



**Impact of family input pattern on bilingual students'
language dominance and language favoritism**

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The present study examined the relation between type of bilingualism (balanced, dominance in heritage or majority language) and language favoritism in bilingual students as well as the influence of language input by parents and siblings on these two aspects of bilingualism. Systematic interviews with 926 students between 8 and 18 years of age were conducted to capture the language in- and output and the favorite language of the youth. All participants lived in Germany and grew up with German and another heritage language. Results show that 32% of the children and adolescents demonstrated a balanced bilingualism. In most of the participants, a dominant language had emerged. In general, there was a significant trend of the dominant language also being the favorite one. Siblings had an important impact on the emergence of the dominant language, but they had no influence on the favorite language.

1. Introduction

With migration, the number of bi- or even multilingual children and adolescents is on the rise. Bi- or multilingual individuals understand and/or use two or more languages in daily life (cf. Butler 2013; MacLeod et al. 2013), however, not necessarily in equal shares or with equal proficiency. Some children growing up in bilingual environments do not develop expressive language skills in all the languages they are exposed to (De Houwer 2007; Pearson 2007).

A core aim of research into bilingualism is to differentiate between balanced bilingualism and language dominance. Li Wei (2006) defined a balanced bilingual as “someone whose mastery of two languages is roughly equivalent” (ibid., 4) and a dominant bilingual as “someone with greater proficiency in one of his or her languages” and who “uses it significantly more than the other language(s)” (ibid., 5). In most cases, bilingual children and adolescents become dominant bilinguals (Silva-Corvalán & Treffers-Daller 2016). They acquire one weaker and one stronger language with more proficient lexical, syntactic, and morphological skills in the stronger one (Bernardini & Schlyter, 2004). Grosjean (1997) introduced the *Complementary Principle* to describe that bilingual speakers typically develop and use their languages in different life areas, with different interaction partners and for different purposes. The development of language dominance

then depends on situational contexts in which the student grows up and interacts with others.

Reliable identification of the dominant and the non-dominant language in a person is crucial for both scientific purposes and clinical assessments, but also challenging (Yip & Matthews 2006). Thordardottir et al. (2006) developed a parent questionnaire collecting information about language input at home and in daycare. Based on this detailed questionnaire, the amount of exposure to the languages was calculated depicting the status of the two languages involved as either dominant or non-dominant or balanced. Another method for collecting the input pattern of bilingual children and identifying the status of the languages involved was developed by Ritterfeld et al. (2015): ICOM (*Input Contexts in Multilingualism*) provides a graphical schema which can be used in systematic dyadic interviews with parents and their bilingual children or with students directly. ICOM was designed to gather detailed information about the young person's linguistic socialization context involving the input in all languages and the use of these language(s) in different living circumstances such as the home, the school and the neighborhood. ICOM also takes into account that the status of a language as dominant or non-dominant may shift over time. Pearson (2007) summarizes three factors contributing to the development of language dominance:

1. Onset of exposure to each language: The earlier a language is acquired, the more likely it is to become dominant.
2. Social status of each language (majority/minority language): The higher the social status of a language the more likely it is to become dominant.
3. Input pattern for each language: The more input is provided in one language the more likely it is that this language becomes dominant.

All three factors are confirmed by research: Children acquiring two or more languages during their first three years of life (simultaneous acquisition) develop considerably better language skills in both languages than children acquiring two or more languages successively, resulting in more imbalance (for an overview see Meisel 2011). Gathercole & Thomas (2009) demonstrated that children growing up in a bilingual environment acquire the majority language rather easily, while the acquisition of the minority language depends on the individual input patterns of both the majority and minority language. In general, language input has a great influence on the development of language dominance. Even for simultaneously bilingual children, Thordardottir

(2011) showed that the amount of exposure to a language is strongly related to the performance in that language.

Parents find it challenging to provide an input that enables their children to become bilingually proficient in learning the language of the community they live in (majority language) without losing their heritage tongue (minority language). In the past, parents have been recommended to use the 'one person – one language' principle in order to expose the child to both languages within the family (cf. Chin & Wigglesworth 2007). This advice might be practical for families in which two caregivers speak two different languages intuitively. However, in Germany, most children growing up with more than one language have a migration background with a heritage language other than the surrounding majority language. Their parents can easily fail to comply with the advice of 'one person – one language' as they are more proficient in their heritage compared to the majority language. A survey administered in Germany (Deutsches Jugendinstitut 2000) including over 1,000 children and adolescents reveals that the vast majority of children (88%) communicates at home only in their heritage language or in a mixture of both languages.

Scientific evidence to support the 'one person – one language' principle is also lacking. De Houwer (2007) demonstrated with survey data from nearly 1900 families using Dutch and a second language that the application of 'one person – one language' does not result in balanced bilinguals. Instead, children tend to emphasize Dutch (the majority language) while at the same time neglecting their heritage language (De Houwer 2007). MacLeod et al. (2013) confirmed this finding in ten German-French speaking families living in Québec, Canada. This asymmetry in language use can partly be explained with unbalanced exposure to the two languages. The languages spoken at home are not the only linguistic input a child receives. In fact, the majority language is present in ample daily life situations, whereas the heritage language is mainly limited to home use. A child's exposure and usage of the majority language with peers or in school makes it more likely to become dominant (Cha & Goldenberg 2015; De Houwer 2007; MacLeod et al. 2013; Pearson 2007). According to De Houwer (2007) children do use their heritage language in families where both parents speak it or one parent speaks both the heritage as well as the majority language.

Finally, the popular 'one person – one language' principle does not account for the complex family communication involving more than two parents and one child. Many

families have more than one child and communication between siblings may follow its own rules. Research confirms that the language spoken between siblings has a tremendous impact on children growing up bilingually (Bridges & Hoff 2014; De Houwer 2007; MacLeod et al. 2013). Bridges & Hoff (2014) showed in two studies that an older sibling significantly influences their younger sibling's development in the majority language. An older sibling who already attends school is associated with higher usage of the majority language by the younger child compared to children without a school-aged sibling (Bridges & Hoff 2014). De Houwer (2007) reports similar findings with siblings preferring the majority language at home even if that means that they differ from their parents' usage of languages in family communication. As a consequence of such differential use of languages between the generations, the children may feel less connected to their parents in comparison to children who use the same language at home as their parents (Tseng & Fuligni 2000). This detachment between the children and their parents may even be pronounced if parents cannot understand the language their children speak with each other. Further research indicates that the majority language mainly represents functionality in society whereas the heritage language carries social identity (Caldas & Caron-Caldas 1999; Ezra 2003). So far, it is unclear if and in what way the status of the languages as dominant, non-dominant or balanced and language favoritism are related to each other, and furthermore, how the language input at home influences the development of language dominance in contrast to the favorite language.

Taken together, the input pattern and social value of the languages a child is exposed to at and outside of the home follow a highly complex dynamic which might result in favoring a non-dominant language. The present study aims to further explore the relation between the status of a language as dominant, non-dominant or balanced (operationalized by the amount of use) and language favoritism (operationalized by the declaration of the favorite language) as well as the influence of language input by parents and siblings on these two aspects of bilingualism.

2. Method

2.1 Participants

Nine hundred and twenty-six students between 8 and 18 years of age ($M = 12.83$, $SD = 2.47$, 450 girls) participated in the study. Students were recruited in Dortmund, a city of

over 500,000 inhabitants, at all types of schools existing in Germany, in order to have a wide distribution of cognitive skills and socioeconomic status within the sample.

Most of the participants (86%) were growing up with two languages, 110 students (12%) with three and 15 (2%) with four languages. As all students have been living and going to school in Dortmund (Germany), German became one of the input languages. Besides German, language exposure in the sample includes 48 different languages that are primarily spoken in the young people's homes. Turkish was the largest group with 42% home language, followed by Arabic (10%), Polish (7%), Kurdish (7%), Russian (6%), and Albanian (6%). The remaining 42 languages spoken at home were found in 27% of the sample.

All participants were growing up with their mother, 94% also with their father and 95% with at least one sibling.

2.2 Assessment of language exposure, language use, and language favoritism

To assess the language exposure and the language use of the children and adolescents a graphical data entry form, the *ICOM (Input Contexts in Multilingualism)*; Ritterfeld et al. (2015) was used in systematic dyadic interviews with the students themselves in their schools. Students were asked step by step to explain who talks to whom using which language and to what extent. All information was entered in a pre-prepared graphical schema (example in appendix A). The interviews took place in German.

To answer the research questions, we analyzed the core aspects of the schema including all language(s) spoken by the students, their parents and siblings. This approach allowed us to translate the students' answers about the amount of their own use of the languages and the use of the languages by their caregivers and siblings into a five-point rating scale with German as calibrating reference: 0 = does not use this language, 1 = uses this language occasionally, 2 = uses this language equally often as another one, 3 = uses this language predominantly, 4 = uses this language exclusively. For the *input* analysis, the resulting quantities of language usage between both parents and the index student as well as between the siblings and the index student were computed into a mean score representing the quantity of each language spoken to the index student by parents or siblings. For the *output* analysis, the quantities of the languages spoken by the index students in interactions with both parents and siblings were also computed into a mean score. Based upon this outcome measure the students were classified into three groups

regarding their language dominance: heritage language as dominant language; balanced use of German and (main) heritage language; German as dominant language.

To investigate language favoritism, the students were explicitly asked to rank the languages they spoke starting with their favorite language.

3. Results

3.1 Language dominance and favorite language

About two-thirds (68%) of the students used one language dominantly at home. The remaining 32% used the two main languages equally and can be considered balanced bilingual. Of all students having a dominant language, it was German in 83% and the heritage language in 17%.

Fourteen percent of the whole sample indicated no language as their favorite one. Out of the remaining 86%, precisely half of them stated that German and the other half that the heritage language was their favorite one.

A cross-table analysis with language usage and the statements about the favorite language indicates a tendency to prefer the heritage language in two groups of students: dominance in heritage language and balanced bilingual (Table 1). Within the third group, with German as the dominant language, more than half (56%) of the participants stated that German is also their favorite language, but 31% of German dominant students preferred their heritage language over German. The remaining 13% of students had no favorite language. Overall, we find a significant trend that children and adolescents prefer the language which they use most (Table 1).

		Language dominance			Total
		Heritage language	Balanced bilingual	German	
Favorite language	Heritage language	77 (71%)	162 (54%)	163 (31%)	402 (43%)
	No preference	15 (14%)	49 (16%)	65 (13%)	129 (14%)
	German	16 (15%)	90 (30%)	289 (56%)	395 (43%)
Total		108 (100%)	301 (100%)	517 (100%)	926 (100%)

Table 1: Cross-table analysis with language usage and language favoritism

3.2 The role of the input by parents and siblings

Only 22% of the parents use the concept of 'one person – one language' in interaction with their children; 30% of mothers and fathers use the same language(s) in interaction with their children and 48% use a combination of different languages. A comparison between those students whose parents used the 'one person – one language' principle and students whose parents did not use this concept shows that application of this principle does not favor balanced bilingualism (Table 2). The number of children and adolescents with balanced bilingualism was higher in students whose parents did not use the 'one person – one language' principle (Table 2).

		Language dominance			Total
		Heritage language	Balanced bilingual	German	
One person one language	Yes	5 (3%)	41 (20%)	155 (77%)	201 (100%)
	No	99 (14%)	255 (36%)	360 (50%)	714 (100%)
Total		104 (12%)	296 (32%)	515 (56%)	915 ^a (100%)

Table 2: Comparison of language dominance in students with parents using or not using the 'one person – one language' principle¹.

Analyzing the input by parents regardless of using the 'one person – one language' principle displayed significant differences with respect to language dominance: the extent of the German input by parents (for means see Table 3) distinguishes between the three groups of students with the heritage language as their dominant language, students with no language dominance and students with German as their dominant language, $F(2, 328) = 91.77, p < .001, \omega^2 = .38$. There is a significant linear trend, $F(1, 923) = 111.58, p < .001, \omega^2 = .32$, indicating that more German input by parents was associated with higher use of German by students.

Generally speaking, the extent of the German input by parents was rather low in all three groups especially in comparison to the German input provided by the siblings of the index children (Table 3).

¹ Note. $\chi^2(2) = 49.10, p < .001$, Cramer-V = .23, $p < .001$. a: Based on the fact, that 11 students grow up without their fathers the sample size is 915 for this analysis.

Language dominance	German input by parents			German input by siblings		
	<i>N</i>	<i>M^a</i> (<i>SD</i>)	95% CI	<i>N</i>	<i>M^a</i> (<i>SD</i>)	95% CI
Heritage language	108	0.71 (0.87)	[0.54, 0.87]	88	1.43 (0.91)	[1.24, 1.62]
Balanced bilingual	301	1.22 (0.97)	[1.11, 1.33]	293	2.54 (0.89)	[2.44, 2.65]
German	517	1.96 (1.25)	[1.86, 2.07]	495	3.47 (0.75)	[3.40, 3.53]
Total	926	1.57 (1.21)	[1.50, 1.65]	876	2.95 (1.05)	[2.88, 3.02]

Table 3: Extent of German input by parents and siblings in children with a dominant heritage language, no language dominance and German as dominant language².

The siblings of the index students spoke predominantly in German ($M = 2.95$, $SD = 1.05$) while the German input from their parents was much lower ($M = 1.58$, $SD = 1.21$). This difference in German input between the siblings and the parents, 1.37, 95% CI [1.28, 1.46] was highly significant $t(875) = 28.92$, $p < .001$, and represents a large effect, $r = 0.70$.

The extent of the German input by siblings (for means see Table 3) was significantly different between students with the heritage language as their dominant language, students with no language dominance and students with German as their dominant language, $F(2, 226) = 261.80$, $p < .001$, $\omega^2 = .63$, revealing a substantial significant linear trend, $F(1, 873) = 462.31$, $p < .001$, $\omega^2 = .56$. Siblings' speaking more German with the index student is associated with the student's own usage of German.

The extent of the German input by parents and by siblings is also different between the students with their heritage language as favorite language, the students without a favorite language and the students with German as favorite language, $F(2, 357) = 36.88$, $p < .001$, $\omega^2 = .27$ (for parents) and $F(2, 336) = 47.76$, $p < .001$, $\omega^2 = .30$ (for siblings). In both cases, there was a linear trend displaying that more German input by parents or by siblings was associated with a language preference for German in students, $F(1, 923) = 74.23$, $p < .001$, $\omega^2 = .27$ and $F(1, 873) = 84.10$, $p < .001$, $\omega^2 = .31$, respectively.

² Note. a = Scale for interpretation: 0 = does not use this language, 1 = uses this language occasionally, 2 = uses this language equally often as another one, 3 = uses this language predominantly, 4 = uses this language exclusively.

The language output of 90% of the index students was identical with the language input by their siblings, but in only 53% it was identical with the input by their parents. A comparison of students with and without siblings shows that in students with at least one sibling, the heritage language is only rarely (10%) the dominant language while in 40% of the students without a sibling the heritage language is dominant (Table 4).

Unlike the differences in language dominance between students with and without siblings we find no differences with respect to the favorite language (Table 5).

	Language dominance			Total
	Heritage language	Balanced bilingual	German	
No sibling	20 (40%)	8 (16%)	22 (44%)	50 (100%)
At least one sibling	88 (10%)	293 (33%)	495 (57%)	876 (100%)
Total	108 (12%)	301 (32%)	517 (56%)	926 (100%)

Table 4: Comparison of the language dominance between students with and without siblings³.

	Favorite language			Total
	Heritage language	No favorite language	German	
No sibling	22 (44%)	6 (12%)	22 (44%)	50 (100%)
At least one sibling	380 (43%)	123 (14%)	373 (43%)	876 (100%)
Total	402 (43%)	129 (14%)	395 (43%)	926 (100%)

Table 5: Comparison of the favorite language between students with and without siblings⁴.

4. Discussion

The results indicate a general tendency of the dominant language also being more likely the favorite one. But the extent of this trend was different in the three subgroups of children: While over two-thirds of the children with a dominant heritage language indicate this language as also being their favorite one, just over half of the students with dominance in German consider German also their favorite language. The percentage of children favoring their heritage language was higher in balanced bilinguals and students

³ Note. $\chi^2(2) = 42.14, p < .001, Cramer-V = .21, p < .001$.

⁴ Note. $\chi^2(2) = 0.17, p = .919, Cramer-V = .01, p = .919$.

with German as dominant language compared to the reverse case in students with dominance in their heritage language. This finding can be a result of different dynamics contributing to language dominance versus language favoritism. While the dominant language is a result of functional language proficiency and language use (Grosjean 2016; Montrul 2016), the favorite language seems to express more the social and cultural identity of the children and adolescents. Tseng & Fuligni (2000) showed that adolescents who do not use the same language in interactions with their parents feel emotionally more distant to them than adolescents who interact with their parents in the same language. In further research, the specific associations between dominant language, favorite language, language skills and social and cultural identity as well as the cohesion within one family need to be analyzed.

The finding in this study that the majority language is more likely to be the dominant language of the children and adolescents is in line with other research (Bridges & Hoff 2014; Cha & Goldenberg 2015; De Houwer 2007; MacLeod et al. 2013; Paradis 2007; Pearson 2007). In our sample only 12% of the participants use their heritage language dominantly. The analysis of the family input also confirms previous studies that especially siblings have a very strong impact on the emergence of language dominance. Usually, siblings provide the most input in the majority language within a family (Bridges & Hoff 2014; De Houwer 2007; MacLeod et al. 2013). In families with only one child the heritage language is therefore significantly more likely to become the dominant language of the child than in families with more children. Moreover, the language use between the siblings is in 9 of 10 cases identical. This confirms the earlier finding by De Houwer (2007). In contrast, the in- and output between the children and their parents differs in almost half of the cases. This insight could be used to quickly identify the dominant language of a bilingual child having at least one sibling: The language chosen by siblings is likely to be their dominant one.

The often-expressed interest of parents to raise their children as balanced bilinguals is understandable, but difficult to realize. The emergence of a dominant language or even shifts in language dominance are mainly dependent on influences outside of parental control (Paradis 2007; Pearson 2007). Specifically, the often recommended ‘one person – one language’ principle is not suitable for supporting balanced bilingualism (De Houwer 2007; MacLeod et al. 2013; Schmeißer et al. 2016). We therefore strongly agree with alternative recommendations to encourage parents using the “language of the

heart” while speaking with their children (e.g. Asbrock et al. 2011). This language of the heart can be defined as the language a person thinks and feels in. This is also the language the parents are proficient in and are able to provide complex linguistic information in.

While the siblings have a significant impact on the language dominance of a child, no influence of siblings on the development of a favorite language was found. The observation that more children and adolescents with a dominant majority language nevertheless favor the heritage language than the reverse suggests a strong influence of the parents on language favoritism in their children.

Limitations of the study are the missing information about the age of the siblings and detailed information about the individual socioeconomic status of the children and adolescents. These limitations are explained with the interviewing taking place during school hours. Students have been eager to complete the interview as quickly as possible. In further research about the relation between the dominance and favorite language of bilingual children and adolescents the influence of the socioeconomic status might be considered. Also the age of the siblings should be collected systematically, since Bridges & Hoff (2014) showed that an older sibling significantly influences their younger sibling's development of the majority language.

Another highly important area for further investigation is the relationship between language use, favorite language, and language proficiency. It would be interesting to show whether language proficiency has a bigger influence on language favoritism than its mere usage.

In sum, the results of this study underline the complexity of bilingual language acquisition: the language a child uses the most does not necessarily have to be his or her favorite language. Especially for educational or clinical purposes it is therefore of utmost importance to consider the various influencing factors in the social environment of a bi- or multilingual child or adolescent.

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Keywords

input pattern, language dominance, favorite language, siblings

Appendix A: Example of a complete ICOM (Ritterfeld et al. 2015)

ICOM of Hülya (female) at the age of 0 til 12;11 years

date: 08.01.2016 type: multilingual monolingual interview partner: mother
interview language: German

city of residence
Dortmund

neighborhood
German

Habice, mother
atm: +

Erkan, father
atm: +

German/Turkish

German/Turkish

German/Turkish

German/Turkish

German/Tur.

German/Tur.

Hülya
1. G
2. T

Neuman, brother 2 years younger
atm: +

schools
Kindergarten: German monday-friday

media use
books: German
TV shows: German and Turkish

Does the language use change in public? rather not adaption towards environment

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