Contents

1. Purpose of the VSM 2013: comparing national samples  2
2. The VSM 2013 is not for comparing individuals  3
3. The VSM 2013 is not for comparing organizations  4
4. VSM 2013 scores not comparable to published scores  5
5. The VSM 2013 is not a teaching tool  5
6. Formulas for index calculation  6
7. Reliability of the VSM 2013  9
8. Conditions for the use of the VSM 2013  10
9. History of the VSM  10
10. Comparison of the VSM 2013 with earlier versions  13
11. Translations of the VSM 2013  13
12. Submitting results for our files  14
13. References  15
1. Purpose of the VSM 2013: comparing national samples

The Values Survey Module 2013 (VSM 2013) is a 30-item paper-and-pencil questionnaire developed for comparing culturally influenced values and sentiments of similar respondents from two or more countries, or sometimes regions within countries. It allows scores to be computed on six dimensions of national culture, on the basis of four questions per dimension: thus it counts $6 \times 4 = 24$ content questions. The other six questions ask for demographic information: the respondent’s gender, age, education level, kind of job, present nationality, and nationality at birth.

The six dimensions measured were developed in the work of Geert Hofstede and his co-researchers, and are described extensively in the 3rd edition of Hofstede, Hofstede & Minkov, 2010. They deal with key issues in national societies, known from social anthropology and cross-cultural research.

The earliest public version of the instrument (VSM 82) covered four dimensions, derived from a comparison of subsidiaries of the IBM corporation in 40 countries. The next version (VSM 94) covered five; the additional dimension was found in a comparison of students in 23 countries using a questionnaire mainly designed by Chinese scholars (Hofstede & Bond, 1988). The sixth dimension in the present version was derived from Minkov’s analysis of the World Values Survey in up to 81 countries (Inglehart et al., 2007) and other newly available sources. For more information about the history of the VSM see Section 9 of this Manual.

The term *module* means that the questionnaire can be used as part of a larger instrument comparing countries on other aspects.

Research experience has shown that the answers to the 24 content questions are influenced by the nationality of the respondents. This is not to say that every respondent of nationality A gives one answer and everyone of a nationality B another, but one can expect systematic differences between the average answers from a sample with nationality A and a comparable sample from nationality B (in statistical terms, an analysis of variance on the answer scores shows a significant country effect). As the relationship is statistical, the samples per country should be of sufficient size. An ideal size for a homogeneous sample is 50 respondents. Sample sizes smaller than 20 should not be used, as outlying answers by single respondents will unduly affect the results.
If samples are heterogeneous (composed of unequal sub-samples) these numbers apply to the sub-samples.

Next to nationality, answers to the 24 content questions will also reflect other characteristics of the respondents, such as their gender, age, level of education, occupation, kind of work and the point in time when they answered the questions. Therefore comparisons of countries should be based on samples of respondents who are matched on all criteria other than nationality that could systematically affect the answers.

The content questions attributed to a dimension were selected because in comparisons of matched samples from ten or more countries, the mean country scores on the four questions belonging to the same dimension usually vary together (if one is high, the other is high, or low if it is a reversely formulated question; if one is low, the other is low, etc.). In statistical terms, the mean country scores are significantly correlated. The mean country scores on questions belonging to different dimensions usually do not vary together (are uncorrelated). Therefore, the 24 questions form 6 clusters of 4 questions each.

2. The VSM 2013 is not for comparing individuals

As mentioned above, the dimensions measured by the VSM are based on country-level correlations, between mean scores of country samples. For the same two questions, country-level correlations can be very different from individual-level correlations, between the answers by the individuals within the country samples (for a clear explanation see e.g. Klein, Dansereau & Hall, 1994). Individual-level correlations produce dimensions of personality; country-level correlations produce dimensions of national culture. For research results about the relationship between personality and culture see Hofstede & McCrae (2004).

The study of national culture dimensions belongs to anthropology, the study of individual personality belongs to psychology. The first is to the second as studying forests is to studying trees. Forests cannot be described with the same dimensions as trees, nor can they be understood as bunches of trees. What should be added to the analysis at the forest level is the interaction between different trees and other plants, animals, organisms and climate factors, together described by the term biotope. In reverse, trees cannot be described with the same dimensions as forests. At best one can ask in what kind of forest this tree would be most likely found, and how well it would do there.
A common misunderstanding about dimensions of national culture is that they are personality types. People want to score themselves on a dimension, or worse, try to score someone else. This is called **stereotyping**, which is not what the dimensions are for. They do not refer to individuals, but to national societies. What a person can do is find out how the values prevailing in his or her national society differ from those in another society. As an individual, a person can express how he or she feels about the values in a particular national society, but that would still be a function of his/her personality and not necessarily show his or her national culture.

Because of this, the VSM 2013 **cannot be scored at the individual level**. It is not a psychological test. The tendency to ask for individual scoring of the VSM is stronger in some national cultures than in others. Especially in very individualist cultures, the request for individual scoring is frequent: the concept of *my society* (a forest) is weaker that the concept of *me myself* (a tree). The VSM should only be used by researchers who subscribe to the concept of a society differing from other societies.

### 3. The VSM 2013 is not for comparing organizations

The six dimensions on which the VSM 2013 is based were found in research across more than 40 countries. In a research project across 20 different **organizations** within the same two countries, answers to the questions that made up the cross-national dimensions did not correlate in the same way (Hofstede, Neuijen, Ohayv & Sanders, 1990 and Hofstede, Hofstede & Minkov, 2010: 341-368). So the cross-national dimensions do not apply to organizational (or corporate) cultures. The answers to the VSM questions (dealing with values and sentiments) varied less across organizations within a country than across countries. Instead, organizational cultures differed primarily on the basis of perceptions of **practices**, and the organizations in the study could be compared on six dimensions of perceived practices.

While the study of national culture dimensions belongs to anthropology and the study of individual personality belongs to psychology, the study of organizational cultures belongs to sociology. The dimensions of perceived practices in the Hofstede et al. (1990) study relate to known distinctions from organizational sociology.
A similar concern prohibits the use of the VSM dimensions for comparing occupations (Hofstede, Hofstede & Minkov, 2010: 368-369).

In some cases, VSM dimension scores can be meaningfully computed and compared for the genders (female versus male) and for successive generations (grandparents versus parents versus children). They might apply to geographical regions within a country or across countries, but in this case we recommend extending the questionnaire with locally relevant items (Hofstede, Garibaldi, Malvezzi, Tanure & Vinken, 2010).

4. VSM 2013 scores are not comparable to published scores

Some enthusiastic amateurs have used the VSM with a sample of respondents from one country and tried to draw conclusions comparing the scores they found with those in Hofstede’s books (1980, 1991, 2001, 2005, 2010). But essential to the use of the VSM is that comparisons should be based on matched samples of respondents: people similar on all criteria other than nationality that could systematically affect the answers. All scores in the first two Hofstede books were based on carefully matched IBM subsidiary populations. A new sample, to be comparable to these, should be a match for the original IBM populations on all relevant criteria. Such a match is virtually impossible to make, if only because the IBM studies were done around 1970 and the point in time of the survey is one of the matching characteristics.

Hofstede’s books since 2001 contain scores for a number of countries not in the original IBM set, based on extensions of the research outside IBM, or in a few cases on informed estimates. Extensions of the research to countries and regions not in the original set have to be based, like any VSM application, on matched samples across two or more countries. These should always include one or, if possible, more of the countries from the IBM set, so that the new data can be anchored to the existing framework. ‘Anchoring’ means that the scores from the extension research should be shifted by the difference of the old and new scores for the common country (or by the mean difference in the case of more common countries). The main problem of extension research is finding matched samples across new and old countries. Examples of successful extensions are described in Hofstede (2001:464-465).
5. The VSM 2013 is not a teaching tool

The VSM 2013 has been designed for research purposes. In the classroom it has poor face validity, as it is based on the logic of national cultures which differs from the logic of individual students. “Cultures are not king-size individuals: They are wholes, and their internal logic cannot be understood in the terms used for the personality dynamics of individuals. Eco-logic differs from individual logic” (Hofstede, 2001:17; the term ecological in cross-cultural studies is used for any analysis at the societal level; it does not only refer to the natural environment). To students or audiences without a professional training in anthropology or cross-cultural research the VSM is not the proper tool for explaining the essence of the dimensions. In this case trainers should rather develop teaching tools using the tables of differences between societies scoring high and low on each dimension, which are based on significant correlations between the dimensions and the results of studies by others (Hofstede, Hofstede & Minkov, 2010: Chapters 3-8).

6. Formulas for index calculation

The twenty-four content questions allow index scores to be calculated on six dimensions of national value systems as components of national cultures: Power Distance (large vs. small), Individualism vs. Collectivism, Masculinity vs. Femininity, Uncertainty Avoidance (strong vs. weak), Long- vs. Short-Term Orientation, and Indulgence vs. Restraint. All content questions are scored on five-point scales (1-2-3-4-5). Any standard statistical computer program will calculate mean scores on five-point scales, but the calculation can also be done simply by hand.

For example, suppose a group of 57 respondents from Country C produces the following scores on question 04 (importance of security of employment):

\[
\begin{align*}
10 \times \text{answer 1} & = 10 \\
24 \times \text{answer 2} & = 48 \\
14 \times \text{answer 3} & = 42 \\
5 \times \text{answer 4} & = 20 \\
1 \times \text{answer 5} & = 5 \\
\text{54 valid answers} & \text{ totaling 125}
\end{align*}
\]

Three of the 57 respondents gave an invalid answer: either blank (no answer) or multiple (more than one answer). Invalid answers should be excluded from the calculation (treated as missing).
The mean score in our case is: 125/54 = 2.31. Mean scores on five-point scales should preferably be presented in two decimals. More accuracy is unrealistic (survey data are imprecise measures).

Power Distance Index (PDI)
Power Distance is defined as the extent to which the less powerful members of institutions and organizations within a society expect and accept that power is distributed unequally.

The index formula is

\[ \text{PDI} = 35(m07 - m02) + 25(m20 - m23) + C(pd) \]

in which \( m02 \) is the mean score for question 02, etc. The index normally has a range of about 100 points between very small Power Distance and very large Power Distance countries. \( C(pd) \) is a constant (positive or negative) that depends on the nature of the samples; it does not affect the comparison between countries. It can be chosen by the user to shift her/his PDI scores to values between 0 and 100.

Individualism Index (IDV)
Individualism is the opposite of Collectivism. Individualism stands for a society in which the ties between individuals are loose: a person is expected to look after himself or herself and his or her immediate family only. Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which continue to protect them throughout their lifetime in exchange for unquestioning loyalty.

The index formula is

\[ \text{IDV} = 35(m04 - m01) + 35(m09 - m06) + C(ic) \]

in which \( m01 \) is the mean score for question 01, etc.

The index normally has a range of about 100 points between strongly collectivist and strongly individualist countries. \( C(ic) \) is a constant (positive or negative) that depends on the nature of the samples; it does not affect the comparison between countries. It can be chosen by the user to shift his/her IDV scores to values between 0 and 100.

Masculinity Index (MAS)
Masculinity is the opposite of Femininity. Masculinity stands for a society in which social gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life.
Femininity stands for a society in which social gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life.

The index formula is

\[ \text{MAS} = 35(m_{05} - m_{03}) + 35(m_{08} - m_{10}) + C(mf) \]

in which \( m_{05} \) is the mean score for question 05, etc.

The index normally has a range of about 100 points between strongly feminine and strongly masculine countries. \( C(mf) \) is a constant (positive or negative) that depends on the nature of the samples; it does not affect the comparison between countries. It can be chosen by the user to shift her/his MAS scores to values between 0 and 100.

**Uncertainty Avoidance Index (UAI)**

Uncertainty Avoidance is defined as the extent to which the members of institutions and organizations within a society feel threatened by uncertain, unknown, ambiguous, or unstructured situations.

The index formula is

\[ \text{UAI} = 40(m_{18} - m_{15}) + 25(m_{21} - m_{24}) + C(ua) \]

in which \( m_{18} \) is the mean score for question 18, etc.

The index normally has a range of about 100 points between weak Uncertainty Avoidance and strong Uncertainty Avoidance countries. \( C(ua) \) is a constant (positive or negative) that depends on the nature of the samples; it does not affect the comparison between countries. It can be chosen by the user to shift his/her UAI scores to values between 0 and 100.

**Long Term Orientation Index (LTO)**

Long Term Orientation is the opposite of Short Term Orientation. Long Term Orientation stands for a society which fosters virtues oriented towards future rewards, in particular adaptation, perseverance and thrift. Short Term orientation stands for a society which fosters virtues related to the past and present, in particular respect for tradition, preservation of “face”, and fulfilling social obligations.
The index formula is

\[ \text{LTO} = 40(m_{13} - m_{14}) + 25(m_{19} - m_{22}) + C(\text{ls}) \]

in which \( m_{13} \) is the mean score for question 13, etc.

The index normally has a range of about 100 points between very short term oriented and very long term oriented countries. \( C(\text{ls}) \) is a constant (positive or negative) that depends on the nature of the samples; it does not affect the comparison between countries. It can be chosen by the user to shift her/his LTO scores to values between 0 and 100.

**Indulgence versus Restraint Index (IVR)**

Indulgence stands for a society which allows relatively free gratification of some desires and feelings, especially those that have to do with leisure, merrymaking with friends, spending, consumption and sex. Its opposite pole, Restraint, stands for a society which controls such gratification, and where people feel less able to enjoy their lives. The index formula is

\[ \text{IVR} = 35(m_{12} - m_{11}) + 40(m_{17} - m_{16}) + C(\text{ir}) \]

in which \( m_{11} \) is the mean score for question 11, etc.

The index normally has a range of about 100 points between high indulgence and high restraint. \( C(\text{ir}) \) is a constant (positive or negative) that depends on the nature of the samples; it does not affect the comparison between countries. It can be chosen by the user to shift her/his IVR scores to values between 0 and 100.

### 7. Reliability of the VSM 2013

As country-level correlations differ from individual-level correlations, answers on questions used to measure a country-level dimension do not necessarily correlate across individuals. A reliability test like Cronbach’s alpha should in this case not be based on individual scores but on country mean scores. Obviously this presupposes data from a sufficient number of countries, in practice at least ten. For comparison across fewer countries the reliability of the VSM at the country level has to be taken for granted; it can indirectly be shown through the validity of the scores in predicting dependent variables.
The IBM database (Hofstede, 1980) allows to compute Cronbach alphas for the first four dimensions across 40 countries (39 for UAI, 33 for PDI because of missing data). The values, based on standardized items, are:

- Power Distance Index (3 items): Alpha = .842
- Individualism Index (6 items): Alpha = .770
- Masculinity Index (8 items): Alpha = .760
- UncertaintyAvoidance Index (3 items) Alpha = .715

The rule of thumb for test reliability is a value over .700. The new items in the new version were chosen because of their similarity to items in reliable other studies, but the reliability of the new dimension scores cannot be proven \textit{a priori}.

8. Conditions for the use of the VSM 2013

The VSM 2013 is copyrighted, but may be freely used for academic research projects.

Consultants who want to use the VSM 2013 periodically should pay a license fee based on the number of copies administered per year. The same holds for use by companies in employee surveys. Information on rates is available from the copyright holder (rights@geerhofstede.nl)

9. History of the VSM 2013

The original questions from the 1966-1973 Hermes (IBM) attitude survey questionnaires used for the international comparison of work-related values were listed in Hofstede (1980, Appendix 1). Appendix 4 of the same book presented the first Values Survey Module for future cross-cultural studies. It contained 27 content questions and 6 demographic questions. This VSM 80 was a selection from the IBM questionnaires, with a few questions added from other sources about issues missing in the IBM list and judged by the author to be of potential importance. In the 1984 abridged paperback edition of Hofstede (1980) the original IBM questions were not included, but the VSM 80 was.

A weakness of the VSM 80 was its dependence on the more or less accidental set of questions used in the IBM surveys. The IBM survey questionnaire had not really been composed for the purpose of reflecting international differences in value patterns. However, the IBM questions
could only be replaced by other questions after these had been validated across countries; and to be validated, they had to be used in a large number of countries first. Therefore in 1981 Hofstede through the newly-founded Institute for Research on Intercultural Cooperation (IRIC) issued an experimental extended version of the VSM (VSM 81). On the basis of an analysis of its first results, a new version was issued in 1982, the VSM 82. This was widely used for the next twelve years.

The VSM 82 contained 47 content questions plus the 6 demographic questions. Only 13 of the questions were needed to compute scores on the four dimensions identified by Hofstede. The other questions were included for experimental use. Some questions in the VSM 82 were only applicable to employed respondents. Thus the instrument could not be used for entrepreneurs, students, and respondents without a paid job.

The number of replications using the VSM 82 in IRIC’s files increased, but, unfortunately, it turned out that the samples from different researchers were insufficiently matched for producing a reliable new VSM. This changed when Michael Hoppe published his Ph.D. thesis on a survey study of elites (Salzburg Seminar Alumni) from 19 countries, using among other instruments the VSM 82 (Hoppe, 1990). Eighteen of these countries were part of the IBM set, but besides USA all of them were from Europe. Hoppe’s data base was therefore extended by adding results from replications in six countries in Africa, Asia and Latin America that could be considered somewhat matched with the Hoppe set.

In the meantime, the research of Michael Harris Bond from Hong Kong, using the Chinese Value Survey (Chinese Culture Connection, 1987), had led to the identification of a fifth dimension: Long-Term versus Short-Term Orientation (Hofstede & Bond, 1988; Hofstede, 2001: Chapter 7). In the new version of the VSM published in 1994 (the VSM 94), this dimension appeared for the first time together with the other four. The questionnaire was also adapted to respondents without a paid job.

Accumulated experience with the use of the VSM 94 in the next 14 years led to the publication of an updated VSM 08. In the meantime, many new sources of cross-cultural survey information became available. One was an unpublished Master’s Thesis (Van Vugt, 2006) reporting on the Internet administration of the VSM 94 among active members of the student association AIESEC in 41 countries, collecting some 2,200 valid answers, a response rate of 24%. We also looked for questions correlated with the IBM dimensions in the newly available sources, including the huge World Values Survey database freely accessible on

Minkov (2007) proposed three new dimensions: Exclusionism versus Universalism, Indulgence versus Restraint, and Monumentalism versus Flexumility (flexibility plus humility). From these, Exclusionism versus Universalism across 41 countries was strongly correlated with Power Distance and Collectivism (both $r = 0.74$), so we did not treat it as a new dimension. Indulgence versus Restraint was uncorrelated with any of the five dimensions in the VSM 94 and it added new insights into national cultural differences, so we accepted it as a new and sixth dimension.

Monumentalism versus Flexumility was significantly correlated with Short Term Orientation ($r = 0.68$ across 16 overlapping countries) and less strongly with Power Distance ($r = 0.46$ across 35 countries). The original measurement of Long versus Short Term Orientation had only covered 23 countries, and extensions of the data base for this dimension via the VSM 94 had not been convincing. We used the VSM 08 as a test case for new Long versus Short Term items, and for additional security added a seventh dimension labeled Monumentalism versus Self-Effacement.

Our expectations for the precision of the VSM measurements had become more modest than in 1982 and 1994. An infallible instrument for measuring national culture differences across all kinds of respondent populations does not exist. Only two out of six major replication studies between 1990 and 2002 confirmed all four original IBM dimensions; the four others confirmed three of the four, but the missing one differed from study to study (Hofstede, Hofstede & Minkov, 2010: 35). In the VSM 08 we simplified the formulas for index calculation as the previous versions suggested a precision that did not materialize. The VSM in many cases has proven itself a useful tool but it is no magic charm and no substitute for the user's judgment.

In 2010 under the authorship of Geert Hofstede, Gert Jan Hofstede and Michael Minkov a third edition appeared of our book for students “Cultures and Organizations: Software of the Mind”. This canonized Indulgence versus Restraint as a sixth dimension, and revised the dimension of Long- versus Short Term Orientation, basing it no longer solely on Bond’s Chinese Value Survey, but on a new analysis by Minkov of World Values Survey items. (Minkov, 2011; Minkov & Hofstede, 2010, 2011, 2012). The revision of the Long Term Orientation
dimension extended the number of countries for which reliable scores were available from 23 to 93; the same number had become available for Indulgence versus Restraint. For the first four, IBM-based dimensions, the number of reliable scores had grown to 76.

The appearance of the 2010 book rendered some aspects of the VSM 08 obsolete. The VSM 2013 is congruent with the dimensions in Hofstede, Hofstede & Minkov (2010).

Minkov’s comparison of twenty-seven different sources of cross-cultural survey information appeared as a volume in Minkov (2013). Professional users of the VSM 2013 will benefit from the study of this book.

10. Comparison of the VSM 2013 with earlier versions

The VSM 94 can be found in Hofstede (2001), Appendix 4. The VSM 82 can be reconstructed from the same source: the Appendix describes where the 1994 version differs from the older one. The questions from the 1980 IBM questionnaire from which the VSM 82 was derived can be traced in Hofstede (2001), Appendix 1.

The differences between the VSM 2013 and the VSM 08 are:

<table>
<thead>
<tr>
<th>VSM 2013</th>
<th>VSM 08</th>
<th>remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-12</td>
<td>01-12</td>
<td>identical</td>
</tr>
<tr>
<td>13-14</td>
<td>none</td>
<td>new</td>
</tr>
<tr>
<td>15-16</td>
<td>16-17</td>
<td>otherwise identical</td>
</tr>
<tr>
<td>17-18</td>
<td>19-20</td>
<td>otherwise identical</td>
</tr>
<tr>
<td>19</td>
<td>22</td>
<td>order of answers reversed</td>
</tr>
<tr>
<td>20-24</td>
<td>23-27</td>
<td>otherwise identical</td>
</tr>
<tr>
<td>25-30</td>
<td>29-34</td>
<td>otherwise identical</td>
</tr>
</tbody>
</table>

The following six questions in the VSM 08 did not return in the VSM 2013: the VSM 08 numbers 13, 14, 15, 18, 21 and 28.

11. Translations of the VSM

The English language version of the VSM13 is the base version. In many cases, the survey will be administered in one or more translations. The VSM 08 was used in 20 languages we know of – for the translations see our website www.geerthofstede.eu and go to “research and VSM”. These translations were made by users for their own research project, and their
quality is the responsibility of the user; also, several languages come in local flavours, like Portuguese for Portugal or for Brazil. In several cases we received different translations from different researchers, and unless we have reason to doubt their accuracy, we publish all versions received.

For translations of the VSM 2013, existing translations of the VSM 08 can be used as support, taking into account the differences in section 10 above.

Translators should be native speakers translating into their mother language. A back-translation by another person can be a safety device, but does not necessarily guarantee accuracy of meaning.

12. Submitting results for our files

To enable us to improve and update the VSM, users comparing ten or more countries or regions are invited to send a copy of their results to minkov@iuc.bg in the following format:

1. countries/regions covered and languages of questionnaire used
2. month and year of data collection
3. method of data collection (like: during working hours, in class, by mail survey, by email survey)
4. nature of respondents (like: employees of .., students of..)
5. number of respondents
6. demographic composition of respondent sample according to questions 25-30
7. mean scores per country/region for each of the questions 01-24
8. index scores calculated for each of the 6 dimensions

In addition, we will appreciate receiving a .pdf or hard copy of any non-confidential report, conference paper, or published article based on uses of the VSM 2013. Please contact us about the postal address to be used if needed.
13. References

Chinese Culture Connection (a team of 24 researchers, 1987)

Hofstede, Geert (1980)

Hofstede, Geert (1991)

Hofstede, Geert (2001)

Hofstede, Geert and Michael Harris Bond (1988)


Hofstede, Geert and Gert Jan Hofstede (2005)

Hofstede, Geert, Gert Jan Hofstede and Michael Minkov (2010)


Hoppe, Michael H. (1990)
Inglehart, Ronald, Miguel Basañez and Alejandro Moreno (1998)


Inglehart, Ronald and associates (2007 and ongoing)
[http://www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)

Klein, Katherine J., Fred Dansereau and Rosalie J. Hall (2004)
“Level issues in theory development, data collection, and analysis.”

Minkov, Michael (2007)

Minkov, Michael (2011)
*Cultural Differences in a Globalizing World.* Bingley, UK: Emerald.

Minkov, Michael (2013)

Minkov, Michael and Hofstede, Geert (2010)

Minkov, Michael and Hofstede, Geert (2011)

Minkov, Michael and Hofstede, Geert (2012)

*Culture’s Consequences Re-examined.* Unpublished Master’s Thesis, Radboud Universiteit Nijmegen.