

Simultaneous vs. Successive Bilinguals: German Language Competence and Sociodemographic Characteristics of Four-Year-Old Children

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Abstract

Introduction: Previous studies have shown that simultaneous bilinguals achieve better language competence in both languages than successive bilinguals. In the current study, sociodemographic conditions of the German language acquisition were compared for four-year-old simultaneous and successive bilinguals. *Methods:* All simultaneous ($n = 452$) and successive bilingual children ($n = 885$) were tested with the validated German language test “Kindersprachscreening” (KiSS.2): speech comprehension, vocabulary, articulation, grammar, and phonological short-term memory. Successive bilinguals were defined as those acquiring the second language from the second year of life or later. Sociodemographic conditions of the German language acquisition were compared on the basis of KiSS.2 questionnaires for parents and kindergarten teachers. *Results:* Simultaneous bilinguals showed better German language skills in KiSS.2 than successive bilinguals. Also, they attended more often nursery schools, associations and study groups, and began earlier to attend kindergartens. They played more often with German-speaking children and had less often opportunity to speak their non-German first languages in kindergartens. They spoke German more often at home. Their parents had a higher educational level and began earlier to acquire/learn German. *Discussion:* Simultaneous bilinguals spoke better German than successive bilinguals not only because they began earlier to acquire it but also because their conditions of the German language acquisition were more favourable in terms of the quality and quantity of the language input. Simultaneous bilinguals also showed a higher sociability and contacted German-speaking children more often than successive bilinguals. The latter, on the contrary, tended to interact with children speaking other languages than German.

Keywords: language assessment, language acquisition, bilingualism, multilingualism, German language

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Introduction

Germany experienced tremendous demographic changes in the last decades. Millions of immigrants, predominantly from non-European countries, now need to be integrated into the German society. Many of them are foreigners, that is, were born in other countries and came to Germany without any German language competence. In 2015, Germany experienced the largest wave of immigration since the beginning of statistical records, with an estimated net influx of 1.14 million foreigners (Schmidt-Wahl, 2016a). As a result, more and more people with immigrant background have their own migration experience: This figure rose from 10 million to 13 million in Germany between 2015 and 2017 (DFGMRI, 2019), not only due to the refugee wave of 2015–2016 (with one million approved asylum applications between 2015 and 2019), but also because many labour migrants from Eastern Europe were entering the country since 2011 due to the gradual phasing out of restrictions on the free movement of workers within the European Union (EU) between 2011 and 2015. The fall of these restrictions contributed to the fact that even at the peak of the immigration wave—in 2015—people from EU countries made up 40% of all immigrants.

In the German state of Hesse (where data were collected for the present study), one in six residents was a foreigner in 2018 (Federal Statistical Office, 2019) (in the Introduction, statistics are given for the time period 2017–2019, where possible, because data for the present study were collected in these years). The proportion of foreigners in the total population grew from 6% to 14% between 1970 and 2015 (HMSAI, 2018). In 2015, most foreigners came from Syria (23%), Afghanistan (12%), and Eritrea (10%), if one uses the national affiliation of asylum applicants in subsequent years as a criterion (HLOS, 2019, p. 22). Furthermore, between 2005 and 2015, due to the aforementioned phasing out of restrictions on the free movement of workers, the proportion of foreigners from Bulgaria, Romania, and Croatia rose from 8% of all foreigners to 21%. In the age group 0–4 years, the proportion of foreigners in 2015 was 5% of Hesse's total population, in the age group 5–9 years these were also 5% (HMSAI, 2018). In Hessian school care-centres and pre-school classes, foreigners made up 24% of all children in 2018 (Federal Statistical Office, 2019).

Apart from refugees, millions of people with non-German nationalities live in Germany. They usually immigrated themselves (thus strongly overlapping with the category foreigner) and also represent a subcategory of people with immigrant background. In Hesse, according to the Hessian land office for statistics, the official number of people with non-German nationalities in 2015 was approx. 930,000, 8% more than in 2014 (Schmidt-Wahl, 2016b). By the end of 2018, these were already approx. 1,091,000 people (Federal Statistical Office, 2019).

For statistics on immigrants in Germany and in Hesse, see Zaretsky et al. (in press). The proportion of people with immigrant background is increasing not only due to immigration, but also due to higher birth rates among immigrant women. In Germany, women with immigrant background gave birth to an average of 2.0 children, women without such background to 1.7 children (DFGMRI, 2019). The corresponding figures for Hesse were 2.0 vs. 1.4 children (HMSAI, 2018). The *Statistical Yearbook of the City of Frankfurt/Main* (Hesse) shows, for example, that foreign women, on average, gave birth earlier and had more children (64.2 live births per 1,000 women aged 15–44 years vs. 50.0). This is reflected both in the average age of foreigners (39 years; 6 months) compared to Germans (41 years; 3 months) (LRROFM, 2018)—that is, foreigners were younger—and in the growing percentage of foreigners in Frankfurt: It rose from 25% in 2009 to 30% in 2018 (LRROFM, 2019). Thus, it is not surprising

that, in Frankfurt, there was a statistically significant correlation between weaker German language skills and larger families (those with several children: Zaretsky & Lange, 2016a).

Thus, in Western Europe, including Germany, many children acquire more than one language in the first years of life. Most of them are immigrants and acquire local languages as their second or third one. However, some non-immigrant families also speak two languages at home because parents want their children to learn one more language (often English) from the very beginning.

It should be noted that bi- or multilingualism alone does not automatically result in poor German language skills. Healthy children are able to acquire several languages under favourable medical and sociodemographic conditions (no language-related medical issues, sufficient language contact) (Neumann et al., 2009). Results of the Berlin school enrolment examination for 2017, with a considerable sample size of approx. 31,000 children, show, for example, that 29% of children who spoke only other languages than German at home demonstrated good to very good German language skills (SDHCEB, 2018). Out of children who used two foreign languages and no German at home, 26% proved to be good or very good in German in the school enrolment examination. However, only 25% of families with a one-sided immigrant background and 3% with a two-sided immigrant background spoke only German at home. Contact with the German language in such cases occurred mainly in associations, study groups, nursery schools, kindergartens, and similar facilities, demonstrating their importance for the linguistic integration of children with immigrant background. Thus, these figures also make clear that most children with immigrant background acquire German under unfavourable sociodemographic conditions and therefore show at best satisfactory (not good or very good) German language skills in the school enrolment examination.

In Hesse, the proportion of children with insufficient German language skills increased from 9% to 13% between 2012 and 2016 (Grüttner, 2017). In towns with a high percentage of children with immigrant background, percentage of children with poor German language skills was growing more rapidly. In Offenbach—a Hessian town where the proportion of residents with immigrant background in 2019 was approx. 63% (Town Offenbach, 2019)—the number of children who spoke German “completely without errors” fell, according to the school enrolment examination, from 44% in 2015 to 17% in 2018 (Scheuermann, 2019). In Frankfurt/Main, the number of children with immigrant background who had a perfect command of German at the school enrolment examination was 62% in 2007, but only 36% in 2016 (City Frankfurt/Main, 2017), though with questionable fluctuations of up to 13% between individual years. In Marburg, the proportion of immigrant children with perfect German language skills fell from 77% in 2012 to 64% in 2016 according to the school enrolment examination (Nahlinger, 2019). The deterioration of German language skills among children with immigrant background was also documented in the reports on other Hessian towns: Kassel (Heckenhahn et al., 2018), Darmstadt (Kainz et al., 2018), etc. Turkish- and Arabic-speaking children proved to have weakest German language skills in the Hessian school enrolment test. While only 26% of Turkish-speaking children and 21% of Arabic-speaking children had perfect German language skills, this proportion was 48% among children from Northern and Western Europe, and 41% among children from Eastern and Southern Europe (HMSAI, 2018).

Noteworthy is also a slight increase in children with insufficient German language competence even among non-immigrants (e.g., SDHCEB, 2018; Town Mannheim, 2019). For example, in the school enrolment examination in Frankfurt/Main 2002–2016, an increase in the proportion of children with language deficits among German children from 8% to 13% was registered

(City Frankfurt/Main, 2017). This trend can be linked to an ever-increasing proportion of immigrant children with insufficient or no German language skills in kindergartens. However, it should also be considered that for the official German statistics, for instance, all Turkish children who are immigrants in the third generation are Germans (even if they speak Turkish at home). Since the proportion of Turkish children is growing rapidly, the proportion of “Germans” with poor German language skills is also increasing in official reports of German authorities. The same is valid for other ethnic subgroups in the third generation (e.g., those from former Yugoslavia). The term “nationality” in the official German statistics is also misleading, since all inhabitants with the German passport (that is, German citizenship) are considered to have German nationality, even if they migrated from Africa or China several years ago and never had German ethnic background. This has very serious consequences for some statistical data of the German authorities: For instance, birth rates of “Germans” mentioned above are in reality to a considerable degree birth rates of Turks and other immigrants in the third generation.

Poor integration and limited German language skills cannot remain without consequences for the school career. In Hesse, there is a clear overrepresentation of children with immigrant background in lower secondary schools (*Hauptschulen* and *Realschulen*) and an underrepresentation in (prestigious) grammar schools (*Gymnasien*) (HMSAI, 2018), which corresponds to the nationwide German trend (Anger & Geis-Thöne, 2018; CSOWGIDM, 2019). For example, in 2018, 23% of Hessian children with a foreign nationality and 8% of children with German nationality attended lower secondary schools, while the corresponding percentages for grammar schools were 21% vs. 47% (CSOWGIDM, 2019). More and more young people with immigrant background in Hesse, as well as in Germany as a whole, are leaving school without a lower secondary school certificate (CSOWGIDM, 2019). With 11% of school leavers in 2017, Hesse was still better than the national average of 19%. Out of immigrants who began to study at a university in Hesse, only 61% completed their studies, compared to 80% of students without immigrant background. The nationwide German figures were 65% vs. 80% (CSOWGIDM, 2019). Thus, it is important to detect children needing additional educational or medical assistance in acquiring German as early as possible, ideally before school enrolment, and to help them in the German language acquisition, so that they do not miss their chance to perform better from the primary to the high school.

It goes without saying that higher quality and quantity of the German language input as early as possible contribute significantly to the German language acquisition. Generally, lower age of the language acquisition is associated with better language skills (Zaretsky et al., 2020a, b, 2021). Therefore, children who acquire some language since birth usually speak it better than those who begin to acquire or to learn it later. This is valid not only for the first language (mother tongue) but also for the second and third languages.

Children who acquire two languages since birth, are called simultaneous bilinguals, those who begin to acquire the second language in the second, third, fourth year of life or later (there are different definitions), are called successive bilinguals. Usually simultaneous bilinguals achieve better language competence in both languages than successive bilinguals (Bylund & Hyltenstam, 2021). However, this is not always the case because other influencing variables related to the quality and quantity of the language input can change the pace of the language acquisition.

It has not yet been studied in detail why simultaneous bilinguals speak both languages better than successive bilinguals. Although it seems self-evident that they just have more time for the

language acquisition, there can be some other – sociodemographic or even medical – factors that help them in the process of language acquisition. For instance, since immigrants in Germany have a lower socioeconomic status and educational level than non-immigrants (DESTATIS et al., 2024), it can be assumed that successive bilinguals (who are often immigrants) lag behind in the German language acquisition due to the variables related to the unfavourable sociodemographic conditions resulting from the lower socioeconomic status (e.g., non-attendance of prestigious, well-equipped kindergartens with children speaking good German). There are also many other factors directly or indirectly related to the limited quality and quantity of the language input that can slow down the pace of the language acquisition in successive bilinguals (Meisel, 2009; Tsimpli, 2014) such as shorter kindergarten attendance in Germany due to the immigration from other countries.

In the current study, sociodemographic conditions of the German language acquisition were compared for four-year-old simultaneous and successive bilinguals. Successive bilinguals were defined as children who acquire the second language from the second year of life or later. Thus, the difference between simultaneous and successive bilinguals in the age of the German language acquisition was at least 12 months. It was hypothesized that successive bilinguals lag behind in the German language acquisition not only due to the higher age of first contacts to the German language but also due to some sociodemographic characteristics of children and their families that are directly or indirectly related to the limited quantity and quality of the German language input.

Methods

A sample of 1,337 German kindergarten children was re-analysed retrospectively: 728 boys (54.5%) and 609 girls (45.5%); 452 simultaneous bilinguals (33.8%) and 885 successive bilinguals (66.2%). The age varied between 4;0–4;11 years ($M = 52.0$ months). The largest subgroups of bilinguals spoke Turkish, Russian, and Arabic languages at home. There were no differences in age and biological sex between simultaneous (SIM) and successive bilinguals (SUC) ($ps > .05$ in the Mann-Whitney U -test and Chi-Square test). The length of contact to the German language was four years for SIM and, on average, one and a half years for SUC.

All children were tested in German kindergartens with the validated, standardized language screening (short test) “Kindersprachscreening” in the second version (“Language screening for children”; KiSS.2, Holler-Zittlau et al., 2011). This test contains (a) subtests on the speech comprehension, vocabulary, articulation, grammar, phonological short-term memory (repetition of non-words and sentences), (b) questionnaires for parents and kindergarten teachers to assess sociolinguistic/sociodemographic and medical characteristics of children and their families. KiSS.2 results can be dichotomized in “pass/fail”, with “pass” meaning age-appropriate German language skills and “fail” meaning need of additional educational or medical assistance in the German language acquisition. Usually children who need medical assistance (that is, children with some language(-related) impairments and disorders) also need educational assistance (that is, German language courses).

SIM and SUC were compared regarding their KiSS.2 results, subjective estimations of German language skills by kindergarten teachers, children’s sociodemographic and medical characteristics from questionnaires by means of univariate methods (Chi-Square tests, linear-by-linear associations = l_{bl} , Mann-Whitney U -tests) and one multivariate method (classification tree). Sample sizes varied depending on how many children were able to finish

the respective subtest and how many parents and kindergarten teachers filled out respective questionnaire items.

Results

Table 1 shows dichotomized KiSS.2 results of SIM and SUC. SIM outperformed SUC in all three dichotomizations, that is, SIM had better German language competence.

Table 1

Dichotomized Results of the Language Test KiSS.2: Chi-Square Test (all $ps < .001$)

KiSS.2 results	Simultaneous bilinguals	Successive bilinguals	Chi-Square test $\chi^2_{(1)}$
Children needing educational assistance in acquiring German	154/425 (36.2%)	706/834 (84.7%)	304.9
Children needing medical assistance in acquiring German	38/425 (8.9%)	192/834 (23.0%)	27.4
“Fail” in KiSS.2	159/425 (37.4%)	712/834 (85.4%)	303.7

Next, total scores of correct answers in KiSS.2 subtests were compared for SIM and SUC by means of Mann-Whitney *U*-tests (see Table 2). Again, SIM showed better results in all cases, even in the subtests that were designed to assess the phonological short-term memory.

Table 2

Results of KiSS.2 Subtests: Mann-Whitney U-Test (all $ps < .001$)

KiSS.2 results	Simultaneous bilinguals	Successive bilinguals	Mann-Whitney U- test (<i>Z</i>)
Speech comprehension	5.4 ± 2.6	3.5 ± 2.6	-12.2
Vocabulary	14.8 ± 5.4	7.2 ± 6.0	-19.1
Articulation	14.0 ± 2.8	12.4 ± 3.8	-9.5
Grammar	14.9 ± 8.0	5.6 ± 6.5	-19.7
Repetition of non-words	7.0 ± 3.6	5.7 ± 3.6	-6.0
Repetition of sentences	10.8 ± 4.1	6.1 ± 4.2	-16.8
Total score	69.3 ± 19.6	42.8 ± 19.9	-18.0

Not only objective KiSS.2 results but also subjective estimations of the German language competence by kindergarten teachers were better for SIM than for SUC. Thus, according to questionnaires for kindergarten teachers, SIM could more often understand complex action instructions ($l = 143.5, p < .001$), they had more often age-appropriate German vocabulary ($l = 253.3, p < .001$) and articulation ($l = 163.0, p < .001$), they were more often understood by everybody in the kindergarten ($l = 167.9, p < .001$), they spoke more often in full sentences ($l = 190.6, p < .001$), and used more often German articles (*der, die, das, ein* etc.) correctly ($l = 279.0, p < .001$). Generally, kindergarten teachers described German language competence of SIM more often as age-appropriate ($l = 284.3, p < .001$). When kindergarten teachers were asked to estimate children’s German language skills at the time point when they began to attend kindergarten, with school grades from 1 “excellent” to 6 “very poor”, 74/303 SIM (24.4%) and 15/692 SUC (2.2%) received the grade 1 ($l = 381.3, p < .001$). For the time point of KiSS.2, 88/296 (29.7%) of SIM and 125/665 (18.8%) of SUC received the grade 1 ($l = 32.6, p < .001$). Thus, SUC were catching up with SIM but still showed weaker German language skills when they were tested with KiSS.2 at the age of four years. Estimations of

children's German language skills at the time point of KiSS.2 by kindergarten teachers were not based on KiSS.2 results.

Also, SUC had to participate in German language courses (offered by most German kindergartens) more often than SIM ($\chi^2_{(1)} = 30.2, p < .001$). Usually, children are chosen by kindergarten teachers for the participation in such courses either on the basis of subjective estimations of children's German language skills or on the basis of some language tests.

In the following, questionnaire items on sociodemographic and medical characteristics of children and their families were compared for SIM and SUC. Table 3 shows that SIM attended kindergartens for a longer period of time in months, and that parents of SIM began earlier to learn or to acquire German. Parents of SIM were children when they began to learn/acquire German whereas parents of SUC were young adults.

Table 3

Sociodemographic Conditions of the German Language Acquisition: Mann-Whitney U-Test

Questionnaire items	Simultaneous bilinguals <i>M</i> $\pm$ <i>SD</i>	Successive bilinguals <i>M</i> $\pm$ <i>SD</i>	Mann- Whitney <i>U</i> -test (<i>Z</i>)
Length of kindergarten attendance (months)	18.7 $\pm$ 9.1	17.4 $\pm$ 8.3	-2.2*
Mother: age of the German language acquisition/ learning (years)	10.3 $\pm$ 10.1	19.6 $\pm$ 10.7	-11.1***
Father: the same	10.9 $\pm$ 11.7	20.1 $\pm$ 11.4	-9.7***

Note. *M* = mean, *SD* = standard deviation, *** $p < .001$, ** $p < .01$, * $p < .05$

Furthermore, SIM spoke less often Turkish ($\chi^2_{(1)} = 29.3, p < .001$) and Arabic ($\chi^2_{(1)} = 10.4, p = .001$) languages at home. Instead, they spoke more often Italian ($\chi^2_{(1)} = 5.9, p = .015$), Greek ($\chi^2_{(1)} = 6.2, p = .013$), and English ($\chi^2_{(1)} = 11.0, p = .001$). German was also more often spoken in their families than in the families of SUC ($l_{bl} = 110.9, p < .001$).

Regarding sociability (or playing behaviour), SIM more often liked to play with other children ($l_{bl} = 18.4, p < .001$), including German-speaking children both in the kindergartens ($l_{bl} = 80.5, p < .001$) and after the kindergarten time ($l_{bl} = 12.8, p < .001$), and they also spoke out more often than SUC when playing with other children ($l_{bl} = 77.3, p < .001$).

Some other statistically significant differences between SIM and SUC were found that can be directly or indirectly linked to the quality and quantity of the German language input. SIM had less often peers in their kindergarten groups who spoke the same non-German language (e.g., Italian-speaking children could not speak in the kindergarten as often Italian as Turkish-speaking children could speak Turkish with their peers) ($l_{bl} = 16.9, p < .001$) and, if such non-German-speaking peers were present, SIM interacted with them less often than SUC ($l_{bl} = 10.7, p = .001$). SIM attended more often associations and study groups ($\chi^2_{(1)} = 33.7, p < .001$), they attended more often nursery schools in the first two years of life ($\chi^2_{(1)} = 52.7, p < .001$). SIM attended kindergartens more often for a full day, whereas SUC attended them more often for half a day ($\chi^2_{(1)} = 8.4, p = .004$). Their mothers ($l_{bl} = 21.6, p < .001$) and fathers ($l_{bl} = 5.9, p = .015$) had a higher educational level than parents of SUC.

There was only one factor that might have influenced negatively the pace of the German language acquisition by SIM. SIM had more often cases of dyslexia in the family than SUC

($\chi^2_{(1)} = 4.4, p = .037$). This was the only medical variable from questionnaires that yielded a statistically significant result.

Following questionnaire items did not yield statistically significant results:

- regular kindergarten attendance,
- language(-related) impairments and disorders (according to parents and kindergarten teachers),
- “the child does not hear well”,
- permanent hearing disorder,
- frequent otitis media,
- movement disorder,
- sight disorder,
- early or risk birth,
- stuttering,
- language competence in the non-German first language (estimated by parents),
- speech-language therapy,
- “the child has to attend paediatricians more often than other children”,
- familial predisposition for language disorders in the family.

In the classification tree, the same sociodemographic and medical factors were utilized to answer the question which of them was most closely associated with the dichotomized KiSS.2 results (“pass/fail”) for SIM and SUC. Classification of children as SIM/SUC was the forced first independent variable in the classification tree. “Pass/fail” in KiSS.2 was the dependent variable. The classification tree was calculated with the method “Exhaustive Chi-squared Automatic Interaction Detection (CHAID)” and explained 74.9% of the dependent variable. The difference between SIM and SUC in KiSS.2 results (the highest “branch” of the classification tree) amounted to $\chi^2_{(1)} = 305.0, p < .001$. As was shown above, SIM outperformed SUC in KiSS.2. According to the following depiction of results, playing with German-speaking children was the most important factor both for SIM and SUC, that is, “pass/fail” results in KiSS.2 depended, first and foremost, on how often SIM and SUC played with German-speaking peers:

- SIM (“fail” in KiSS.2: 159/425; 37.4%). Next level: playing with German-speaking children ($\chi^2_{(1)} = 15.2, p < .001$):
 - playing never-sometimes: “fail” in KiSS.2: 69/136 (50.7%). Next level: mothers’ educational level ($\chi^2_{(1)} = 7.5, p = .006$):
 - < high school: “fail” in KiSS.2: 47/77 (61.0%),
 - high school: “fail” in KiSS.2: 22/59 (37.3%),
 - playing often-always: “fail” in KiSS.2: 90/289 (31.1%). Next level: attendance of associations and study groups ($\chi^2_{(1)} = 9.8, p = .002$):
 - yes: “fail” in KiSS.2: 31/139 (22.3%),
 - no: “fail” in KiSS.2: 59/150 (39.3%),
- SUC (“fail” in KiSS.2: 712/834; 85.4%). Next level: playing with German-speaking children ($\chi^2_{(1)} = 27.0, p < .001$):
 - playing never-seldom: “fail” in KiSS.2: 190/198 (96.0%). Next level: fathers’ educational level ($\chi^2_{(1)} = 5.6, p = .017$):
 - < high school: “fail” in KiSS.2: 143/146 (97.9%),
 - high school: “fail” in KiSS.2: 47/52 (90.4%),
 - playing sometimes-often: “fail” in KiSS.2: 352/419 (84.0%). Next level: attendance of associations and study groups ($\chi^2_{(1)} = 6.6, p = .010$):

- yes: “fail” in KiSS.2: 171/215 (79.5%),
- no: “fail” in KiSS.2: 181/204 (88.7%),
- playing always: “fail” in KiSS.2: 69/136 (50.7%). Next level: attendance of associations and study groups ($\chi^2_{(1)} = 6.8, p = .009$):
 - yes: “fail” in KiSS.2: 52/76 (68.4%),
 - no: “fail” in KiSS.2: 118/141 (83.7%).

The classification tree shows that, apart from playing with German-speaking children, SIM profited by a higher educational level of their mothers and attendance of associations and study groups. In case of SUC, better German language skills were found when fathers had a higher educational level and, again, when children attended associations and study groups. Parents' educational level was important only when children played never or seldom with German-speaking peers.

Discussion

SIM spoke better German than SUC. It can be seen both in the (objective) results of the language test KiSS.2 and in the (subjective) estimations of German language skills by kindergarten teachers. SUC were catching up with SIM but still lagged behind in all linguistic domains and in the dichotomized KiSS.2 results.

SUC not only began later to acquire German. They also acquired German under relatively unfavourable sociodemographic conditions. They attended less often nursery schools, associations, study groups, and they attended kindergartens for a shorter period of time. It means less quantity of the German language input. Furthermore, they spoke less German at home and played less often with German-speaking children both in kindergartens and beyond. Again, it means less German language input.

The fact that SIM had more cases of dyslexia in the family, compared to SUC, obviously points indirectly at the limited access of immigrants to the German healthcare system. SIM are often children who were born in Germany: either in the German families where one more language is spoken, or in the immigrant families that have been living in Germany for many years. Such immigrants can speak German and have a relatively easy access to the German healthcare system. Due to this easy access, language(-related) impairments and disorders are diagnosed more quickly in their families (Zaretsky & Lange, 2016b). SUC are more often new immigrants with very poor or no German language skills. In their countries of origin, they had a very limited or no access to the healthcare system. Therefore, many impairments and disorders remain undiscovered for a longer period of time. The finding that SUC have less often dyslexia in the family probably means that members of the family have never been examined regarding possible cases of dyslexia. Disparities in the access to the healthcare system also explain why SUC were more often classified as needing additional medical assistance in acquiring German (in KiSS.2), although there were no differences between SIM and SUC in the questionnaire item “The child has a language(-related) impairment or disorder” (this item was included in both KiSS.2 questionnaires). Obviously, SUC had more often such impairments and disorders but neither parents nor kindergarten teachers were aware of such medical issues because these have not yet been diagnosed.

It also does matter which linguistic background children have in their families. As was shown above, Arabic- and Turkish-speaking children were more often SUC, whereas Greek-, Italian- and English-speaking children were more often SIM. As was shown in our previous studies,

Arabic- and Turkish-speaking children generally acquire German under very unfavourable sociodemographic conditions (in terms of the quality and quantity of the German language input), whereas Greek-, Italian-, and English-speaking children acquire it under much better conditions (Zaretsky & Lange, 2015; Zaretsky et al., 2023). Thus, problems of Arabic- and Turkish-speaking children result not only from the age of the German language acquisition.

The next question is why SUC lag behind even in the repetition tasks. KiSS.2 subtests on the repetition of non-words and sentences was designed to assess the phonological short-term memory and there is no reason to assume that the memory of SUC should be worse than the memory of SIM. The explanation is simple: The repetition tasks are German-based. One needs not only good memory to repeat German sentences, but also sufficient grammar and vocabulary skills. And even non-words contain German morphology and follow the rules of the German phonotactics. Therefore, children with weaker German language competence cannot repeat them as correctly as children with advanced German language competence.

The classification tree showed that sociodemographic factors that contribute to better German language skills are almost the same for SIM and SUC. Those who play with German-speaking children acquire German more quickly, which is self-evident. For those who play less, parents' educational level is important because it can be associated with a number of other factors that contribute directly or indirectly to the language acquisition (from IQ to social contacts). Those who play more with German-speaking children, still can improve their German language competence if they attend associations and study groups where, again, they get even more German language input. All these factors were shown in our previous studies as relevant for the pace of the German language acquisition by German pre-schoolers (Zaretsky & Lange, 2016b; Zaretsky et al., 2023).

Conclusion

Successive bilinguals lag behind in the German language acquisition not only because they began later to acquire German. Generally, their sociodemographic (or sociolinguistic) conditions of the German language acquisition can be described as unfavourable. Differences in the medical variables are probably explained by differences in the access to the German healthcare system.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The authors declare that no AI or AI-assisted technologies have been used to generate, refine, or correct the content in the manuscript. The ideas, design, procedures, findings, analyses, and discussion are originally written and derived from careful and systematic conduct of the research.

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