Growing up with Frisian and Dutch: The role of language input in the early development of Frisian and Dutch among preschool children in Friesland

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8 Discussion and conclusions

In this final chapter, the main outcomes of the overall project presented in this dissertation will be summarized and the research questions from Chapter 2 will be answered (§ 8.1). The following section will explain these findings (§ 8.2). Additionally, the strengths and limitations of the studies are explored (§ 8.3) and the chapter ends with the final conclusions, while recommendations are given for future research (§ 8.4).

8.1 Aim and outcomes of the project

The main purpose of this longitudinal project was to explore the role of language input in the bilingual development in Frisian and Dutch of young bilingual children. More specifically, the focus was on the influence of home language and outside home exposure on the early development of a bilingual vocabulary and morphosyntax in both languages. In total, 91 participants were monitored in the development of their receptive and productive vocabulary and 20 participants in a measure of lexical diversity, i.e. number of different words (NDW), and morphosyntax, i.e. mean length of a utterance in words (MLUw), in both languages during three successive test rounds when they were aged between 2;6-4;0 years old. However, before the data collection could start, two standardized Dutch vocabulary tests had to be adapted to Frisian, since there were no Frisian vocabulary tests available. This did not only lead to an adaptation study, but also to a study on the influence of cognate items in the vocabulary tests, since the four vocabulary tests had many cognate items in common, i.e. items that have the same pronunciation and meaning in both languages. The current project can therefore be divided into four studies: an adaptation study, a cognate study, a vocabulary study and a morphosyntactic study. These four studies will be summarized below.

In the adaptation study (described in Chapter 4), all items of a Dutch receptive and productive vocabulary test were translated. To preserve an aural stimulus that was similar in all three main Frisian dialects (see § 1.2), nine items were changed in the Frisian receptive vocabulary. In the productive vocabulary test all items remained the same, since the regional varieties were included in the correct responses. Both Frisian adaptations were tested in a
Growing up with Frisian and Dutch

pilot study. Fourteen participants were assessed with the adapted receptive vocabulary test and fifteen participants were assessed with the adaptation of the productive vocabulary test. These participants were not part of the longitudinal project. Based on their responses, one item was altered in each vocabulary test. The final versions of the adapted vocabulary tests were used as the Frisian vocabulary tests in the main vocabulary study.

Since Dutch and Frisian are two closely related languages that show an overlap in vocabulary, there was also an overlap in the vocabulary tests in both languages. In other words, the vocabulary tests had cognate items, i.e. items that had the same meaning and pronunciation in both languages (see § 5.3). The question then arose whether these cognate items would affect the results of the vocabulary tests, not only within the Frisian adaptations, but also within the original Dutch vocabulary tests, since these tests also had cognate items with Frisian. The results of the cognate and non-cognate items of the vocabulary tests were compared with each other (see Chapter 5), and this comparison revealed that the cognate items did not significantly influence the results of the vocabulary tests in either language.

After the adaptations were completed, the vocabulary and morphosyntactic studies were conducted with 91 and 20 participants respectively in Frisian and Dutch (see Chapter 3). Between the ages of 2;6-4;0 years, the participants were all assessed in both languages in three successive test rounds. Each assessment consisted of a receptive and a productive vocabulary test and a recording of spontaneous speech, made while the participant played with the test assistant. The complete test battery was repeated in the other language on a separate occasion a few weeks later. All participants were also tested on their non-verbal intelligence. Information on home language and outside home exposure was gathered with questionnaires that parents filled in during each test round.

The next subsections will describe the outcomes of the vocabulary measures (§ 8.1.1), the morphosyntactic measure (§ 8.1.2) and the findings on the relationship between morphosyntax and vocabulary (§ 8.1.3). The findings will be explained in § 8.2.

8.1.1 The outcomes of the vocabulary measures
The subsection will first briefly address the analysis of the vocabulary measures. It starts with the receptive and vocabulary measures and discusses the hypotheses on the vocabulary measures that were under investigation (see § 2.7). It continues with a brief description of the study on the NDW and the
hypotheses belonging to this measures. The subsection ends by answering the first research question on the role of language input in Frisian and Dutch vocabulary.

The results of the receptive and productive vocabulary tests (see Chapter 6) were analysed using multilevel analysis and controlled for random variance in intercepts of the participants and non-verbal intelligence. Home language and outside home exposure functioned as the independent variables, while the test scores of the receptive and productive vocabulary tests in both languages were the dependent variables. The outcomes of these analyses will be described below, together with the hypotheses under investigation listed in § 2.7. We will start with the twelve hypotheses that belong to the first research question on the role of language input in Frisian and Dutch vocabulary. This question will be answered after a discussion of these hypotheses.

The hypotheses with respect to the influence of language input on receptive vocabulary were based on previous research in minority-majority language contexts, i.e. the Irish-English (Hickey, 1997) and Welsh-English context (Gathercole & Thomas, 2009). In these studies an effect of home language was found in receptive vocabulary in the minority language (Gathercole & Thomas, 2009; Hickey, 1997), but not with (older) children in receptive vocabulary in the majority language (Gathercole & Thomas, 2009) (see § 2.3). Following Hickey (1997) and Gathercole and Thomas (2009), Hypothesis 1\(a\) argued that an effect of home language in the development of Frisian receptive vocabulary would be found during the observation period and this effect was expected to be absent or decreased in the development of Dutch receptive vocabulary (Hypothesis 1\(b\)). The outcomes of the main vocabulary study showed that Hypotheses 1\(a\) and 1\(b\) were confirmed, i.e. an effect of home language was found in Frisian receptive vocabulary, but not in Dutch receptive vocabulary (see § 6.2.1 and § 6.2.2 respectively).

Hickey (1997) found no influence of community language in Irish receptive vocabulary. Additionally, Gathercole and Thomas (2009) also did not find an effect for school language in Welsh receptive vocabulary (see § 2.3). Hypothesis 1\(c\) therefore stated that no effect of outside home exposure would be found in the development of Frisian receptive vocabulary during the observation period. This hypothesis was rejected, since an outside home exposure effect was found in Frisian receptive vocabulary (see § 6.2.1). For English receptive vocabulary an effect of school language was found (Gathercole & Thomas, 2009) (see § 2.3). For Dutch receptive vocabulary, an additional effect of outside home exposure was therefore also expected (Hypothesis 1\(d\)).
In contrast to the finding of Gathercole and Thomas (2009), our results showed no outside home exposure effect in Dutch receptive vocabulary (see § 6.2.2). Hypothesis 1d was thus rejected.

Hickey (1997) found an effect of home language in the development of Irish productive vocabulary (see § 2.3). Following Ytsma (1999, 1995) (see § 2.2) and the general observation that preschoolers with Dutch as their home language hardly use Frisian (see § 1.3), we hypothesized that in Frisian productive vocabulary an increasing effect of home language would be found during the observation period (Hypothesis 1e). The analysis revealed a home language effect and an interaction effect between home language and time in the development of Frisian productive vocabulary (see § 6.3.1). This means that there were significant differences found between both home language groups and these differences increased over time. Hypothesis 1e was therefore confirmed. The studies of Gathercole and Thomas (2009) and Hickey (1997) did not cover the development of the productive vocabulary in the majority language. However, van Ruijven (2006) and de Jager et al. (2002a, b, c) showed that children in their fourth years in primary education in Friesland performed similarly in Dutch compared to their peers in the rest of the Netherlands (see § 2.2). In line with this finding, we therefore hypothesized a decreasing effect of home language in the development of Dutch productive vocabulary (Hypothesis 1f). Our results showed that a home language effect was found. There were no interaction effects (see § 6.3.1) which means that this effect did not decrease over time. In other words, the HL-Frisian participants were behind in their Dutch productive vocabulary, but their developmental rate was similar to their HL-Dutch peers. Hypothesis 1f was therefore partially confirmed: a home language effect was found, however not decreasing in nature.

Hickey (1997) found a community language effect in the development of Irish productive vocabulary. In line with this finding we hypothesized that an additional effect for outside home exposure would be found in Frisian productive vocabulary (Hypothesis 1g). However, this effect was not found (see § 6.3.1). Hypothesis 1g was therefore rejected. Since an additional effect of outside home exposure was expected for Dutch receptive vocabulary, Hypothesis 1h stated that Dutch productive vocabulary would also show an outside home exposure effect. The results showed no additional effect for outside home exposure in Dutch productive vocabulary (see § 6.3.2). Hypothesis 1h was thus also rejected.
The spontaneous speech samples were used to examine the growth in lexical diversity and morphosyntax. Due to time planning considerations, it was only possible to transcribe the samples of a subgroup of 20 participants (see § 3.4.3) from the main vocabulary study. For this subgroup only those participants were selected that produced six speech samples (three in both languages) that lasted longer than eleven minutes. The 20 participants were matched on home language, gender and non-verbal intelligence (see § 3.5.1). Of each sample, the first 100 child utterances were transcribed. These utterances were analysed on number of different words (NDW), which refers to the lexical diversity of the child utterances (see § 3.5.4). The progress in NDW in both languages was analysed using repeated measures ANOVA techniques in which home language and outside home exposure were treated as the independent variables.

There were no studies available on the influence of language input on NDW growth. However, since productive vocabulary and NDW are both lexical measures in the productive domain, it was expected that the influence of home language and outside home exposure on NDW was similar to their influence in productive vocabulary. Hypothesis 1 stated that an increasing effect of home language would be found for Frisian NDW during the observation period. This hypothesis is partly confirmed. There was a home language effect, but it did not change over time (see § 6.4.1). It was further hypothesized that the home language effect would decrease over the observation period for Dutch NDW (Hypothesis 1). This hypothesis is rejected, since no home language effect was found in Dutch NDW (see § 6.4.2).

Hypothesis 1 argued that there would be an additional effect of outside home exposure on the development of Frisian NDW. This hypothesis is rejected, because no outside home exposure effect was found (see § 6.4.1). Finally, Hypothesis 1 stated that Dutch NDW would also show an additional effect of outside home exposure. Hypothesis 1 was also rejected. The analysis did not reveal an additional effect of that variable (see § 6.4.2).

Table 8.1 summarizes the effects of home language and outside home exposure found in the vocabulary measures.
In light of these outcomes, the first research question can be answered. This question was:

1. What is the influence of language input, i.e. home language and outside home exposure, in the development of a bilingual (Frisian/Dutch) vocabulary of children living in Friesland, during the age range 2;6-4;0 years?

The results of the vocabulary measures are listed in Table 8.1. Home language played an important role in the three Frisian vocabulary measures. For Dutch it was only important in productive vocabulary. This means that in the three vocabulary measures of Frisian, the HL-Frisian participants had higher scores than their HL-Dutch peers. In Dutch receptive vocabulary and NDW, however, the HL-Frisian participants performed similar to their HL-Dutch peers. In Dutch productive vocabulary, the HL-Dutch participants significantly outperformed their HL-Frisian peers.

Outside home exposure only played a role in the receptive vocabulary in both languages. This suggests that outside the home, the participants with caregivers that mostly used the other language than the home language significantly outperformed in receptive vocabulary of both languages than their peers whose caregivers mostly used the same language as the one at home. Outside home exposure was not important in productive vocabulary or NDW, neither in Frisian, nor in Dutch. Overall, it seems that home language was more important than the outside home exposure. The outcomes of the language measures will be explained in § 8.2.

Table 8.1: Overview of the influence of home language, outside home exposure and time on all vocabulary measures of Frisian and Dutch.

<table>
<thead>
<tr>
<th></th>
<th>Home language</th>
<th>Outside home exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frisian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive vocabulary</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Productive vocabulary</td>
<td>✓+</td>
<td></td>
</tr>
<tr>
<td>NDW</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive vocabulary</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Productive vocabulary</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>NDW</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

✓ = significant influence  
+ = interaction effect of home language and time
8.1.2 The outcomes of the morphosyntactic measure

This subsection continues with the four hypotheses belonging to the second research question on the role of language input in Frisian and Dutch morphosyntax (see § 2.7). First the research design for this study is briefly described. As well as NDW (see § 8.1.1), the child utterances in the spontaneous speech samples from the subgroup were analysed on the morphosyntactic measure, i.e. mean length of utterance in words (MLUw) (see § 3.5.5). The progress in MLUw in both languages was analysed using repeated measures ANOVA techniques in which home language and outside home exposure were treated as the independent variables.

The hypotheses with respect to the influence of home language on morphosyntactic growth (see § 2.7) are based on findings from Gathercole and Thomas (2009). Their study showed an effect for home language in the development of some Welsh-specific morphosyntactic language structures (see § 2.4). In line with Gathercole and Thomas (2009) and given the general observation that children with Dutch as their home language hardly speak Frisian (see § 1.3), we hypothesized that the development of MLUw in Frisian would show an increasing effect of home language (Hypothesis 2\(a\)). This hypothesis was confirmed. The outcomes showed an effect of home language in the development of MLUw in Frisian, as well as an interaction effect between home language and time (see § 7.2.1). Thus not only did the HL-Frisian participants significantly outperform their HL-Dutch peers in Frisian MLUw, their acquisition rate for Frisian MLUw also increased over time compared to their HL-Dutch peers.

There were no studies available concerning the influence of home language or outside home exposure on the morphosyntactic development in a majority language, at least not in the Irish-English (Hickey, 1997) or Welsh-English context (Gathercole & Thomas, 2009). However, it is the general observation that children with Frisian as their home language speak Dutch, although they sometimes mix both languages (see § 1.3). Moreover, van Ruijven (2006) and de Jager et al. (2002a, b, c) revealed an equal performance in Dutch for older children (age 7-8 years) in Friesland, compared to their peers in the rest of the Netherlands (see § 2.2). It was therefore expected that the effects of home language and outside home exposure for Dutch MLUw would be similar to those for Dutch productive vocabulary. Consequently, Hypothesis 2\(b\) stated that a decreasing home language effect would be found in the development of MLUw in Dutch during the observation period. However, no home language effect was found in the Dutch MLUw scores (see § 7.2.2). Hypothesis 2\(b\) was therefore rejected.
School language was found to influence the development of the Welsh morphosyntactic structures to some extent (Gathercole & Thomas, 2009) (see § 2.4). Therefore, an additional effect of outside home exposure was expected for Frisian MLUw (Hypothesis 2c). However, the results showed no outside home exposure effect in the development of Frisian MLUw (see § 7.2.1). Hypothesis 2c was therefore rejected. We further hypothesized that an additional effect for outside home exposure was also found in the development of MLUw in Dutch (Hypothesis 2d), similar to Dutch productive vocabulary. As with Frisian MLUw no additional effect of outside home exposure was found in Dutch MLUw (see § 7.2.2). Hypothesis 2d was also rejected.

Table 8.2 lists the effects found for home language and outside home exposure in the MLUw measures of both languages. Only for Frisian MLUw, a home language effect and an interaction effect were found.

<table>
<thead>
<tr>
<th>Home language</th>
<th>Outside home exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frisian MLUw</td>
<td>✓+</td>
</tr>
<tr>
<td>Dutch MLUw</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.2: Overview of the influence of home language, outside home exposure and time on the morphosyntactic measure of Frisian and Dutch.

✓ = significant influence

+ = interaction effect of home language and time

Based on these outcomes the second research question can be answered. This question was:

2 What is the influence of language input, i.e. home language and outside home exposure, in the acquisition of a bilingual (Frisian/Dutch) morphosyntax of children living in Friesland, during the age range 2;6-4;0 years?

As Table 8.2 shows, home language was only important in the development of the Frisian morphosyntax. The participants showed no difference in performance with respect to Dutch MLUw. This means that the HL-Frisian participants produced significantly longer utterances than their HL-Dutch peers in Frisian. With regard to Dutch, both home language groups produced utterances that were equally long. Outside home exposure was not an important factor in morphosyntax. This means that the language of the caregivers other than the parents did not play a significant role in morphosyntax.
Overall, our studies showed an effect for home language in the vocabulary and morphosyntactic measures for Frisian, and for Dutch in productive vocabulary only. Outside home exposure only influenced the receptive vocabulary in Frisian and Dutch. Our expectations with respect to the influence of these two variables on all language measures were not entirely met. The conceptual model (see Figure 2.1 in § 2.6), which displayed our expectations, therefore needs to be revised. Figure 8.1 presents the revised conceptual model.

For home language, we expected an effect in all Dutch measures, except for receptive vocabulary. However, home language was only important in Dutch productive vocabulary. As a consequence, the arrows pointing to the other expressive measures for Dutch are missing in Figure 8.1. Regarding outside home exposure, we expected an effect in all measures of Frisian and Dutch, except for Frisian receptive vocabulary. However, our results only showed an outside home exposure effect for receptive vocabulary in both languages. The arrows for all other measures were therefore removed from Figure 8.1 and a new arrow for Frisian receptive vocabulary was placed into the model.
8.1.3 The outcomes with respect to the relationship between morphosyntax and vocabulary

This subsection describes the four hypotheses belonging to the third question on the relationship between morphosyntax, i.e. MLUw, and vocabulary, i.e. receptive and productive vocabulary and NDW, within and across both languages (see § 2.7). In line with findings of prior studies (a.o. Trudeau & Sutton, 2011; Simon-Cereijido & Gutiérrez-Clellen, 2009; Stolt et al., 2009; Conboy & Thal, 2006; Szagun et al., 2006; DeThorne et al., 2005; Devescovi et al., 2005; Marchman et al., 2004; Thordardottir et al., 2002; Ukrainetz & Blomquist, 2002; Rollins et al., 1996), it was expected in Hypothesis 3a that in bilingual acquisition of Frisian and Dutch, morphosyntax and vocabulary were related within each language. Hypothesis 3a was confirmed, since a relation was found between MLUw and the three lexical measures within Frisian and within Dutch (see § 7.3). It was further hypothesized that within each language, the relations between MLUw and productive vocabulary and between MLUw and NDW would be stronger than the relation between MLUw and receptive vocabulary (Hypothesis 3b). In line with DeThorne et al. (2005) and Ukrainetz and Blomquist (2002), the results showed that the relationship between MLUw and the expressive lexical measures, productive vocabulary and NDW, was stronger than the relationship between MLUw and receptive vocabulary (see § 7.3). Hypothesis 3b was therefore confirmed. Hypothesis 3c stated that in the bilingual acquisition of Frisian and Dutch morphosyntax and vocabulary would not be related across both languages. This hypothesis was also confirmed. Supporting the findings of Simon-Cereijido and Gutiérrez-Clellen (2009), there were no relations found between Frisian morphosyntax and Dutch vocabulary, or between Dutch morphosyntax and Frisian vocabulary. Only in round 3 did we find a relation between Frisian MLUw and Dutch NDW and that was negative. Since no other cross-linguistic correlations were found, this might be a coincidence (see § 7.4). With these outcomes the third and final research question can be answered. This question was:

3 Is there a relation between the early morphosyntax and vocabulary within and across Frisian and Dutch?

There was a strong relation between morphosyntax and vocabulary within each language confirming prior studies. However, this relation seemed stronger between the expressive measures, i.e. between MLUw and productive vocabulary and between MLUw and NDW, than between MLUw and receptive vocabulary.
Discussion and conclusions

There were no cross-linguistic relations found between Dutch morphosyntax and Frisian lexicon or Frisian morphosyntax and Dutch lexicon, except for one negative correlation between Frisian MLUw scores and Dutch NDW in round 3. The outcomes are explained in § 8.2.

The findings on the relationship between morphosyntax and vocabulary met the expectations that were proposed in the second conceptual model (see Figure 2.2 in § 2.6). That model is therefore reprinted in Figure 8.2 without revisions.

The findings with respect to the influence of home language and outside home exposure on receptive and productive vocabulary, NDW, and MLUw as well as the relationship between morphosyntax and vocabulary will be explained in the next section (§ 8.2).

Figure 8.2: Conceptual model of the relationship between morphosyntax and vocabulary within and across Frisian and Dutch (same as Figure 2.2).
8.2 Discussion

The hypotheses on the home language effects for Dutch NDW and MLUw (see § 8.1) argued that home language effects in Dutch NDW and MLUw would be found and these would show a decreasing trend. As the results revealed, home language effects were not important in these measures. Consequently, these hypotheses were rejected. The results suggest that in Dutch NDW and MLUw the HL-Frisian children performed similar to their HL-Dutch peers, i.e. they caught up with them on these measures. In contrast to Dutch NDW and MLUw, home language was important in Dutch productive vocabulary. The lack of a home language effect in Dutch NDW and MLUw might be due to the small number of participants in the subgroup (N=20). Furthermore, only participants with six samples that lasted longer than eleven minutes were used, so these participants might be less anxious, more talkative and perhaps also more advanced in their language development, compared to the participants not selected. In addition, the decreasing trend of the home language effect that was hypothesized for Dutch productive vocabulary was not found either. It is expected that this trend will set in during the first years of primary school, since prior research has shown a catch-up in Dutch by the age of seven (van Ruijven, 2006; de Jager et al., 2002a, b, c).

Surprisingly, no influence of outside home exposure was found in the expressive measures. The discrepancy between our findings and those of Hickey (1997) and Gathercole and Thomas (2009) might be explained by the quantification of outside home exposure (see § 3.2). In our studies, this variable only included interactional adult input from caregivers other than the parents. If it had also included input from other sources such as peers, television or book reading, etc., this variable might have shown other results. In the current project, outside home exposure was found to be of importance only in receptive vocabulary. Participants with caregivers who substantially used the other language than the one at home had higher results in receptive vocabulary in both languages than their peers who were mainly exposed to the same language by parents and other caregivers.

Another outcome of the two linguistic studies is that between rounds 1 and 2 there was a faster growth in Frisian receptive and productive vocabulary and morphosyntax (see § 6.6 and § 7.4). This might be explained by a ‘first time’ effect within the assessments. During the first round, all participants were assessed with regard to Frisian first, and a couple of weeks later regarding Dutch (see § 3.5.1). Hence, during the Frisian assessments in round 1 the
participants experienced a new situation in which a stranger took them individually outside the playgroup for the assessment. Although every effort was taken to prevent this, the first test moment might have caused stress and anxiety. By the time they were assessed in Dutch, the situation was not new any more and they knew what to expect. The Frisian outcomes in the first round might therefore be a slight underestimation of their performance. Counterbalancing the participants within each round would have avoided the ‘first time’ effect. However, due to time limitations and financial resources this was not possible in the current project.

Non-verbal intelligence was an important confounder in the early development of Frisian and Dutch (see § 6.6), which confirms prior research (a.o. Paradis, 2011; DeThorne & Watkins, 2006; Tellegen et al., 2005b; Hickey, 1997; Genesee & Hamayan, 1980). In general, a participant with a high non-verbal intelligence score also obtained high scores on the vocabulary tests. In other words, intelligence significantly influenced the vocabulary growth. Data in language studies should therefore always be controlled for intelligence. Our findings contribute to a growing body of evidence on the important influence of intelligence on language development.

All in all, the HL-Frisian participants did not seem hampered by their first language in their acquisition of Dutch. They performed similarly with respect to Dutch receptive vocabulary, NDW and MLUw compared to their HL-Dutch peers. However, they were still behind in Dutch productive vocabulary when they entered primary education. Nevertheless, they developed Dutch productive vocabulary at the same rate as their HL-Dutch peers. When children enter primary education they are only four-year-olds. Even if they had substantial exposure to Dutch from birth onwards, bilinguals develop their two languages at a slower rate than monolinguals (e.g. Hoff et al., 2012; Thordardottir, 2011; Gathercole et al., 2008; Pearson et al., 1997) (see § 2.1). This seems logical, since their total amount of language input is divided over two languages instead of one (Thordardottir, 2011). Several studies indicated that it takes five to seven years to acquire a second language (a.o. Kohnert & Bates, 2002; Cummins, 2000; Kohnert, Bates & Hernandez, 1999). Therefore, it is not realistic to expect that by the end of preschool Dutch will already be fully acquired and HL-Frisian children will have equal command of that language compared to monolingual Dutch children. Moreover, prior studies have shown that differences in the development of the community’s majority language seem to decrease after all participants reach a certain minimum amount of input in that language (e.g. Gathercole & Thomas, 2009; Gathercole
Growing up with Frisian and Dutch & Hoff, 2007; Gathercole, 2002; Oller & Eilers, 2002). It is therefore expected that the HL-Frisian participants will catch up in Dutch during the first years of primary education as indicated by van Ruijven (2006) and de Jager et al. (2002a, b, c). The slower progress in Dutch productive vocabulary for the HL-Frisian participants is therefore not of future importance.

In contrast, the HL-Dutch participants were behind in all Frisian measures, i.e. receptive vocabulary, productive vocabulary, NDW and MLUw, compared to their HL-Frisian peers. Moreover, while they developed Frisian receptive vocabulary and NDW at a similar rate as their HL-Frisian peers, their lag in productive vocabulary and morposyntax for Frisian increased over time. These outcomes do not come as a surprise, since research in primary education already stated that huge differences existed in Frisian proficiency among school-aged children (Ytsma, 1999, 1995).

The outcomes of the current project confirm Gathercole and Thomas’ study (2009) in the Welsh-English context although there are some differences. As in their study, our participants seemed to have developed (almost) equal command of the majority language, regardless of home language. In contrast, the development of the minority language seemed to lag behind. However, Gathercole and Thomas (2009) still found a home language effect in the English measures with the four-year-olds, while in our project this home language effect lacked in the Dutch measures at this age. The Welsh children show a catch-up by the ages of nine (Gathercole & Thomas, 2009) or beyond the age of eleven (Rhys & Thomas, in press), whereas it appears that in the Frisian-Dutch context, the differences between home language groups diminish at an earlier age. The current project only reported a home language effect in Dutch productive vocabulary and de Jager et al. (2002a, b, c) and van Ruijven (2006) revealed that the children in Friesland performed similarly in Dutch in the fourth year of primary education (age 7-8 years old) compared to their peers in the rest of the Netherlands. This (slightly) earlier catch-up might be explained by the fact that Frisian and Dutch are closely related languages whereas Welsh and English are not. In other words, the Frisian children might benefit from the overlap in structure and vocabulary in both languages and therefore show a faster catch-up in Dutch than Welsh children do in English.

The discrepancy in L2-proficiency might be explained by the amount of L2 input participants received. The HL-Frisian participants received far more input in their L2, namely Dutch, than the HL-Dutch participants received in their L2, Frisian. Because the parents of the HL-Frisian participants are bilinguals themselves, they are much more inclined to read books in both
languages to their children than the parents of the HL-Dutch participants. Probably, the higher status of Dutch also plays a role here. Since Dutch is the national language and consequently omnipresent in society, Frisian-speaking parents feel it is important that their children have good proficiency in Dutch alongside Frisian. Furthermore, the supply in Dutch books and media such as television programmes is much larger compared to Frisian.

The L2-discrepancy between the two home language groups was the largest in the productive measures, i.e. productive vocabulary, NDW and MLUw. This was true for Dutch, but even more so for the Frisian expressive measures, since for Frisian productive vocabulary and MLUw the differences between both home language groups increased substantially over time. This can be explained by the observation that the HL-Dutch participants hardly spoke any Frisian at all. This phenomenon was also reported by the parents: the parents of the HL-Frisian participants reported that their children use Dutch regularly, e.g. during (solo) play, whereas the HL-Dutch participants did not use Frisian during play. Thus it seems as if HL-Frisian participants use their L2 more than the HL-Dutch participants. Speaking the L2, or L2-output, might therefore also explain why one L2 is acquired more than the other (a.o. Unsworth, 2012; Bohman et al., 2010) (see § 2.4). Moreover, there is a lack of need for HL-Dutch participants to use Frisian. All Frisian-speaking adults are also in command of Dutch, so they do not have to speak Frisian with them. The contrary, Dutch-speaking people’s ability to speak Frisian, is not always the case. The HL-Frisian participants must therefore sometimes switch to Dutch. A similar pattern was found in a Canadian study by Paradis and Nicoladis (2007). They found that bilingual preschoolers with English as their home language used mainly English when speaking to a French-speaking adult, while bilingual preschoolers with French as their home language used French with the French-speaking adult and English with the English-speaking adult. Paradis and Nicoladis emphasized the fact that French-speaking people are always bilingual in Canada, while this is not always the case with English-speaking people and proposed that this might be a reason why the French-speaking participants used L2 more than the English-speaking participants. Since this Canadian study was conducted within a comparable minority-majority language context, Paradis and Nicoladis’ explanation might also be applied to the Frisian-Dutch context. There is no need for HL-Dutch participant to speak Frisian. Therefore, they will mostly use Dutch, since Frisian-speaking adults and children also master this language.
Within each language, significant relations were found between the morphosyntactic measure MLUw and the lexical measures NDW and receptive and productive vocabulary (see § 7.4). In other words, within Frisian and within Dutch morphosyntax and vocabulary influence each other. Both domains do not develop as separate language components. The relation between MLUw and NDW might seem logical since both measures are derived from the same speech samples. However, this cannot be said about the high correlation found between MLUw and productive vocabulary, since MLUw came from speech samples while the productive vocabulary was derived from vocabulary tests. The relation between MLUw and both lexical measures can be explained by the high correlation found between NDW and productive vocabulary in both languages (see § 6.5).

In contrast to the expressive measures, the relation between MLUw and receptive vocabulary was less obvious (see § 7.3), which is in line with findings by DeThorne et al. (2005) and Ukrainetz and Blomquist (2002). In addition, the other two expressive measures, i.e. NDW and productive vocabulary, also showed a less strong relation with receptive vocabulary (see § 6.5). An explanation for this less strong relation between the expressive measures and receptive vocabulary might be that productive abilities demand additional skills other than receptive abilities, e.g. oral motor abilities as DeThorne et al. (2005) also suggested. Further research is necessary to confirm this hypothesis.

In line with Simon-Cereijido and Gutiérrez-Clellen (2009), no substantial relations were found between Frisian morphosyntax and Dutch lexicon, or Dutch morphosyntax and Frisian lexicon, except for a negative relation between Frisian MLUw scores and Dutch NDW in round 3. Therefore, the cross-linguistic results did not support interdependence in bilingual development of Frisian and Dutch. However, since the subgroup consisted of a small number of participants, further research is necessary to confirm the lack of interdependence between both languages.

### 8.3 Strengths and limitations of the project

The biggest strength within the current project was the large number of preschoolers who participated in the project, especially when one realizes that all 91 preschoolers were tested in seven sessions within a period of 1.5 years. These participants did not live in one or two villages only, but were scattered throughout different socio-economic regions within the province of Friesland.
In total they attended 23 preschools. The large number of participants contributes to the relevance and robustness of the outcomes within the current project. Furthermore, the project examined more than one language component. The focus was not only on vocabulary, but also on morphosyntactic skills. Claims about language proficiency are therefore based on several measures, instead of one. Moreover, the data was gathered within different contexts, i.e. the vocabulary tests were gathered in a pseudo-experimental setting while the speech samples were recorded in a conversational context. In a conversation, participants are not forced to display their whole linguistic repertoire as in a test (DeThorne et al., 2005). In addition, a conversation is more comparable to an everyday situation whereas this is not the case with a vocabulary test. Consequently, both types of data complete each other. By collecting data from two different contexts, non-linguistic factors that might bias the data were kept to a minimum (DeThorne et al., 2005). For example, test anxiety, attention span and familiarity with the test situation might have biased the vocabulary tests (see Peña, Iglesias & Lidz, 2001; Speltz, DeKlyen, Calderon, Greenberg & Fisher, 1999; Fleege, Charlesworth, Burts & Hart, 1992), while the speech samples might be influenced by factors such as talkativeness and assertiveness (Sphere, Evans, Hendry & Mansell, 2009; DeThorne et al., 2005). Combined together, the vocabulary and morphosyntactic studies give a reliable picture of the participants’ proficiency in both languages.

However, as with every research, the current project also experienced some limitations, e.g. the appearance of the ‘first time’ effect in the Frisian assessments of round 1 (see § 8.2). As a result, the Frisian data from round 1 should be considered as an underestimation of the participants’ proficiency. The ‘first time’ effect might have been avoided if the order of the languages had been counterbalanced within each test round. In other words, half of all participants would have been tested in Frisian first and Dutch next, while the other half would have been assessed in Dutch first and Frisian later. Due to time planning considerations and limited financial resources, this was not possible within the current project.

Another limitation was the relatively small number of participants and their selection process in the subgroup. Because only participants with six samples of more than eleven minutes were selected, these participants might be more talkative and perhaps more advanced in their language development than their peers with shorter samples or with less than six samples. Additional bias was minimalized because the selected participants were matched on home language, gender, and non-verbal intelligence.
Only language input of adult caregivers within the surrounding of the participants was included in the outside home exposure variable, since this input could be best and most reliably measured by questionnaires. However, children do not only communicate with adults, but also with peers and other children. Moreover, besides interactive input from peers, they are exposed to language from media such as television which might positively influence their language development (Dixon, 2011; Leseman, Mayo & Scheele, 2009). As discussed in § 8.2 inclusion of input of peers or television in the variable of outside home exposure might have generated other results for this variable. The influence of other input besides that of parents and other caregivers should therefore also be included in future research.

The measures of language input were based on self-reports of parents. Although their reports on language input remained quite stable over time, their answers might be influenced by social desirability tendencies. In other words, the parents might have indicated other language patterns at home and outside the home than in reality, e.g. they reported to speak more Frisian than they actually did. In addition, since parental reports were used, it was only possible to look at the quantity of input and not at the quality. It is therefore impossible to draw conclusions on the quality of Frisian spoken by parents and other caregivers. Because Frisian is more and more influenced by Dutch, it would also be interesting to include the quality of input in future research.

Notwithstanding these limitations, the findings of this project are robust and the strengths contribute to the statistical power of the analyses. The findings significantly extend and deepen existing knowledge on the early development of Frisian and Dutch in Friesland. Furthermore, this project outlines an interesting source for future research in child language acquisition in minority contexts, in particular in the Frisian-Dutch language context.

8.4 Conclusions

The main conclusion that can be drawn from the findings of this project is that children with Frisian as mother tongue can easily acquire Dutch at the same time. By the time they enter primary education, their utterances in Dutch are similar in length as those of their Dutch native speaking peers. Moreover, their Dutch vocabulary skills are also almost similar. The outcomes of this project therefore have social implications. There are still Frisian-speaking parents who prefer to speak Dutch to their children because they are concerned
that their child will otherwise lag behind in Dutch from the beginning and will never catch up. This research has shown that Frisian-speaking children generally acquire Dutch without any problems. Moreover, it is expected that in primary education they will have fully caught up in Dutch (van Ruijven, 2006; de Jager et al., 2002a, b, c). Our outcomes further showed that the HL-Dutch participants still accelerated in Dutch while also acquiring Frisian (receptively). Therefore, it can be concluded that the acquisition of Frisian does not harm the acquisition of Dutch. Similar findings have been reported by Gathercole and Thomas (2009) for the Welsh-English context.

It is often observed that Frisian-speaking children still mix both languages now and then when using Dutch (see § 1.3). An example of language mixing is *wij hebben maar één paardsje* ‘we only have one (small) horse’: this child utterance is Dutch except for the Frisian diminutive marker -je in *paardsje* ‘(small) horse’. However, mixing the two languages does not necessarily mean children are disadvantaged in Dutch; language mixing is normal behaviour in bilinguals (Genesee et al., 2004).

As several studies have shown, children need about five to seven years to develop a second language (a.o. Kohnert & Bates, 2002; Cummins, 2000; Kohnert et al., 1999). It is therefore unrealistic to expect HL-Frisian children to have already fully acquired Dutch by the time they enter primary education. They are still in the process of acquiring the Dutch language and, as said above, they are expected to show a catch-up after a few years in primary education (van Ruijven, 2006; de Jager et al., 2002a, b, c), where they seem to reach a minimum of input needed for acquisition (e.g. Gathercole & Thomas, 2009; Gathercole & Hoff, 2007; Gathercole, 2002; Oller & Eilers, 2002). Furthermore, also for the HL-Dutch children it appears that a Frisian outside home exposure does not hamper the development of Dutch. Gathercole and Thomas (2009) emphasize that, over time the majority language is generally acquired without problems whereas continued exposure in the minority language is needed for the development of the minority language. Policymakers and educational specialists working in minority contexts should be aware of these findings, and adjust (pre)school curricula and policies if necessary, for example by promoting bilingual language policies at (pre)schools. The findings of this project are also of practical interest for language professionals such as speech and language therapists working in the Frisian-Dutch context. They can use the outcomes in interpreting evaluations and assessments and for advising (future) parents on bilingualism in the Frisian-Dutch context (Paradis, 2011). For example, standardized scores of a young Frisian-speaking child on
a Dutch test should always be interpreted with care if the scores are compared to the monolingual norms, since the developmental rate of bilinguals is generally slower compared to that of monolinguals (a.o. Hoff et al., 2012; Thordardottir, 2011; Gathercole et al., 2008; Pearson et al., 1997). Also in the current study, the HL-Frisian four-year-olds were behind in Dutch productive vocabulary, compared to their HL-Dutch peers. Furthermore, when examining the language development of a young Frisian-speaking child, speech and language therapists should always inquire after the child’s Frisian language development and the current and past exposure to both Frisian and Dutch, since there are no standardized tests for Frisian (yet).

To conclude, it is recommended that in future research participants are counterbalanced across language sessions. This will avoid the ‘first time’ effect that was found in the current project. Next to language input, it would also be interesting to look at the influence of output on the acquisition of both languages, i.e. which language the preschool children speak. Furthermore, within the current project outside home exposure only comprised adult speech of caregivers other than the parents. In future research it is therefore recommended to include peer input and input from media such as television to see the extent to which they influence the bilingual proficiency of preschoolers. Moreover, quantity as well as quality of input might play a role.

It is important to replicate the findings of the studies within the current project, since these are the first large-scale studies among bilingual preschoolers in Friesland. Verification of the trends found would further require a future longitudinal study to show how both languages further develop during the first years of primary education.