THE CHALLENGES OF DIASPORA MIGRATION
The Challenges of Diaspora Migration
Interdisciplinary Perspectives on Israel and Germany

Edited by

RAINER K. SILBEREISEN
University of Jena, Germany,

PETER F. TITZMANN
University of Zürich, Switzerland

YOSSÍ SHAVIT
Tel Aviv University, Israel

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Chapter 4

Age, Input Quantity and their Effect on Linguistic Performance in the Home and Societal Language among Russian-German and Russian-Hebrew Preschool Children

Natalia Gagarina, Sharon Armon-Lotem, Carmit Altman, Zhanna Burstein-Feldman, Annegret Klassert, Nathalie Topaj, Felix Golcher, and Joel Walters

This chapter investigates bilingual acquisition in language minority children from Russian-speaking backgrounds in Israel and Germany and the effects of selected background factors on bilingual knowledge of lexicon and morphosyntax. Background factors are divided into external factors (e.g., parent education and occupation, birth order and family size), those that the child brings to the language learning effort, and internal factors (age of onset and length of exposure to the second language), which reflect the child’s language experience.

The aim of the chapter is to trace the effects of age, length of exposure and the amount of language use, i.e. input quantity, on the acquisition of both languages in a bilingual context. To that end, a comprehensive treatment of the linguistic performance in two languages and comparison of development/attrition in the home/L1 and societal languages/L2 are provided.

Linguistic performance targeted in the two languages included lexical, morphological, and syntactic skills which were elicited via different experimental techniques. This variety of linguistic tasks and experimental techniques made it possible to test which skills were more sensitive/resilient to the background factors. Factors which are less influenced by bilingual language acquisition would then be those most useful for testing language impairment among bilinguals.

Research on the background factors influencing language acquisition processes among bilingual children has mainly involved English as either L1 or L2 (Hoff, 2006a, 2006b; Gleitman and Newport, 1995; Paradis, 2010) and the focus has been on the relationship between extralinguistic factors and language acquisition.

1 The research reported on in this work has been supported by funding from the German Ministry for Education and Research (BMBF), grant numbers 01UG0711 and 01UW0702B.
development in English as the societal and target language. Pearson’s (2007) focus on L1 is one exception. Pearson examined the role of five factors – input, language status, access to literacy, family language use, and community support – in learning a minority language. In extensive studies of Spanish-speaking children in Miami, she found that L1 input at home played an important role in children’s maintenance of the minority language (cf. Klassert and Gagarina, 2010 for a similar result with Russian as a home language).

The extent to which L1 input at home leads to L1 maintenance is related to parents’ socio-economic status (SES) (Lambert and Taylor, 1996). Lambert and Taylor found that mothers from low SES encouraged their children to learn L2/English in order to succeed educationally, while mothers from high SES encouraged L1 maintenance and saw additive bilingualism as a goal. On the other hand, Oller and Eilers (2002) found that children of professionals perform better in L2 than children from working class families, with hardly any difference in L1 maintenance. When there was a difference, however, children of working class mothers did better in L1. That is, high SES parents value L1 culture more than low SES parents, but seem to provide less support for L1 and more support for L2 at home, while lower SES parents encourage L2 acquisition as a key to academic success but do not support it at home. In contrast to the above studies, which focused on school age children and tested both written and oral skills, the present study investigates spoken language in children at the onset of bilingualism in preschool years.

Spoken language skills enable communication with parents, grandparents, siblings and peers, but may or may not help in the acquisition of reading and cognitively demanding tasks in the societal language, German or Hebrew. This issue is also related to the level of home language proficiency as well as literacy needed to succeed in second language acquisition.

Tucker (1999), in a World Bank study on the use of two languages in education, reports that it takes up to five years of exposure to reach a level of language proficiency adequate for academic performance, i.e. understanding basic tasks in kindergarten/elementary school. Our own findings (Abutbul-Oz, 2009; Walters et al., this volume) show that by the time children enter school (after 2-3 years of L2 exposure), a third of typically developing (TD) bilingual children still score below monolingual norms, and most of those who score within norms are still below the monolingual mean. Following Hakuta and Garcia (1989), social background factors influencing L2 acquisition and L1 maintenance should be considered in order to understand bilingual language development beyond purely linguistic dimensions (Hoff et.al., in press). De Houwer (1999), for example, explored a range of linguistic environments of four-year-old bilingual children and found the following environmental constituents to be crucial for language acquisition: mother, sibling and peer input and the impact of television.
Research Questions and Hypotheses

The following research questions and hypotheses address children’s language proficiency and its interrelationship with chronological age, length of L2 exposure and input quantity.

Language Proficiency

**Question:** To what extent do Russian-German and Russian-Hebrew bilingual children perform at or below monolingual norms on standardized tests of the societal language (German/Hebrew)?

**Hypothesis I.** Bilingual children are predicted to perform below monolingual norms on standardized tests even after two years of exposure to the societal language.

Age, Length of L2 Exposure and Language Proficiency

**Questions:** How will the development/attrition of language proficiency in bilingual preschool children change as a function of chronological age? What effects would the length of exposure to L2 have on each of the child’s languages? Which linguistic domains will be most affected?

**Hypothesis II.** As age increases, the gap between monolinguals and bilinguals in home language proficiency will widen and the gap in the societal language proficiency will narrow. Furthermore, the length of L2 exposure is expected to have a negative effect on the home language and a positive effect on the societal language. This hypothesis is grounded in studies showing progressively increasing dominance in the societal language of bilingual children (cf. Cobo-Lewis et al., 2002a, 2002b; Klassert, 2011). Lexicon is expected to be the domain which is most affected in both languages.

Input Quantity (Amount of Language Spoken inside the Home) and Language Proficiency

**Questions:** Will language proficiency in both languages correlate with input quantity in the home language and what kind of correlation will emerge? Which domains of language will be affected the most/least?

**Hypothesis III.** For the measures tested in this study, we predict a strong correlation between the amount of home language spoken with the children (at home and outside) and L1 proficiency, and a negative correlation with L2 development. Again, lexicon is expected to be the most affected domain in both languages.
Method

Participants

In Germany, all participants were from Berlin. Given the size of the city and the large number of Russian speakers, neighborhoods with high concentrations of Russian-speakers were identified first. Then, preschool/school registers provided by the local school administration were accessed from an electronic data base, and contacts were made through local associations offering courses and activities for Russian-speaking children. The aim of this procedure was to attain a broad geographic spread of Russian-German bilinguals with a range of socio-economic status of the parents.

In Israel, participants were recruited from the greater Tel-Aviv area, including the cities of Petach Tikva, Rishon LeZion and Netanya, all with large numbers of Russian-speaking residents. However, the recruiting procedure differed from that in Germany, since research approvals were required first from the Ministry of Education. Regional inspectors, who had direct access to school statistics, were contacted for advice regarding the choice of preschools and schools with Russian-speaking children.

The literature on bilingual language acquisition attests to a range of factors which influence the rate and process of language development. Age of onset in both languages, quality and quantity of input, migrant background and native languages are considered to be the most important (Hamers and Blanc, 2000; Rothweiler, 2007; Reich, 2008; Meisel, 2009).

Selection criteria were as follows:

- School: preschool and first grade elementary school children
- Ages: 4, 5 or 6 year olds
- Gender: half male, half female
- Language proficiency: Ability to communicate in both languages
- Parents’ native language: Russian (first generation immigrants)
- Home language spoken with children: Russian
- Language input from birth: Russian
- German/Hebrew acquired in German/Hebrew dominant preschool (at least 60 percent monolingual German/Hebrew-speaking children)
- Initial exposure to German/Hebrew from ages 1-3 (early sequential bilinguals)
- Length of exposure to German/Hebrew: at least 1 year
- No severe health problems or diagnosed language and cognitive disorders

The following steps were taken to identify potential child participants:
– A short questionnaire and consent form filled out by parents clarified whether the child met the selection criteria and allowed parents to make a decision regarding participation in the project;
– Children’s language performance was assessed during the first sessions (including spontaneous speech and language proficiency tests), clarifying whether the child was able to communicate in both languages. Children who showed very low performance in one of the target languages (Russian, Hebrew/German) to the extent that they could not understand and perform language and sociolinguistic tasks in one language were not included in the project. Similarly, several children who refused to talk in one of the target languages were excluded from further investigation.
– Other information obtained from parent interviews (e.g., language history which did not match the project criteria) as well as results from linguistic tasks (e.g., children at risk for language impairment) were taken into consideration.

Data were obtained through a series of spontaneous, semi-spontaneous and experimental data collection tasks in both L1 and L2 in 12-14 sessions (each session lasting 30-45 min. each) as well as via standardized language tests in L2 (Grimm, 2003 for German; Goralnik, 1995 for Hebrew). All interviewers were native speakers of Russian and German/Hebrew in order to ensure the child’s best performance in the corresponding language session.

In Germany, of 225 consent forms distributed, 174 parental agreements were obtained. One third (N=61) did not meet the three main selection criteria (e.g., home language Russian, early onset of German, at least 60 percent German-speaking children in the preschool). Twenty-three children did not complete the study due to poor performance during the first session, change of residence, or refusal to cooperate. Ninety children were tested for the majority of the tasks.

In Israel, parental agreement was obtained for 120 children, following the distribution of 392 consent forms. Of those, 79 children met the selection criteria; the others were not included due to atypical development (language impairment, ADHD) or lack of sufficient knowledge of Russian.

The two groups were similar in terms of age, gender, birth order and number of siblings, age of L2 onset, and length of exposure to the societal language in preschool (see Table 4.1).

Linguistic Measures and Tasks

Data from standardized tests as well as from lexical and morpho-syntactic tasks were analyzed for both groups. (An additional task involving elicitation of

2 Data from discourse and narrative tasks, non-word repetition and rapid automatic naming were not analyzed here.)
grammatical case was performed with the Russian-German group, since case is an important morphological category in those languages, but not in Hebrew). All tasks were designed to target structures which were both similar and contrastive for Russian and the societal language (German/Hebrew).

**Table 4.1  Basic background information**

<table>
<thead>
<tr>
<th></th>
<th>Germany (N=90)</th>
<th>Israel (N=79)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronological age</td>
<td>M=65.49, range 47-86 mo</td>
<td>M=70.22, range 54-84 mo</td>
</tr>
<tr>
<td>Gender</td>
<td>44 male, 46 female</td>
<td>35 male, 44 female</td>
</tr>
<tr>
<td>Parents’ education</td>
<td>M=13.10, range 10-18 yrs</td>
<td>M=13.95, range 9-21 yrs</td>
</tr>
<tr>
<td>Mothers’ education</td>
<td>M=13.05, range 10-18 yrs</td>
<td>M=14.37, 9-21 yrs</td>
</tr>
<tr>
<td>Fathers’ education</td>
<td>M=13.16, range 10-18 yrs</td>
<td>M=13.49, 10-20 yrs</td>
</tr>
<tr>
<td>Mother occupation</td>
<td>10 academic</td>
<td>26 academic</td>
</tr>
<tr>
<td></td>
<td>28 skilled work</td>
<td>30 skilled work</td>
</tr>
<tr>
<td></td>
<td>12 unskilled work</td>
<td>15 unskilled work</td>
</tr>
<tr>
<td></td>
<td>39 unemployed</td>
<td>2 students</td>
</tr>
<tr>
<td></td>
<td>1 no information</td>
<td>2 unemployed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 no information</td>
</tr>
<tr>
<td>Father’s occupation</td>
<td>20 academic</td>
<td>19 academic</td>
</tr>
<tr>
<td></td>
<td>21 skilled work</td>
<td>28 skilled work</td>
</tr>
<tr>
<td></td>
<td>34 unskilled work</td>
<td>18 unskilled work</td>
</tr>
<tr>
<td></td>
<td>5 unemployed</td>
<td>1 unemployed</td>
</tr>
<tr>
<td></td>
<td>10 no information</td>
<td>13 no information</td>
</tr>
<tr>
<td>Family status</td>
<td>73 married</td>
<td>61 married</td>
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<td></td>
<td>7 separated in contact</td>
<td>6 separated in contact</td>
</tr>
<tr>
<td></td>
<td>8 no contact</td>
<td>10 no contact</td>
</tr>
<tr>
<td></td>
<td>2 no information</td>
<td>2 no information</td>
</tr>
<tr>
<td>Home language</td>
<td>87 Russian-dominant</td>
<td>67 Russian-dominant</td>
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<tr>
<td></td>
<td>1 Russian-speaking mother</td>
<td>7 one Hebrew-speaking mother</td>
</tr>
<tr>
<td></td>
<td>1 Russian-speaking father</td>
<td>parent</td>
</tr>
<tr>
<td></td>
<td>1 no information</td>
<td>5 no information</td>
</tr>
<tr>
<td>Birth order</td>
<td>53 firstborn, 37 later born</td>
<td>40 firstborn, 39 later born</td>
</tr>
<tr>
<td>Number of siblings</td>
<td>M=1.82, range 1-5</td>
<td>M=1.87, range 1-4</td>
</tr>
<tr>
<td>Age of L2 onset</td>
<td>M=28.43 mo</td>
<td>M=45.34 mo</td>
</tr>
<tr>
<td>Age of entering L2 speaking daycare</td>
<td>12-46 mo</td>
<td>9-67 mo</td>
</tr>
<tr>
<td>L2 exposure</td>
<td>M=37.51 mo, range 9-65 mo</td>
<td>M=37.41 mo, range 9-75 mo</td>
</tr>
</tbody>
</table>

Standardized tests were administered in both German (Grimm, 2003) and Hebrew (Goralnik, 1995). The motivation here was policy-oriented, since those are the standards by which minority children are enrolled in or rejected from participation in mainstream educational frameworks. Moreover, while
monolingual norms cannot be directly applied to assess bilingual children, they can be used for comparing the children within an age group. The German Screening SSV (Grimm, 2003) consists of two subtests, non-word repetition (NWR/PGN Phonologisches Arbeitsgedächtnis für Nichtwörter) and sentence repetition (SR/SG Satzgedächtnis). The Hebrew Language Test (Goralnik, 1995) contains subtests for vocabulary, sentence repetition, comprehension, expression, pronunciation and story-telling. The standardized scores on these tests were used as a developmental measure for comparing children who had attained lower and higher language proficiency.

**Lexical Task: Verb-Noun Naming**

A Noun-Verb naming task (Kauschke, 2007), originally created for German, was adapted to Russian (Klassert, 2011, Klassert et al., 2013) and Hebrew. The material for the German test was a picture-naming task involving pictures of objects and actions (see De Bleser and Kauschke, 2003; Kauschke, 2007). All items were common and typical members of their respective category. The stimulus items in German and Russian were all mono- or bisyllabic and monomorphemic. They were controlled for frequency and naming agreement of monolingual adults in both languages, and counterbalanced between both word categories in respect to these factors. The German item set consisted of 36 action pictures (targeting verbs) and 36 object pictures (targeting nouns). The Russian version contained 31 action and 31 object pictures. In Hebrew there were 35 verbs and 35 nouns; two items were removed for cultural reasons. Children were presented with pictures one at a time and asked to name each one. Responses were recorded as correct or incorrect. Self-corrections, phonetically or phonologically incorrect responses and inflected forms of the target items (regardless of morphological accuracy) were recorded as correct as long as the target word was unambiguously identifiable.

**Morphosyntactic Tasks: Elicited Imitation and Sentence Completion**

Elicited (sentence) imitation is an effective measure for targeting different syntactic structures (Armon-Lotem et al., 2006). Morphosyntactic and syntactic structures which were found to be particularly difficult for language minority children were examined. The task included three subtasks: sentence imitation targeting prepositions, verb inflections and complex syntax. Stimulus sentences varied in length from 4-10 words.

For prepositions, there were 48 items for both Russian and German, and 35 items for Russian and 30 for Hebrew. The sentences included prepositions in the target languages, which were either similar or different across languages, as well as stimuli with a preposition in one language but without a preposition in the other. Example (1) illustrates this latter contrast for German/Russian (where there is a preposition in German but not in Russian); example (2), in which
there are two different prepositions for Hebrew ‘im ‘with’ and Russian na ‘on’, respectively, illustrates the former contrast:

1  Der Junge wartet auf seine Eltern zu Hause.
    Ø Malčik ždjot Ø svoih roditelj doma.

   The boy is waiting for his parents at home.

2  Hamelex hitxaten ‘im hanesixa hayafa.
    Korol ženilsja na krasivoj princesse.

   The king married the beautiful princess.

   For verb inflections, there were 40 items in Russian, and 42 items in Hebrew. For complex syntax, there were 20 items each for Russian and Hebrew. An example of topicalization is given in (3):

   3  Étu šapku devočka poterjala.
      This-ACC hat-ACC girl lost.
      Et ha-koa ha-ze ha-yelda ibda.
      ACC the hat the-this the girl lost.

   This hat, the girl lost.

   Verb inflections and complex syntax tasks were not performed in German, since similar measures were elicited in the standardized test.

   The sentence completion task was designed to target a wide variety of verb inflections. Children were asked to complete a sentence within a story context with the correct verb form. In Germany, Russian stimuli consisted of three stories, targeting 10 verbs with 70 items. The German stimuli contained three stories, 18 verbs and 38 items. In Israel, Russian stimuli involved 6 stories, 16 different verbs with various inflections and 133 items. The Hebrew stimuli (based on Dromi, et al., 1999) included three stories, 11 verbs, and 45 items. For the Russian-German bilingual children, the focus in German was on (third person) present and on past tense (participles), where the use of appropriate regular and irregular verb forms requires specific knowledge. For the Russian-Hebrew bilingual children, the focus was on the past tense in Hebrew, where person, number and gender are all marked, and differences in aspect (synthetic vs. analytic constructions) pose a problem for bilingual children and second language learners (Armon-Lotem, et al., 2006; Gagarina et al., 2007; Gagarina, 2011).
A task involving grammatical case elicited accusative and dative forms in both Russian and German. It consisted of six test questions eliciting accusative case forms, six eliciting dative forms and 2 fillers, yielding 12 test items in each language. Nouns were controlled for gender, animacy, inflectional/declension class in both languages. Only those nouns for which case is marked unambiguously (on the determiner in German and on the noun in Russian) were included, for example:

4 Kogo iščet Ø zebra? (pingvina-ACC)
Wen sucht das Zebra (den Pinguin-ACC)
whom looks-for the zebra (the penguin-ACC)
Whom is the zebra looking for? (the penguin)

Sociolinguistic Measures

Sociolinguistic measures examined (1) ethnic and ethnolinguistic identity, (2) social preferences, (3) attitudes to speakers and languages and (4) language use. Language use data are reported here (for details of the other measures, see Walters et al., this volume). Information on language use was elicited via questions about the language used with different interlocutors (family members, peers) and in different situations (home, preschool, TV programs, etc.).

Results and Discussion

Language Performance

It was hypothesized that bilingual children would perform below monolingual norms on standardized tests even after two years of exposure to the societal language. The results for L2/German show that a significant number of children do perform below monolingual norms and increased exposure to L2 does not bring them up to norm. This finding is strongest for the sentence repetition task which requires more knowledge of syntactic structures than, for example, the non-word repetition task. Furthermore, in terms of deviation from the mean, 16 percent of the children were more than one standard deviation below the mean, regardless of increased exposure to L2. For L2/Hebrew, the results are similar: many children are more than one standard deviation below the monolingual mean for a combined score on all tasks, even for children with two years or more of exposure.
The Challenges of Diaspora Migration

Age, Length of L2 Exposure and Language Proficiency

While age was expected to have a positive influence on both languages of a bilingual child, length of exposure to L2 was predicted to have a negative effect for the home language, but a positive effect for the societal languages. This hypothesis is evaluated first for the standardized tests in the two societal languages, German and Hebrew, and then for the lexical abilities and morphosyntactic knowledge tested in each language, with tasks developed in the framework of the present project.

Standardized screening in German  SSV screening (Grimm, 2003) was used to test German language proficiency. Two subtests of the standardized screening were used: non-word repetition and sentence repetition. Both subtests showed an age dependency: $p < .05$ for non-word repetition, and $p < .0001$ for sentence repetition. The correlation of both scores is displayed in Figure 4.1 ($r = .30$, $p = .006$) with age in months indicated by the grey scale. Older children with higher scores are concentrated in the upper right quadrant. Thus, an increase in L2 exposure did not positively affect performance on standardized screening in German (see above for more details).

These analyses show that sentence repetition is more highly correlated with age than non-word repetition. This might indicate that phonological memory, which is engaged in non-word repetition, is less age-sensitive in preschool-children than phonological memory in sentence repetition, for which children need to have acquired more grammatical knowledge. Additionally, sentence repetition is more fine grained, simply due to the higher number of items, and could therefore contain more information. More speculatively, the sentence

Figure 4.1 Non-word repetition, NWR (PGN Phonologisches Arbeitsgedächtnis für Nichtwörter) sentence repetition, SR (SG Satzgedächtnis) and age

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repetition task, especially the items involving complex syntactic structures, relies on more diverse knowledge, which may not be acquired until a later age. The phonological basis of non-word repetition may be more readily transferred from L1 knowledge, already in place at a young age in L1.

**Standardized test in Hebrew** The raw scores of the Hebrew screening test are expected to increase as language develops. For monolingual children this development correlates with age (Goralnik, 1995). Yet, no such correlations were found for the bilingual children in the present study (p = .673). In contrast, length of L2 exposure yielded a significant correlation with the raw score, as can be seen in Figure 4.2.

A similar picture emerges when the subtests are evaluated for the influence of age and length of L2 exposure: children show significantly higher scores on vocabulary and expression with increasing age and length of exposure.

Since there is an inherently positive relationship between age and length of L2-exposure, these variables cannot be viewed as independent and, therefore, cannot be added simultaneously to the model. To avoid this problem, the age of the children was predicted from their length of L2-exposure and the residuals of this model were extracted and stored as another predictor variable, viz., residualized age. A high residualized age means that the child in question was relatively old for his length of L2-exposure. This yields two independent variables, L2-exposure on the one hand and the residualized age on the other. These two variables can be combined into a single model predicting the overall Goralnik score and performance on each of its subtasks. In this way, we can analyze the influence of these variables on the Goralnik scores separately.
The results show that the residualized L2-exposure significantly correlates with the overall Goralnik score \((p = .003)\) and with the vocabulary \((p < .0001)\) and oral expression \((p = .009)\) subtests. Thus, the residualized model containing both variables is consistent with the univariate models reported above. The model shows a negative influence of age (younger children perform better (e.g. picking up new words more quickly) with the same length of L2-exposure, possibly a reflection of their younger age of L2 onset. This interpretation is supported by a number of acquisition studies on (bilingual) vocabulary development (Bloom, 2000; Paradis, 2008; Snedeker, et al., 2007; but see Goldberg, et al., 2008).

Thus, in the German data, sentence repetition is more highly correlated with age than non-word repetition, and both subtests show low dependency on length of exposure. For Hebrew, the significant correlation with the overall Goralnik score was found for the residualized L2-exposure score.

**Age effect on lexical and morpho-syntactic performance**

While the standardized screening/test evaluated the societal language, the tasks designed for the present project were able to shed light on the home language as well. The correlations between age and the L1/Russian lexical abilities on the combined Noun-Verb naming tasks were significant in both cohorts (Figure 4.3a). The results show further that Russian lexical performance in both countries is independent of L2 exposure, indicating that while performance on verb-noun naming tasks increases with age, increased length of L2 exposure does not lead to any significant L1 attrition. This finding implies that L1 and L2 lexical abilities operate on independent tracks, and improvement in one does not come at the
expense of the other. This implication will be discussed further in the context of educational policy below.

For lexical performance in L2, age plays a strikingly different role in the two cohorts (Fig. 4.3b): while German-speaking children show stronger development for the older children, Hebrew-speaking children show a nearly flat slope across the age spectrum, since as a group they show a relatively high command of the L2 lexicon from a younger age.

For morphosyntax, the tasks comparable in both cohorts and in all three languages were sentence imitation/prepositions and sentence completion/verb inflections. For L1/Russian, a slightly positive age dependency was found in both cohorts ($p < .001$). For L2, however, the morphosyntactic developmental pattern resembles the lexical pattern: for L2 German, age and morphosyntax are positively correlated and for L2/Hebrew, there is no developmental change. However, these differences were not significant. No other effects of age and length of L2 exposure were found for L2 development in either country.

The results for the (additional) grammatical case tasks showed an effect of age on the acquisition of case in Russian: Israeli children showed generally better performance on Russian case than did German children. Performance on the German case task correlated positively with both age and L2 exposure, though these correlations were not very strong ($p = .021$). These different results both for Hebrew and German and for the case tasks in Russian indicate a higher level of language proficiency among the children in the Israeli cohort on all linguistic performance tasks. Russian-German children reach the level of Russian-Hebrew children by about 76 months.
Input Quantity and Language Performance

For input quantity, a strong positive correlation was predicted between the amount of L1/Russian used with children at home and outside and L1 development and a negative correlation was predicted between L1 language use and L2/German/Hebrew development. That is, the more L1/Russian is used at home and outside, the more proficient the children will be in Russian and the less proficient they will be in L2/German/Hebrew. Findings are presented separately for each of the domains: at home and outside the home.

Language use at home and language performance  The amount of L1/Russian spoken at home was assessed by the reported language use of the parents (on a three point scale: don’t speak at all, speak a little, speak a lot). A combined score was calculated for each household based on the amount of L1 and L2 spoken by the child’s mother and father at home where the amount of L2 spoken was subtracted from the amount of L1 spoken to yield a single score. Correlations were then calculated between this language input score and scores on the linguistic tasks (lexis, prepositions, verb inflections, complex syntax, grammatical case and non-word repetition).

For all tasks, apart from non-word repetition, a positive effect of L1/Russian spoken at home was found on linguistic performance in L1/Russian in both cohorts. The strongest correlation was registered for the grammatical case task (p = .003) and the correlation between the amount of Russian at home and case use, which was higher for the children in the Israeli group. For lexis, more Russian language use at home led to improved performance on the Noun-Verb task (p < .0001 for both, see Figure 4.4).

In addition, the three morpho-syntactic tasks performed in Russian showed a significant relationship with the amount of Russian spoken at home. The strongest relationship was found for the sentence completion task involving verb inflections (p = .0009) in both countries. All sentence repetition tasks showed the consistency of this relationship between L1/Russian language use and linguistic performance: for prepositions (p = .024 and .003 for Germany and Israel, respectively), for verb inflections (p = .027 for both Germany and Israel) and for complex syntax (p = .007 for both Germany and Israel).

The amount of L1/Russian spoken at home showed no negative effect on performance in German/Hebrew, and this finding was consistent for all tasks except lexical naming. For the lexical task, naming of nouns correlated negatively with L1/Russian language use (p = .043), but verb naming did not. The influence of L1/Russian home language use on lexical abilities is shown in Figure 4.5. The latter result supports the previous findings on the lower robustness of nouns in comparison with verbs in bilingual language acquisition (Klassert, et al., 2013).

In summary, there is a positive relationship between L1/Russian language use and all L1 tasks except NWR for both groups and no negative effect of L1/Russian language use on L2 performance, again for both groups and for all tasks.
(except lexical naming). To conclude, the amount of Russian spoken at home was shown to be the strongest predictor of competence in L1/Russian (like age) among the selected variables.

Conclusions

In this chapter, the effects of age, length of L2 exposure, and language input on the acquisition of both languages in bilingual Russian-German and Russian-Hebrew contexts were investigated for preschool children using a battery of similar phonological, lexical, and morpho-syntactic tasks. We aimed for a comprehensive overview of linguistic performance in the two languages in order to compare development in both the home and societal languages across the two cohorts.
Beginning with the effects of age and length of L2 exposure, the results of this paper show that in the German group, chronological age correlates with the development of language as measured by a standardized test of language proficiency, and this correlation is strongest for the sentence repetition task. Yet, despite this age related development, when comparing the results to monolingual norms, about one third of the children perform below those norms (Armon-Lotem, et al., 2011). Moreover, no correlation was found between age and the raw scores on the Hebrew standardized test. In terms of length of L2 exposure, both groups show positive correlations with linguistic performance, suggesting that both the amount of exposure and chronological age should be considered in setting norms for L2 proficiency. These results suggest that the use of standardized tests alone, without accompanying information about the amount of L2 input, might lead to misdiagnosis of bilingual children at risk for language impairment.

The variety of tasks used in the present study shows that different aspects of language develop at different rates in bilingual children, and shows different sensitivity to age and to length of L2 exposure. Evaluating these different linguistic facets in L1 suggests that the development of the home language is related to chronological age rather than length of L2 exposure, and crucially depends on the amount of L1 spoken at home. More precisely, negative correlations were not found between length of exposure to L2 and children’s L1 performance. Notably, L1 performance could not be evaluated by monolingual norms; thus, we cannot conclude whether the children fall within such norms. These findings suggest that there is a strong need for tests specifically designed for bilingual children in both L1 and L2 (cf. Schulz and Tracy, 2011 LiSe-DaZ for L2 German; Gagarina, Klassert, and Topaj, 2010 for home language Russian).

The domain which showed highest sensitivity to both age and length of exposure is the lexicon. Yet, this was manifested differently for L1 and L2 across the two groups. On the L1 noun-verb naming task, both groups showed high sensitivity to age with no negative influence of the length of L2 exposure. The absence of negative correlations between length of L2 exposure and L1 lexicon might be explained by the fact that, generally, the lexicon is developing more rapidly during the earlier stages of language acquisition, thus length of exposure plays a less crucial role (cf. Bloom, 2000) losing its ‘value’ with age (as in the case of four- to six-year-old children in the present study). On the L2 noun-verb naming task, a correlation was found only for German, while no such correlation was found for Hebrew, where children seemed to perform rather well from the onset. The differences between the two languages in the societal language seems to be task-related, since the vocabulary subtest of the Hebrew standardized measure did yield a correlation with both age and length of exposure to L2.

With respect to the amount of L1 spoken at home, the results show a strong positive effect of the amount of Russian spoken at home on children’s performance in that language, with no significant negative effects on German/Hebrew performance, in most domains. That is, the use of L1 at home is a strong
predictor of successful maintenance of this language; a high amount of Russian, spoken at home supports the development of the main language domains in Russian and does not impede the development of the societal language, German/Hebrew, influencing it only to a minor extent in the domain of noun vocabulary. The latter result supports previous findings on lower robustness of nouns in bilingual language acquisition in comparison with verbs (Klassert, et al., 2013). Cummins’s (1978, 1982) Interdependence Hypothesis suggests that one might even anticipate indirect positive effects of advanced development of the home language concurrent with acquisition of the societal language.

To conclude, the study showed that the development of lexicon in L1 is especially sensitive to input quantity in that language at home in both countries, whereas sentence imitation tasks in the morpho-syntax domains are more robust with regard to input in both the home and societal languages. Furthermore, the amount of L1 exposure alone cannot explain the development of linguistic performance in this study, since it interacts with chronological age and the length of L2 exposure.

Even today language clinicians and kindergarten teachers often discourage the parents of bilingual children from speaking in the home language to their children, and recommend using L2 in communication at home. In this respect, our findings have an important implication, suggesting that the use of the mother tongue (in our case Russian) by parents at home should be viewed favorably, since it has positive effects on L1 lexical and morpho-syntactic development and, at the same time, does not impede L2 development. Finally, we hope that further investigation of the effect of external and internal factors on language acquisition will provide a better understanding of bilingual development.

References


