Intelligibility of Frisian by native speakers of Dutch

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Abstract

The current research has investigated the intelligibility of West Frisian for native speakers of Dutch. West Frisian (Dutch: ‘Westerlauwers Fries’) is a minority language in the Netherlands, but nearly every Frisian speaker is bilingual Frisian-Dutch. The research is part of the Micrela project, which is an online application that tests mutual intelligibility between European languages (Gooskens & van Heuven, 2017) Intelligibility was tested by means of six tests: a cloze test, a word translation task and a picture task in both written and spoken forms. Two groups were formed (a complete group and a group that meets the Micrela requirements) to be able to compare the results to other Micrela results. The influence of language contact and attitude on intelligibility was tested by means of a questionnaire. The influence of foreign language knowledge was analysed in a qualitative manner. No large differences were found between the scores of the Micrela group and the complete participant group. The results showed higher scores on almost all written test versions than on the spoken test versions, which means that written Frisian is easier to understand than spoken Frisian. The mean overall intelligibility scores of the complete participant group was 71.4%. This relatively high score means that communication between Frisian and Dutch speakers in their respective native languages would be an option. This result may be interesting for language policy makers in Friesland or the European Union for communication strategies and language protection and promotion.

Key words: Frisian, intelligibility, Micrela, extra-linguistic factors
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Introduction

In almost every part of the Netherlands, Dutch is the dominant language. There is one province in the Netherlands, however, where another officially recognised language is spoken. This province is called Fryslân (Dutch: Friesland) and the language that is spoken there is Frisian. A special fact is that while almost every single speaker of Frisian knows Dutch as well, people from other provinces in the Netherlands usually are not able to understand a full sentence spoken in Frisian.

Semi-communication is a strategy used to ensure communication between people that speak different native languages. The term ‘semi-communication’ was introduced by Haugen in 1966 (Haugen, 1966), but the concept of using mutual intelligibility to communicate has existed since the Late Middle Ages (Braunmüller, 2007). Because practically every Frisian person is capable of speaking Dutch, semi-communication may not be considered to be necessary in communication between Frisians and non-Frisians. However, it is valuable to research how well speakers of Dutch can understand the Frisian language, for it might prove useful for example to language policy makers who want to promote Frisian usage. Subsequently, a stagnation or an increase in the number of people using Frisian can prevent this minority language from becoming extinct. Therefore it will be determined in this thesis how well non-Frisians can understand the Frisian language.

In the current research, first, general information about Frisian and Dutch and their differences will be provided, which will be followed by an explanation of the concept of mutual intelligibility. Subsequently, previous research from the Micrela project (a leading research project on European mutual intelligibility (Gooskens & van Heuven, 2017)) and on the intelligibility of Frisian will be discussed. In the next chapter, the method of the current research will be described. This will be followed by the results and a discussion thereof. Lastly, a conclusion will be drawn about the intelligibility of Frisian and its implications.

Background

History

The variety of Frisian that is spoken in the Netherlands is officially called ‘West-Lauwers Frisian’ and belongs to a language family with two other varieties: Sater (east) Frisian and North Frisian, spoken in the north-eastern and northern part of Germany respectively. These varieties share a common ancestor, namely Old Frisian (Jansen & Hoekstra, 2010). The Frisian languages are part of the Ingvaeneic language family, together with English. Ingvaeonic languages are in turn part of the West-Germanic language branch, together with for example Dutch and German (Gorter et al., 2008). This hierarchy means that Frisian is genetically closer to English than to Dutch. A schematic language tree of the West Germanic language family can be found in figure 1. Frisian and English used to be mutually intelligible, partially because the second Germanic consonant shift did not affect those languages as it did in Dutch (Jun, 2016). The three Frisian languages all have developed separately for centuries, which means that West and North Frisian are not mutually intelligible anymore, as researched by Swarte et al. (2013). Although being genetically closest to English, the development of West Frisian has been influenced in the middle ages by contact with North Germanic languages as well, mainly caused by trading. After this, Dutch, being the main language...
used in the Netherlands, also had a great impact on the West Frisian language (Gooskens & Heeringa, 2004).

West Frisian consists of several dialects. The three main dialects are **Klaaifrysk** (clay Frisian), spoken in the west of Friesland, **Wâldfrysk** (forest Frisian) in the east and **Súdwesthoeksk** (southwest quarter) in the south. Smaller dialects are spoken on the islands belonging to the province of Friesland, in the city of Hindeloopen and in Frisian cities in general, called ‘Town Frisian’ (Gooskens & Heeringa, 2004; Jun, 2016). Town-Frisian is actually a Dutch dialect that originated from language contact with traders that settled down in several towns in Friesland in the 16th century (Gorter et al., 2008). The areas in which the West Frisian dialects are spoken are marked on the map in figure 2.

**Language skills in numbers**

North Frisian nowadays has less than 10,000 speakers, and Sater Frisian is at serious risk of dying out with just 1500 speakers (Popkema 2006, in Jun 2016). Compared to these numbers, West-Lauwers Frisian has a lot of speakers at 410,000 (Provincie Fryslân 2011, in Swarte et al. 2013). Because the current research will focus only on the Frisian variety spoken in the Netherlands, henceforth West Frisian will be referred to as Frisian. A research was conducted in 2015 by the provincial government of Friesland, in which Frisian citizens were asked about their Frisian skills. It is important to note that people were asked to evaluate their own skills and were not actually tested on their abilities. Understanding had the best proficiency: 93.7% of the surveyed persons said they could understand the language quite well to very well. Three quarters of the people have said they could speak Frisian to some level and around the same amount of people are able to read it. Compared to these three skills, proficiency in writing is low at 14.5%. No large differences in skills are found between age groups (Provincie Fryslân, 2015). Generally minority languages die out when the oldest speaker passes away (Underwood, 2014), but the number of people that can speak or understand Frisian has risen between 2011 and 2015 (Provincie Fryslân, 2015). In a survey executed by Taalunie (2017b), it appears that Dutch is spoken exclusively in more situations than Frisian is, but Frisian is still spoken by a certain percentage of inhabitants, too. The need to be able to speak Dutch in addition to Frisian is considered to be self-evident (Taalunie, 2017b). It is important to note here that while more than half of the people in Friesland choose to use Dutch on a daily basis, this does not automatically mean they are not able to speak Frisian. Whether or not a person actually speaks Frisian, often depends on his conversational partner. When the interlocutor only speaks Dutch, the Frisian speaker will adapt to him/her and speak Dutch. It would be considered unusual for the Frisian speaker to continue speaking Frisian. In cases where the interlocutor mentions he is able to understand Frisian, the choice of language depends on the preferences of the speaker. When it is unknown to a person whether someone can speak Frisian, he usually starts the conversation in Dutch as well (Taalunie 2017b). Dutch is seen as a “safe choice” when strangers meet for the first time (Gorter et al., 2008).
Protection and promotion of Frisian

To protect the Frisian language, the national government, provincial government and several organisations have taken certain measures. On the national level, Frisian is recognised as a second official language in the Netherlands, besides the first language Dutch (Rijksoverheid, 2017). Moreover, Frisian is included in the European Charter for Regional or Minority Languages (Council of Europe, 2015). In addition, Frisians are the only national minority in the Netherlands, which is officially recognised in the Framework Convention for the Protection of National Minorities (Hilton & Gooskens, 2013). The provincial government of Friesland plays a role in the protection of Frisian, too. Frisian may be used in court and Frisians are allowed to use their native language to contact the public authorities, for instance (Jun, 2016; Gorter et al., 2008). Finally, there are organisations that do not focus as much on language rights, but mainly concentrate on supporting, promoting and inform language use. An example is the ‘Fryske Akademy’ (‘Frisian Academy’), a scientific institution that researches the position, history and language change of the Frisian language. Another organisation is the ‘AFÛK’ (‘General Frisian Education Commission’), which focuses on educating people in the Frisian language and culture (Jun, 2016).

Frisian in education

Language education does not only take place through organisations, but has also been documented in laws made by the provincial government. In 1974 it was decided that Frisian should be an obligatory subject in all primary schools (Hilton & Gooskens, 2013) and in 1980 this was implemented (Jun, 2016). Almost twenty years later, Frisian was also made obligatory in the first years of secondary education (Hilton & Gooskens, 2013) and was offered in the later years of secondary education as an optional subject. Exemptions can be requested by schools in areas with a low number of Frisian speakers or a lack of qualified teachers. Teaching Frisian may be done in a special lesson focusing on the language, but can also be done indirectly by teaching standard subjects using Frisian as the language of instruction. In most cases, the language is not used for more than one to three hours (Jun, 2016). According to Jager and Van der Meer (2007, in Gorter et al., 2008), five to six hours of language education would be necessary with reference to the European Charter for Regional and Minority Languages. A number of schools in Friesland started a trilingual education experiment. In these schools Dutch, Frisian and English are used as languages of instruction in varying ratios throughout the years. The experiment showed that Frisian skills improved and confidence was gained in using English (Gorter et al., 2008; Van Ruijven & Ytsma 2007 in Gorter et al., 2008). As there are no secondary schools that have Frisian as the only language of instruction, all Frisian children in secondary schools have to be able to use Dutch on a level that allows them to graduate. This is also one of the causes of the earlier mentioned bilingualism. At higher levels of education it is not possible to do a complete bachelor’s or master’s degree in Frisian, the offer is restricted to minor subjects or education for teachers (Jun, 2016).

Dutch

Dutch is the official first language of the Netherlands. Before the fifth century AD, the Ingvaenic languages, of which Frisian is one, were spoken in most of the areas in the Netherlands and Belgium. When these languages retracted to England, a Germanic language developed between 500 and 1150 AD in the Netherlands, which is now called Old Dutch. This was followed by a period of Middle Dutch that was certainly not yet unified, which lasted from 1200 to 1500. Standard Dutch (‘New Dutch’) developed from 1500 onwards. In the beginning of this period a united language only existed in written form, while it was spoken a different way in every part of the Netherlands. However, it was also this written language that eventually became the standard for the spoken form (Taalunie, 2017a). Three of the largest minority languages or dialects spoken in the Netherlands are Frisian, Lower-Saxon and Limburgish. These minority languages differ the most from standard Dutch and are also spoken most frequently (Van der Horst & Marschall, 2000). It is estimated that there are around 24 million speakers of Dutch, divided
over the Netherlands, Belgium and Suriname. The largest number of speakers can be found in the Netherlands: around 17 million (Taalunie, 2017a). It would be of no use to discuss the different levels of proficiency, because generally every speaker of Dutch learns Dutch on a native level from birth or is taught the language in school. Dutch is the main language of instruction in primary and secondary schools and in addition, lessons focusing specifically on the Dutch language are taught. Similar to the Frisian organisations, there are several organisations to promote the Dutch language as well. An example is ‘Genootschap Onze Taal’, an organisation with their own magazine for people who are interested in language. They organise conferences and give language advice (Genootschap Onze Taal, 2016). Another example is Taalunie, an organisation that is supported by the government, that focuses on language use, language policy and linguistic infrastructure (Taalunie, 2017c).

**Differences between Dutch and Frisian**

Dutch and Frisian do not only differ and show similarities on the level of education, history and amount of speakers, as discussed above. Additionally, there are linguistic differences between the two languages. Gooskens and Heeringa (2004) have shown that even though Frisian is historically closest to English, it is now closest to Dutch with a phonetic distance of 38.7% on word level. The distance between Dutch and the other languages are larger, with an distance of 53.3% between Dutch and German, a distance of 64.7% between Dutch and English and distances ranging between 60.9-63.4% for the combination of Dutch and the three tested Scandinavian languages. Quite unexpectedly, Gooskens and Heeringa (2004) have determined the linguistic distances between Dutch and Frisian to be smaller than the linguistic distances between Norwegian, Swedish and Danish. As the latter three languages are usually considered to be mutually intelligible, this would suggest that Frisian and Dutch could be, too. However, the possibility of mutual intelligibility is not only decided by linguistic distances, extra-linguistic factors may play a role as well. Van Bezooijen and Gooskens (2005b) have described some spelling differences in their article. Firstly, Frisian has a lot of vowels and diphthongs that are not present in Dutch. It can be hard for speakers of Dutch to recognize and pronounce these foreign phonemes. Secondly, loanwords are often adapted to the Frisian spelling. In some cases confusion caused by the unusual spelling may be solved by pronouncing the word aloud. Lastly, Dutch symbols can be used in a written Frisian word, but these may be left out or pronounced in a different way in speech form. Contrary to the second issue, this issue might be solved by reading the word rather than saying it (Van Bezooijen and Gooskens, 2005b). Frequent phonological differences between Dutch and Frisian can be found in Bergsma et al. (2014). There are many lexical differences between the two languages, due to the fact that Frisian was not historically directly related to Dutch and thus developed a different vocabulary.

**Mutual intelligibility**

In a world with growing globalisation, the mobility of people increases both online and offline and contacts are formed outside of home countries. With 24 official working languages in the European Union (European Commission, 2017) and many more regional and minority languages that may or may not be officially recognised, it has proven difficult to find a communication strategy that works for all European citizens. A first solution that was suggested by the European Union in 2002 was the “mother tongue plus 2” strategy (Barcelona Conclusions 2002, in Backus et al 2013), in which every citizen should obtain skills in two languages other than their native language. Backus and his colleagues (2013) argued that this strategy fell short. A research on multilingual proficiency was done by the European Commission (2012) ten years after the policy came into being, which explains the opinion given by Backus et al (2013). 46% of Europeans said they did not have enough knowledge to have a conversation in another language, and 44% thought they would be able to understand spoken news in another language. In only eight out of the 28 member states (European Union, 2017), people could speak and/or understand two languages other than their mother tongue (European Commission, 2012). Another
problem is that the majority of Europeans chooses to learn English, German or French as an extra language. While there are so many different languages in the European Union, this means that language diversity does not increase. Although this may not affect intelligibility per se, it is also important to maintain the linguistically diverse landscape of Europe in its current state. A third reason is that the “mother tongue plus 2” strategy is based on the ideology of additive multilingualism, which according to Backus and his colleagues (2013), does not match recent findings on multilingualism because it focuses on reaching native-speaker levels in language learning (CEFR 2001, in Backus et al. 2013). Finally, this strategy fails in an economical way. The chances of Europeans losing motivation after failing to reach the near-native level in a foreign language are high (Backus et al., 2013). European citizens should also feel motivated to spend their time on learning two other languages. These data suggest that the “mother tongue plus 2” strategy might not have been the optimal choice to ensure communication in Europe.

Another well-known strategy is to use English as a lingua franca. This strategy is called “mother tongue plus English”, by Backus et al. (2013). English is the language already used for business, research and higher education (Ammon 2010, via Backus et al. 2013) and the majority of Europeans agree that it would be good to speak a common language (European Commission, 2012). Although English is widely taught in primary and secondary schools in primary schools (Eurydice (Network) 2012, in Backus et al. 2013), only 38% of European adults possess enough knowledge of English to have a conversation, and 25% have enough knowledge to understand spoken news (European Commission, 2012). Moreover, this strategy would again involve obligatory language lessons for adult citizens and even if this could be arranged, it would be difficult for the language learners to reach a high level of proficiency. Thirdly, this strategy would prevent Europeans from expressing their cultural identities properly and the United Kingdom and its native English speakers would gain more power than other countries, financially and politically (Backus et al. 2013). Speakers would not be able to express themselves to the full extent (Rogerson-Revell 2007, in Bergsma et al. 2014). Lastly, the same as in the “mother tongue plus 2” strategy, the “mother tongue plus English” strategy would also fail in increasing linguistic diversity in Europe. A benefit of the “mother tongue plus English” strategy would be that European citizens can use English globally to communicate. However, since this thesis only focuses on intelligibility within Europe this is not beneficial for the current research.

A third option is the concept of ‘semi-communication’ (Haugen, 1966). Other terms used to describe this concept are ‘plurilingual communication’ (Lädi 2007, via Bahtina & Ten Thije 2013), ‘intercomprehension’ (Berthele 2007, via Bahtina & Ten Thije) and ‘receptive multilingualism’ (Bahtina & Ten Thije, 2013). All of these definitions focus on slightly different parts of the concept, but the main focus of all is a mode of communication in which two interlocutors each speak their native language and can still understand each other. Semi-communication is often used in Scandinavia, where Norwegians, Danes and Swedes can communicate with each other while speaking their own language (Gooskens, 2011). It is important that the languages are historically related. Within a language family, there are often comparable syntactic structures and cognates. Cognates are words that share the same etymology (Swarte, 2016). They often look or sound similar and thus are relatively easy to recognize. One of the problems that might arise in the “mother tongue plus English” strategy is not present here, since interlocutors are able to express their cultural identities in the optimal way. Semi-communication can be used in situations where both of the interlocutors do not have enough proficiency to adapt to the other person’s language.

The possibility of semi-communication is generally researched by testing intelligibility for both languages. However, as mentioned in the introduction, almost every Frisian speaker is bilingual, which makes it redundant to test mutual intelligibility, as they have (near-)native proficiency in Dutch. In the
current research, therefore, only the intelligibility of Frisian by Dutch people from other provinces than Friesland has been researched.

**Influence of linguistic and non-linguistic factors on intelligibility**

To discover if semi-communication could be a practical mode of communication between two languages, research can be done on linguistic and non-linguistic factors. Intelligibility can not only be measured on text and word level, but also in spoken and written form, looking at different factors of the language. Linguistic factors are linguistic distances, for example lexical, orthographic or phonetic distances, of which the latter two can be measured using Levenshtein distances as described by Heeringa (2004). Non-linguistic factors that can influence intelligibility are for instance language attitude and language contact (Gooskens, 2011). Although not all of the possible influencing factors on intelligibility have been researched for this thesis, they all will be discussed shortly since they are important to understand other studies as well.

The first linguistic factor is lexical distance, which is the percentage of non-cognates. An example of a non-cognate in the Frisian-Dutch language pair is the Frisian ‘bern’, which means ‘child’. The Dutch equivalent is ‘kind’, which according to its deviating spelling and etymology has not developed from the same root as the Frisian word. The lexical distance is calculated through dividing the number of non-cognates in a word list of a certain language pair by the total amount of word pairs and multiply the answer by 100 (Swarte, 2016). For text analysis the same method can be applied, when word pairs between the two languages of the two different texts are created. Whether or not a person understands a non-cognate depends on the frequency of the word and possible knowledge of other languages. If a word has an equivalent in a language that the subject knows, a non-cognate might still be translated correctly (Gooskens, 2011). An example would be when a Dutch person has to translate the Frisian non-cognate ‘bern’, thinks of the Swedish word ‘barn’ that they might have learned on a certain occasion, which means the word can still be translated via a detour. Furthermore, lexical distances can be asymmetric. This is the case when a word in the first language does not have a cognate in the second language, but a cognate exists in the second language for the same word in the first language (Swarte, 2016). An example is the Dutch word ‘lichaam’ (‘body’), which does not have a cognate in Frisian. The Frisian word ‘liif’ (‘body’) does have a cognate in Dutch: ‘lijf’, a synonym of ‘lichaam’. Synonyms like these can help the participant to understand the meaning of a word.

Another linguistic factor is orthographic distance, for which only the earlier determined cognates are used. The letters of two words from different languages are aligned and the number of insertions, deletions or substitutions needed to transform one word into the other is counted (Gooskens, 2011), hereby making use of the Levenshtein algorithm (Heeringa, 2004). The number of operations is then divided by the total number of spaces in the alignment (to take into account word length) and multiplied by 100, which results in the orthographic distance (Swarte, 2016). The method to measure the phonetic distance is similar, but phonetic symbols are used instead of letters in the alignment (Gooskens, 2011). Assigning values to the transformations for both orthographic and phonetic distances can also be done through the Levenshtein algorithm. This might be necessary when comparing words that have diacritics. Since diacritics cause a smaller change to a word than phonemes, they are often assigned a value of for example 0.3 instead of the 1.0 for phonemes (Swarte, 2016). To calculate the lexical, orthographic and phonetic distances between the analysed languages, all of the values of one linguistic distance are added up and divided by the total number of word pairs. The discussed linguistic distances can be of influence on intelligibility, because if a foreign language is relatively similar to the native language, it will be easier to understand (Swarte, 2016).

Unlike the linguistic distances, the possible influence of language attitudes and language contact on intelligibility was taken into account in the current research. Firstly, language attitudes will be discussed.
Subjects can either be asked directly about their opinions on a certain language, but subconscious attitudes can also be measured. The risk with the first method is that participants may give socially acceptable answers (Swarte, 2016). For this reason, researchers can also opt for the second method, for example by using a Matched Guise Technique (Lambert et al. 1960, in Swarte 2016). Unknown to participants, two sound fragments in different languages are recorded by one bilingual speaker and participants are then asked to rate the personality of the ‘speakers’. A bilingual speaker prevents potential differences caused by voice quality.

A popular research topic is the relationship between language and intelligibility in Swedish and Danish. This topic was introduced in the early 2000’s by Jörgenson and Kärrlander, and Lundin and Zola Christensen (2001, in Swarte 2016). They found that Danes scored higher on understanding Swedish and also had more positive attitudes towards the language than vice versa. This was confirmed by Delsing and Lundin Åkesson (2005, in Swarte 2016) and Schüppert et al. (2015). In a study on mutual intelligibility by Gooskens and Van Bezooijen (2007), no correlations were found between attitudes and intelligibility scores for Dutch, Frisian and Afrikaans. Agreement has not yet been reached on the causal relationship between attitudes and intelligibility. Researchers from a sociolinguistic perspective are of the opinion that certain linguistic features of a language cause a person to have either a negative or a positive attitude towards the language. However, intelligibility researchers disagree and assume that the attitudes of the listener towards a language determines how much effort they will make to understand that language (Schüppert et al., 2015). The latter is believed to be true by Wolff (1959, in Schüppert et al., 2015), who states that positive attitudes will cause a listener to make more effort to understand what is being said. Giles and Niedzielski (1998) take the sociolinguistic view instead and consider the possibility that listeners who understand the language relatively well, find it more beautiful. They might feel included in the speech community which may account for the positive attitudes they have (in Schüppert et al., 2015).

Secondly, language contact and its effect on intelligibility will be debated. Gooskens (2006) writes that spoken or written language contact can results in improved test results. Exposure to languages within the same language family as the participant’s native language is somewhat comparable to language learning (Swarte, 2016). For this reason it is important to establish the amount of experience that a participant has had with a language. This can be done by means of a questionnaire before or after a test. Possible questions could be about visiting the country in which the tested language is spoken, watching television or reading newspapers in that language or having personal contacts with people from the country (Gooskens, 2006). Furthermore, living close to a border might indicate frequent language contact, however, this is not necessarily always the case (Swarte, 2016). In addition, it is important to ask about foreign languages that participants know. Generally, a person that speaks a Germanic language is not expected to be able to understand another Germanic language completely when tested on intelligibility, but an optimal score may be explained by the fact that the participant has studied the language. Inherited intelligibility is how much of a language a person can understand without having any active or passive knowledge of that language, which is made possible by the shared history of languages. This should preferably be tested between people who have no language experience with the tested language, but in reality this is often practically impossible (Gooskens et al. 2017). It depends on the aim of the research whether participants with too much language experience should be excluded from the results or not. The first study that looked into the relation between language contact and intelligibility was conducted by Bø (1978, in Swarte 2016). The results showed a correlation between the places where the participants lived (close to or far from a border) and intelligibility in Scandinavia. This outcome has since been found in several studies, for example Jörgenson and Kärrlander (2001, in Swarte 2016), but also been disproved by Gooskens (2006), who did not find a significant correlation.
Previous research of the intelligibility of Frisian

Frisian is a language that has been studied extensively, and a decent amount of research has been done on the intelligibility of this language. The first study looking at the intelligibility of spoken Frisian was executed by Van Bezooijen and Van den Berg (1999). They tested 16 adult speakers from the western part of the Netherlands on their ability to translate words from a speech fragment in a certain language variety into Dutch. The language varieties tested were a dialect from the province of Groningen, Limburgish, West-Flemish and the minority language of Frisian. Gronings was easiest to understand at 94% correct, Limburgish followed at 80% and West-Flemish and Frisian were equally difficult to understand at 58% (Van Bezooijen & Van den Berg, 1999). Subsequently, spoken intelligibility was tested again by Van Bezooijen and Van den Berg (1999d, in Van Bezooijen & Gooskens 2005b) in cooperation with the above mentioned Frisian organisation Afûk. The results of an auditory test showed an average score of 79.1% for speakers of Dutch, compared to 93.2% for speakers of Frisian (Van Bezooijen & Van den Berg 1999d, in Van Bezooijen & Gooskens 2005b). The score of the Dutch participants seem relatively high, compared to the outcome of the first research by Van Bezooijen & Van den Berg (1999). This could be due to the fact that the second study consisted of multiple-choice questions and the first one did not.

The first research to look into the written intelligibility of Frisian was done by Van Bezooijen and Gooskens (2005b). Twenty language students at a university in the Netherlands were asked to do a cloze test, in which they had to place back words in a short text. All students had to do the test once for Frisian and once for Afrikaans. In addition to the cloze test, the participants had to answer a few questions about their experience with and attitudes towards the two languages. The results clearly showed that written Frisian (50.3% correct) was more difficult to understand for Dutch students than written Afrikaans (81.8% correct). No relation was found between the answers on the attitude questions and the intelligibility scores. An explanation for the results was found in linguistic distances. The percentage of non-cognates was higher in the Frisian text than in the Afrikaans text. Furthermore, the degree of deviation in cognates was higher in Frisian and Frisian spelling deviates more from Dutch than the spelling of Afrikaans (Van Bezooijen & Gooskens, 2005b). These three reasons could explain why Dutch students were better at reading Afrikaans than Frisian.

The previous research was expanded by adding tests for spoken intelligibility on both text and word level (Van Bezooijen & Gooskens, 2005a). Measuring the understanding of written texts was again done by means of a cloze test, open questions were asked about the spoken texts and the spoken words had to be translated separately. The participants were 67 pupils from different provinces in the Netherlands. Similar to the previous research, written Afrikaans (66.4% correct) was better understood than written Frisian (31.9% correct). Spoken words also turned out to be easier to translate from Afrikaans (64.0% correct) than from Frisian (45.6% correct). Frisian (63.9% correct) was only understood better than Afrikaans (59.4% correct) on the spoken text test, but this difference was not found to be significant. After analysing the linguistic distances, the conclusion was drawn that Frisian had more non-cognates than Afrikaans and that these cognates had a larger phonetic distance. Both spoken and word intelligibility was higher for Afrikaans than for Frisian among Dutch pupils (Van Bezooijen & Gooskens, 2005a).

Another research has tested written intelligibility on text level, but this time the main question was how well Dutch and Afrikaans speakers could understand the Frisian language (Gooskens & van Bezooijen, 2007). 34 Dutch pupils and 37 south African pupils were asked to do the same cloze test as in Van Bezooijen and Gooskens (2005b). The results showed an average of 31.9% correct answers for the Dutch
participants and only 6.7% correct answers for the South African participants. The lexical distance is much higher between Frisian and Afrikaans (19.5%) than between Frisian and Dutch (3.7%), which most likely offers an explanation for the different scores, as do the other linguistic distances that have been calculated (Gooskens & van Bezooijen, 2007).

A study by Swarte et al. (2013) focused on Frisian too, but this time the mutual intelligibility between West and North Frisian was established. As mentioned in the background section of this thesis, the three Frisian languages are all part of the same language family, therefore it is interesting to investigate whether they are mutually intelligible. Intelligibility was tested by means of two cloze tests, a spoken and a written version. In addition, a spoken and written word translation task were done to measure intelligibility on word level. The group of participants consisted of twenty North Frisians and twenty West Frisians matched on gender, age and education level. The total scores of the four tests were 38.8% for speakers of North Frisian and 37.9% for speakers of West Frisian. Written intelligibility was higher than spoken intelligibility for both groups and higher scores were reached by both groups on the word translation task than the cloze tests. The conclusion can be drawn that the intelligibility between North and West Frisian is nearly symmetric. However, the scores were found to be relatively low compared to other researches (Swarte et al., 2013).

Finally, Bergsma et al. (2014) focused on improving Frisian intelligibility by means of instruction. A group of children aged 11 or 12 from a primary school in the province of Utrecht were tested on their knowledge of spoken Frisian on word and text level beforehand, subsequently a 50-minute intervention took place, during which the children received information about the most common phonological correspondences in Dutch and Frisian, after which the subjects were tested again on their language skills of Frisian. 12 children were instructed about these phonological correspondences while 11 children were not. The intervention did not appear to have worked, as both the control and test group failed to show improvement in the last test. To create a next intervention unknown vowels and frequent non-cognates could be taken into consideration (Bergsma et al., 2014).

**Previous Micrela research**

The Micrela project was developed to study the mutual intelligibility between closely related languages in Europe. The project was constructed after recommendations from the rapport that was created by the High Level Group on Multilingualism in 2007. This group recommended that comparative research should take place to produce ‘new policy-relevant knowledge’ (European Commission, 2007). The goal of the HLGM was to “improve communication within Europe while still preserving multilingual richness” (Gooskens, 2011). To be able to test mutual intelligibility on a large scale within Europe, an online game was developed. In addition, the influence of linguistic and extra-linguistic factors on intelligibility was measured and data about language attitude and language contact was collected (Gooskens, 2011). Initially, sixteen languages from the three largest European language families were used to create the online game. The Germanic languages used were Danish, Dutch, English, German and Swedish, the Romance languages were French, Italian, Portuguese, Romanian and Spanish and the Slavic languages were Bulgarian, Croatian, Czech, Polish, Slovak and Slovene (Gooskens & van Heuven, 2017). An advantage of the way the project has been set up, is that other languages can be added relatively easily to the project. This way, research can also be done on minority languages and dialects. Participants in the online game fill in their native language and based on that they are asked to do the test in one of the sixteen languages. Since mutual intelligibility is usually only meaningful between two speakers of languages from the same language family, the test language will be from the same language family as the native language of the participant. Six tests have been developed, but only one is assigned to each participant to avoid the test becoming too long. The six tests measure intelligibility on both word and text level, in spoken and written form. The same texts are used for each
language to ensure easy comparison of the results. The Micrela project can provide important information for language policy makers in Europe, as the online application can be used by other researchers as well (Gooskens, 2011). The results will also tell policy makers which language strategy is the most useful in different areas of Europe.

Many studies have already been done within the Micrela project, of which two will now be discussed more extensively. One research has focused mainly on spoken intelligibility on text level (Gooskens et al., 2017). The article only took the results of the spoken cloze test into account, in combination with the language background and language exposure data, to make it possible to study the influence of language contact on intelligibility. The data came from 1833 participants, divided over the three language families. Out of this group, 1307 participants were selected as a subgroup with little to no language exposure. An average score of 40% was found for the complete Germanic group with all participants. As expected, language pairs with English yielded the highest results, since English is a lingua franca and often used in education. The medium scores mainly included language pairs with German and the lowest scores were found in language combinations that came from the North and West Germanic branch. In the smaller group without language exposure, only a combination of Danish and Swedish yielded a relatively high intelligibility score. The asymmetry often detected before between Danish and Swedish could not be confirmed in this research. The mean intelligibility score for the Romance language group was not much lower than the Germanic group at 36.7%. The results showed that participants experience the least difficulty when confronted with Spanish, and the most difficulty with Romanian. A remarkable difference was that although all participants from the Romance language group scored the worst on Romanian, the Romanian participants could understand all other languages the best. It is likely that Portuguese is inherently relatively difficult to understand, as both the complete and subgroup of participants had low scores. Finally, the mean intelligibility scores within the Slavic language family were the lowest of all at 27.6%. Slovak appeared to be easiest to understand, followed by Czech. The participants from Slovakia also had the highest scores on all other languages, while the Bulgarians experienced the most difficulty understanding other languages and Bulgarian also yielded the lowest scores by other listeners. An asymmetry was found between Slovenian and Croatian participants: Croatian was much better understood by Slovenians than the other way around, which could possibly be due to a high number of Croatian loanwords in the Slovenian language. Gooskens and her colleagues (2017) have proposed a score of 40% as a boundary value, based on the score of 43.8% on Swedish by the subgroup of Danish people. This is a suitable measure, as the Danish people did not have any exposure to Swedish and so their ability to understand Swedish must be based on genetic similarities. A score higher than 40% could indicate that semi-communication possibly is a useful mode of communication. It is important to note that in real life situations, native speakers will most likely adapt their speech to the level of proficiency of their conversational partner. It can be concluded from this research that semi-communication is a possible communication strategy for a number of language combinations in their current states (Gooskens et al., 2017).

Gooskens and Van Heuven (2017) presented an overview of all scores per language group. These results took into account all tests for all tested languages. 13,566 European citizens between the ages of 18 and 33 participated in the experiment of which 22% spoke a Germanic language, 31% a Romance language and 47% a Slavic language. The majority (65%) of the participants was female and 78% were educated on university level. The rule that every participant was asked to complete only one test in one foreign language in addition to the questionnaire, resulted in an average number of 25.1 participants per test. The questionnaire included questions about general information, language contact and language attitude. Eight mean intelligibility scores were established: the scores of the six tests (picture task, cloze test and word translation task in spoken and written form) and the scores of estimated and perceived intelligibility questions asked before and after the test. The latter scores came from the questions that
asked participants before and after the test how well they thought they could understand the assigned language, to see if the participants had adjusted their opinion after being exposed to the language.

The cloze test appeared to be the most difficult test of the three, the results of this test were discussed above. The word translation task was a test of medium difficulty. While the Germanic and Slavic language groups reached higher scores on the word translation task, the results of the Romance language group showed the exact opposite. No logical explanation could be found for this result, the expectations suggested a high score for isolated words in Romance languages, due to the lowest lexical distance. The highest scores were reached on the picture task. However, the researchers have deemed this task too easy due to a relatively high number of ceiling scores. In general, the written tests were easier than the spoken tests. This pattern could be found in the cloze test and word translation task, although there was no large difference found between the two forms for the picture task. A possible explanation could be that spoken language generally changes faster than written language. Therefore, a written word in the test language may display more similarities to the written word in the native language of the participant, as the languages all have a common ancestor. No large difference was found between the estimated and perceived intelligibility scores (35.3% estimated and 33.6% perceived intelligibility) which indicates that participants could predict their level of understanding quite accurately. All individual test scores of the language pairs in the Germanic language family can be found in figure 3 below. The cloze test was proclaimed to be the most reliable test out of the three, as the scores on the cloze test corresponded well with the perceived intelligibility by the participants. Additionally, the results of a cloze test can be checked automatically, contrary to the results of a word translation task. Written tests appear to suffice in intelligibility research, with a few exceptions (Gooskens & van Heuven, 2017).

Research questions + hypotheses

The research questions that will be answered in this thesis are:
1. How well can speakers of Dutch understand spoken and written Frisian?
2. Are speakers of Dutch better at understanding Frisian words or texts?
3. What is the influence of language attitude and contact on the intelligibility of Frisian?
4. How do the results of the current research compare to other Micrela results?

The corresponding hypotheses are:
1. Written Frisian will be easier to understand than spoken Frisian, due to sound changes that both English and Frisian were subject to and other Germanic languages were not (Gooskens & Heeringa,
2004). The other part of this hypothesis is based on the outcome of earlier Micrela researches. Gooskens and Van Heuven (2017) stated that the written form of a language seemed easier to understand than the spoken form, since written language changes less rapidly than spoken language, which means written texts reflect languages when they were closer related in the past (Schüppert 2011 and Doetjes & Gooskens 2012, in Gooskens & van Heuven 2017).

2. The cloze test will be more difficult than the word translation task, which is also based on the results found by Gooskens and Van Heuven (2017). This means that words will be easier to understand than texts.

3. It is expected that previous language contact has a larger influence on intelligibility than attitude does (Swarte, 2016).

4. On the basis of Levenshtein distances (Gooskens & Heeringa, 2004), speakers of Dutch are expected to understand Frisian better than German, English, Swedish, Norwegian and Danish.
Method

Material

Four texts at level B1, according to the Common European Framework of Reference (CEFR, 2001) for languages were used for the picture task and as a basis for the cloze test, throughout the whole Micrela project. The Frisian texts consisted of either 16 or 17 sentences and were between 217 and 250 words long. Everyday topics were discussed in the texts, which were titled “Driving in winter”, “Riding a bike”, “Child athletes” and “Catching a cold”. The Frisian texts can be found in appendix A. In addition, a word list based on the 100 most frequently used nouns in the British National Corpus (BNC Consortium 2007, in Gooskens & van Heuven 2017). The translations of the texts and word list from Dutch into Frisian were made by a 53-year-old female employee of the Fryske Akademy, who had originally created the translations for the research by Swarte et al. (2013). Since that research was a pilot study for the Micrela project, two words have later been changed. Word number 64 has been changed from ’job’ to ‘girl’, and word number 95 has been changed from ‘community’ to ‘age’. The complete word lists can be found in appendix B. There were also a few differences between the deleted words for the cloze test for the pilot study and the Micrela project. For the current research, the same words as in the rest of the Micrela project were deleted. Lastly, one sentence was chosen to serve as input for the participants to form their judgments on a language. This sentence was the first article of the Universal Declaration of Human Rights (United Nations Information Centre, 2017), of which the English version with its Frisian translation can be found in Appendix D. All of these texts together formed the material for the written tests. For the spoken tests, six female native speakers of Frisian were asked to record all of the written material. Spontaneous speech would have been ideal for the recordings, as it simulates a natural language situation in the best way. However, this research required read speech, since spontaneous speech would make it impossible to use the same texts and questions throughout the Micrela project (Gooskens, 2013). Female speakers were chosen throughout the whole project as they are generally considered to be more intelligible than male speakers (Gooskens, 2013) and to rule out possible gender effects (Swarte, 2016). The speakers were all between 21 and 24 years old, five of them studied at university level and one at higher vocational level (Dutch: HBO). All speakers came from different villages in Friesland. They were allowed to speak their own dialect of Frisian, as their speech was judged by other native speakers of Frisian afterwards. Before reading the texts, the speakers were instructed to read two or three sentences at a time or more if they felt comfortable doing so. Before reading the word list they were told to mind their intonation, to avoid rising intonation at the end of each word. All recordings were made by the researcher, using a Tascam DR-100 recorder. As mentioned above, the ‘nativeness’ of the speakers was assessed by means of a voice line-up (Gooskens, 2013; Schüppert et al., 2015). A voice line-up is an (online) survey in which other native speakers of Frisian rate the six speakers on a 5-point scale, judging their suitability to present the news on the local broadcasting company, Omrop Fryslân. Twenty Frisian speakers participated in the voice line-up, there were no age, sex or education restrictions. The sentence they assessed was the first article of the Universal Declaration of Human Rights (United Nations Information Centre, 2017). The recordings of the four speakers with the highest ratings were used in the official tests. Each speaker was assigned one of the four texts and 25 of the 100 words. All four recordings of the declaration of independence were used. Using recordings by more than one speaker is useful to even out variability effects (Gooskens, 2013).

Cloze test

The goal of a cloze test is to measure intelligibility at sentence level and was developed by Wilson Taylor in 1953. Throughout the whole Micrela project, the same four texts that were discussed above were used for all cloze tests. First, twelve words (four nouns, four adjectives and four verbs) were deleted
from all texts. The same words (in different languages) were removed in all cloze tests. The deleted words were then placed above the text in random order, together with their Dutch translations. The translations of the words were given to avoid the participants failing to understand one word and therefore failing to understand where the word should be placed, while they did understand the general meaning of the text. An additional benefit is that in this way the answers can be corrected by a computer and there is no need to check the answers manually. In the written cloze test, all sentences were visible on screen at the same time. The possible answers were supposed to be dragged to the right gap by the participant. If the participant found a better alternative later during the test, the answer could still be changed. The maximum timespan for the written cloze test was ten minutes. For the spoken cloze test, instead of the gap there was a beep with the duration of one second and a frequency of 1000Hz with a short pause before and after. Audacity (2017) and Praat (Boersma & Weenink, 2016) were used to edit the sound files. It is important to take into account assimilation when placing the beep sound in the recording. The participant heard twelve sound fragments in total, and each fragment was played twice. At the end of the fragment, the participant had thirty seconds to choose one of the twelve answers presented on the screen. When the test was completed, the results were shown.

Word translation task
The word translation task is used to measure intelligibility under minimal conditions. Before and after each word was a pause of 500ms. To avoid the duration of the test becoming too long, each participant translated 50 randomly selected words out of the 100 words. In the written version, one word was presented in written form, after which the participant was given ten seconds to translate the word into Dutch and type their answer. If they finished typing their answer early, the test could be continued to the next word by pressing the ‘enter’ key. In the spoken version, each word was played twice with a pause of one second in between (sounds files adapted using Audacity (2017) and Praat (Boersma & Weenink, 2016)), after which the participant again had ten seconds to type the answer. The ‘enter’ key could be used to continue early. After completing the test, the participant’s score was presented on the screen. The answers that were identical to the goal word were automatically counted as correct by a computer, but deviant answers had to be checked manually. Synonyms were judged as correct, as well as words with spelling mistakes, as long as the answer did not form another existing word in Dutch.

Picture task
The picture task measures global intelligibility on text level, by means of the above mentioned four texts. The whole text was presented at once to the participant in both the spoken and written version. The task of the participant was to select the picture that best represented the story told in the text. There were four pictures with two variables each. One picture was the correct answer, one was incorrect, and two pictures were half correct. For example, in the text about ‘child athletes’, the picture portraying a boy playing football would be the correct answer, the picture portraying a woman reading a book would be the incorrect answer, and the pictures portraying a man playing football and a girl reading a book would be the half correct answers. Only when the answer given by the participant was the entirely correct answer, points were given.

Procedure
To detect possible influences of language attitude and language contact on intelligibility and obtain general information about the (language) background of the participants, a questionnaire had to be filled in before and partially after the test. Participants first had to select their native language, age, sex and level of education. The next question asked in which country the participant grew up and in which country and region they had spent most of their life, followed by the amount of years they had spent there. Furthermore, participants were asked if they lived fifty kilometres or less from a border with another language area, which languages were spoken at their home and how many years they were
educated in or about English. Following the language background questions, participants were asked to estimate how well they could understand foreign languages, based only on previous knowledge. The languages were rated on a five point scale ranging from ‘not at all’ to ‘very well’. The rated languages were: Afrikaans, Danish, German, English, Faroese, Frisian, Icelandic, Luxembourgish, Norse, Swedish, and Yiddish. If one of the languages was a participant’s native language, this could be indicated by clicking the option ‘this is my mother tongue’. This was followed by two language attitude questions. English, Danish, Swedish, Frisian, German and Dutch were rated on a five point scale ranging from ‘ugly’ to ‘beautiful’, with the extra option of ‘I have no opinion’. These opinions given before the test can be compared to the opinion given after the test to see if the participant had changed his opinion after being exposed to the language. No sound fragments were played for this question. For the next question, the participant was required to play a sound fragment (the first sentence of the declaration of independence) before judging the same five languages on the same five point scale as the previous question. The participant was also asked to guess which language they had just listened to, to see if their judgments were based on the correct languages. The first question asked how well participants thought they could understand Frisian on a five point scale ranging from ‘not at all’ to ‘very well’. The second question asked if the participant had ever learnt Frisian (yes/no). Subsequently, language exposure to Frisian was investigated by means of six questions. Language contact with Frisian during the last five years was rated on a five point scale ranging from ‘never’ to ‘every day’. The questions were about listening to people speak Frisian, watching television or movies, playing computer games, chatting or surfing on the internet, talking to a Frisian in person or on the telephone and reading books or other texts in the Frisian language. After finishing the questionnaire, participants were assigned one of the six tests that were described above to test their text/speech comprehension. When the test was finished, the score was presented and on the next screen participants were asked again to rate Frisian and how well they thought they could understand Frisian after having experienced the language. This marked the end of the test.

Participants
In total, 102 participants completed the survey. Not every participant matched the criteria that were set for participation. Eight participants had to be deleted because of their connection to the province of Friesland or the Frisian language. One of those had answered 5/5 (‘every day’) on all language contact questions and four of those had learned Frisian for one or more than one years. Finally, three participants were deleted because they had grown up in Friesland, two of which had lived in the province for the longest part of their lives and Frisian was spoken at home for two out of the three participants. The remaining 94 subjects form the main group of participants. This group consists of 35 males (37%) and 59 females (63%), between the ages of 14 and 90. They were all native speakers of Dutch, 8 subjects (9%) came from Belgium and 86 subjects (91%) from the Netherlands. The participants all came from and lived in different regions in the Netherlands, with the highest amounts coming from the provinces of Overijssel and Zuid-Holland. A majority of 88 subjects (94%) was highly educated (Dutch university or HBO-level), 3 subjects (3%) had completed vocational education (Dutch MBO-level) and 3 subjects’ (3%) highest completed education level was secondary school.

To be able to compare the results of the current research to the results of other Micrela studies, a subgroup of 60 participants was formed. It is important to note that all participants in the subgroup also belong to the before mentioned complete group. 100% of the participants were highly educated, native speakers of Dutch, of Dutch nationality and between the ages of 18 and 33. 21 subjects (35%) were male and 39 subjects (65%) were female. The participants all came from and lived in different regions in the Netherlands, with most subjects coming from the provinces of Overijssel and Zuid-Holland, similar to the complete group described above. Detailed participant information about both groups can be found in tables 2, 3 and 4 in appendix E.
Results:

First, the scores of the complete group of participants will be presented, followed by the results of the Micrela subgroup. In both sections the scores on the six individual tests will be given, followed by the mean scores per test (spoken + written form). Next, the mean score for the three written tests and the mean score for the three spoken tests will be presented. Finally, the average overall intelligibility score is given.

Complete group

To calculate the scores on the individual tests, all individual scores were added up, divided by the number of participants and multiplied by 100. The written cloze test had 13 participants, which yielded a score of 66.7%. The spoken cloze test had 14 participants, yielding a score of 54.1%. The written version of the word translation task had 13 participants, which resulted in a score of 67.5%. The spoken word translation task had 17 participants, resulting in a score of 60.5%. The written picture task had 21 participants, which yielded a score of 85.7%. The spoken version of the picture task had 18 participants, yielding a score of 93.8%.

To calculate the means scores on both the written and spoken versions of the individual tests, the two mean scores per test presented above were added up and divided by two. This yielded an average score on the cloze test of 60.4%, on the word translation task of 64.0% and on the picture task of 89.2%.

To obtain the average scores on the three written and three spoken versions of the tests, the scores on respectively the written and spoken tests were added up, divided by three and multiplied by 100. The average score on the written tests turned out to be 73.3%. The average score on the spoken test versions turned out to be 69.5. The overall intelligibility score of the complete group of participants was calculated by adding up the six scores of all tests and dividing the answer by six. This yielded a score of 71.4%.

Micrela subgroup

For this group, only the scores by the participants that met the Micrela-criteria were analysed. Similar to the method described above, the individual test scores were calculated by adding up all individual scores by the participants, dividing them by the number of participants and multiplying the answer by 100. The written cloze test had 8 participants, which yielded a score of 73.9%. The spoken cloze test also had 8 participants, which yielded a score of 58.4%. The written word translation task had 10 participants, which resulted in a score of 67.0%. The spoken version of the word translation task had 11 participants, yielding a score of 61.3%. The written picture task had 12 participants, with a result of 83.3%. The spoken picture task had 11 participants, yielding a score of 90.9%.

To calculate the means scores on both the written and spoken versions of the individual tests, the two mean scores per test presented above were added up and divided by two. This resulted in a mean score on the cloze test of 66.1%, on the word translation task of 64.1% and on the picture task of 87.0%.

To obtain the mean scores on the three written and three spoken versions of the tests, the scores on respectively the written and spoken tests were added up, divided by three and multiplied by 100. The mean score on the written test versions turned out to be 74.7%. The mean score on the spoken test versions was 70.2%. The overall intelligibility score of the Micrela subgroup was calculated by adding up the six scores of all tests and dividing the answer by six. This resulted in a score of 72.5%. All scores by both groups are presented below in table 1.
<table>
<thead>
<tr>
<th>TEST</th>
<th>COMPLETE GROUP</th>
<th>MICRELA GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITTEN CLOZE TEST</td>
<td>66.7 %</td>
<td>73.9 %</td>
</tr>
<tr>
<td>SPOKEN CLOZE TEST</td>
<td>54.1 %</td>
<td>58.4 %</td>
</tr>
<tr>
<td>WRITTEN WORD TRANSLATION</td>
<td>67.5 %</td>
<td>67.0 %</td>
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<tr>
<td>SPOKEN WORD TRANSLATION</td>
<td>60.5 %</td>
<td>61.3 %</td>
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<td>WRITTEN PICTURE TASK</td>
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<td>SPOKEN PICTURE TASK</td>
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<tr>
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<td>MEAN SPOKEN TESTS</td>
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<td>70.2 %</td>
</tr>
<tr>
<td>MEAN OVERALL INTELLIGIBILITY</td>
<td>71.4 %</td>
<td>72.5 %</td>
</tr>
</tbody>
</table>

*Table 1: Test scores complete & Micrela group*
Discussion:

The purpose of this research was to gain insight into the understanding of the Frisian language by native speakers of Dutch. Although these two languages are not historically related, they both belong to the Germanic language group which makes it interesting to research the intelligibility.

Hypothesis 1: Written Frisian is easier to understand than spoken Frisian

The results show that for the complete group of participants, written Frisian (73.3%) is easier to understand than spoken Frisian (69.5%). The same pattern, with nearly the same difference between both skills, can be found for the Micrela group, except for the picture task. Looking at these results, it can be said that written Frisian is slightly easier to understand than spoken Frisian for native speakers of Dutch, which means the first hypothesis can be confirmed.

Hypothesis 2: Words are easier to understand than texts

In both of the groups the scores on the word translation task are almost identical, however, the Micrela group shows a higher score on the cloze test than on the word translation task while the complete group shows the opposite pattern. The scores on the picture task are higher than those on the word translation task in both groups. These results do not provide a very clear answer to hypothesis 2, whether speakers of Dutch are better at understanding Frisian words or texts.

Hypothesis 3: Language contact has more influence than language attitude on intelligibility

The influence of language experience does not seem to be very large. The participants that rated their contact with Frisian many 5/5 scores (in which 5 means ‘everyday exposure’) on the experience questions in the test had already been deleted before the analysis, however, there still were participants that have come into contact with Frisian in some situations. Analysing their scores, all subjects that had done the picture task have reached the maximum score. However, this is not a valuable observation as almost all participants with little to no language experience reached the maximum score as well. On the cloze test there were two high scores (1.00 and 0.92%) but also two average scores (0.50 and 0.58%). Finally, on the word translation task there were no abnormally high scores either (0.68, 0.68 and 0.50%). These scores do not indicate a large influence of language contact on the intelligibility of Frisian.

Next, the influence of attitude was supposed to be investigated, but this proved to be difficult. Nine participants who rated 5/5 (in which 5 means ‘very beautiful’) on the attitude question after they had heard the Frisian sound fragment were chosen to be analysed. However, the one participant that was assigned the cloze test had a score of 0.0% and there were six participants who had done the picture task, on which almost all participants had reached the highest possible score, as mentioned above. The word translation task was only assigned to two of the participants, who had average scores of (0.64 and 0.66%). Unfortunately, these scores do not give a clear indication of the influence of language attitude on the intelligibility of Frisian. Thus, hypothesis 3 can neither be confirmed nor denied.

Hypothesis 4: Frisian is easier to understand than all other Germanic languages

The results of the Micrela subgroup can be compared to the results per test of the research by Swarte (2016) on the intelligibility of Germanic languages. The mean score of the Micrela subgroup on the written cloze test was 73.9% and on the spoken cloze test 58.4%. This last score is nearly the same as the performance of Danish participants on the spoken cloze test in Swedish. The mean scores by speakers of Dutch on Frisian on the word translation task were 67.0% on the written and 61.3% on the spoken version. Both of these scores are similar to how Danish participants performed on the written and spoken word translation task in German, which is a language taught in schools in Denmark. This means that the intelligibility of German by the Danish participants is not solely based on linguistic factors, whereas the understanding of Frisian by Dutch participants is, since Frisian was not learned in
schools by the participants. Swarte (2016) found that the Dutch people performed (significantly) better on the written than on the spoken version of both tests. This pattern can also be found in the current research when looking at the cloze test and word translation task.

The results can be compared to the Micrela results described by Gooskens and Van Heuven (2017), as presented in figure 4. It can be seen that speakers of Dutch were better at understanding English and German in all tests. In addition, Dutch speakers scored lower on all tests in both Swedish and Danish. The range of the Dutch-Frisian scores is relatively small (32.5%), similar ranges be seen for the language pairs Dutch-German and Danish-Swedish. This indicates that there was no very large difference between the difficulty of the tests. Throughout figure 4 both the written and spoken version of the picture task can be seen to have the highest scores. On average, lower scores were reached on the cloze tests than the word translation task. This pattern can only be partially be found for Dutch-Frisian, as the spoken cloze test shows a lower score than both word translation tasks, while the written cloze test shows a higher score than the word translation tasks. Hypothesis 4 can thus only be partly confirmed.

![Figure 4: Micrela results of the Germanic language family with added Frisian results (original: Gooskens & van Heuven, 2017)](image)

**Comparison with previous Frisian intelligibility research**

In addition, it is interesting to compare the results from the complete group of participants with data that was gathered in earlier research on Frisian intelligibility. Van Bezooijen and Van den Berg (1999) used a word translation task to study spoken Frisian into Dutch, with which they found a score of 58% correctly translated words. This outcome is remarkably similar to the spoken word translation task score of the current research (60.5%). A different result was found by Van Bezooijen and Gooskens (2005a), who found a spoken word translation task result of 45.6%, which might be due to the relatively small number of words that were tested (19 words). The cloze test with which Van Bezooijen and Gooskens (2005b) have studied the understanding of written Frisian resulted in a score of 50.3%, which is considerably lower than the 66.9% of correct answers found in this research. A possible explanation for this difference could be the amount of deleted words from the texts; in the test by Van Bezooijen and Gooskens (2005b) twenty words had to be placed back into the text, whereas this number in the Micrela
research is twelve. In the second version of this research (Van Bezooijen and Gooskens, 2005a) the cloze test was replicated, but this time the percentage of correct answers was only 31.9%. Exactly the same result was found on the same test by Gooskens and Van Bezooijen (2007).

**Qualitative analysis of word translation task**

The answers given on the word translation task can also be analysed in a qualitative manner to look at tangible translations, mistakes and the influence of foreign language knowledge on those. Almost all non-cognates were translated incorrectly, as expected, since non-cognates can only be known from experience with the language. In one case the non-cognate ‘holle’ (head) was translated many times into ‘rennen’ (run), since ‘hollen’ is a synonym in Dutch for that word. A common method was answering with the closest equivalent word in Dutch. This was done with the spoken version of the word ‘liif’ (body), which to Dutch people sounds exactly the same as ‘lief’ (sweet). The vowel sounds in those words are two different phonemes in Frisian, which makes it confusing for speakers of Frisian as they do not understand this mistake. For the spoken version of ‘minsken’ (people), some participants wrote down ‘meisje’ (girl), as they probably thought to have heard ‘meiske’, a word used in certain dialects. In cases where the Frisian word had an equivalent word that is spelled in the exact same way as in Dutch, this word was written down. An example of this is the case of ‘merk’ (market), in which the goal word was ‘markt’. Instead, most participants answered ‘merk’ since this is an existing Dutch word, however, it means something different. Additionally, the influence of vocabularies from foreign languages that participants have learned can be seen in certain answers. In both the written and spoken version, ‘wetter’ (water) was a word often translated incorrectly with ‘weer’ (weather), since it sounds very similar to the English word. An example of a word that resembles English in its spelling and not its sound is ‘each’ (eye), where ‘oog’ should have been the answer, but ‘elke’ (each) was the most common answer. A final example English of influence can be found in the spoken version of ‘tjinst’ (service), where ‘dienst’ was the right answer. The majority of participants heard ‘change(d)’ and wrote ‘wisselgeld’ or ‘veranderd’. Furthermore, German influence was found in a word like ‘ein’ (end), which is a German article, translated into ‘een’ (a). Mainly in the written version, the word ‘brücken’ (bridges), since the spelling of the Frisian and German words are similar. ‘Stim’ (voice) was translated into ‘klopt’ (right) a few times, as the participants probably heard the German word ‘stimmt’.

**The implications of intelligibility scores**

The overall intelligibility score of the six tests is 71.4%, which means that in a conversation with a Frisian person, a native speaker of Dutch would be able to understand a large part of the conversation. This raises the question whether this amount of understanding would suffice when having a conversation with someone. In the literature no clear explanation exists on what intelligibility scores mean in practice. In Swarte et al. (2013) it is suggested that 38% intelligibility would suffice to have a simple conversation, for example when asking for directions. However, it would probably not be enough to participate in a work meeting. It is unclear how the authors of this article have determined this and therefore it cannot be stated with certainty if the intelligibility score of Frisian-Dutch would for example be enough to participate in a work meeting. In Gooskens et al. (2017) it is stated that a 40% intelligibility score on the cloze test might be seen as a threshold to make semi-communication possible, since Danish people who had no experience with Swedish had a score of 43.8%. This means that the ability to understand Swedish would solely be based on the linguistic similarity of the two languages. According to this information, semi-communication should be possible between Frisian and Dutch people. In the case of Dutch and Frisian it is important to note that in social situations a lack of understanding of Frisian can nearly always be resolved by (code-)switching to Dutch. The relatively high intelligibility score might be explained by the fact that Frisian has been and is still strongly influenced by Dutch.
A critical note on the picture task

A possible explanation of the relatively high scores might be the fact the picture task as it is now was deemed an incorrect way of testing intelligibility by Gooskens and Van Heuven (2017). A ceiling effect was reached by some participants in their results, indicating that the picture task was too easy. This might be due to the chance of guessing the right answer at random with a question that only has four possible answers. Even if nothing of the text was understood, there was a 25% chance of giving the right answer. Gooskens and Van Heuven (2017) have suggested to choose different texts and make sure the participant has to focus on more than two key points of a text. The picture task was still used for this thesis, as the intention was to replicate the Micrela-method to be able to compare the results.

Future research

As Swarte et al (2013) have already suggested, it would also be interesting for the language combination of Frisian and Dutch to research intelligibility in practical situations. Another possible topic would be to measure the influence of linguistic distances on intelligibility. Previous (Micrela) researches have shown that lexical, orthographic and phonetic distances may form good predictors for intelligibility (Gooskens, 2007; Heeringa et al., 2013; Swarte, 2016). To further analyse the influence of language attitude and language contact on intelligibility, correlations can be used. The current research could also be improved by collecting more data. This would make it possible to draw conclusions with more certainty.

Practical implications

It might be sensible to consider using Frisian more frequently in everyday conversations between Frisian and Dutch speakers. Semi-communication may not be necessary for Frisian people to make themselves understood, however, it may be important for personal reasons. Even though it may seem easier for Frisians to always switch to Dutch when speaking to a Dutch person, it is important to remember that the Frisian language forms a large part of the identity of Frisian people. Since Frisian is their mother tongue, Frisians have the right to express themselves in Frisian for optimal communication. In addition, frequent use of Frisian might prove necessary to keep the language from becoming seriously endangered or even extinct. It depends on the motivation of Frisian speakers whether they actually want to speak their native language or rather ‘accommodate’ to their conversational partner. Semi-communication also does not require speakers of Dutch to learn another language, as would be the case in other communication strategies, such as ‘mother tongue plus two’. Frisian speakers can speak their own language to a Dutch person, and make use of code-switching when words or phrases are not properly understood. In other semi-communication cases this is not always possible, but in this case it is, since Frisians are bilingual. Moreover, in some cases a Frisian word has a Dutch-sounding synonym, which could be used alternatively.
Conclusion:

The results of the current research confirm the first hypothesis, in both groups of the analysis written Frisian turned out to be easier to understand than spoken Frisian. The second hypothesis can only be confirmed partially, as the cloze test indeed seems to be more difficult than the word translation task when looking at the scores of the complete group. In the Micrela subgroup the spoken cloze test scored the lower than the word translation task, but the written cloze scored higher than both word translation tasks. No clear indication was found of a strong influence of language attitude and contact on intelligibility, so the third hypothesis could not be confirmed by the current data. The fourth hypothesis was that according to the Levenshtein distances found by Gooskens and Heeringa (2004) Dutch people would be better at understanding Frisian than German, English and Scandinavian languages, respectively. This hypothesis could not be fully confirmed by the current results. Although scores on Swedish and Danish tests turned out to be lower than the scores on Frisian tests as expected, higher intelligibility by speakers of Dutch was found for German and English than for Frisian.

The results of this research show that the Micrela group scored higher on three out of the six tests compared to the complete group, which means that the Micrela group did not score much better on the individual tests. For both participant groups, a higher score was found on the written versions of the three tests than on the spoken test versions. A minimum individual test score of 61.3 is relatively high and may indicate that a possibility for semi-communication exists. No indication was found for a large influence of language contact and attitude on intelligibility. Taking these scores into account, it certainly seems possible for conversations to be held in which both speakers of Dutch and Frisian speak their mother tongue and would still be able to understand each other.
References:


Appendix

Appendix A: Test material – Picture task

1. Ride yn de winter

De winter is gefaarlik om ‘t it sa dreech is om te witten wat der barre sil. Ungelokken barre sa maklik. Mist kin op je lizze te wachtsjen oer de top fan in heuvel. Iis soe him ferskûlje kinne ûnder de ranende sne, wachtsjend om dy fan de wei te stjoeren. De auto dy’t je temjitte komt kin samar oer de wei glydzje. Regel nûmer ien foar of dat op izige diken is soepel ride. Unregelmjittige bewegings kinne in auto samar hiel dreech te bestjoeren meitsje. Eltse kear as jo oan it stjoer draaie, remje of snelheid tanimme, moatte je rêstich en sa stadich mooglik wêze. Stel jo foar dat jo mei in kop hite kofje op de stoel neste jàns de wei ride. Ryd sa datst net griemst. Regel nûmer twa is om op te letten op wat barre kinne soe. Hoe mear iis der leit, hoe fierder datst op de dyk sjen moast. Test hoe lang it duorret om te stopjen by rêstich remjen. Unthâld dat je hurder ride kinne soenen as dat je tinke. Hâld oer it algemien rekken mei it dùbelde fan jo normale remôfstân as de dyk wiet is. Brûk trije kear dizze ôfstân by sne en noch mear by iis. Besykje om de auto altyd de baas te bliuwen en je sille problemen mijee.

2. Fytse

Genôch beweging krije is in part fan in sûne libbensstyl. Njonken hurdrave en swimme, is fytse ien fan de bäste allround foarsmen fan beweging. It kin helpe om dyn krêft en enerzjy te fergrutsjen. It jout dy ek mear effisjinte spieren en in sterker hert. It fytse yn goede form fan beweging is net it iennige foar de spieren. Soeke en dy tiefestemt om it fytse fan de spieren te stjoeren. Te folle, te hurd dwaan kin de spieren dy’t it net wend binne om te wurkjen, kwea dwaan. Ast deroan twieflest om mei fytse te beginnen om reden fan sûnsens, praat dan mei dyn dokter. It bäste is it om op syn minst twa of trije kear wyks te fytse. As de oefening fertyt dwaan sil, soest in bytsje efter de pûst reitsje moatte. Sit der net oer yn noed dat it gefaarlik wêze moathe ûnder de pûst rekkest. Dat is gewoan net wier. Benaudens nit sjen dat de oefening it goede effekt hat. Mar ast pine hast moastt ophâlde en eefkes bekomme. Nei in skoelke wurdt it makliker.

3. Berne-atleten

Alden fan wa’t de bern spesjale belangstelling foar in beskate sport toane, ha in drege kar te dwaan. Soenen hja har bern tastimming jaan moatte foar it trainen om topsporters te wurden? Foar in protte bern betsjut dit dat se op in hiel jonge leeftyd begjinne moatte. Skoalwurk, útgean mei freonen en oare ynteresses moatte op in twadde plak stean. It is hiel dreech om aan jonge bern út te lizzen wêrom’t se fiif oeren deis traine moatte. Dat jildt sels foar it wykein as de measten fan harren freonen oan it boartsjen binne. In oar probleem is fansels it jild. Yn in protte lannen is der jild fan de oerheid beskikker foar de training fan de alderbêste jonge atleten. As dizze help net jun wurde kin, moatte de âlden de tiid en it jild sjen te finen om harren bern te stypjen. Sportklean, ferfier nei de wedstriden, spesjale útrissing etc. kinne allegear hiel djoer wêze. Dat ålden deroer yn sitte dat it gefaarlik is om serieuze training yn in sport op in jonge leeftyd te beginnen, is begryplik. Guon doktoaren binne it der oer iens dat jonge spieren mooglik troch de training beskeadige reitsje foardat se goed ûntwikkele binne. Trainers leauwe dêrtsjin dat je as sporter allinnich de top helje kinne as je jong beginne. Wat dúdlik is, is dat mar in pear jonge minsken de top helje. Dat sawol de ålden as de bern soenen taret wêze moatte op mislearring. It bart sels nei in protte jierren training.

4. Ferkâlden wurde

Goeie, myn namme is Christina en ik jou ried oan minsken mei fragen oer harren sûnens. Ik krij in soad
brieven dizzie tiid fan it jier. Minsken kleie deroer dat se ferkâlden binne en dat dat net oer giet. Der binne safolle ferskate ferhalen oer hoe ’st in ferkâldheid tefoaren komme kinst of genêze kinst. Dat it is faak dreech om te witten watst dwaan moatst. Ferkâldenens is hast nea gefaarlik, allinnich foar minsken dy’t al swak binne, lykas äldeer en lytse poppen. Lykwols is ferkâldenens altyd lestich en tige ferfelend. Fansels kinst in protte medisinen keapje dy’t helpe om de ferkâldheid minder slim te meitsjen. Mar unthâld dat neat in ferkâldheid echt genêze oft hurder oer gean litte kin. In oar punt is dat elk medisin dat sterk genôch is om dy better fiele te litten, gefaarlik wêze kin. Ast al medisinen foar oare kwalen brûkt freegje dan altyd aan de dokter oft it goed is. En tink derom dat it barre kin dat se dy slûch meitsje. Besykje leafst net te autoriden as dat it gefal is. Ta beslút bestiet der gjin magysk iten oft drinken. It is it bêste om sterk en sún te bliuwen, dan silst minder kâns ha om ferkâlden te wûrden, en mocht dat al sa wêze dan soe it net al te slim wêze moatte.

Appendix B: Test material – Cloze test

1. Ride yn de winter
   barre (gebeuren) auto (auto) ranende (smeltende)
   glydzje (glijden) kear (keer) izige (ijzige)
   tinke (denkt) kofje (koffie) lang (lang)
   mijje (vermijden) snie (sneeuw) wiet (nat)

1. De winter is gefaarlik om’t it sa dreech is om te witten wat der barre sil.
2. Ungelokken __________ sa maklik.
3. Mist kin op je lizze te wachtsjen oer de top fan in heuvel.
4. IIs soe him ferskûlje kinne ûnder de __________ snie, wachtsjend om dy fan de wei te stjoeren.
5. De auto dy’t je temjitte komt kin samar oer de wei __________.
6. Regel nûmer ien foar it riden op __________ diken is soepel ride.
7. Unregelmjittige bewegings kinne in __________ samar hiel dreech te bestjoeren meitsje.
8. Eltse __________ as jo oan it stjoer draaie, remje of snelheid tanimme, moatte je rêstich en sa stadich mooglik wêze.
9. Stel jo foar dat jo mei in kop hite __________ op de stoel nêst jo ride.
11. Regel nûmer twa is om op te letten op wat barre kinne soe.
12. Hoe mear iis der leit, hoe fierder datst op de dyk sjen moatst.
13. Test hoe __________ it duoorret om te stopjen by rêstich remjen.
14. Unthâld dat je hurder ride kinne soenen as dat je __________.
15. Hâld oer it algemien rekken mei it dûbelde fan jo normale remôfstân as de dyk __________ is.
16. Brûk trije kear dizze ôfstân by __________ en noch mear by iis.
17. Besykje om de auto altyd de baas te bliuwen en je sille problemen ________.

2. Fytse
hert (hart) geode (goede) draachst (draagt)
foardiel (voordeel) geefaarlik (gevaarlijk) bejinnen (beginnen)
spieren (spieren) wie (waar) praat (praat)
oefening (oefening) makliker (gemakkelijker) ophâlde (ophouden)

1. Genôch beweging krije is in part fan in sûne libbensstyl.
2. Njonken hurddrave en swimme, is fytse ien fan de bêste allround foarmen fan beweging.
3. It kin helpe om dyn krêft en enerzjy te fergrutsjen.
4. It jout dy ek mear effisjinte spieren en in sterker ________.
5. Mar it fergrutsjen fan dyn krêft is net it iennige ________ fan fytsen.
6. Do ________ it gewicht fan it liif net op ‘e fuotten.
7. Dêrom is fytse in ________ foarm fan beweging foar minsken mei seare fuotten of in seare rêch.
8. Mar mei alle foarmen fan beweging is it wichtich om stadihoan te ________ en it rêstich op te bouwen.
9. Te folle, te hurd dwaan kin de ________ dy’t it net wend binne om te wurkjen, kwea dwaan.
10. Ast deroan twifelest om mei fytsen te begjinnen om reden fan sûnen, ________ dan mei dyn dokter.
11. It bêste is it om op syn minst twa of trije kear wyks te fytsen.
12. As de oefening fertuten dwaan sil, soest in bytsje efter de pûst reitsje moatte.
13. Sit der net oer yn noed dat it ________ wêze kin ast efter de pûst rekkest.
14. Dat is gewoan net ________.
15. Benaudens lit sjen dat de ________ it goede effekt hat.
17. Nei in skoftke wurdt it ________.

3. Berne-atleten
wurden (worden) bern (kinderen) twadde (tweede)
boartsjen (spelen) lannen (landen) dreech (moeilijk)
leauwe (geloven) jild (geld) djoer (duur)
helje (bereiken) jierren (jaren) gefaarlik (gevaarlijk)
1. Alden fan wa’t de bern spesjale belangstelling foar in beskate sport toane, ha in drege kar te dwaan.
2. Soenen hja har bern tastimming jaan moatte foar it trainen om topsporters te ________?
3. Foar in protte ________ betsjut dit dat se op in hiel jonge leeftyd begjinne moatte.
4. Skoalwurk, útgean mei freonen en oare ynteresses moatte op in ________ plak stean.
5. It is hiel ________ om aan jonge bern út te lizzen wêrom’t se fiif oeren deis traine moatte.
6. Dat jildt sels foar it wykein as de measten fan harren freonen oan it ________ binne.
7. In oar probleem is fansels it jild.
8. Yn in protte ________ is der jild fan de oerheid beskikber foar de training fan de alderbêste jonge atleten.
9. As dizze help net jûn wurde kin, moatte de âlden de tiid en it ________ sjen te finen om harren bern te stypjen.
10. Sportklean, ferfier nei de wedstriden, spesjale útrissing etc. kinne allegear hiel ________ wêze.
11. Dat aldeneroer yn sitte dat it ________ is om serieuze training yn in sport op in jonge leeftyd te begjinnen, is begryplik.
12. Guon doktoaren binne it der oer iens dat jonge spieren mooglik troch de training beskeadige reitsje foardat se goed ûntwikkele binne.
13. Trainers ________ dêrtsjin dat je as sporter allinnich de top helje kinne as je jong begjinne.
14. Wat düdlik is, is dat mar in pear jonge minsken de top ________.
15. Dat sawol de âlden as de bern soenen taret wêze moatte op misleerring.
16. It bart sels nei in protte ________ training.

4. Ferkâlden wurde
brieven (brieven) swak (zwak) kleie (klagen)
medisinen (medicijnen) lestich (lastig) tefoaren komme (voorkómen)
dokter (dokter) gefaarlik (gevaarlijk) witten (weten)
drinken (drinken) sterk (sterk) genêze (genezen)

1. Goeie, myn namme is Christina en ik jou ried oan minsken mei fragen oer harren sûnens.
2. Ik krij in soad ________ dizze tiid fan it jier.
3. Minsken ________ deroer dat se ferkâlden binne en dat dat net oer giet.
4. Der binne safolle ferskate ferhalen oer hoe’st in ferkâldheid ________ kinst of genêze kinst.
5. Dat is is faak dreech om te ________ watst dwaan moatst.
6. Ferkâldenens is hast nea gefaarlík, allinnich foar minsken dy’t al ________ binne, lykas álderen of lytse poppen.

7. Lykwols is ferkâldenens altyd _________ en tige ferfelend.

8. Fansels kinst in protte _________ keapje dy’t helpe om de ferkâldheid minder slim te meitsjen.


10. In oar punt is dat elk medisyn dat sterk genôch is om dy better fiele te litten, _________ wêze kin.

11. Ast al medisinen foar oare kwalen brûkst freegje dan altyd oan de _________ oft it goed is.

12. En tink derom dat it barre kin dat se dy slûch meitsje.

13. Besykje leafst net te autoriden as dat it gefal is.

14. Ta beslút bestiet der gijn magysk iten of _________.

15. It is it bèste om _________ en sûn te bliuwen.

16. Silst minder kâns ha om ferkâlden te wurde, en mocht dat al sa wêze dan soe it net al te slim wêze moatte.

Appendix C: Test material – Word translation task

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Frisian</th>
<th>Dutch</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tijd</td>
<td>Tijd</td>
<td>Time</td>
</tr>
<tr>
<td>2.</td>
<td>Jier</td>
<td>Jaar</td>
<td>Year</td>
</tr>
<tr>
<td>3.</td>
<td>Minsken</td>
<td>Mensen</td>
<td>People</td>
</tr>
<tr>
<td>4.</td>
<td>Man</td>
<td>Man</td>
<td>Man</td>
</tr>
<tr>
<td>5.</td>
<td>Dei</td>
<td>Dag</td>
<td>Day</td>
</tr>
<tr>
<td>6.</td>
<td>Ding</td>
<td>Ding</td>
<td>Thing</td>
</tr>
<tr>
<td>7.</td>
<td>Bern</td>
<td>Kind</td>
<td>Child</td>
</tr>
<tr>
<td>8.</td>
<td>Regear</td>
<td>Regering</td>
<td>Government</td>
</tr>
<tr>
<td>9.</td>
<td>Diel</td>
<td>Deel</td>
<td>Part</td>
</tr>
<tr>
<td>10.</td>
<td>Libben</td>
<td>Leven</td>
<td>Life</td>
</tr>
<tr>
<td>11.</td>
<td>Gefal</td>
<td>Geval</td>
<td>Case</td>
</tr>
<tr>
<td>12.</td>
<td>Frou</td>
<td>Vrouw</td>
<td>Woman</td>
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<tr>
<td>13.</td>
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<td>Werk</td>
<td>Work</td>
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<td>Systeem</td>
<td>System</td>
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<td>15.</td>
<td>Groep</td>
<td>Groep</td>
<td>Group</td>
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<td>16.</td>
<td>Nûmer</td>
<td>Nummer</td>
<td>Number</td>
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<td>17.</td>
<td>Wrâld</td>
<td>Wereld</td>
<td>World</td>
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<td>Romte</td>
<td>Ruimte</td>
<td>Space</td>
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<td>Kursus</td>
<td>Cursus</td>
<td>Course</td>
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<td>Bedriuw</td>
<td>Bedrijf</td>
<td>Company</td>
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<td>21.</td>
<td>Probleem</td>
<td>Probleem</td>
<td>Problem</td>
</tr>
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<td>22.</td>
<td>Tsjinst</td>
<td>Dienst</td>
<td>Service</td>
</tr>
<tr>
<td>23.</td>
<td>Hân</td>
<td>Hand</td>
<td>Hand</td>
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<td>24.</td>
<td>Feest</td>
<td>Feest</td>
<td>Party</td>
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<td>25.</td>
<td>Skoalle</td>
<td>School</td>
<td>School</td>
</tr>
<tr>
<td>26.</td>
<td>Plak</td>
<td>Plek</td>
<td>Place</td>
</tr>
</tbody>
</table>
|   | Afgebeeld | Vertaald | Vertaald
|---|-----------|----------|----------
| 27. | Punt | Punt | Point
| 28. | Hûs | Huis | House
| 29. | Lân | Land | Country
| 30. | Wike | Week | Week
| 31. | Lid | Lid | Member
| 32. | Ein | Einde | End
| 33. | Wurd | Woord | Word
| 34. | Foarbyld | Voorbeeld | Example
| 35. | Famylje | Familie | Family
| 36. | Feit | Feit | Fact
| 37. | Prosint | Procent | Percent
| 38. | Moanne | Maand | Month
| 39. | Kant | Kant | Side
| 40. | Nacht | Nacht | Night
| 41. | Each | Oog | Eye
| 42. | Holle | Hoofd | Head
| 43. | Yaformaasje | Informatie | Information
| 44. | Fraach | Vraag | Question
| 45. | Macht | Macht | Power
| 46. | Jild | Geld | Money
| 47. | Feroaring | Verandering | Change
| 48. | Ynteresse | Interesse | Interest
| 49. | Bestelling | Bestelling | Order
| 50. | Boek | Boek | Book
| 51. | Untjouwing | Ontwikkeling | Development
| 52. | Keamer | Kamer | Room
| 53. | Wetter | Water | Water
| 54. | Formulier | Formulier | Form
| 55. | Auto | Auto | Car
| 56. | Nivo | Niveau | Level
| 57. | Belied | Belieid | Policy
| 58. | Ried | Raad | Advice
| 59. | Line | Lijn | Line
| 60. | Ferlet | Behoefte | Need
| 61. | Effekt | Effect | Effect
| 62. | Brûken | Gebruiken | To use
| 63. | Idee | Idee | Idea
| 64. | Stûdzje | Studie | Study
| 65. | Famke | Meisje | Girl
| 66. | Namme | Naam | Name
| 67. | Resultaat | Resultaat | Result
| 68. | Liif | Lichaam | Body
| 69. | Freon | Vriend | Friend
| 70. | Rjocht | Recht | Right
| 71. | Autoriteit | Autoriteit | Authority
| 72. | Utsjoch | Uitzicht | View
| 73. | Ferslach | Verslag | Report
| 74. | Antlit | Gezicht | Face
| 75. | Merk | Markt | Market
| 76. | Oere | Uur | Hour
| 77. | Sifer | Cijfer | Number
| 78. | Wet | Wet | Law
| 79. | Doar | Deur | Door
| 80. | Rjochtbank | Rechtbank | Court of Law
| 81. | Kantoar | Kantoor | Office
| 82. | Oarloch | Oorlog | War
| 83. | Reden | Reden | Reason
| 84. | Minister | Minister | Minister
Appendix D: Test material – 1st article Universal Declaration of Human Rights

English:
“All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.”

Frisian:
“Alle minsken wurde frij en gelyk yn weardigens en rjochten berne. Hja hawwe ferstân en gewisse meikrigen en hearre har foar inoar oer yn in geast fan bruorskip te hâlden en te dragen.”

Appendix E: Participant background information

<table>
<thead>
<tr>
<th>PROVINCE/COUNTRY</th>
<th>COMPLETE GROUP</th>
<th>PERCENTAGE</th>
<th>MICRELA GROUP</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BELGIUM</td>
<td>8</td>
<td>8.5 %</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>DRENTHE</td>
<td>2</td>
<td>2.1 %</td>
<td>2</td>
<td>3.3 %</td>
</tr>
<tr>
<td>FLEVOLAND</td>
<td>0</td>
<td>0.0 %</td>
<td>0</td>
<td>0.0 %</td>
</tr>
<tr>
<td>GELDERLAND</td>
<td>8</td>
<td>8.5 %</td>
<td>7</td>
<td>11.6 %</td>
</tr>
<tr>
<td>GRONINGEN</td>
<td>9</td>
<td>9.5 %</td>
<td>9</td>
<td>15.0 %</td>
</tr>
<tr>
<td>LIMBURG</td>
<td>4</td>
<td>4.3 %</td>
<td>1</td>
<td>1.6 %</td>
</tr>
<tr>
<td>NOORD-BRABANT</td>
<td>9</td>
<td>9.5 %</td>
<td>6</td>
<td>10.0 %</td>
</tr>
<tr>
<td>NOORD-HOLLAND</td>
<td>8</td>
<td>8.5 %</td>
<td>4</td>
<td>6.7 %</td>
</tr>
<tr>
<td>OVERIJSSEL</td>
<td>17</td>
<td>18.1 %</td>
<td>16</td>
<td>26.7 %</td>
</tr>
<tr>
<td>UTRECHT</td>
<td>3</td>
<td>3.2 %</td>
<td>1</td>
<td>1.6 %</td>
</tr>
<tr>
<td>ZEELAND</td>
<td>1</td>
<td>1.1 %</td>
<td>1</td>
<td>1.6 %</td>
</tr>
<tr>
<td>ZUID-HOLLAND</td>
<td>25</td>
<td>26.6 %</td>
<td>13</td>
<td>21.7 %</td>
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</table>

Table 2: Number of participants grown up in each province
### Table 3: Number of participants in each age group

<table>
<thead>
<tr>
<th>AGE</th>
<th>COMPLETE GROUP</th>
<th>PERCENTAGE</th>
<th>MICRELA GROUP</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-18</td>
<td>3</td>
<td>3.2 %</td>
<td>1</td>
<td>1.6 %</td>
</tr>
<tr>
<td>19-23</td>
<td>24</td>
<td>25.5 %</td>
<td>21</td>
<td>35.0 %</td>
</tr>
<tr>
<td>24-28</td>
<td>22</td>
<td>23.4 %</td>
<td>21</td>
<td>35.0 %</td>
</tr>
<tr>
<td>29-33</td>
<td>18</td>
<td>19.1 %</td>
<td>17</td>
<td>28.3 %</td>
</tr>
<tr>
<td>34-38</td>
<td>1</td>
<td>1.1 %</td>
<td>-</td>
<td>-</td>
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<tr>
<td>39-43</td>
<td>5</td>
<td>5.3 %</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>44-48</td>
<td>3</td>
<td>3.2 %</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>49-53</td>
<td>2</td>
<td>2.1 %</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>54-58</td>
<td>7</td>
<td>7.4 %</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>59-63</td>
<td>5</td>
<td>5.3 %</td>
<td>-</td>
<td>-</td>
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<tr>
<td>64-68</td>
<td>3</td>
<td>3.2 %</td>
<td>-</td>
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<tr>
<td>68+</td>
<td>1</td>
<td>1.1 %</td>
<td>-</td>
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Table 4: current/highest completed education level of participants

<table>
<thead>
<tr>
<th>EDUCATION LEVEL</th>
<th>COMPLETE GROUP</th>
<th>PERCENTAGE</th>
<th>MICRELA GROUP</th>
<th>PERCENTAGE</th>
</tr>
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<tbody>
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<td>NO DEGREE</td>
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<td>0.0 %</td>
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<td>0.0 %</td>
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<td>0.0 %</td>
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<tr>
<td>VOCATIONAL</td>
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<tr>
<td>HBO/UNIVERSITY</td>
<td>88</td>
<td>93.6 %</td>
<td>60</td>
<td>100.0 %</td>
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</table>

Table 4: current/highest completed education level of participants