga (1999) the Swedes can be typified as trying to avoid conflict and preferring consensus (enighet) over conflict. This suggests that Swedes would prefer the compromising option over the two extreme options. Therefore, I would expect both groups of subjects to choose for one attribute over the other, with

Swedes giving weights which are more compromising (close to equal weights for both attributes) and the Dutch subjects inclining to more extreme weights.

X1: Both Swedish and Dutch subjects will be judging one attribute to be more important than the other, with Dutch assigning more extreme weight values and Swedes inclining towards compromising weights

Moreover, it can be expected, following the same assumptions of resemblance between the national cultures of Sweden, the Netherlands and the U.S. with respect to individualism, that Dutch and Swedish subjects are reductionists, thus taking an object (or attribute) out of its context to analyze and discuss its behavior in isolation. The Dutch culture is more similar to the American culture than the Swedish culture is (scores on Individualism are 80, 91, 71 resp.) Hence, Dutch and Swedish subjects are expected to weigh sub attributes besides the main attributes in their final weighing. Furthermore, the Dutch are expected to focus slightly more on the sub attributes than the Swedes.

X2: Both Swedish and Dutch subjects will be weighing the sub attributes instead of/besides the main attributes in their final weighing, with Dutch focusing more on sub attributes than Swedes

Following the theory of Lu et al (1999) people from an individualistic-oriented culture, to which classification the Dutch and Swedish culture can be assigned, tend to focus on their own interests as opposed to collectivistic-oriented people who tend to value the interests of their colleagues and the company. While this is very interesting, due to time limitations and the scope of this research I will not look into this matter. However, for further research it might be interesting to study the number and sorts of different perspectives used by subjects across cultures.
Furthermore, according to Hutchins and Hazlehurst (1991, cited in Henrich et al, 1999) culture also influences the mental models developed by the people belonging to this culture. As discussed before, it influences the decision-making process. A mental model helps organizing the decision-making process and therefore increases the rationality of the importance assessment process. Since mental models differ across cultures, decision-making, or problem solving, would differ across cultures as well. Considering the relatively large resemblance of the Dutch and Swedish culture I expect the use of mental models (e.g. mental mapping, cognitive mapping) to be rather similar as well. However, I do expect a minor difference in the extent to which the mental models are used, with Dutch subjects applying it slightly more than Swedish due to the higher uncertainty avoidance score of the Dutch culture.

X3: Dutch subjects use mental models (e.g. mental maps, cognitive maps) more often than Swedish subjects in the process of assessing and judging importance which increases the rationality of the process

A final expectation regarding the influence of culture on rationality concerns the display of goal-oriented behavior. The Swedish culture is characterized by its inclination towards rationality, practicality and orderliness. Behaving orderly by abiding to laws and regulations, by behaving properly and do what is asked for. Consequently, when Swedes are given an explicit task or assignment, they will probably execute it exactly as stated. I expect the Swedes to be engaged in explicitly taking steps that directly contribute to the fulfilment of the assignment, and hence increase goal-oriented behavior, which in turn increases the rationality of the weighing process. However, the Dutch culture is known for the excessive number of rules and regulations as well, being very bureaucratic. Furthermore, the higher uncertainty avoidance score further confirms the importance of setting and abiding by rules and regulations to cope with uncertainty. This tendency of abiding by rules might enhance goal-oriented behavior as well: I expect to subjects to do exactly what they are asked to do, so execute the assignment as I was stated. Thus, Swedes and Dutch subjects are expected to both be goal-oriented. However, during my stay in Sweden I noticed that Swedes are even more abiding to (social) rules than the Dutch. For example, the idea of queuing. The Dutch are known not to be able to queue and a lot of people try to get ahead in a gathering of people. The Swede however, always queue. They will wait patiently for hours without complaining until it is their turn to order or buy something. This is why I expect Swedes to be slightly more goal-oriented than the Dutch, simply because they wouldn't 'dare' to deviate from the assignment.

X4: Swedish subjects behave more goal-oriented than Dutch subjects in the process of assessing and judging importance, which increases the rationality of the weighing process

Now that the expectations regarding rationality in the weighing process of Swedish and Dutch subjects have been formulated I will elaborate on the research methodology in the next chapter. Furthermore, the indicators for rationality will be operationalized into measurable indicators, to be able to accept or reject the expectations that were formulated in this section. Then the results will be presented, clarified and explained.

3. Research methodology

In this chapter I will outline the methodology of this research. First of all, I will present the problem statement and research questions. Then I will describe the steps taken to answer the research question. Subsequently I will discuss the method used to collect data, the think-aloud experiment, and elaborate on the research setting and sample. Finally, the variable 'rationality' will be operationalized into measurable indicators.

3.1. Research question and research approach

As stated in section 1.2 the problem statement of this research is:

Which differences and similarities can be observed between Dutch and Swedish subjects when it comes to the process of assessing and judging importance of attributes regarding a non-routine business decision; which subjects behave more rational; and does culture account for this?

Three research questions have been formulated to help answer the problem statement. These questions will be stated with the corresponding steps taken to answer them.
The first question is:

1: Which differences and similarities can be observed between the Dutch and Swedish national culture?

This question is answered by the theories presented in section 2.4.1.3. The Dutch and Swedish culture are similar to a large extent, when looking at the dimensions identified by Hofstede (1984) and Trompenaars (1993). However, small differences can be observed, for example the way of coping with uncertainty, with the Dutch striving to avoid and control uncertainty and the Swedes being more relaxed in their attitude towards uncertainty. For a more complete overview of the differences and similarities, see section 2.4.

2: What are the directly observable differences and similarities between the Dutch and Swedish subjects in the process of assessing and judging importance with respect to rationality?

In order to answer this second question the data, the think-aloud protocols, will be checked for the indicators of rationality as defined in section 3.3. to compare both groups of subjects on the extent of rationality of their weighing processes. The results will be presented in chapter 4.

3: Which cultural differences and similarities account for the differences and similarities between the Dutch and Swedish rationality in assessing and judging importance?

The third, and last, research question relates the first and the second question to each other. So, how can the differences and/or similarities found in rationality of the weighing processes by Dutch and Swedish subjects be explained by their national culture? Are there differences and/or similarities in both national cultures that account for the differences in these research results? Some expectations concerning differences in rationality of the weighing processes have been formulated in section 2.4.2.4. These expectations arise from the cultural differences and similarities between the Swedish and Dutch culture as discussed in section 2.4.1.3. Furthermore, all four expectations are related to some of the indicators that are defined to measure rationality (see section 3.3). X1 and X2 concern the complexity reduction in the weighting cluster, which is part of the indicator well-organized problem solving. X3 relates to the indicator well-organized as well, but concerns the use of mental maps as a tool to organize the weighing process. The last expectation, X4, relates to the indicator goal-oriented problem solving. Thus, the expectations as stated below present some expected differences (research question 2) from the cultural differences presented in the literature (research question 1), and hence help in answering research question 3.

- *X1: Both Swedish and Dutch subjects will be judging one attribute to be more important than the other, with Dutch assigning more extreme weight values and Swedes inclining towards compromising weights*

- *X2: Both Swedish and Dutch subjects will be weighing the subattributes instead of/besides the main attributes in their final weighing, with Dutch focusing more on subattributes than Swedes*
- *X3: Dutch subjects use mental models (e.g. mental maps, cognitive maps) more often than Swedish subjects in the process of assessing and judging importance which increases the rationality of the process*
- *X4: Swedish subjects behave more goal-oriented than Dutch subjects in the process of assessing and judging importance, which increases the rationality of the weighing process*

The research questions and expectations have been formulated and the research approach has been outlined. For the sake of comprehensiveness, it is important to note that the scope of this research is limited to the structuring and weighing cluster of the WAM. The evaluating cluster will not be covered. Furthermore, merely the indicators mentioned in this report will be checked upon in order to arrive at a statement concerning rational behaviour of the subjects in the weighing process. Many more indicators can be investigated to assess the rationality, but due to time limitations it will not be taken into account in this report.

3.2. Research method and data collection

3.2.1 Think-aloud experiments

In order to answer the research question, data need to be collected from Dutch and Swedish subjects. In accordance with Heerkens' (2003) and Richters' (2008) research the data collection was realized through think-aloud experiments. A think-aloud experiment is a method to collect data by subjects verbalizing (merely saying out loud) their thoughts when executing an assignment.

The think-aloud method has been proven to be capable of revealing people's thoughts in full richness in a valid way and to enable precise measuring (Ericsson & Simon, 1993). The think-aloud methodology can be useful for theory building, because cognitive processes can be studies without having to specify the variables concerned in advance (Heerkens, 2003).

There were several reasons to select this method of data gathering (Heerkens, 2003, p 49). First of all, it is suitable for the level of analysis of our research: the individual actor. Secondly, it should be possible to apply it to real-life or a simulated organizational context. Thirdly, think-aloud experiments enable us to collect data without having to identify the variables to be researched in advance. Since our research is explorative and our goal it to observe interesting issues rather than test hypotheses, think-aloud experiments are useful. Finally, since the nature of the decision to be made is non-routine, subjects are confronted with a relatively new task. Given that the task is new, the subjects might not apply standard importance assessment methods. To identify how the subject handle this situation, how they assess importance and assign weights, think-aloud protocols are helpful. Concluding: 'the think-aloud method is nothing more than letting an individual subject verbalize every thought at the time and in the form in which it occurs to him or her' (Heerkens, 2003, p49).

Despite the advantages of the think-aloud method as mentioned before, there are some disadvantages as well. The main disadvantages are the difficulty of interpreting and coding of the think-aloud protocols (the typed out version of the verbalized thoughts) and the labor-intensiveness of processing and analyzing the data. Since there is not one right answer or solution for the task the subjects have to carry out, coding and interpreting all different actions is quite difficult. Furthermore, due to the large amount of data and the difficulty of coding and interpreting, the analysis of the data is time consuming. However, these limitations have been taken into account and do not outweigh the advantages of the method.

In the next sections I will present the how the experiments were conducted: the setting, the sample, the assignment, the data collection and analysis. Furthermore, I will discuss the validity and limitations of this study.

3.2.2 Experimental setting

In order to study the cognitive processes without any distortions by external factors and group interactions, the experiments were conducted in a 'laboratory experiment': in a private room merely occupied by the subject and the experiment-supervisor.

3.2.3 Sample

Dutch subjects

The Dutch data were collected by think-aloud experiments conducted in 1999 by Heerkens. Subjects were eighteen Dutch students, all of them studying at the University of Twente, Enschede. 17 students were undergraduate students in their third or fourth year of management science. One student was an MBA student holding a technical MSc. Students were chosen to enhance the avoidance of automatic thought processes, which occurs with experts. However, the students were assumed to be able to perform an importance assessment, because of their academic skills.

Swedish subjects

The Swedish data were collected by think-aloud experiments as well. These experiments took place in Umeå, Sweden during spring 2007. Ten Swedish students were willing to participate. All of them were studying programs related to management science at Umeå Universitetet. Unfortunately, the number of subjects is limited. It was quite hard to recruit students to participate in this experiment. This is probably partly due to the fact that I was there as an exchange student when collecting the data. Since I took different courses than the students that I tried to recruit as participants, it was hard to bond with them, which would probably have made it easier to convince (more of) them to participate. Furthermore, the Swedish subjects did not get any financial compensation for the participation; the Dutch subjects did.

The assignment was translated into English. This might have created some language barriers, although the level of English of Swedish students is assumed to be high enough to comprehend the information.

3.2.4 The assignment

The subjects were given an assignment which would have to be executed, but while thinking aloud. They had to imagine working for a company that transports passenger to the airport of Stockholm Skavsta (Sweden). The fictional company, called 'Plane Drive', was situated in Uppsala, approximately 175 km from Skavsta. The subjects were asked to advise the management of Plane Drive about the acquisition of several new minibuses to replace the current ones. The assignment was to give an importance judgment of two attributes of the minibuses, safety and passenger comfort. The subjects were free in the way in which they define the two attributes and how they assess the importance of these two attributes relative to each other (for a full description of the assignment, see Appendix B). However, they should be able to explain their judgment to the management of Plane Drive. This was meant to make the assignment more similar to a real-life task. The management did not have to agree with the judgment made by the subject. It was stressed that the assignment was not about choosing between different minibuses (alternatives), but weighing the two attributes, safety and passenger comfort.

The subjects had 1,5 hours to complete the assignment, which turned out to be sufficient time for all subjects, hence there was no time pressure. The amount of information was relatively large (as confirmed by some subjects in the interview afterwards as well). To avoid an overload, the information was presented to the subjects in parts. First the subjects read a short text on the general purpose of the assignment. Secondly, the information on Plane Drive and the decision context was introduced. Two brochures of minibuses (two different brands) were given to the subject to help understanding the concept of a minibus. Finally they were given the actual assignment.

As a small practice for thinking aloud, the subjects conducted three small exercises prior to the experiment.

3.2.5 Data collection

The think-aloud experiments executed by the subjects were audio taped and converted into typed verbal think-aloud protocols. These protocols are the main part of the data. However, other data has been gathered as well. The notes taken by the subject during the execution of the assignment are useful as well. Furthermore, the notes taking by the experiment-leader during the experiments provide additional insights into the behavior and activities of the subjects (physical movements, body language, facial expression etc). These notes can be used to clarify several things, but will not be used as 'data' in this research. Moreover, an interview was held with the subject after completion of the experiment. Questions were asked about for example the weights assigned, the time and information available and the strategies applied. Additionally there was the option for the subjects to ask questions or clarify certain issues. As with the notes of the supervisor, the answers of the

interview are merely used to clarify the data from the think-aloud protocol and are not considered to be 'data' by themselves.

3.2.6 Data analysis

First of all, the variables of this research were not set before gathering the data. Instead, the variables were defined after having collected all the data and preliminary analysis of the protocols. After the variables and research question were defined, the analysis was initiated.

A second interesting matter is that there is no 'right or wrong' in this research. Importance assessment and judgment is exceptionally personal and all cognitive activities related to importance assessment and judgment undertaken by the subjects, are considered to be valid. Different cognitive activities have been identified in the section on importance assessment and judgment, more specifically the WAM. All these activities can be observed in the think-aloud protocols.

Firstly, all the generated and processed (sub) attributes were underlined to structure the protocol. The ways of processing were identified. Subsequently, (partial) weightings were highlighted and other working rules identified (see Appendix A). The next step was to define the indicators for rational behavior in weighing attributes and to analyze how rational Swedish and Dutch subjects are in this respect by checking for these indicators in the protocols. The indicators that were used to determine the extent of rationality will be presented in the next section.

After having analyzed the data, the results for both groups were compared to each other. Finally, these results were explained by the theory as presented in section 2.4.1.

3.2.7 Validity and limitations

After having discussed the research approach and method, it is important to look into the validity and limitations of this research as well. Several issues concerning the validity can be stated. First of all, the number of subjects is very small which decreases the external validity. However, the goal of this research is not to generalize across the Swedish and Dutch population. Furthermore, this study is limited to 'business students' performing a non-routine task within an organizational context in a laboratory setting. No claim can be made for the Swedish or the Dutch population in the real-world. This study is explorative and descriptive and further research is needed to induce these findings. We tried to provide some insights in identifying and understanding cognitive activities in importance assessment and judgment in individual decision-making.

Secondly, the internal validity has been strived for by checking the protocols several times during the process to ensure coder consistency. Furthermore, the presence (or absence) of indicators has been discussed extensively with the supervisor of my thesis (who conducted the initial research with the Dutch subjects: Heerkens), to enhance the consistency of interpretation of segments of the protocols. Moreover, no inferences were made, merely directly observable data were taken into account. Controlling for these issues has enhanced the internal validity of our research.

Another remark that should be made is that there might be a language barrier for the Swedish subjects. The Dutch subjects were given a Dutch version of the assignment and related information, whereas the Swedish subjects obtained an English translated version of the information package. Although the level of English in Scandinavian countries is relatively high for a non-native country, there might exist a different association with certain English terms. For example, a very interesting issue is that almost no Swedish subjects come up with continuous weights (interval, ratio), without being asked for it. This suggests that there might be a difficulty with the word 'weighing'. However, no evidence is found for this claim. Further research might clarify this issue. A suggestion to prevent this might be to translate the experiments into the native languages (e.g. Swedish) or to apply back translation, to check whether the translation is accurate.

The probable misunderstanding by the Swedish subjects of the assignment (weighing the two attributes), led to another issue as well. The experiment-observer might have been asking leading questions in some cases, such as 'how much more important is safety compared to passenger comfort?' If the subject still did not respond with continuous weights, the observer would eventually say 'if you had to divide ten points between safety and passenger comfort, how much would either one get?' This was incorrect, since it leads the subject directly towards an interval weighing. Fortunately it did not affect this particular research too much, since the indicators regarding assigning weights were limited. However, the results are controlled for this leading question, decreasing the number of Swedes who assigned continuous weights, let alone reducing the range of possible weight values to decrease complexity.

3.3. Operationalization of variables

3.3.1. Indicators of rationality

As discussed in chapter 2 the definition of rationality that I will use in this report is 'problem-solving in a structured, well-organized and goal-oriented way'.

In order to assess the presence of the elements 'well-organized' and 'goal-oriented', they need to be elaborated into measurable indicators. The majority of the indicators stated below is used by Heerkens (2003) in his research as well. In order to make my results compatible and thus comparable with those of Heerkens (2003) and Richters (2008), I will use some of the indicators they identified. Furthermore, I chose indicators that can be easily observed. Moreover, I added some indicators which I thought would increase the comprehension of the importance assessment and judgment processes of Swedish and Dutch subjects. The numbers stated behind the indicators are referring to Appendix A, the working rules, identified by Heerkens. This is not an official document, but is used as an information source for indicators and as a guideline to enhance the understanding of the thinking processes of the subjects. It is important to state that my list of indicators is not comprehensive; many more indicators can be identified. Due to time limitations, a selection has been made of indicators which can be easily observed and compared to the results of Richters' and Heerkens' research. Their indicators are based on concepts arising from the literature (see Richters, 2008 and Heerkens, 2003). I will now outline the indicators and the ways in which their presence will be measured.

3.3.1.1. Well-organized

As stated before, well-organized is a very broad term, however I will only discuss three indicators: firstly, the extent to which the subject applies methods and systems and explicates this; secondly, the (absence of) applying methods to structure generated attributes and reduce their complexity; and thirdly, reducing the complexity in the weighing cluster.

General items of well-organized

The first indicator is whether the subject *applies methods and systems*. This can be measured by checking for the presence of the following indicators:

- There is a system or structure applied in dividing attributes into subattributes*** (2.2)
- Making lists decomposing safety and passenger comfort
- Referring to general theories, models or methods (3.0.8)
- Making a cognitive map (cause-and-effect relationships between (sub)attributes) (De Boer, 1998, p108; Heerkens, 2003, p152)
- Way of generating attributes (2.3)
    - Combining background information own knowledge to generate attributes
    - Solely based on background information
    - Solely based on own knowledge

The more indicators present in the subjects way of thinking, the more rational it is considered to be. The last indicator, way of generating attributes, contains three options. Combining both 'sources' (own knowledge and experience plus the information package which is part of the assignment) is the most rational option, most likely to be comprehensive, by using all the information that is available. Generating attributes by using the information package is the next most rational option, because the subjects are considered to be laymen and therefore it would be more rational to depend on a 'reliable' external source for information, rather than depending on your own, limited knowledge about the subject (in this case, safety and passenger comfort in the minibuses).

Comprehensiveness, redundancy-avoidance and interdependency-avoidance

Furthermore, the more consistent a subject is in its methods, the better organized its process of importance assessment will be. There are several methods that can be used to increase the rationality of the problem-solving process. In accordance with Heerkens' research I chose for the theory of Keeney & Raiffa (1976) combined with that of Vincke (1992) to identify some methods which can be used as indicators for well-organized problem-solving. First of all, subjects should strive to be *comprehensive* (Keeney & Raiffa, 1976; Heerkens, 2003), which implies including all attributes that may influence the decision. Secondly, to reduce complexity, subjects should attempt to exclude attributes that are not influencing the decision, thus *avoiding redundancy*. Finally, according to Vincke (1992), one should *avoid interdependence* of attributes to eliminate

'double-counting'. In order to determine to what extent subjects try to be comprehensive, avoid redundancy and interdependence, I will check for the following indicators:

Comprehensiveness:

- Explicit statements concerning comprehensiveness*** (Heerkens,2003)
- Statements concerning why enough attributes have been generated, explicitly related to comprehensiveness (Heerkens,2003)
- Explicitly defining attributes (according to subject) (Heerkens,2003)

Redundancy-avoidance:

- Statements regarding a concern for redundancy of attributes*** (Heerkens,2003)
- Leaving out attributes because they do not pertain to the decision (choice of a minibus), for example the behaviour of the driver (Heerkens, 2003)
- Excluding attributes that do not relate to the assignment (for example cost) (Heerkens,2003)
- Excluding attributes that are not important to the customer (Heerkens,2003)
- Leaving out attributes that do not attain a minimum level of importance (Heerkens,2003)
- Excluding an attribute because the scores for all alternatives (types of minibuses) are similar (Heerkens,2003)
- Eliminate sub-attributes of safety because it will not be noticed by the customer (Heerkens,2003)

Interdependence-avoidance:

- Explicitly stating the relevance of avoiding interdependence*** (Heerkens,2003)
- Taking steps to eliminate/avoid interdependence (e.g. excluding the attribute that is causing another attribute) (3.0.4.6)

Complexity reduction in the weighing cluster

The third indicator for well-organized problem-solving is *complexity reduction*. The complexity reduction of attributes is already accounted for by the previous indicator (by attempting to exclude redundant and interdependent attributes), which is complexity reduction in the structuring cluster. However, complexity reduction is possible in the weighing cluster as well. Some subjects might limit their range of weight values by using an interval scale for example from 0.1-1.0 with intervals of 0.1, whereas others might not limit their range of possible weights at all. Furthermore, subjects might change their weights during the process, either from extreme towards compromising values or vice versa. Anchoring can take place, with the first mentioned weights functioning as an anchor for further weighing. Indicators for complexity reduction in the weighing cluster are:

- Limiting the range of weight values (3.0.3)
  - Limited number of ordinal categories (Heerkens,2003)
  - Limited number of values on a scale from 0 to 1 or from 1 to 10 (Heerkens,2003)
  - Limited number of ratio values (1:1, 1:2 etc) (Heerkens,2003)
- Incremental elimination of weights (3.0.7)
  - Starting out with extreme values; working towards the middle (Heerkens,2003)
  - Starting from the middle, working towards extreme values (Heerkens,2003)
  - Anchoring (Heerkens,2003)

3.3.1.2 Goal-oriented problem solving

Goal-oriented problem solving implicates that the subject is intentionally taking steps which will lead to the fulfilment of the goal of the assignment. In order to measure this, the subject has to explicate this tendency. This indicator corresponds to some extent with the third auxiliary activity identified by Heerkens: activity planning, which implies a plan how to proceed with the subsequent phase. I will check for goal-oriented behaviour by looking at the presence of the following indicators:

- Reformulation of the assignment by subject in his own words through setting criteria which the end results should meet (Richters,2008)
- Weighing the main attributes (holists) for the final importance judgment as stated in the assignment (Richters,2008)
- There is a relationship between the weights of the sub-attributes and the weights of the main attributes (3.4.1)

In order to eliminate 'rationality by accident' while measuring the presence of the indicators mentioned above, the marked (***) indicators have to be present for at least three times (when merely mentioned), or explicitly acted upon to be 'valid'. It is not necessary for the subject to name the method he/she is using, however the

subject does need to say out loud (or write down) words that unambiguously show the method/way of thinking/system etc.
Important is to note that merely the thoughts said out loud and actions that can be observed directly will be taken into account, to ensure as much objectivity as possible, by minimizing assumptions about the subject's thoughts and way of thinking (so, no inference).
As stated before I will try to follow Richters' (2008) definition and elaboration of rationality. In her research she used Simon's (1979) model of three subsequent stages in importance assessment; input, throughput and output. She combined these with the WAM of Heerkens (2003). The indicators Richters (2008) discussed are similar to mine to a large extent. The main difference is that she used three stages to categorize the indicators, whereas I chose to elaborate more directly on two of the elements of rationality as defined by Richters (2008). When comparing the indicators used in the two models, it becomes clear that my indicator 'well-organized', corresponds with her 'throughput' stage. The indicators she identified for the input and output phases can be found in my 'goal-oriented' indicator. An overview is stated below in Table 4.

Indicators of rationality used by Richters (2008)	**Indicators of rationality used in this research**	**Part of indicator:**
Input phase:		
- Reformulation of assignment in subjects own words	-Reformulation of the assignment by subject in his own words through setting criteria which the end results should meet	**Goal-oriented**
-Explicit use of definitions	-Explicitly defining attributes (according to subject)	**Well-organized**
Throughput phase:		
- A consistent system that could be observed in the processing of attributes	-There is a system or structure applied in dividing attributes into subattributes	**Well-organized**
- Statements explicitly expressing a desire to be comprehensive	-Explicit statements concerning comprehensiveness	
- Statements that indicate a concern with redundancy	- Statements regarding a concern for redundancy of attributes	
-Statement explicitly address awareness of unwanted interdependencies	- Explicitly stating the relevance of avoiding interdependence	
Output phase:		
-Have subjects actually weighted safety versus comfort and completed the assignment correctly (holism)	-Weighing the main attributes (holists) for the final importance judgment as stated in the assignment	**Goal-oriented**

Table 4: Overview indicators Richters (2008) and the indicators used in this research to establish the rationality of the importance assessment

The main difference between the indicators used by Richters (2008) and the indicators I used in this research is that I elaborated some more on certain indicators by (e.g. interdependence-avoidance) by adding some of Heerkens' (2003) indicators combined with some additional working -rules (see Appendix A). I intended to provide a slightly more detailed overview of indicators of rationality.
Some of the indicators I formulated were abandoned during this project, due to the difficulties of measuring them (hard to observe) and time limitations. Others were reconsidered because of their lack of significant contribution in providing insights into importance assessment process (e.g. the indicator 'deliberate exclusion of an attribute without a reason mentioned').

4. Results

After having identified the indicators to assess the extent of rationality with which the Dutch and Swedish subjects assess importance of attributes, I will present the results. First I will provide an overview with all the indicators. Secondly I will look into different segments in more detail and try to identify certain relations, if these are present, or the lack of such relations. In the last section I will try to link the theory on culture and importance assessment to my results and try to explain or clarify the outcomes.

4.1. Description of results

Table 5 provides an overview of the presence of every indicator of rationality within the Dutch and Swedish think-aloud protocols. To increase the validity of the results despite the small amount of subjects an indicator is qualified as being significantly present if at least twenty percent of the subjects displayed this behavior. Furthermore, differences between both groups of subjects can be said to be significant if this difference is at least twenty percent as well. The indicators that differ significantly between the Dutch and Swedish subjects are underlined in Table 5.

The table shows several results, one of the most interesting being the lack of an 'obvious winner'. By merely looking at Table 5 it is hard to derive at a conclusion stating that one of the two groups of subjects is more rational than the other group. The extent of rationality in the process of importance assessment seems to differ per indicator. Something that can be observed is that there are only a few indicators which differ significantly between the Dutch and Swedish subjects. Most indicators differ less than twenty percent and are therefore not significant.

To make the differences and similarities more easily observable, I converted the results of Table 5 into a graphic figure (Figure 9). The categories on the x-axis correspond with the indicators as presented before. However, the indicator 'way of generating subattributes' was adapted into one item instead of three. The most rational option was the combination of using the brochures and the subject's own knowledge, so the score of this option was multiplied by three, the second option (generating attributes merely through background information) was assigned a factor two and the third option stayed unaltered (X_1*3+X_2*2+X_3*1)/6= score on 'generattr', with Dutch subjects scoring 39% and Swedish subjects 28%.

Several issues can be detected in Figure 9. One remarkable issue is that the Swedish and Dutch groups of subjects seem to take turns in being more rational for different indicators. First I will discuss the extent to which the two main indicators, well-organized and goal-oriented, are applied by the Dutch and Swedish subjects. Secondly I will attempt to see if there are more overall tendencies observable for these two groups of subjects. In the last section of this chapter I will try to explain the results by addressing the theoretical framework discussed in chapter 2.

4.1.1. Indicator "well-organized" problem solving

The "well-organized" indicators used to determine the extent of rationality are fivefold. First of all it can be stated that neither the Swedes nor the Dutch can be said to display more "well-organized" behavior across all these five indicators. Therefore I will discuss the indicators separately to provide more insight into the results.

4.1.1.1 General items of "well-organized"

The first indicator of "well-organized", the way of processing information and tools used to help the subject during the process, is applied more often by Dutch subjects than by Swedish subjects. First of all, significantly more Dutch subjects (61% compared to 30% of the Swedish subjects) make lists decomposing the main attributes safety and passenger comfort into subattributes. Furthermore, the Dutch tend to combine available sources of information significantly more (61%) than Swedes (20%) to generate attributes. Swedes tend to base the relatively small number of sub-attributes they generate on their own knowledge (50% compared to 28% of the Dutch subjects). By using both sources (background information and own knowledge) the Dutch can be said to be more rational in their generation of sub-attributes than the Swedes.

However, most of the differences within this indicator are not significant. Nevertheless, I will briefly discuss the insignificant minor differences between the two groups of subjects as well. While the Swedish do not employ a consistent system or structure to divide attributes into subattributes, 11% of the Dutch subjects do. Moreover, the Dutch subjects tend to refer to general theories, models or methods slightly more (22%) than Swedes (10%)

Table 5: Overview indicators of rationality Dutch vs. Swedish subjects in percentage and numbers of subjects (#)

Indicator of rationality	Dutch subjects	Swedish subjects
Well-organized		
General: tools, way of processing information		
There is a system or structure applied in dividing attributes into subattributes*** (2.2)	(2) 11%	0%
Making lists decomposing safety and passenger comfort	(11) 61%	(3) 30%
Referring to general theories, models or methods (3.0.8)	(4) 22%	(1) 10%
Making a cognitive map (cause-and-effect relationships between (sub)attributes)	0%	0%
Way of generating subattributes (2.3) ✍ 1: combination of brochures and own knowledge ✍ 2: based on brochures ✍ 3: based on own knowledge	*39%* 1: (11) 61% 2: (2) 11% 3: (5) 28%	*28%* 1: (2) 20% 2: (3) 30% 3: (5) 50%
Comprehensiveness		
Explicit statements concerning comprehensiveness***	0%	(2) 20%
Statements concerning why enough attributes have been generated, explicitly related to comprehensiveness	0%	0%
Explicitly defining attributes (according to subject)	(5) 28%	(3) 30%
Redundancy-avoidance		
Statements regarding a concern for redundancy of attributes***	0%	0%
Leaving out attributes because they do not pertain to the decision (choice of a minibus), for example the behavior of the driver	(6) 33%	(1) 10%
Excluding attributes that do not relate to the assignment (for example cost)	(5) 28%	(2) 20%
Excluding attributes that are not important to the customer	(1) 6%	(2) 20%
Leaving out attributes that do not attain a minimum level of importance	(2) 11%	(3) 30%
Excluding an attribute because the scores for all alternatives (types of minibuses) are similar	(4) 22%	(1) 10%
Eliminating sub-attributes of safety because it will not be noticed by the customer	(1) 6%	0%
Interdependence-avoidance		
Explicitly stating the relevance of avoiding interdependence***	0%	(1) 10%
Taking steps to eliminate/avoid interdependence (e.g. excluding the attribute that is causing another attribute) 3.0.4.6	0%	(1) 10%
Reducing complexity		
Limiting the range of weight values ✍ Ordinal ✍ Interval ✍ Ratio	 (4) 22% (9) 50% (4) 22%	 0% (3) 30% 0%
Incremental elimination of weights ✍ Starting out with extreme values; working towards the middle (Heerkens, 2003) ✍ Starting from the middle, working towards extreme values (Heerkens, 2003) ✍ Anchoring (Heerkens, 2003)	 (3) 17% (6) 33% (1) 5%	 0% (1) 10% 0%
Goal-oriented		
Reformulation of the assignment by subject in his own words through setting criteria which the end results should meet	0%	(2) 20%
Weighing the main attributes (holists) for the final importance judgment as stated in the assignment	(13) 72.2%	(10) 100%
There is a relationship between the weights of the main attributes and the weights of the sub-attributes 3.4.1	0%	(1) 10%

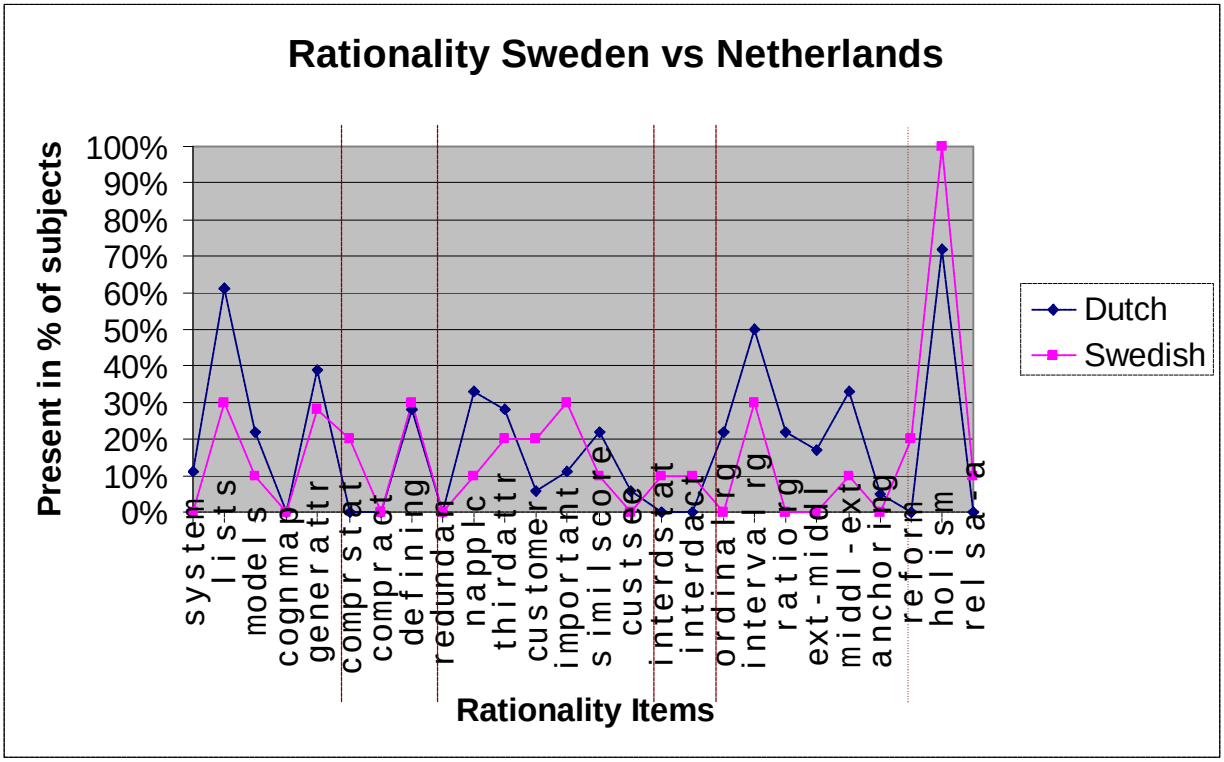


Figure 9: Results indicators rationality Sweden vs Netherlands (the vertical lines represent the borders of an indicator as presented in table 5)

For example Dutch subject 7 states that 'safety is the most important basic need for human beings', referring to Maslow's hierarchy of needs (Maslow, 1971). The only Swede (subject 7) referring to general theories, addresses Maslow's hierarchy of needs as well. None of the subjects made a cognitive map (at least not explicitly which is needed for this research). Following the results of Table 5 and Figure 9, the Dutch seem to behave slightly more rational than the Swedes when it comes to processing information and using tool to help structure and organize the decision-making process.

4.1.1.2 Striving for comprehensiveness

The second indicator of "well-organized", striving for comprehensiveness, is slightly more acted upon by Swedes than by Dutch subjects. A significant difference can be found in the explicit statements concerning comprehensiveness which occurred in 20% of the Swedish cases, but was not applied by the Dutch subjects. One of the Swedish subjects (5) stated: 'The name says it all, plane drive, it's not exclusive drive, considering target group for plane drive, that comfort requirements does not have to be more than what the list says' thereby referring to the list she created containing an overview of all the sub-attributes of passenger comfort and safety. She decides that the sub-attributes of comfort are comprehensive, including everything a company such as Plane Drive should offer.

Furthermore, there is no significant difference between both groups of subjects regarding explicitly defining attributes. Swedish subject 5 defines one of his subattributes: 'interior safety and then I'm referring to where to put bags and so on, if you have to brake, yeah, at once you shouldn't have bags all over the car'.

Swedes tend to strive for comprehensiveness slightly more than Dutch subjects, enhancing the rationality of their decision-making process.

4.1.1.3 Avoiding redundancy

Avoiding redundancy, the third indicator of "well-organized", is strived for by both groups of subjects. The overall difference for this indicator between the two groups is small, due to the varying scores per redundancy-item. Most of the differences are not significant, except for one, the exclusion of attributes that do not pertain to the decision, which was executed by 33% of the Dutch subjects and 10% of the Swedish, e.g. 'You need to have a good driver, but that has nothing to with the car' (Swedish subject 7).

Minor, though not significant, differences favoring the Dutch subjects can be found in the exclusion of attributes that do not relate to the assignment (e.g. 'we are not supposed to look at prices, so we won't do

that' Dutch subject 4), attributes that all alternatives score similar on and subattributes of safety that will not be noted by the customer. The Swedish score slightly, not significantly, higher on excluding attributes that are not important to the customer and those that do not attain a minimum level of importance (e.g. 'Dash mounted cup holder; we don't need a cup holder', Swedish subject 4). The indicator 'explicit statements regarding a concern for redundancy of an attribute' was not found in any of the protocols.
When averaging the scores of both groups on all the indicators of redundancy-avoidance the Dutch subjects are slightly more (not significantly) occupied with avoiding redundancy than the Swedish (average scores are 15% for the Dutch and 13% for the Swedish subjects). Only one difference is significant in favor of the Dutch: the exclusion of attributes that do not pertain to the decision. Therefore, it can be said that the Dutch are slightly more rational when it comes to redundancy avoidance than the Swedish subjects.

4.1.1.4 Avoiding interdependence

Striving to avoid interdependence, the fourth indicator of "well-organized", was not significantly employed by the subjects indicating that avoiding interdependence is neglected by both groups of subjects (at least it has not been explicated in spoken or written words and can therefore not be observed). However, even though both groups seem to be neglecting to explore the possibility of interdependence of the (sub)attributes they generated, the Swedes did behave slightly more rational than the Dutch in this matter. One Swede (subject 4) stated 'Three point inertia reel seat belts, I guess that's the same one as the anchor one (…) so I'll write that one, it's the same thing, they're just called different' which led to taking these two subattributes together as one, because she figured these are basically the same, merely named differently. Combining these two subattributes into one adapted one, eliminates the interdependence of these two subattributes. Neither Swedes nor Dutch subjects can be said to be significantly more rational regarding the avoidance of interdependency.

4.1.1.5 Complexity reduction of weight values

The last indicator of "well-organized" is complexity reduction in the weighing cluster. The Dutch subjects are significantly more rational in reducing the complexity of weights than Swedish subjects. 30% of the Swedish subjects limited the range of weight values on interval-level; no other form of complexity reduction was applied by the Swedes. Important to note is that Swedes used mainly interval scales for their weights, which explains the absence of complexity reduction on ratio and ordinal level. Dutch subjects however, limited their range of weight values on ratio (22%), ordinal (22%) and interval (50%) level, hence reducing the complexity of weight values. Since there is an infinite number of possible weight values and it is impossible for human cognition (boundedly rational) to include all those weight values, limiting the range of weight values seems rational. Thus the Dutch can be considered to be more rational by reducing the complexity of the weight values. Even when merely comparing the interval level (which is applied by both groups), the Dutch are significantly more rational than the Swedish subjects (50% resp. 30%). Furthermore, when assigning weights, the Dutch subjects seem to start with compromising values (values in the middle of the range), working towards more extreme values, significantly more often than Swedish subjects.

4.1.2. Indicator "goal-oriented" problem solving

The indicator "goal-oriented" implicates that the subject is intentionally taking steps which will lead to the fulfilment of the goal of the assignment. Swedes tend to behave significantly more goal-oriented than Dutch subjects especially in weighing the main attributes in the final importance judgment. All Swedes are holists (weighing the main attributes), whereas 28% of the Dutch subjects are reductionists (final weighing on sub-attribute level). Another interesting issue, which is not an official indicator, but is related to the last two indicators, is that none of the Swedish subjects assigned weights to the subattributes. One subject (Swedish subject 5) did count the number of subattributes she generated for both attributes (implicating that all sub-attributes are equally important) and converted these scores into weights for the main attributes. However, when she found out that the weights would turn out to be eight against two, it 'didn't feel right' and she wanted the weights to be a statement representing what she assessed as being important. She decided to change the weights for safety and passenger comfort (from 8-2, to 7-3) without adjusting the 'weights' for or number of sub-attributes. On the other hand, 39% of the Dutch subjects assigned weights to sub-attributes. Nevertheless, none of them used these weights to calculate the main attribute weights (which would suggest a relationship between the weights of the main attributes and those of the sub-attributes). One Dutch subject derived the weights for the sub-attributes after having determined the weights for the main attributes, which is not rational.

Furthermore, Swedes reformulated the assignment into their own words by setting criteria which the end result should meet significantly more often; the Dutch neglected to do this. Reformulating the assignment increases the understanding of the goal of the assignment and clarifies the expected end result, which enhances the rationality (by behaving goal-oriented). Overall, Swedish subjects seem to behave more rational than Dutch subjects when it comes to being goal-oriented.

4.1.3. Concluding: Dutch and Swedish rationality

After having discussed the various indicators, it can be said that neither the Dutch nor the Swedish are more rational on overall score. However, some conclusions can be drawn when looking at the results. In order to gain more insight into the differences in rational behaviour between the Swedes and Dutch, I converted the results from Table 5 into two separate figures, with Figure 10 representing the indicators on which the Dutch score higher and Figure 11 representing the rationality items on which the Swedish scored higher.

The Dutch seem to be more rational when it comes to the general items of well-organized problem solving, thus the way of processing information, referring to general theories, trying to use a system to divide attributes into subattributes (e.g. through lists). Besides, the Dutch are slightly more occupied with striving for redundancy avoidance. The third indicator of rationality that is dominated by the Dutch subjects is the complexity reduction of weight values. The Dutch tend to be strongly occupied with assigning weights to (sub)attributes, which is the goal of the assignment. In order to decrease the complexity, the Dutch take only a limited range of weight values into account. Furthermore, there is a significant inclination with starting from the middle (values close to the middle of the range of weight values), working towards extreme values.

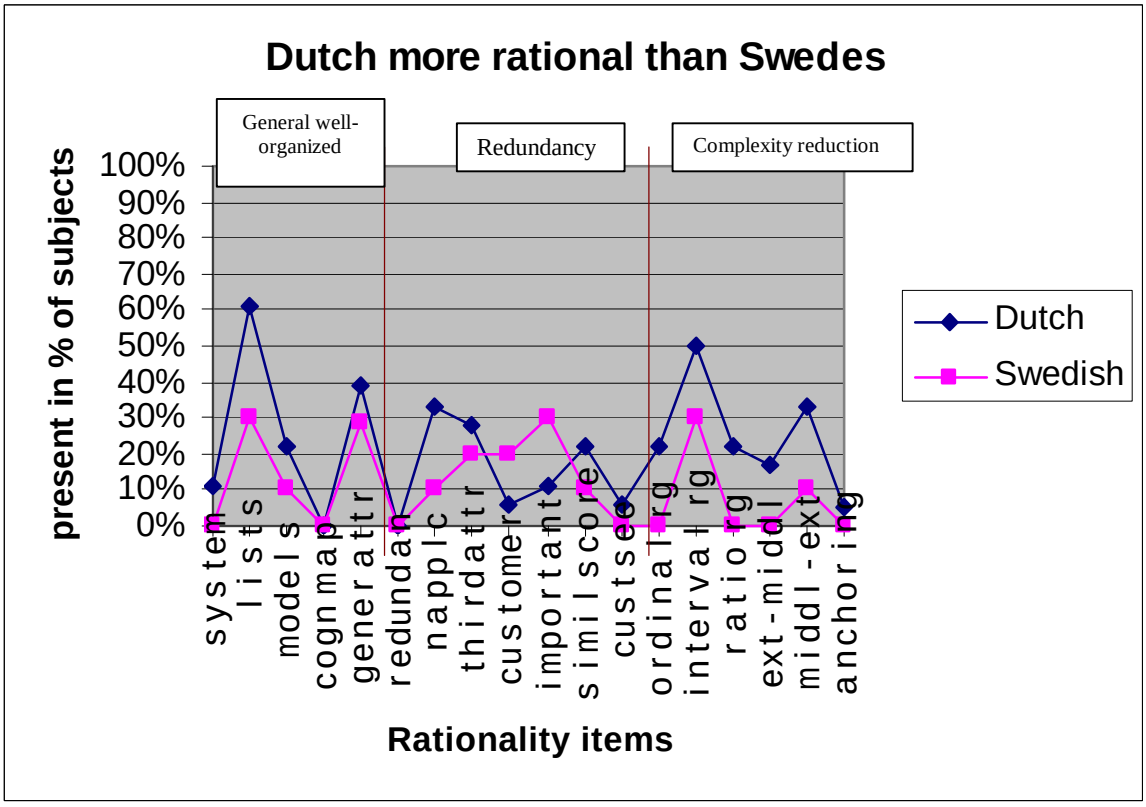


Figure 10: Dutch subjects more rational than Swedish subjects in general items of well-organized, redundancy and complexity reduction

Swedes, however, are more rational when it comes to exploring the content of the main attributes. First, they state and reformulate the goal of the assignment, and then they start exploring the concepts of passenger comfort and safety by defining the attributes, trying to generate subattributes, which they check for comprehensiveness. They do not explicitly try to reduce the complexity of weight values, more importantly they do not seem to be occupied by assigning weights at all until the very final moment. Furthermore, when Swedes eventually come up with the weights for safety and passenger comfort, they tend to 'choose' (not so much determine or calculate) weights that correspond with their 'gut feeling' and provide 'a statement'. Some of the Dutch subjects engage in this behavior as well. When reasoning like this, the outcomes seem to be rather affective, which hinder objectivity and rationality.

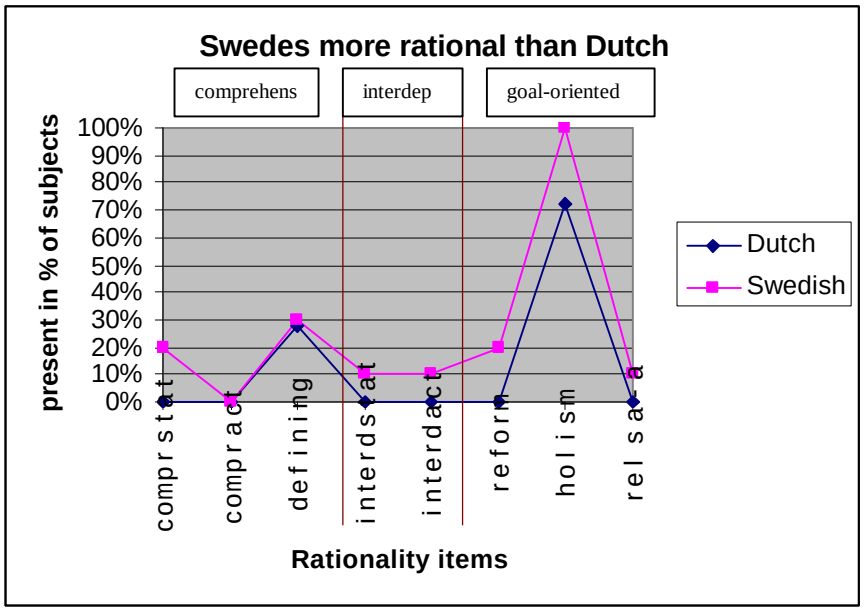


Figure 11: Swedish subjects more rational than Dutch subjects in comprehensiveness, interdependence avoidance and goal-oriented behavior

Summing up, Dutch subjects can be said to be more rational in organizing the process of decision-making, trying to use all information available (either on paper or their own knowledge of and skills in decision-making from earlier experience) and focussing on the main issue, the weighing of the two main attributes. Even though they do explore the concepts of safety and passenger comfort, they pay extensive attention to the various phases of the weighing cluster.

The Swedes, on the other hand, tend to pay more attention to exploring the content of the attributes. Put differently, they tend to focus mainly on the structuring cluster of the WAM, more specifically the (sub)attribute processing.

Thus, the Dutch seem to be more rational in the overall organization of the process and, secondly, the various phases of the weighing cluster, whereas the Swedes tend to be more rational in the content-related processing of sub-attributes (second phase of structuring cluster) and their goal-oriented behavior.

After having discussed these results I will attempt to clarify some issues in the next section, by reflecting on the theories explored and expectations formulated in chapter 2.

4.2. Interpretation of results

In this section I will try to explain the results as discussed in the previous section. I will start with the expectation that were formulated. Then I will explain the similarities and differences by referring back to the theory as presented in chapter 2.

4.2.1 Expectations

First of all, I will discuss whether the expectations as formulated in chapter 2 were accepted or rejected.

- *X1: Both Swedish and Dutch subjects will be judging one attribute to be more important than the other, with Dutch assigning more extreme weight values and Swedes inclining towards compromising weights*
- *X2: Both Swedish and Dutch subjects will be weighing the subattributes instead of/besides the main attributes in their final weighing, with Dutch focusing more on subattributes than Swedes*
- *X3: Dutch subjects use mental models (e.g. mental maps, cognitive maps) more often than Swedish subjects in the process of assessing and judging importance which increases the rationality of the process*
- *X4: Swedish subjects behave more goal-oriented than Dutch subjects in the process of assessing and judging importance, which increases the rationality of the weighing process*

Expectation	Rejected/Accepted
X1	Partly Accepted
X2	Partly Accepted
X3	Rejected
X4	Accepted

The first part of X1 is accepted, *both Swedish and Dutch subjects will be judging one attribute to be more important than the other*. Dutch subjects do tend to work towards more extreme values than the Swedes. However, the last part of this expectation is rejected, since there is no Swede working towards compromising values. Important to note is that most Swedes neglected to assign weights at all, until explicitly asked for by the experiment-observer (see section 3.2.7.).

The second expectation, X2, has been partly accepted. Swedish subjects did not weigh any of the subattributes that were generated. However, the second part has been accepted with the Dutch focusing more on the weighing of subattributes than Swedes. 39% of the Dutch subjects assigned weights to sub-attributes. Thus, the second part of X2 has been accepted.

X3 has been rejected for all subjects. None of the subjects made a cognitive map or used some other sort of mental model that could be observed directly from the data (think-aloud protocols and notes by subject). It is possible that subjects did work with a mental model, but neglected to explicate or verbalize this. If we can not directly observe it, it is not taken into account (to eliminate inference), which is a disadvantage evoked by our research method.

The last expectation, X4, regarding goal-oriented behavior is accepted. The Swedish subjects were more goal-oriented on all three indicators of goal-oriented; two out of three indicators differed significantly in favor of the Swedes.

So, can the significant differences be explained by the theory on the cultural differences between Sweden and the Netherlands? As in the previous section I will discuss every indicator separately and attempt to explain the significant differences.

4.2.2 Similarities explained

One of the most interesting results as presented in table 5 is the relatively large extent of resemblance between the Swedish and Dutch subjects, put differently: the small amount of indicators that is significantly different between the two groups of subjects. However, this result is not that surprising when reflecting on the theory as presented in chapter 2, which proposes that the two national cultures are similar to a large extent, according to Hofstede (1984, 2001) and Trompenaars (1993). To enhance the readability of this report, I will not discuss all the similarities, but will suffice with stating that this large resemblance of the two national cultures accounts for the similarities. I will discuss the significant differences and try to explain them by referring back to the theories presented earlier in this report.

4.2.3 Significant differences explained

4.2.3.1 General items of well-organized problem solving

One of the significant differences can be found in the indicator 'making lists decomposing safety and passenger comfort'. The Dutch do this significantly more often than the Swedes. Referring back to the theoretical framework does not directly provide an explanation for this. Instead, I would have expected it to be the opposite since the Swedish tend to be very orderly. This might implicate a desire for orderliness in processing the subattributes, for example by making lists.

The second significant difference is the way of generating attributes. Dutch subjects seem to be combining available sources (own knowledge and the minibus brochures) to generate attributes, whereas Swedish subjects mainly rely on their own knowledge. This is very interesting, however it is hard to derive an explanation from the theory discussed in chapter 2.

Overall, it can be said that Dutch subjects are more well-organized in their problem solving, regarding the use of tools and models to structure the process. From the theory it might have been expected that Swedes would be more well-organized because of their orderliness. Further research could help in explaining the link between these indicators and culture, or the absence of this link.

4.2.3.2 Comprehensiveness, redundancy -avoidance and avoidance of interdependence

Merely one indicator of comprehensiveness differs significantly between the two groups of subject: explicit statements concerning comprehensiveness. The Swedes explicate their concern for comprehensiveness significantly more than the Dutch. Unfortunately no relation between this indicator and culture has been found in the literature. The same goes for redundancy -avoidance, no relation with culture could be found. The Dutch are more engaged in avoiding redundancy than the Swedes, especially when it comes to exclusion of attributes that do not pertain to the decision. Furthermore, the indicator 'avoidance of interdependence' was not present in any of the protocols. Merely one indicator for comprehensiveness and one for redundancy -avoidance differed significantly between the two groups of subjects, which implies that the scores for the other indicator were quite similar for both groups. This might be explained by the large resemblance of the two national cultures. Further research is needed to validate this claim though.

4.2.3.3. Reducing complexity

The main difference that can be observed for the indicator 'reducing complexity' is that the Dutch engage significantly more in complexity reducing behavior than the Swedish. They limit the range of weight values on various scales. Furthermore, when incrementally eliminating the weights, the Dutch tend to move from compromising values towards extreme values. Several issues are interesting. First of all, the relatively small number of Swedish subjects that give weights to the attributes. As stated in section 3.2.7, this might be partly due to a language barrier related to the word 'weighing'. Furthermore, the tendency of the Dutch subjects toward extreme values is interesting. This might be explained by the theory of Peng & Nisbett (1999). The Netherlands is a country that belongs to the Western world, occupied in 'Western thinking', where the result of choosing between two contradicting attributes is not a compromise, but a choice between the two, resulting in extreme weights. It is expected that if Swedes would assign weights to the attributes, they would tend slightly more towards compromising weight values than the Dutch, due to their inclination towards harmony and the avoidance of conflict. However, further research would have to be conducted in order to confirm or reject this. A last explanation for the difference in assigning weights might be the differences in education. The Dutch students have quite a few courses in methodology during their studies, during which they are taught about different scales and approaches for weighing and judging importance. This might be less emphasized in the Swedish educational system.

4.2.3.4. Goal-oriented problem solving

The last indicator of rationality in the weighing process is goal-oriented problem solving. As proposed earlier, it was expected that Swedes are more goal-oriented than the Dutch, because they highly value orderliness and abiding to laws and hence were expected to strive to accomplishment of the task given to them. This expectation was accepted. However, both groups of subjects were expected to be reductionists rather than holists. The Swedes turned out to be holists, merely weighing the main attributes. 28.8% of the Dutch were reductionists and did not assign weights to the main attributes at all. Part of this expectation is accepted: the Dutch are more reductionistic than the Swedes. This can be explained by the extent of individualism (see section 2.4.2). The Dutch culture is slightly more individualistic than the Swedish culture, according to Hofstede (1984).

4.3 Concluding

After having presented and attempting to clarify and explain the results, the second and third research question have been answered. As stated before more similarities than differences exist between the two groups of subjects when looking at the indicators of rationality. However, some significant differences can be observed. The Dutch subjects are more rational when it comes to using tools and models to structure the weighing process. Furthermore, they are slightly more rational when it comes to avoiding redundancy. Finally, the Dutch subjects are more engaged in reducing complexity in the weighting cluster. The Swedes are slightly more rational when it comes to being comprehensive. Besides, Swedes were more goal -oriented during the process.

Unfortunately almost none of the differences could be explained by the theoretical framework as presented in chapter 2. I was not able to find any literature that directly linked culture and cultural differences to rationality in importance assessment and judgment processes. Further research is needed to fill this gap. However, some of these differences could be clarified to some extent by the theory. Swedes being more goal -oriented corresponds with their thrift for orderliness, Dutch inclining towards extreme weights corresponds with

Western Thinking related to contradiction and assigning weights to subattributes in the final weighing by some Dutch subjects corresponds with the individualistic Dutch culture.

5. Conclusions and implications for future research

This final, concluding chapter will present the main conclusions based on the results of this research. In this chapter I attempt to provide an answer to the problem statement. Furthermore, I will discuss the remaining issues and new questions that might be interesting for further research.

5.1 Main conclusions

As stated in the introduction, this research is about importance assessment processes. The problem statement that formed the basis of this research is the following:

Which differences and similarities can be observed between Dutch and Swedish subjects when it comes to the process of assessing and judging importance of attributes regarding a non-routine business decision; which subjects behave more rational; and does culture account for this?

In order to answer this question I formulated three research questions. The first question focussed on comparing the Dutch and Swedish culture to each other. As might be expected from the geographical proximity and both countries being part of the developed Western world, a lot of similarities can be found. The countries show great resemblance in their scores on dimensions defined by Hofstede (1984) and Trompenaars (1993). The largest difference can be found in the dimension 'uncertainty avoidance', with Swedes displaying less avoidant behavior and the Dutch being more avoidant regarding uncertainty, hence trying to control it by creating rules and regulations to cope with this uncertainty (Hofstede, 1984). Furthermore, Swedes are very orderly and 'lagom' and the Dutch are very pragmatic. Both cultures embrace modesty, equality and independence.

After having identified the characteristics of and the similarities and differences between these two national culture, the decision was made to study the extent of rationality applied by the subjects in their weighing process. Indicators for rationality were defined and the think-aloud protocols were checked for these indicators. When comparing the Dutch with the Swedish results the first thing that could be observed was the large extent of resemblance. Merely 8 out of the 22 indicators that were defined differed significantly between the two groups of subjects. The Dutch subjects are more rational when it comes to using tools and models to structure the weighing process. Furthermore, they are slightly more rational when it comes to avoiding redundancy and they are more engaged in reducing complexity in the weighting cluster than the Swedish subjects. The Swedes are slightly more rational in striving for comprehensiveness. Besides, Swedes were more goal-oriented during the process.

The third research question focused on the link between the results and the cultural differences and similarities. To which extent does culture explain the differences that were found? Since mostly similarities were found in both the results of the protocol-analysis as the comparison of the two national cultures, a relation might exist between the cultural similarities and those of the weighing process. However, to be sure that these similarities are accounted for by the resemblance of the culture, the results would have to be compared to those of subjects from a very different culture. Some of the differences that were found in this research might be explained by culture. For example, Swedes are more goal-oriented than Dutch subjects, which corresponds with the importance of orderliness and law abiding behavior in Sweden. Furthermore, Dutch subjects were more inclined to assign weights to subattributes. This reductionistic behavior corresponds with the individualistic nature of the Dutch culture.

Thus, looking back at the problem statement, it can be said that mainly similarities were identified between the Dutch and Swedish culture on the one hand and in the extent of rationality in their importance assessment processes on the other hand. The significant differences that can be observed from the results were unexpected in some cases. Unfortunately, most of the differences could not be explained from the theoretical framework as presented in chapter 2.

5.2 Implications for future research

As stated in the previous section, not all findings could be explained by the theoretical framework. Further research is needed to clarify some of the results. Unfortunately, there still exists a gap in the literature between culture and importance assessment and judgment processes, let alone the extent of rationality applied during these processes. Interesting studies are carried out concerning culture, rationality and decision-making, but not that much about the interaction. Since this research topic is relatively new and the sample relatively small not many inferences can be made. However, several questions have arisen during this project that might be interesting for further research.

First of all, to be able to confirm whether some of the differences actually arise from the cultural differences between the Netherlands and Sweden, this study should be replicated within other cultures. Furthermore, the number of subjects should be increased as well to increase the external validity of the results.
Secondly, the number of indicators could be increased to be more comprehensive in checking for rationality. Due to time limitations merely 22 indicators were taken into account in this research. Furthermore, the indicators that could be identified for 'structured problem solving' were not included, due to the scope of the research. Thus, including the evaluation cluster when looking at rationality in this respect would be interesting as well. Moreover, comparing the results from the other follow-up researches within this same topic on importance assessment and judgment with each other might provide additional insights regarding these processes.
When deciding to replicate this experiment with subjects from other cultures, it might be helpful to use back translation to avoid misunderstandings of the assignment due to language problems. Preferably, if possible, provide the subjects with the assignment and information in their native language to eliminate these problems. Including more cultures into this research would be helpful in finding out whether the Dutch and Swedish subjects showed so much resemblance due to the similarities in their national cultures, or are weighing processes universal?
Thus, the main question that remains is 'does culture matter?' and if so, in what way? Unfortunately this research has not completely provided the answer to this question. Perhaps future research can provide more insights.

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Appendix A: 'Working-rules' by Heerkens (2003)

Versie 17 oktober 2000

Systematiek gebruikte beslissings- en afwegingsregels

De toegepaste hoofdstructuur is:
1: Regels met effecten op het aantal in overweging te nemen alternatieven. NB: Deze regels omvatten *geen* conjunctieregels. Bij conjunctieregels wordt een alternatief gescoord op één van de (sub-)attributen waar het bij de opdracht om gaat. Bij een alternatief wordt er niet (expliciet) gescoord; het valt gewoon af. Het afvallen hoeft verder niet te gebeuren op grond van één van de attributen uit de opdracht: het kan op grond van heel andere attributen gebeuren, bijvoorbeeld de (verwachte) onderhoudskosten. Vraag: is dit in overeenstemming met de Image Theory of worden alternatieven daar alleen buiten beschouwing gelaten na expliciete score op uitsluitende relevante kenmerken?
1.1: Voorafstellen dat alleen bepaalde merken of bepaalde soorten auto's (busjes, geen limousines) worden meegenomen, of alleen nieuw en geen tweedehands busjes, zodat bepaalde sub-attributen afvallen.
1.2: Er moeten altijd minstens 2 busjes overblijven om op comfort uit te kiezen, desnoods smoet veiligheid maar een stapje terug.

2: Regels met effecten op de (sub-)attributen van veiligheid en comfort (aantal, mate van concreetheid, meeteenheid (dus: soort), meetniveau)
2.1: Bewust beginnen met definiëren (betekent in de praktijk: splitsen) van veiligheid en comfort.
2.2: Er is een systematiek in (elementen van) de splitsing in sub-attributen.
2.3: Wijze van attributen genereren:
2.3.1: Uit folders (meestal de folder over de busjes)
2.3.2: Eerst in folders (meestal de folder over de busjes) kijken, daarna zelf verzinnen
2.3.3: Eerst zelf verzinnen, daarna in folder (meestal de folder over de busjes) kijken
2.3.4: (Vrijwel) alleen maar zelf verzinnen
2.4: Wel degelijk van eigen ervaring.
2.5: Zegt proefpersoon (bijvoorbeeld tijdens het interview) dat dingen wel worden meegenomen maar niet worden genoemd omdat ze zo voor de hand liggen?
2.6: Schalen: NB: Hier worden we niet veel wijzer van in vergelijking tot d4e analyse van de variabelenschema's, dus misschien weglaten bij de analyse.
2.6.1: Extremen (Ford Fiesta versus limousine)
2.6.2: Ja/nee-schalen
2.6.3: Gemeenschappelijke schaal, bijvoorbeeld prijs of prijs/nutsverhouding. Kan aanzet zijn tot gemeenschappelijke noemer. NB: Alleen meegenomen als dit leidt tot meer dan incidentele vergelijking van attributen, want dat valt onder 3.0.4.16, dus regel wordt door proefpersonen niet toegepast.
2.6.4: Expliciete operationalisatie door concretisering zonder dat een gemeenschappelijke schaal wordt nagestreefd, dus per attribuut afzonderlijk (bijvoorbeeld geluid: aantal decibellen. Dit kan worden gedaan teneinde score werkelijk te kunnen meten, maar ook om sub-attributen duidelijker te krijgen en dus beter te kunnen afwegen.

3: Regels met effecten op de waarde van de gewichten (inclusief conjunctieregels). NB: Dit is inclusief de beslissing tijdens de splitsing om een attribuut al dan niet mee te nemen) Hieronder staan allereerst de regels die op elk van de sub-fasen betrekking kunnen hebben. NB: Dit kan ook de oplossing zijn voor de indeling in fasen en in regels 'haaks' op elkaar: algemene regels per geval toewijzen aan fase
3.0.1: Aangeven wat 'gewicht' of 'belangrijkheid' eigenlijk willen zeggen.
3.0.2: Regels m.b.t. de eisen aan de afweging.
3.0.2.1: Gekozen alternatief moet duidelijk verschillen van niet-gekozen alternatief, dus als scores vrijwel gelijk zijn een conjunctiegrens stellen zodat toch één van de twee duidelijk afvalt. NB: Denk aan Elisabeth Ericsson)
3.0.2.2: Het gaat niet om mijn persoonlijke mening
3.0.2.3: Zichzelf beperkingen opleggen bij formulering gewichten (bijvoorbeeld: geen getallen willen noemen).
3.0.3: Beperking aantal mogelijke waarden van gewichten:
3.0.3.1: Op ordinaal niveau: beperkt aantal categorieën (A, B, C of 1, 2, 3)
3.0.3.2: Op intervalniveau: tranches van bijvoorbeeld 0,1
3.0.3.3: Op rationiveau: gehele getallen (veiligheid is niet zo belangrijk als comfort)
3.0.3.4: Constant maken van het gewicht van een (sub-)attribuut bij verschillende scores (bijvoorbeeld op basis van algemene regel van afnemend grensnut). Bij een beperkt budget één voor één alle eisen vervullen. NB: impliceert dat er alleen maar ja/nee-schalen zijn voor scores. Is dus ook een vorm van complexiteitsreductie: scores kun je buiten beschouwing laten omdat in feite alleen gewichten tellen zodra busje aan eis voldoet. Zo kun je ook (zegt proefpersoon) vermijden dat je bijvoorbeeld moet kiezen tussen mooi en heel mooi uiterlijk en airbags. Je kunt eerst die eis vervullen die voor iedereen acceptabel is (bijvoorbeeld: geen roest) en pas als er geld over is voor een heel mooie auto kiezen. Let op: prijs is geen attribuut maar een randvoorwaarde: er moet geld over zijn.

3.0.4: Uitspraken over algemene regels die het gewicht verhogen of verlagen. NB: Als duidelijk is dat uitspraken geen gevolgen hebben voor gewichten maar niet meer zijn dan losse opmerkingen worden ze niet meegenomen
3.0.4.1: Als busjes op een (sub-)attribuut (vrijwel) dezelfde score hebben kan gewicht om laag. NB: Dit geldt ook als wordt gezegd dat ze allemaal op een bepaald attribuut voldoen aan de minimumeis, tenzij blijkt dat de dan nog best verschillende scores kunnen hebben.
3.0.4.2: Sommige sub-attributen zijn als optie mogelijk. NB: Niet expliciet gevolg voor het gewicht gegeven, maar implicatie is dat gewicht dan om laag kan. Deze regel wordt door de proefpersonen niet toegepast.
3.0.4.3: Als attributen elkaar uitsluiten/tegen elkaar in werken (empirische relatie) moet je gewichten toekennen
3.0.4.4: Als attributen elkaar niet uitsluiten (waarschijnlijk wordt bedoeld: beïnvloeden) of elkaar versterken (beide een positief effect hebben op het hoofdattribuut) hoef je geen gewichten toe te kennen (afweging te maken)
3.0.4.5: Als sub-attributen dezelfde functie hebben (bijvoorbeeld airco, schuifdak en getint glas) één ervan nemen. NB: Er zou sprake kunnen zijn van abstractie, maar de ene proefpersoon die deze regel stelde in een vervolgsessie abstractie niet mee en de concrete sub-attributen wel. De sub-attributen zouden, als de regel consequent zou worden gevolgd, allemaal hetzelfde gewicht moeten hebben (als tenminste het effect op de (abstracte0 functie zou worden genormaliseerd.
3.0.4.6: Als een sub-attribuut de oorzaak is van een ander sub-attribuut (bijvoorbeeld gewicht oorzaak van remweg) hoef je de oorzaak niet mee te nemen. NB: de enige proefpersoon die dit signaleert neemt vervolgens de oorzaak gewoon mee (gewicht), dus de regel wordt niet toegepast.
3.0.4.7: Als de gevolgen van het ontbreken van een (sub-)attribuut belangrijk zijn voor veiligheid of comfort of een daaruit voortvloeiend gevolg moet/mag/kan het gewicht omhoog
(Bijzonder geval: extreme case)
3.0.4.8: Als de gevolgen van het ontbreken van een (sub-)attribuut <u>niet</u> belangrijk zijn voor veiligheid of comfort of een daaruit voortvloeiend gevolg moet/mag/kan het gewicht om laag
(Bijzonder geval: extreme case)
3.0.4.9: Als de prijs van een ticket hoog is in vergelijking tot andere vervoermiddelen mag/moet het gewicht van veiligheid en/of comfort omhoog.
3.0.4.10: Als een sub-attribuut de veiligheid/comfort voor alle passagiers vergroot is het belangrijker (krijgt het een hoger gewicht) dan wanneer het de veiligheid/comfort voor slechtsenkele passagiers of alleen van de bestuurder vergroot
3.0.4.11: Als gevolgen van de verschillende mogelijke waarden van een sub-attribuut voor veiligheid of comfort niet duidelijk zijn kan het gewicht om laag (bijvoorbeeld: moet baby met gezicht in rijrichting zitten of achterstevoren.
3.0.4.12: Als klant niet smerkt van een sub-attribuut (veiligheid) dan kan het gewicht om laag
3.0.4.13: Als klant niet smerkt van een sub-attribuut (veiligheid) dan moet het gewicht constant blijven of omhoog omdat je er dan juist als bedrijf op moet letten
3.0.4.14: Als geen informatie beschikbaar is over de score op een sub-attribuut kan het gewicht om laag
3.0.4.15: Er is een samenhang tussen het aantal sub-attributen en het belang van het attribuut nop het hogere niveau waar de sub-attributen onder vallen. NB: zegt op zichzelf niet sover oorzaak of gevolg.
3.0.4.16: Als de prijs van een sub-attribuut laag resp. hoog is in verhouding tot de bijdrage aan veiligheid of comfort gaat het gewicht omhoog resp. om laag. NB: Hier is geen sprake van een gemeenschappelijke noemer: her gaat ofwel om veiligheid ofwel om comfort, niet om een verbinding tussen die twee. Deze regel wordt alleen toegepast als attributen daadwerkelijk een gewicht krijgen, dus niet bij algemene uitspraken als: 'door veiligheidsvoorzieningen gaat de prijs van een busje omhoog'. In dat geval beseffen de proefpersonen namelijk altijd dat prijs niet thuishoort in de opdracht.
3.0.5: Uitspraken over referentiebronnen waarop gewicht kan worden gebaseerd. NB: Gewichten zouden onverkort kunnen worden overgenomen, maar dat doet niemand. Daarom leg ik ook geen direct verband met de conjunctiegrens. NB: deze referentiebronnen kunnen worden gezien als regel onder 3.0.4: als een referentiebron iets wel/niet belangrijk vindt gaat het gewicht omhoog/om laag. Maar: externe referentiebronnen komen zo vaak voor en in zoveel vormen dat het qua presentatie handiger is om er een afzonderlijk punt van te maken.
3.0.5.1: Wat wil ik zelf (met name als passagier) belangrijk?
3.0.5.1.1: Score
3.0.5.1.2: Gewicht
3.0.5.1.3: Onbekend of het gaat om score of gewicht
3.0.5.1.4: Welk busje kies ik?
(Ik zit in een busje en er gebeurt een ongeluk)
3.0.5.2: Aan welke normen vind ik dat een busje zou moeten voldoen (dus niet als passagier maar bijvoorbeeld als adviseur)? NB: Dit houdt logischerwijze een conjunctiegrens in, maar die consequentie wordt vaak uiteindelijk niet getrokken. Het gaat hier per definitie over de score en niet over het gewicht.
3.0.5.3: Wat vinden (potentiële) passagiers/klanten belangrijk?
3.0.5.3.1: Score
3.0.5.3.2: Gewicht
(Wat wil klant extra betalen voor veilige of comfortabele bus?
3.0.5.3.3: Onbekend of het gaat om score of gewicht
3.0.5.3.4: Welk busje kiezen ze?
3.0.5.3.5: Worden verschillende klantengroepen onderkend? NB: Dit gaat om meer dan het alleen opnoemen van de klantengroepen die reeds in de opdracht worden genoemd. Er moet iets mee worden gedaan
- Zo ja: wordt dan met elke groep evenveel rekening gehouden?

3.0.5.4: Wat vinden de chauffeurs belangrijk?
3.0.5.4.1: Score
3.0.5.4.2: Gewicht
3.0.5.4.3: Onbekend of het gaat om score of gewicht
3.0.5.4.4: Welk busje kiezen ze?
3.0.5.5: Wat vindt het bedrijf belangrijk?
3.0.5.5.1: Score
3.0.5.5.2: Gewicht
3.0.5.5.3: Onbekend of het gaat om score of gewicht
3.0.5.5.4: Welk busje kiezen ze?
3.0.5.6: Wat levert de concurrentie?
3.0.5.6.1: Score
3.0.5.6.2: Gewicht
3.0.5.6.3: Onbekend of het gaat om score of gewicht
3.0.5.6.4: Welk busje kiezen ze?
3.0.5.6.5: Worden verschillende groepen concurrenten onderscheiden?
- Zo ja, wordt met elke groep evenveel rekening gehouden?
3.0.5.7: Wat vindt de wetgever belangrijk?
3.0.5.7.1: Score
3.0.5.7.2: Gewicht
3.0.5.7.3: Onbekend of het gaat om score of gewicht
3.0.5.8: Wat is het oordeel van onafhankelijke instanties zoals de consumentenbond? NB: Sommige proefpersonen nemen het oordeel van onafhankelijke instanties mee als sub-attribuut.
3.0.5.8.1: Score van busjes
3.0.5.8.2: Gewicht van (sub-)attributen
3.0.5.8.3: Onbekend of het gaat om score of gewicht
3.0.5.9: Hoe worden andere transportmiddelen beoordeeld?
3.0.5.9.1: Score
3.0.5.9.2: Gewicht
3.0.5.9.3: Onbekend of het gaat om score of gewicht
3.0.5.10: Vanuit wiens perspectief wordt in laatste instantie het gewicht van veiligheid en comfort dan wel hun sub-attributen vastgesteld? NB: meerdere antwoorden zijn mogelijk, bijvoorbeeld als gewichten worden 'gemiddeld'.
3.0.5.10.1: Vanuit het perspectief van de proefpersoon zelf
3.0.5.10.2: Vanuit het perspectief van de klanten
3.0.5.10.3: vanuit het perspectief van de chauffeurs
3.0.5.10.4: Vanuit het perspectief van het bedrijf
3.0.6: Is er sprake van paarsgewijze vergelijking tussen sub-attributen? Zo ja: op welke wijze?
3.0.6.1: Volledige paarsgewijze vergelijking.
3.0.6.2: Onvolledige paarsgewijze vergelijking: bij vergelijking sub-attributen van verschillende hoofdattributen: nummer 1 van veiligheid vergelijken met nummer 1 van comfort, nummer 2 van veiligheid met nummer 2 van comfort etc..
3.0.7: Stapsgewijze eliminatie van gewichten.
3.0.7.1: Afweging beginnen met extreme case en dan naar het midden toewerken.
3.0.7.2: Afweging beginnen vanuit het midden en dan naar extremen toewerken. NB: Kan ook betekenen dat het midden als referentiepunt wordt genomen zonder dat systematisch naar de extremen wordt toegewerkt.
3.0.7.3: beginnen met bepaalde gewichten en dan stapsgewijs naar de finitieve gewichten toe. Bijvoorbeeld: via 0,7 - 0,3 en 0,6-0,4 naar 0,65-0,35.. NB: Deze regel wordt waarschijnlijk vaak impliciet toegepast, maar enkele proefpersonen maken hem expliciet. NB: Deze regel gaat niet op bij partiele afwegingen.
3.0.8: Referentie aan algemene theorieën of methoden (expliciet of impliciet), bijvoorbeeld Maslov, 20-80-regel, AHP of wet van afnemend grensnut.
3.0.9: Gewichten genormaliseerd naar 1 of naar 100%. NB: Kan alle en bij interval- of rationiveau gewichten.
3.0.10: Uitspraken over de validiteit van de afweging.
3.0.10.1: Zeggen dat afweging niet 'objectief' (door de proefpersoon) valt te verantwoorden.
3.0.10.2: Zeggen dat je gewichten liever in overleg met anderen vaststelt
3.0.10.3: Je kunt niet beoordelen of de aanwezigheid van een sub-attribuut (bijvoorbeeld ABS) bij de ene auto veiliger is dan bij de andere. NB: Geeft de beperking van een ja/nee-schaal (wel/geen ABS in plaats van bijvoorbeeld remafstand) aan. Deze regel wordt niet toegepast, althans niet in de zin dat daardoor de validiteit van de afweging vermindert. De algemene opmerking wordt wel gemaakt, maar er wordt alleen iets mee gedaan als bijvoorbeeld veiligheid niet zichtvaar is voor de klant en je daarmee dus geen klanten trekt. Maar dan is sprake van 3.0.4.8.
3.0.10.4: Folders niet voetstoots geloven, informatie stuurt je in een bepaalde richting.
3.0.11: Non-regels (dingen die men wil doen maar die binnen de context van de opdracht niet haalbaar of niet aan de orde zijn). Men had er aannames over kunnen doen, maar doet dat kennelijk niet. Het gaat niet over onzekerheid maar over ontbrekende informatie.
3.0.11.1: Gewicht afhankelijk van schaarsteverhoudingen:

- Als ik moeilijk personeel kan krijgen is veiligheid belangrijker, als ik moeilijk klanten kan krijgen is comfort belangrijker.
  NB: Dit is *niet* onder één noemer brengen

3.0.11.2: Naarmate de prijs van het busje hoger is kan/moet de score op veiligheid en/of comfort dan wel hun sub-attributen hoger zijn. NB: Niet naar 3.0.4 want het gaat niet over gewichten.
3.0.11.3: Constant houden veiligheid: als alle busjes even veilig zijn en alle chauffeurs even goed kunnen rijden kies je meest comfortabele busje. Of wel: streven naar een zo hoog mogelijk comfort met minimaal niveau veiligheid
3.0.11.4: Enquête onder klanten houden om uit te vinden wat zij belangrijk vinden
3.0.11.5: Als je voldoet aan veiligheidsniveau dat klant verwacht concurreer je op comfort, anders op veiligheid
3.0.11.6: Als de concurrent dezelfde veiligheid biedt als jij (NB: score): concurreren op comfort
3.0.11.7: Bij hoge prijs veiligheid: concurreren op comfort.
3.0.11.8: Gewicht afhankelijk van omstandigheden (overdag of 's nachts)
3.0.11.9: Als concurrent concurreert op comfort moet je daar zelf ook een hoog niveau in bereiken

3.1: Regels met effecten op de partiele afweging van sub-attributen.
3.1.1: Regels om sub-attributen niet mee te nemen.
3.1.1.1: Sub-attributen die niet met busje zelf te maken hebben (onderhoud, toestand op de weg, gedrag chauffeur) doen niet mee)
3.1.1.2: Sub-attributen weglaten die buiten het bestek van de opdracht vallen (kosten) of die niets met veiligheid of comfort te maken hebben vallen af.
3.1.1.3: Sub-attributen die voor anderen dan de klant belangrijk zijn (bijvoorbeeld voor de chauffeur) vallen af.
3.1.1.4: Sub-attributen die niet een minimaal niveau van belangrijkheid hebben weglaten. NB: Dit laat onverlet dat eerst regel 3.0.4.1-3.0.4.14 kan worden toegepast waardoor het gewicht wordt verlaagd, waarna het vervolgens wordt weggelaten
3.1.1.5: Als gevolgen van de verschillende mogelijke waarden van een sub-attribuut voor veiligheid of comfort niet duidelijk zijn wordt het sub-attribuut niet meegenomen (bijvoorbeeld: moet baby met gezicht in rijrichting zitten of achterstevoren.
3.1.1.6: Als sub-attribuut bij alle busjes (vrijwel) evenveel scoort doet het niet mee. NB: Kan komen vanwege wettelijke minimumeisen.
(Proefpersoon kan stellen dat busjes op veiligheid niet veel verschillen zonder daaruit conclusies te trekken over gewichten).
3.1.1.7: Als klant niets merkt van een sub-attribuut (veiligheid) dan:
3.1.1.7.1: Niet meenemen.
3.1.1.7.2: Alleen het imago meenemen.
3.1.1.8: Alleen kijken naar objectieve sub-attributen van veiligheid.
NB: Som sconstateert een proefpersoon dat twee sub-attributen samenhangen en dat slechts één van de twee rechtstreeks slaat op veiligheid (bij comfort komt het niet voor). Bijvoorbeeld: gewicht bepaalt de remweg en heeft aldus invloed op veiligheid. Waarnieman dt trekt expliciet de consequentie om het 'onafhankelijke' sub-attribuut maar te laten vallen.
3.1.1.9: Als geen informatie beschikbaar is over de score op een sub-attribuut kan het worden weggelaten
3.1.2: Regels om sub-attributen juist wel mee te nemen.
3.1.2.1: Als klant niets merkt van een sub-attribuut (veiligheid) dan wel meenemen: het is verantwoordelijkheid bedrijf om erop te letten.

3.2: Regels met effecten op de afweging van sub-attributen binnen één hoofdattribuut (veiligheid of comfort).
3.2.1: Regels om sub-attributen niet mee te nemen.
3.2.1.1: Wordt het aantal af te wegen sub-attributen in vergelijking tot dat uit de partiele afweging beperkt (complexiteitsreductie)? Zo ja: op welke wijze? NB: Het gaat erom dat bijvoorbeeld een maximum wordt gesteld aan het aantal af te wegen attributen *onafhankelijk van de sub-attributen van het andere hoofdattribuut*. Daarvoor is namelijk een aparte regel (zie hieronder).

3.3: Regels met effecten op de afweging tussen sub-attributen van verschillende hoofdattributen.
3.3.1: Regels om sub-attributen niet mee te nemen.
Wordt het aantal af te wegen sub-attributen in vergelijking tot dat uit de partiele afweging of de afweging van sub-attributen binnen één hoofdattribuut beperkt (complexiteitsreductie)? Zo ja: op welke wijze? NB: Als een sub-attribuut geen gewicht krijgt is dat iets anders dan wanneer het gewicht 0 krijgt.
3.3.1.1: Aantal af te wegen sub-attributen veiligheid en comfort moet (ongeveer) gelijk zijn.
3.3.1.2: De meest belangrijke X sub-attributen van veiligheid en comfort worden met elkaar vergeleken, de rest valt af. NB: deze 2 regels komen op hetzelfde neer.

3.4: Regels met effecten op de afweging tussen de hoofdattributen.
3.4.1: Wordt er een relatie gelegd tussen de gewichten van de hoofdattributen en de gewichten van de sub-attributen?
3.4.1.1: Gewicht hoofdattribuut is gelijk aan totaal aan gewichten sub-attributen uit vorige fase.
3.4.1.2: Totaal aan gewichten sub-attributen moet gelijk zijn aan eerder vastgesteld gewicht hoofdattribuut.

4: Regels met effecten op het omgaan met onzekerheid (met de kans op verschillende toestanden van de wereld). NB: Er valt iets voor te zeggen om deze regels onder 1 en 2 te laten vallen, want daarop hebben ze uiteindelijk effect. Ik heb dat niet gedaan omdat:
A: De toestanden van de wereld ook in MAUT een aparte categorie zijn.
B: De motivatie van de proefpersonen van een ander karakter is. Bij 1 en 2 baseren ze hun regels op de (verwachte) score op de attributen van de alternatieven, bij 5 baseren ze hun regels op kenmerken (attributen) van de toestand in de wereld. Het is informatief om deze twee soorten redeneringen te scheiden.
4.1: Verhogen gewicht bij belangrijke gevolgen toestand van de wereld (veiligheid belangrijk i.v.m. gevolgen ongeluk).
4.2: Aparte sub-attributen, bijvoorbeeld flexibiliteit.
4.3: Lager gewicht (veiligheid) bij geringe kans op bepaalde toestand van de wereld (ongeluk).
(Verschillende kansen op ongeluk voor chauffeurs en passagiers, dus verschillende gewichten veiligheid).
4.4: Als overwenselijkheid van score van sub-attribuut niets te zeggen valt omdat gevolgen (of subjectieve utiliteit) bij verschillende scores niet veel (waarneembaar) van elkaar verschillen
4.4.1: Laag gewicht. Bijvoorbeeld: het is niet te zeggen welk soort bekleding klanten willen, dus soort bekleding niet belangrijk.
4.4.2: Vaste minimum score of relatief hoge score. Bijvoorbeeld: stahoogte moet minimaal 185 cm zijn zodat gemiddelde klant kan staan.
4.4.3: Busjes aanschaffen met verschillende scores, bijvoorbeeld twee busjes met extra grote bagageruimte.
4.4.4: Hoog gewicht
4.5: Bij een grote kans op een bepaalde toestand van de wereld (ongeluk): hoger gewicht.

5: De betekenis van 'gewicht'. NB: als systematiek is gehanteerd: gewicht, attribuut, alternatief
5.1: Belang, belangrijkheid, weegfactor (in een nutsfunctie zoals MAUT)
5.2: Wat wil in aan comfort opgeven voor veiligheid?
5.3: Hoeveel fouten m.b.t. comfort/veiligheid accepteer ik?
5.4: Volgorde van belangrijkheid op een ordinale schaal (eventueel bij bepaald budget). Het kan gaan om score op een schaal van de attributen of het voldoen aan een minimumniveau ja/nee
5.5: Getal (percentage) tussen minimaal en maximaal mogelijke score busje op attribuut/mate van veiligheid en comfort doe de gekozen auto moet hebben
5.6: Wiskundig gemiddelde voor bedrijfen klant van deel 1 het vorige punt
5.7: Mate van bijdrage aan hoofdattribuut
5.8: Mate waarin de keuze van het busje wordt beïnvloed/wat geeft doorslag/percentage oordeel gebaseerd op attribuut

6: Restregels
6.1: Voordat betekenis volgde deelte van sub-attributen is opgenoemd al afwegingen geven.
6.2: Worden zowel bij partiele afweging als bij integrale afweging argumenten gegeven?
6.3: Alleen de grote lijnen zijn belangrijk.
6.4: Wens om zo gestructureerd/zorgvuldig mogelijk te werken
6.5: Gedachte-experiment (voorzover het niet onder een nauwkeuriger te benoemen regel valt)

Argumentatie
De redenering achter de structuur is als volgt:
1: Er is aangesloten bij de elementen die thuishoren in een beslissing (Koele en van der Pligt, 1993): de alternatieven de gewichten, de attributen, de toestanden van de wereld. NB: Nakijken of dit inderdaad alle elementen zijn.
Deze indeling is tevens herkenbaar in de fasering zoals die is weergegeven in Toelichting op het onderzoek 'individuele afwegingsprocessen bij aankoopbeslissingen' (stuk voor Wouter van Rossum, 19 juni 2000). Deze is weergebaseerd op:
- de variabelentaal/een systeemmodel voor het weergeven van bewerkingen van de attributen
- de Grounded Theory voor het achterhalen van de regels volgens welke de proefpersonen werken. Overigens wordt de aanpak van Glaser en Strauss niet helemaal gevolgd. Er worden niet eerst variabelen en objecten opgespoord, omdat de variabelen (de kenmerken van de componenten die een beslissing uitmaken) als uitgangspunt worden genomen.

Het voordeel van deze structuur is dan ook dat hij zowel aansluit bij MAUT, als bij de variabelentaal en de Grounded Theory.
2: Er wordt bij de regels niet naar doelen gekeken (althans zo min mogelijk), maar naar effecten. Die vereisen veel minder interpretatie van de gedachten van de proefpersonen dan doelen.
3: De aanpak is zowel deductief (vooraf uitgegaan van de elementen van een beslissing) als inductief (de details worden ingevuld op basis van de concreet gevonden regels).
4: Ik zou graag een aanpak willen hanteren die meer 'haaks' staat op de indeling in fasen (zie het stuk van Wouter, omdat de extra informatieve waarde van de regels dan wellicht groter is. Maar ik heb in eerste instantie geen betere indeling kunnen verzinnen.
5: Er wordt een onderscheid gemaakt tussen sub-attributen die, na in het begin wel te zijn gedefinieerd, in een bepaald stadium niet meer worden meegenomen en sub-attributen die wel worden meegenomen maar het gewicht 0 krijgen.
Argumentatie:

- Een gewicht van 0 heeft betrekking op het attribuut. Niet meenemen is vaak onafhankelijk van het sub-attribuut: alle sub-attributen die te laag staan in een rangorde worden niet meegenomen.
- Als een sub-attribuut niet wordt meegenomen hoeft het eraan toegekende gewicht niet 0 te zijn. Een sub-attribuut van veiligheid dat niet wordt meegenomen omdat het te laag in de rangorde staat zou bij een vergelijking met sub-attributen van comfort in theorie belangrijker kunnen zijn dan het belangrijkste sub-attribuut van comfort.
- Je stelt geen absolute of relatieve minimumeis (gewicht moet hoger zijn dan X om te worden meegenomen, of sub-attribuut veiligheid moet belangrijker zijn dan sub-attribuut comfort), dus het is geen bewuste afweging, want aan de afweging tussen hoofdattributen kom je niet een stoe.
- De mogelijkheid wordt afgesneden om bij de afweging tussen sub-attributen van verschillende hoofdattributen de afwegingen van sub-attributen binnen hetzelfde hoofdattribuut te herovenwegen. Dit heeft te maken met het eerste punt.

6: Ik heb het uitvoeren van gedachten-experimenten niet apart meegenomen, want de hele opdracht is eigenlijk een gedachten-experiment. Wel zijn de onderwerpen waarover men gedachten-experimenten doet verwerkt in de regels.

Appendix B: Assignment 'Weighing of attributes in decision processes'

Assignment for the research project
'Weighing of attributes in decision processes'

The experiment and your role in it
Introduction
The goal of this research is to find out how people go about making choices when purchasing a capital good. In particular, it is about how these people weigh the importance of the various aspects, also named '<u>attributes</u>', on which the capital good is judged. An example from the personal realm: if you want to buy a new television set, TV type A is perhaps cheaper than TV type B, but type B may have a better display quality. So, in this case there are two attributes (aspects): price and display quality. Do you choose A or B? You will have to weigh the importance of a lower price against the advantage of a better display quality. As long as you buy something for yourself only, there is no reason for explicit weighing. But if you are to acquire a capital good for an organization you will often have to make your deliberations explicit. A way to do this is to make clear how important certain attributes are to you. This research concerns the way people come to a judgment about the importance of these attributes.

In this session, you will be asked to assess the relative importance (also called 'weights') of two attributes, while thinking aloud, expressing all your thoughts verbally.

In the following sections you will find information about the goal of the assignment you are to fulfill, and the way it should be executed. Also, some tips are given that may help you to express your thoughts aloud, and the role of the experimenter is explained. Study the information carefully. When you have finished reading the information, the experimenter will ask you whether everything is clear to you. If so, you are to conduct a few short exercises in thinking aloud. After that, the experimenter will provide you with some background information about the capital good of which you are to weigh two attributes. This information will be in the form of descriptions of two examples of the capital good. The experimenter will also give you information about the company that is to acquire the capital good. You have fifteen minutes to read this information. After that you will receive the assignment. Think aloud from the moment you get the assignment.

The goal of the assignment
The goal of the assignment you are about to fulfill is: to contribute to the acquisition of minibuses for the fictitious..... (PLACE)..... company Plane Drive. Your task is to weigh (assess the importance) of two of the attributes of the minibuses to be acquired. In the assignment itself you will read which attributes need to be weighted. You are to express each and every thought that occurs to you verbally.

Important: The assignment is not about choosing between types of minibuses. So you are not to make recommendations like: 'choose minibus X'. You are to weigh two of the attributes that the types of minibuses under consideration may have. To go back to the examples of the TV's: the assignment is not about buying TV A or B, or how low the price is of TV B and how high the display quality of TV B, but about how important price is to you relative to display quality.

Your contribution to this research is not only important from a scientific point of view. The results will be used at a later stage to gain insight in how experienced acquisition officials work. With all this knowledge, instruments will be developed to improve acquisition processes within organizations. The fictitious company in the assignment strongly resembles one of the companies where acquisition processes are to be improved. So, the way in which you execute the assignment determines to a certain extent which suggestions for improvement we will be able to give to this company.

The execution of the assignment
You are completely free in the way you execute the assignment. So, you do not have to take into consideration the present policy of the company 'Plane Drive', opinions of others within the company, other attributes on which minibuses could be judged, or with (for example, financial) boundary conditions. A weighing as precise as possible is what is expected of you. You are not bound by what you think is generally considered logical or

correct, but are free to use your own personal logic. In this assignment, there is no 'right' way of weighing. Many ways of weighing can be right. Consequently, the researchers have no opinions or preferences as to the many ways of weighing that may be possible.

If you feel you need certain background information (like technical data) that you cannot find in the background information, you are allowed to formulate assumptions. You can, for example, assume that the maximum speed of the minibuses that Plane Drive uses at present is 100 km/h. However, only make assumptions when you find it really necessary.
Make notes whenever you consider it useful. It may be difficult to execute the assignment completely by heart, and there is a chance that you may loose track of what you are doing during some stages of the assignment. By the way: if you feel you need to, you may start the assignment anew, or repeat any part of it.

The available resources
You have one and a Half hour to complete the assignment. The whole session, including the reading of the background information, lasts two hours. Afterwards, a short interview is conducted.

You can make use of pencil and paper and, if you want, a pocket calculator. And you can make use of the background information. This information comprises:
- Brochures about the company;
- Brochures about two types of minibuses. These two minibuses are purely examples; there may well be other types that could be worthy of consideration.

The role of the experimenter
The experimenter is present only for recording your thoughts and actions. He or she will provide no extra information. If you forget to express your thoughts verbally, the experimenter will point this out to you.

Thinking aloud
Think aloud while executing the assignment. Express every thought that occurs to you immediately, even if you think it has got nothing to do with the assignment or if you are not sure the thought is correct. When analyzing the way in which you conducted the assignment the researchers do not look so much at the 'correctness' of your thoughts, but at the completeness of the recording of your thoughts.

Please do not try to explain or summarize your thoughts to the experimenter. Communicating with the experimenter can severely disrupt the execution of the assignment.

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<u>The company: Plane Drive</u>

The company
The Uppsala company Plane Drive specializes in passenger transport from this region to Skavsta Airport. It has sixty employees, of which forty are part-time drivers and eight are mechanics. Plane Drive possesses twenty minibuses (vans with six to eight seats for passengers), of which at least ten have to be available during daytime and at least seventeen during night time.

The product
A customer who wants to make use of the taxi-service to the airport contacts Plane Drive at least two days before his journey starts. The planning department of Plane Drive makes a route planning for the driver, based on the places of residence of the customers for the trip in question, and on the times they have to be at the airport. Boundary conditions are that the customer has to be picked up from his or her home (so there are no pre-set pick-up locations), that the minibuses used at present have a maximum capacity of eight passengers, and that the planned arrival at the airport must for no customer be more than two hours before the departure of his or her plane. Of course, every customer is assigned a seat.

The customers
The company serves the following groups of customers:

- Airplane travelers who do not want to travel to the airport by train, for example because they carry a lot of baggage. These customers have the following requirements for the taxi-service: a level of comfort that is at least equal to that of the train, a price as close as possible to that of the train, and a waiting time at the airport before departure of the airplane that is as short as possible.
- Airplane travelers who are not able to travel to the airport by train, for example because they have to be at the airport so early that no trains are available. These customers have the following requirements for the taxi-service: a departure from home that is as late as possible and a price that is lower than the cost of alternatives like a regular taxi or the price of staying in a hotel at the airport the night before departure of their plane (if they would travel to the air port the evening before departure).
- Airplane travelers who do not want to travel to the airport by car, for example because they do not want to leave their cars at the airport unattended. These customers have the following requirements for the taxi-service: a level of comfort as close as possible to that of a car, and a waiting time at the airport that is as brief as possible.
- Airplane travelers who are not able to travel to the airport by car, for example because they don't have one. These customers have the following requirements for the taxi-service: a level of comfort comparable to that of public transport, and traveling and waiting times at the airport comparable to that of public transport. This means: equal to the traveling time by train, plus one hour additional traveling time (for example: for going tot the railway station by bus), plus half an hour extra waiting time at the airport.

The decision

At present, Plane Drive has one single type of minibus in its fleet. These buses were acquired for a period of two years. Because maintenance costs are starting to rise, the management has decided to replace all buses in the next two and a half year with an equal number of new minibuses.
Although the market that the company operates in has not changed significantly since the present fleet of minibuses was acquired, the acquisition of new buses presents a good opportunity to take a fresh look at the requirements they have to fulfill. No new requirements are to be formulated, but the relative weight of each of the attributes on which the minibuses are evaluated is to be re-assessed.

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The assignment

The management of Plane Drive has tasked you with weighing two of the attributes on which the minibuses will be evaluated, namely safety and passenger comfort. You are free in the way in which you define these attributes and the way in which you express the relative importance of each of the attributes vis-à-vis the other.

The requirements that your weighing has to fulfill are the following:

- It has to be formulated so precisely that, on the basis of it, the various types of minibuses available on the market can indeed be compared to each other.
- The motivation of the weighing (your mental processes in order to arrive at statements about the relative importance of the two attributes) has to be so clear that it can be explained to the management of Plane Drive. But please note: this does not mean that the management has to agree with you.

Once again: the assignment is not to judge the minibuses mentioned in the background information with regard to their levels of safety and comfort. The assignment is about the weighing of the importance of safety versus comfort for the evaluation of a minibus in general.

Appendix C: Reflection

At the start and during this process when I was doing my bachelor thesis, I set a few goals for myself.

- *Carry out a research on bachelor-level independently*

First of all I wanted to develop my research skills and be able to independently carry out a research on bachelor-level. I think I started out in a good way, by trying to combine my desire to study in Sweden with an assignment that would be interesting for me. Before leaving for Sweden my research proposal was accepted and I could start with gathering my data. However, when I came back from Sweden and started analyzing the data, several interesting issues could be identified. Being all enthusiastic about some remarkable things, I kept conducting analyses in various directions. Unfortunately I did not succeed in choosing a final direction until almost two years after I had started. Several causes can be identified. First of all, when I went to Sweden I was given the task to be open-minded and not to think about what would be the final variables of my research. So even though I had formulated a research proposal, this was not binding. It was meant to enhance my creative thinking during the process and to be able to think outside the box. This was a very interesting way of doing research I must add. However, when I came back from Sweden it took too long before it was decided what the variables of my research would be. Reminding myself to be creative, I kept searching for new insights over and over again. This was all very interesting, but caused an excessive delay of my process. Consequently this led to a long period of lack of motivation to continue. So I finished some master courses and got some jobs in the meanwhile. However, when I finally resumed working on the thesis again I had a meeting with my supervisor and we decided on the final variable 'rationality'. During the process I think I was very independent, maybe a bit more than was desirable, since this is merely a bachelor and not a master thesis. I experienced that even though I embrace creativity, I think I have to clarify the problem statement and scope of my research before starting. My interests are easily triggered in a wide variety of subjects, so to save me from myself in future projects, I will define my problem statement and research questions and try to stick with them. During the meetings I had with my supervisor, he expressed that he appreciated my creativity. When discussing about several topics I was often capable to convince him of my interpretation of finding so my opinion by mentioning the arguments for my view.

- *Apply and integrate my knowledge and skills into this research*

Secondly, I wanted to apply the knowledge and skills that I build up during my bachelor program to this research as a final, overall thesis. Even though the assignment does combine the field of business management with psychology, I found it was a relatively new subject for me. Decision-making is very specific, let alone importance assessment and judgment processes. Besides, the lack of literature on this subject made it more difficult as well. I spent a lot of time trying to find the proper literature that would clarify the link between culture, importance assessment and rationality. However, I could not find anything. By trying to put pieces of literature on parts of this connection together and making assumptions inferred from my own logical and rational thinking I came up with some expectation strying to fill the gaps.

- *Experience the Swedish culture*

Furthermore, a completely different goal that I set was to experience and get acquainted with the Swedish culture. By living in Sweden for 6 months I was able to experience a lot of things. Arriving all alone during winter time with only two hours of daylight I was introduced to the Northern, dark part of Sweden immediately. Fortunately my Swedish flatmates were very friendly and helpful right from the start. After five months of classes, traveling and partying with Swedes and international students, I got familiar with the habits of Swedes. They queue, they are punctual, they don't talk to strangers (you shouldn't either), they are your best friend when they are drunk, they do not complain and they are very friendly when you approach them. Something else that drew my attention is that equality is highly valued and very well realized in all sorts of surroundings as well. For example, there is equality between teachers, professors and students. They all call each other by their first name, which takes some time to get used to.

Concluding, I think I was able to experience the Swedish culture, if there is such a thing, during my stay in Umeå. I did execute my bachelor thesis quite independently as planned, however I might have benefited from some more structure, deadlines and goal-oriented behavior. I should have asked for more and stricter supervision and have expressed my expectations (and in some cases frustrations) and time span. The thesis was a perfect way to integrate my interests in business administration and psychology, although the subject was still relatively new to me.