

Секция: Социологические науки

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SOCIOLINGUISTIC CHARACTERISTICS OF IMMIGRANT PRESCHOOLERS IN GERMAN DAYCARE CENTERS

Introduction. Certain sociolinguistic characteristics of preschool children are known to be associated with the insufficient command of the German language. For instance, children from the database used in this study were comparatively often classified by language experts as needing additional educational support if they had some of the following characteristics: male sex, irregular daycare center attendance, short period of daycare center attendance (in months), frequent otitis media and hearing problems, preterm or risk birth or a low birth weight (< 1500 gr), non-participation in any study groups or associations, low educational level of parents, unwillingness to play with other children and to speak out when playing [1]. For children classified by university language experts as needing medical help in learning/acquiring German, following sociolinguistic characteristics were relevant: male sex, immigration background, relatives with “reading and writing problems” as well as with language disorders, no German spoken at home, low educational level of parents, mother’s insufficient command of German, late age when the child had

enough language contact to learn/acquire German [2], that is, predominantly unfavorable sociolinguistic conditions which prevented children from overcoming their language deficits.

For one of the samples used in this study (Sample 3, see Methods), statistically significant associations between the immigration background and sociolinguistic variables have already been described in one of our previous works [3]. It was shown that these characteristics indeed corresponded to those of children classified by language experts as needing educational or medical help. Such children attended nursery schools significantly less often than monolingual Germans, they stayed in the daycare centers not for a full day, but for several hours a day, they did not like to play with other children and did not speak out much when playing, they played comparatively seldom with German speaking children in the daycare centers and after the daycare center time, they attended less often associations and study groups, the length of their daycare center attendance in months was shorter. Although immigrant children were significantly more often classified as needing additional educational or medical help than monolingual Germans, they attended language courses not more often than Germans, and, unexpectedly, they attended language therapies even significantly less often than Germans in spite of their higher need for them.

Also, some error patterns in the grammar were shown to be associated with certain sociolinguistic characteristics [4]. Turkish children from the database used in this study scored significantly lower than other immigrant children in the language tests. Their error patterns in the German plural forms were comparable to those of other linguistically weak groups: children classified as needing educational or medical help in acquiring German and younger German children. These error patterns were repetition of singular forms (zero-ending), word deformation, various avoidance strategies, and the preferred use of the most frequent German plural marker *-(e)n*. No influence of mother tongues of immigrant children on the plural production in German was found.

Consequently, it was hypothesized that the errors of immigrant children in other linguistic domains are also comparable to those of linguistically weak German children, that is, younger Germans as well as those who were classified by language experts as needing additional educational or medical assistance in acquiring German. This assumption was examined here for errors in vocabulary (nouns and adjectives) and grammar (past participles and prepositions). Also, sociolinguistic characteristics of immigrant children in two out of three samples (the third one has already been described above) were compared with those of monolingual German children. It was assumed that the immigrants would demonstrate the same characteristics which are known as unfavorable language acquisition conditions for German children and which are associated with limited language contact, language disorders, psychological issues such as restraint, discomfort, unwillingness to cooperate and to communicate with peers and adults as a result of facing unfamiliar cultural scripts and a new language or even a number of new languages (because in many German daycare centers, apart from German, Turkish and Arabic are spoken as well as some other frequent languages such as Italian and Spanish). Also, accessibility of language therapies and courses for immigrant children as well as the reliability of parents' and daycare center teachers' judgments on the children's language competence in German were examined.

Methods. This retrospective study is based on three samples described in Table 1. The data were collected in several studies on the validation of two speech and language tests for preschool children in the German state of Hesse. Although the samples cannot be considered absolutely unselected, in all three samples all children available in the daycare centers or public health departments, depending on the study location, were addressed.

Table 1

Description of three samples used in the study

	Sample 1	Sample 2	Sample 3
<i>N</i>	767	6144	2429
<i>N</i> Germans	275 (36%)	4280 (70%)	1357 (56%)
<i>N</i> immigrants	492 (64%)	1864 (30%)	1072 (44%)
Age range	5;0-8;3	4;0-4;5	3;0-5;11
Age median	5;11	—	4;3
Boys	401 (52%)	3116 (51%)	1319 (54%)
Girls	366 (48%)	3028 (49%)	1100 (46%)*
Time span	2009-2010	2007-2010	2007-2012
Test location	public health departments	daycare centers	daycare centers
Language tests	S-ENS with additional items	„Marburger Sprachscreening“ (revised)	„Marburger Sprachscreening“ (revised)
Questionnaires	for parents	for daycare center teachers	for parents and daycare center teachers

Note: * No information on 10 children

Sociolinguistic variables used in the calculations were taken from questionnaires for parents and daycare center teachers which were part of the language tests used. The constellation of questions varied depending on the original design of the validation studies from several questions in Sample 2 to more than forty questions in Sample 3.

Both language tests — the school enrolment test S-ENS [5] with some additional validated items and the revised version of the “Marburger Sprachscreening” [6; 7] — consisted of subtests on grammar, articulation, phonological short-term memory (repetition of sentences and nonce words), speech comprehension, and vocabulary. In Sample 2, the tasks on phonological memory did not yet exist. Total scores of language subtests were calculated only for those children who answered all questions. Therefore, the sample sizes varied in each calculation. Different sample sizes in the calculations with questionnaires can be explained by two factors: (a) both parents and daycare center teachers left out some questions if they were not sure about the answer or

did not want to reveal some information (e.g., on the parents' educational level), (b) some questionnaire items were added or deleted in the course of the validation studies.

Study participants were classified by a university expert panel (speech and language therapists, researchers) as (a) needing (ED) or not needing (NED) additional educational assistance (language courses); (b) needing (CLIN) or not needing (NCLIN) medical assistance (language therapy) in learning/acquiring German. Children classified as ED scored one standard deviation below the average value of the reference group in at least one subtest. Children classified as CLIN scored two standard deviations below the average value of the reference group and had some language-related illnesses, diseases or impairments. CLIN children would not profit much from language courses if these are not accompanied by a medical therapy. Some children were classified as both ED and CLIN.

For statistical calculations, non-parametric tests were used because the data were either ordinal or not normally distributed according to Kolmogorov-Smirnov tests ($ps < .05$). All results are reported as two-tailed.

The Results section is structured as follows. First, language test total scores of monolingual German children (MO) and bi-/multilingual immigrant children (BM) were compared by Mann-Whitney *U*-tests for two independent groups. Next, error patterns of BM children in vocabulary and grammar were compared with those of MO children classified as ED/NED and CLIN/NCLIN as well as with those of younger and older MO children (three-, four-, and five-year-olds). Cross-tables with Chi-square values were utilized in this case. For a comparison of sociolinguistic characteristics of BM and MO children, cross-tables with either Chi-square (nominal data) or linear-by-linear associations (ordinal data) were used. For metric data, Mann-Whitney *U*-tests were utilized. It was hypothesized that sociolinguistic characteristics of BM children would correspond to those of German ED and CLIN children. Additionally, it was

analyzed with the same statistical tests which subgroups of children were assigned language therapies and whether BM children were among them. The reliability of parents' and daycare center teachers' judgments on children's language competence was analyzed by cross-tables, point-biserial and phi-correlations with experts' judgments.

Results. According to Table 2, BM children scored significantly lower than MO children in all tests except articulation and repetition of nonce words in Sample 1, where the differences were not significant.

Table 2

Comparison of language skills of monolingual German (MO) and bi-multilingual immigrant (BM) children in the language tests S-ENS and "Marburger Sprachscreening": Mann-Whitney *U*-tests

		speech compre- hension	vocabu- lary	articu- lation	grammar	repetiton of words	repetition of senten- ces
Sample 1	<i>U</i>	54,201	29,197	n. s.	42,321	n. s.	34,497
	<i>Z</i>	-8.88	-16.47		-12.45		-7.81
	<i>p</i>	<.001	<.001		<.001		<.001
Sample 2	<i>U</i>	2,132,375	1,890,402	1,673,274	3,628,067	—	—
	<i>Z</i>	-32.88	-33.15	-36.33	-5.88	—	—
	<i>p</i>	<.001	<.001	<.001	<.001	—	—
Sample 3	<i>U</i>	408,228	279,830	577,060	245,233	440,266	255,323
	<i>Z</i>	-18.18	-24.22	-6.01	-23.26	-3.77	-14.96
	<i>p</i>	<.001	<.001	<.001	<.001	<.001	<.001

Note: n. s. = not significant

Error patterns of BM an MO children were compared on the basis of some items from the "Marburger Sprachscreening" in Sample 3. The error patterns were categorized and cross-tabled. It was assumed that the error patterns of BM children in comparison with MO children would correspond to the error patterns of German ED children in comparison with NED, CLIN in comparison with NCLIN, younger Germans in comparison with older Germans. In most cases the differences between these pairs were not statistically significant. In Table 3, items with significant results are presented. Error patterns were classified as

follows (characteristic errors of linguistically weaker groups—BM; MO CLIN, MO ED, three-year-old MO children—are underlined):

- Vocabulary items:
 - Nouns (e.g., “a roof”): generic / unspecific term (“a house”), too specific term (part of...: “a tile”), description of functions (“one can sit there”), comparable object (“top”), irrelevant answer (“yes, and the sun is there above”), characteristic (“red”), onomatopoeia, description of the situation without target nouns (“he is climbing up there”), repetition of the tester’s question,
 - Adjectives (e.g., “warm”): color (“red”), size (“large”), subjective opinion (“beautiful”), repetition of the tester’s question, comparison (“like in the sun”), description of the situation without target adjectives (“the pullover here”), characteristic (“made of wool”), irrelevant answer (“three balls there”);
- Grammar items:
 - Past participle (e.g., “crept”): description of situation without target verb forms (“a nice pipe here”), agent (“a boy [who crept]”), bare infinitive (“creep”), repetition of the tester’s question, another correct, but not appropriate verb form (“he creeps here”), another wrong, inappropriate verb form (“he is creepings here”), wrong participle, but without overgeneralization (“creept”), overgeneralization of strong verbs (“worken” instead of “worked”), overgeneralization of weak verbs (“creeped”), irrelevant answer (“nice cat there”), the child points at something and says nothing,
 - Preposition (e.g., “on the roof”): omission of the article (“on roof”), various wrong article forms (nominative instead of dative, accusative instead of nominative etc.), wrong preposition (“at the roof”), description of the situation without relevant words (“the

house here and the boy there”), repetition of the tester’s question, gender error (grammatical gender of the noun is marked on the article as masculine instead of feminine etc.), irrelevant answer (“nice cat there”).

Table 3

Sample 3: Comparison of error patterns of linguistically weak and advanced children in some “Marburger Sprachscreening” items (cross-tables)

Item	BM/ MO	ED/ NED	CLIN/ NCLIN	3/4/5 years
<i>Dach</i> „roof“	$\chi^2_{(3)} = 36.37^{***}$, N = 435	$\chi^2_{(3)} = 8.87^*$, N = 147	n. s.	n. s.
<i>Weich</i> „soft“	$\chi^2_{(7)} = 27.76^{***}$, N = 715	$\chi^2_{(7)} = 26.92^{***}$, N = 251	$\chi^2_{(7)} = 24.80^{**}$, N = 252	$\chi^2_{(14)} = 23.52^*$, N = 282
<i>Kalt</i> „cold“	$\chi^2_{(6)} = 35.07^{***}$, N = 767	$\chi^2_{(6)} = 15.07^*$, N = 283	n. s.	$\chi^2_{(18)} = 29.17^*$, N = 317
<i>Rund</i> „round“	$\chi^2_{(6)} = 14.59^*$, N = 856	$\chi^2_{(6)} = 18.39^{**}$, N = 328	$\chi^2_{(6)} = 11.67^{\#}$, N = 330	$\chi^2_{(12)} = 24.76^*$, N = 382
<i>Viereckig</i> „with four corners“	$\chi^2_{(7)} = 34.62^{***}$, N = 1076	$\chi^2_{(6)} = 11.81^{\#}$, N = 464	$\chi^2_{(6)} = 12.12^{\#}$, N = 466	$\chi^2_{(21)} = 37.43^*$, N = 532
<i>Gekrochen</i> „crept“	$\chi^2_{(10)} = 26.54^{**}$, N = 708	$\chi^2_{(9)} = 17.97^*$, N = 276	$\chi^2_{(9)} = 24.61^{**}$, N = 276	n. s.
<i>In den Sandkasten</i> „into the sandpit“	$\chi^2_{(5)} = 76.70^{***}$, N = 393	n. s.	n. s.	$\chi^2_{(10)} = 43.32^{***}$, N = 200
<i>Durch das Rohr</i> „through the pipe“	$\chi^2_{(5)} = 23.52^{***}$, N = 1135	$\chi^2_{(5)} = 20.47^{**}$, N = 423	$\chi^2_{(5)} = 15.69^{**}$, N = 422	$\chi^2_{(10)} = 23.00^*$, N = 467
<i>Aus dem Sandkasten</i> „out of the sandpit“	$\chi^2_{(5)} = 82.17^{***}$, N = 1260	$\chi^2_{(5)} = 34.05^{***}$, N = 522	$\chi^2_{(5)} = 13.10^*$, N = 522	$\chi^2_{(15)} = 44.55^{***}$, N = 565
<i>Auf der Wippe</i> „on the seesaw“	$\chi^2_{(4)} = 54.44^{***}$, N = 801	$\chi^2_{(4)} = 24.14^{***}$, N = 226	$\chi^2_{(4)} = 21.71^{***}$, N = 226	n. s.

Note: NED = not needing additional educational assistance in acquiring German, ED = needing additional educational assistance in acquiring German, NCLIN = not needing medical assistance in acquiring German, CLIN = needing medical assistance in acquiring German, MO = monolingual German children, BM = bi-/multilingual children

*** $p < .001$, ** $p < .01$, * $p < .05$, # $p \leq .08$ (marginally significant), n. s. = not significant

In all cases, error patterns of BM children corresponded to those of other linguistically weak groups in Table 3.

In the next step, sociolinguistic characteristics of BM children were analyzed. In Sample 1, no significant differences between BM and MO children were found for two factors: sex of the child and language disorders in the family. Statistically significant characteristics of BM children can be summarized as follows (in comparison with monolingual German, ED and CLIN children from the same sample):

- They attended daycare centers more often for half a day, and not for a full day: $\chi^2_{(1)} = 6.83$, $p = .009$, $N = 780$, ED/NED: not significant, CLIN/NCLIN: $\chi^2_{(1)} = 3.22$, $p = .073$, $N = 194$,
- They attended a daycare center for a shorter period of time (in months): $U = 39,400$, $Z = -2.08$, $p = .037$, $N = 615$, ED/NED and CLIN/NCLIN: not significant,
- They attended less often nursery schools: $\chi^2_{(1)} = 32.89$, $p < .001$, $N = 717$, ED/NED: $\chi^2_{(1)} = 3.36$, $p = .067$, $N = 207$, CLIN/NCLIN: not significant,
- They stuttered more often: lbl (linear-by-linear association) = 9.97, $p = .002$, $N = 748$, ED/NED: not significant, CLIN/NCLIN: lbl = 5.61, $p = .018$, $N = 211$,
- Their command of German was less often classified as age-appropriate by parents: lbl = 41.72, $p < .001$, $N = 672$, ED/NED and CLIN/NCLIN: not significant,
- The educational level of their mothers (lbl = 43.92, $p < .001$, $N = 722$; ED/NED: lbl = 10.08, $p = .002$, $N = 206$, CLIN/NCLIN: not significant) and fathers (lbl = 46.22, $p < .001$, $N = 698$; ED/NED: lbl = 8.54, $p = .003$, $N = 196$, CLIN/NCLIN: not significant) was lower,
- Their compliance in the test situation was comparatively low: lbl = 26.85, $p < .001$, $N = 767$, cf. the same finding in Sample 2: lbl = 164.62, $p < .001$, $N = 6144$; ED/NED and CLIN/NCLIN: not significant,

- Marginally significant: they had less often illnesses or impairments or diseases which negatively influence language acquisition: $\chi^2_{(1)} = 3.67, p = .056, N = 760$, but ED/NED: $\chi^2_{(1)} = 24.51, p < .001, N = 211$, CLIN/NCLIN: $\chi^2_{(1)} = 6.66, p = .010, N = 221$, where another tendency was identified, namely more illnesses/impairments among ED and CLIN children than among NED and NCLIN children,
- Marginally significant: they attended less often language therapies: $\chi^2_{(1)} = 3.00, p = .083, N = 763$, cf. no significant differences in Sample 2, but ED/NED: $\chi^2_{(1)} = 23.02, p < .001, N = 212$, CLIN/NCLIN: $\chi^2_{(1)} = 9.22, p = .002, N = 212$, where another tendency was identified, namely more therapies for MO ED and MO CLIN in comparison with MO NED and MO NCLIN,
- They had less often „problems with reading and writing“ in the family: $\chi^2_{(1)} = 6.13, p = .013, N = 736$, ED/NED and CLIN/NCLIN: not significant,
- They had less often hearing disorders: $l_{bl} = 8.61, p = .003, N = 757$, cf. the same finding in Sample 2: $\chi^2_{(1)} = 9.85, p = .002, N = 6144$, but ED/NED: $l_{bl} = 7.92, p = .005, N = 210$ (MO ED children were more often described as having problems with hearing than MO NED), CLIN/NCLIN: not significant.

The last five findings can be called unexpected, especially under consideration of the fact that BM children from Sample 1 were classified by the university language experts as ED ($\chi^2_{(1)} = 95.52, p < .001, N = 700$) and CLIN ($\chi^2_{(1)} = 3.99, p = .046, N = 700$) significantly more often than MO children, although BM children were on average older than MO children according to a Mann-Whitney *U*-test ($U = 604,401, Z = -2.35, p = .019, N = 765$). In Sample 2, which was utilized for comparison in the listing of findings above, BM children were also significantly more often classified as ED ($\chi^2_{(1)} = 528.07, p < .001, N = 6144$) and CLIN ($\chi^2_{(1)} = 72.48, p < .001, N = 6144$) than MO children. Also, the

five contra-intuitive findings did not match the findings for MO ED and MO CLIN children who were more often described as having problems with hearing and other language-related illnesses/impairments, and were more often assigned language therapies than NED and NCLIN children (in respect to the MO ED and MO CLIN children it also should be mentioned that a high number of statistically not significant results in the listing of findings above can be traced back to low sample sizes of ED and CLIN children in Sample 1).

This raised the question who was assigned language therapies and why. To answer it, the questionnaire item "The child is in language therapy" was cross-tabled with other available sociolinguistic items in Sample 1. The findings can be summarized as follows:

- 54% of children who were in language therapy were classified as NED by language experts: 54 out of 100; $\chi^2_{(1)} = 17.34, p < .001, N = 612,$
- 73% of children who were in language therapy were classified as NCLIN by language experts: 73 out of 100; $\chi^2_{(1)} = 44.27, p < .001, N = 612,$
- However, children who received language therapies stuttered more often than other children: $l = 25.91, p < .001, N = 740,$
- They had more often language-related impairments according to their parents: $\chi^2_{(1)} = 175.25, p < .001, N = 757,$
- They had more often relatives with language disorders ($\chi^2_{(1)} = 38.80, p < .001, N = 749$) and relatives who had „problems with reading and writing“ ($\chi^2_{(1)} = 8.83, p = .003, N = 731$),
- They more often did not hear well: $l = 10.79, p = .001, N = 750,$
- Their fathers' ($l = 4.41, p = .036, N = 690$) and mothers' ($l = 3.94, p = .047, N = 715$) educational level was comparatively low,
- Their fathers could more often hardly read and write German: $l = 4.73, p = .030, N = 382.$

Unexpectedly, no statistical association with the variable „The child's German skills are age-appropriate“ was identified.

A subgroup of children from Sample 1 was tested one to two years earlier in Sample 3. Therefore, cross-tables with the questionnaire item "The child is in language therapy" from Sample 1 and questionnaire items from Sample 3 were calculated for the identification of sociolinguistic variables associated with the participation in a language therapy. Out of more than forty variables, only four yielded significant results:

- The speech of children who received language therapy in Sample 1 was more often not comprehensible for the peers and adults according to daycare center teachers in Sample 3: $l = 10.50, p = .001, N = 126,$
- Articulation of these children was more often not age-appropriate: $l = 5.47, p = .019, N = 125,$
- They were more often in language therapy in Sample 3 as well: $\chi^2_{(1)} = 28.62, p < .001, N = 148,$
- Most of them (66%) were classified in Sample 3 by language experts as not needing medical help in acquiring/learning German ($\chi^2_{(1)} = 13.46, p < .001, N = 227$).

No significant associations were found with such potentially important factors as „The child’s German skills are age-appropriate“ (according to daycare center teachers and parents), “The child can speak in full sentences”, “...has an age-appropriate vocabulary in German”, “...can use articles correctly”, “...stutters”, “...does not hear well”, “...speaks his/her mother tongue, if not German, appropriately for his/her age”, “...has relatives with language disorders”, “...has some language-related illness/disease/impairment”, ED/NED classification.

However, many of these variables from Sample 3 do yield significant results if one cross-tables them not with the participation in language therapy in Sample 1, but with the participation in language therapy in Sample 3, that is, in a cross-sectional analysis. Also, calculations with variables, which were excluded because of low sample sizes in the comparison of therapy assignment in Sample

1 with variables in Sample 3 above, were possible in this case. Children who were assigned language therapies in Sample 3 had the following characteristics in Sample 3:

- Their vocabulary was more often not age-appropriate: $|b| = 32.89, p < .001, N = 763,$
- Their speech was more often incomprehensible: $|b| = 75.96, p < .001, N = 774,$
- Their articulation was more often not age-appropriate: $|b| = 87.44, p < .001, N = 769,$
- They more often could not speak in full sentences: $|b| = 32.26, p < .001, N = 774,$
- They more often could not use articles correctly: $|b| = 22.81, p < .001, N = 995,$
- Their speech comprehension was more often unsatisfactory: $\chi^2_{(1)} = 88.25, p < .001, N = 261,$
- They stuttered more often: $|b| = 11.32, p = .001, N = 991,$
- Their German skills were more often not age-appropriate according to daycare center teachers ($|b| = 36.26, p < .001, N = 1303$) and parents ($\chi^2_{(1)} = 30.23, p < .001, N = 601$),
- They were more often mentally retarded: $\chi^2_{(1)} = 25.52, p < .001, N = 339,$
- They more often did not hear well ($|b| = 60.76, p < .001, N = 1540$) and suffered more often from otitis media ($\chi^2_{(1)} = 12.32, p < .001, N = 648$),
- They had more often a diagnosed auditory processing disorder: $\chi^2_{(1)} = 10.44, p = .001, N = 262,$
- They had more often language-related illnesses/diseases/impairments: $\chi^2_{(1)} = 90.08, p < .001, N = 720,$
- They more often did not speak their mother tongue, if not German, age-appropriately: $\chi^2_{(1)} = 60.09, p < .001, N = 818,$

- Their relatives had more often “problems with reading and writing” ($\chi^2_{(1)} = 12.35, p < .001, N = 1684$) and language disorders ($\chi^2_{(1)} = 52.83, p < .001, N = 1711$),
- They had more often head injuries or operations: $\chi^2_{(1)} = 4.02, p = .045, N = 272$.

No statistical association was found with sight and motor disorders, and risk or preterm birth.

There were only few sociolinguistic variables available for Sample 2. Most of them were mentioned above as a comparison for results of Sample 1. Contrary to Sample 1, where no significant difference between MO and BM children was identified in respect to the frequency of language disorders in the family, in Sample 2 BM had significantly less relatives with language disorders than MO: $\chi^2_{(1)} = 44.77, p < .001, N = 6144$. There were no differences between BM and MO in the rates of mentally retarded children in Sample 2. Of interest were correlations between the variable „The child speaks only German, German and (an)other language(s), only (an)other language(s) at home“ and the total scores of the „Marburger Sprachscreening“ subtests. All Spearman’s correlations were highly significant ($ps < .001, Ns = 6144$): for vocabulary (-.430), speech comprehension (-.420), grammar (-.077), articulation (-.470), and total score (-.449). Negative correlation coefficients mean that German spoken as the only language at home correlated with higher total scores of correct answers in the language test.

Sociolinguistic characteristics of BM children in Sample 3 have already been described in the Introduction. However, because some calculations with comparatively small sample sizes ($Ns < 280$) were left out in Зарецкий (2015), they are mentioned here. There were no statistically significant differences between BM and MO children in respect to the frequency of head injuries and operations, auditory processing disorders (it is noteworthy, however, that 10

cases of such disorders in MO children and none in BM children were diagnosed), and speech comprehension problems.

Additionally, reliability of parents' and daycare center teachers' answers was analyzed, if available, see Table 4. Their classifications of children as speaking German age-appropriately or not were cross-tabled with the classifications of children as CLIN/NCLIN and ED/NED by language experts. If not dichotomous, but ordinal variables on the language competence were available (from 1 "never" to 5 "always"), children were subdivided into two groups: those who spoke German age-appropriately from "never" to "sometimes" and those who spoke it age-appropriately "often" or "always". Thus the comparability of results from different samples and questionnaires was ensured.

Table 4

Agreement between parents' and daycare center teachers' judgments on the language competence of children and classifications of these children by language experts as ED/NED and CLIN/NCLIN as well as percentage of correct judgments.

Questionnaire	ED/NED	CLIN/NCLIN	ED/NED and CLIN/NCLIN together
Sample 1 for parents ($N = 531$)	76%: $\chi^2_{(1)} = 41.27^{***}$	79%: $\chi^2_{(1)} = 4.15^*$	75%: $\chi^2_{(1)} = 40.70^{***}$
Sample 2 for daycare center teachers ($N = 6144$)	85%: $\chi^2_{(1)} = 2061.25^{***}$	85%: $\chi^2_{(1)} = 2054.23^{***}$	89%: $\chi^2_{(1)} = 3146.12^{***}$
Sample 3 for parents ($N = 607$)	74%: $\chi^2_{(1)} = 71.05^{***}$	82%: $\chi^2_{(1)} = 56.93^{***}$	72%: $\chi^2_{(1)} = 80.93^{***}$
for daycare center teachers ($N = 1128$)	76%: $\chi^2_{(1)} = 241.85^{***}$	70%: $\chi^2_{(1)} = 70.21^{***}$	75%: $\chi^2_{(1)} = 241.50^{***}$

Note: NED = not needing additional educational assistance in acquiring German, ED = needing additional educational assistance in acquiring German, NCLIN = not needing medical assistance in acquiring German, CLIN = needing medical assistance in acquiring German

*** $p < .001$, * $p < .05$

Sample 2 was large enough to analyze separately for MO ($N = 4280$) and BM ($N = 1864$) children which linguistic domains were more closely associated with daycare center teachers' and experts' judgments on children's language skills, see Table 5. In all cases, the dichotomized variable "not age-appropriate German language competence (ED or CLIN) vs. age-appropriate German language competence (both NED and NCLIN)" was utilized.

Table 5

Sample 2: Phi-correlations between experts' and daycare center teachers' judgments on the children's German language competence, dichotomized as "age-appropriate vs. not age-appropriate", and their judgments on the children's German skills in different linguistic domains, dichotomized as "pass-fail"

		speech compre- hension	vocabulary	grammar	articu- lation	stuttering	voice disorders
Experts	BM	.419***	.570***	.691***	.343***	.094***	.093***
	MO	.312***	.403***	.494***	.616***	.183***	.191***
Teachers	BM	.428***	.570***	.640***	.382***	.083***	.070**
	MO	.296***	.366***	.450***	.616***	.159***	.135***

Note: MO = monolingual German children, BM = bi-/multilingual children

*** $p < .001$, ** $p < .01$

Calculations presented in Table 5 could not be exactly replicated for other samples due to different study designs. However, for Sample 3, comparable calculations were conducted, see Table 6. This time, daycare center teachers' and experts' dichotomous judgments on the language competence of children were correlated with the total scores of the "Marburger Sprachscreening" subtests, that is, of the same language test which was used in Sample 2, but with two additional subtests on phonological short-term memory. Noteworthy are higher correlation coefficients in case of experts in comparison with teachers, which means that experts' judgments were more closely associated with the total scores of correct answers.

Table 6

Sample 3: Point-biserial correlations between experts’ and daycare center teachers’ judgments on the children’s German language competence (“age-appropriate vs. not age-appropriate”) and total scores of the language test “Marburger Sprachscreening”

		speech compre- hension	vocabu- lary	grammar	articu- lation	repetition of words	repetition of sentences
Experts	BM	.529***, N = 841	.606***, N = 828	.666***, N = 746	.383***, N = 833	.330***, N = 709	.609***, N = 630
	MO	.324***, N = 1092	.299***, N = 1081	.460***, N = 1037	.507***, N = 1084	.337***, N = 870	.418***, N = 719
Teachers	BM	.428***, N = 703	.512***, N = 694	.532***, N = 632	.368***, N = 699	.323***, N = 677	.489***, N = 663
	MO	.210***, N = 762	.273***, N = 760	.272***, N = 718	.332***, N = 758	.193***, N = 726	.265***, N = 717

Note: MO = monolingual German children, BM = bi-/multilingual children

*** $p < .001$

Discussion. Bi-/multilingual children scored significantly lower than monolingual German children in almost all of the analyzed subtests in all three samples. As was shown in correlations between language scores and the use of German at home (no German – German and (an)other language(s) – only (an)other language(s)), those who spoke some language(s) except German indeed scored significantly lower according to the data from the largest sample with $N = 6144$. However, the correlation does not presuppose causality. As was demonstrated above, a number of other sociolinguistic factors associated with the immigration background, but also with the classification of monolingual Germans as needing additional educational and/or medical support in acquiring German, can also negatively influence the German acquisition process. Immigrant children attended significantly less often nursery schools, they attended daycare centers for several hours a day, and not for a full day, they attended it for a shorter period of time in months. Consequently, their contact to the German language was limited, the German culture comparatively unfamiliar,

and this might deliver the explanation why immigrant children from Sample 3 often did not like to play with other children and did not speak out much when playing. This also explains why the compliance of immigrants in the test situation was low.

Because BM children were significantly more often classified as needing additional educational and medical help in acquiring/learning German than MO children, one could expect that BM children would be able to participate significantly more often in language courses and therapies. However, it was not the case. There were no significant differences regarding the participation in language courses, and in case of language therapies there were either no statistically significant differences, or the Germans were assigned such therapies significantly more often depending on the sample.

Some findings seem to indicate that not only therapies, but also medical examinations in general remained reserved for monolingual Germans. For instance, according to findings of Sample 3 (Зарецкий, 2015), immigrant children, as their parents believed, suffered significantly less often than Germans from otitis media and hearing disorders, and there were significantly less relatives with language disorders and "problems with reading and writing" (e.g., dyslexia) in their families. This is supported by similar findings in Samples 1 and 2 here. It is to be assumed that both hearing disorders of immigrant children and language disorders of their relatives remained unnoticed and not diagnosed. If BM children indeed had less language-related medical issues, they would not have been classified by language experts as CLIN significantly more often than MO children. It is also noteworthy in this respect that in Sample 3 ten cases of auditory processing disorders had already been diagnosed in MO children before our study presented here and none in BM children. The diagnosis of auditory processing disorders is usually extremely time-consuming and demands sophisticated medical devices and highly professional medical staff (apart from at least minimal German skills for some audiological tests, which also should

not be underestimated). Obviously, due to their own German language deficits and also language deficits of their children, immigrant parents cannot provide them with the sufficient access to the available medical services, let alone high quality ones. Some medical services might remain unavailable to them due to their lower income (which can be derived from the significantly lower educational level, see Sample 1). The same is valid for expensive language courses, which are attended by MO children even if they do not really need them, whereas BM children have to wait for the option of a free language course in their daycare centers.

Furthermore, it was found that most children who attended language therapies in Sample 1, in fact, did not need these therapies. They kept on attending them for years, and, as was shown for Sample 3, this attendance must have been indeed fairly motivated at the age of three or four, but it was hardly motivated at the age of five or six. This means, again, that some children, predominantly monolingual Germans, who began to attend language therapies at early preschool age, remained in therapy (at least) until the age of school enrolment, whereas other children with the same or higher needs, predominantly immigrants, were not medically assisted. As a result, BM children were classified significantly more often as needing medical help both at the age of four (Sample 2, see also Sample 3: Зарецкий (2015)) and at the age of five or six (Sample 1). Furthermore, some of their parents kept on believing that their children did not need medical assistance and that they did not suffer from language-related disorders, although they did.

Error patterns of BM children in grammar and vocabulary corresponded to those of younger monolingual Germans as well as to those made by Germans who were classified as needing educational or medical help in acquiring German. The same tendency was demonstrated for error patterns in plural forms of BM and MO children in [8], without any clear influences of the immigrants' first languages. Error patterns of linguistically weak children can be explained

by avoidance strategies (pointing at something, repetition of the question, unspecific descriptions of the test situation without target words, avoidance of any morphology) and frequency-based acquisition patterns (e.g., use of the plural marker *-(e)n* as the most frequent one in the input: *Apfeln* instead of *Äpfel* "apples").

In 70+% of the cases, judgments of parents and daycare center teachers on the children's language competence corresponded to the judgments of the university language experts (ED/NED and CLIN/NCLIN classifications taken together). In respect to higher rates of agreement between experts' and daycare center teachers' answers in Sample 2 in comparison with Sample 3 (see Table 4) it should be mentioned that children in Sample 2 were tested by daycare center teachers (after a special training on language impairments and deficits), whereas children in Sample 3 were tested by speech and language pathologists, researchers, and interns from university hospitals, and no special training for daycare center teachers was provided. That means that in Sample 2 language experts used the data delivered by daycare center teachers and had no personal contact to the test subjects, which must have pre-ordained their judgments to a certain extent.

Interestingly, as was shown in Tables 5 and 6, in the results of both daycare center teachers and experts articulation of MO children yielded the highest correlation with the judgments on language competence, whereas the articulation of BM children yielded the lowest correlations (apart from phonological short-term memory, fluency and voice disorders). For other linguistic domains, similar tendencies were identified in most cases: speech comprehension < vocabulary < grammar (that is, correct grammar was the most important indicator of the judgment "age-appropriate German skills"). A high importance of articulation for the judgment of MO children's language competence was probably motivated by acoustically simple identification of medically relevant deviations from the norm such as rhotacism and kappacism.

In case of immigrants, deficits in other domains obviously outweighed articulation errors, which were probably also less evident due to the strong foreign accent. The topic of agreement between parents', daycare center teachers' and experts' judgments was analyzed for the same database in more detail in another publication [9].

To sum up, immigrant children needed more often additional educational and medical assistance in acquiring/learning German. Apart from the late contact to the German language, they demonstrated some other sociolinguistic characteristics which are known to influence negatively the language acquisition process in monolingual Germans. Among other things, immigrant children refrained from communication with German speaking children, did not speak much when playing, and were also not compliant in the test situation. Their higher need for language courses and therapies was often not met by authorities, especially in case of therapies. Instead, monolingual Germans were given courses of therapies for years, even when they did not need them anymore. Also, some study results indicate that medical issues of both children and adults with immigration background remained undetected. This explains the finding that in all three samples parents of immigrant children believed significantly more often than parents of monolingual Germans that their children did not suffer from hearing disorders (in spite of significantly higher rates of CLIN-results in the immigrant group) and that their relatives had no language-related medical issues like dyslexia. The error patterns of immigrant children in the vocabulary and grammar tasks corresponded to those of linguistically weak monolingual Germans, which can be linked to the finding that immigrants were indeed linguistically weaker than their monolingual German peers in all three samples.

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