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Language exposure, ethnolinguistic identity and attitudes in the acquisition of Hebrew as a second language among bilingual preschool children from Russian- and English-speaking backgrounds

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This chapter examines the influence of sociolinguistic and exposure factors on second language (L2) proficiency in Russian-Hebrew and English-Hebrew (second generation) preschool children. The children come from two distinct ethnolinguistic populations with different motivations for immigration and different opportunities for linguistic exposure. Sociolinguistic factors include measures of ethnolinguistic identity and attitudes to speakers and languages. Quantitative L2 exposure is investigated in terms of chronological age, age of onset of language acquisition, and length of language exposure to the target language. Quality of L2 exposure is investigated in terms of parents' education, family size, and birth order. Thirty-one Russian-Hebrew children and 18 English-Hebrew children (4;4–6;1) participated. L2 acquisition was measured by a standardized screening test for Hebrew (Goralnik 1995). Findings showed that Russian-Hebrew bilinguals exhibited higher L2 abilities than English-Hebrew bilinguals. Sociolinguistically, English-Hebrew children preferred to define themselves as Israelis regardless of their language ability or the amount of exposure to Hebrew. In contrast, for the Russian-Hebrew bilinguals, positive correlations emerged between exposure to Hebrew, L2 language ability and sociolinguistic identity. These findings show distinct L2 acquisition factors that reflect the ethnolinguistic identity and attitudes of two distinct populations and are discussed in light of differences in motivation for immigration.

1. Introduction

This chapter examines the potential influence of exposure and sociolinguistic factors on second language (L2) learning. Language exposure factors are those which impact the amount and quality of L2 input, including proximal factors

such as chronological age (CA), age of L2 onset (AoO), and length of L2 exposure (LoE), as well as more distal factors such as parental education, family size and birth order. Sociolinguistic factors included ethnolinguistic identity and attitudes toward L2 and its speakers.

Immigrant parents who are dominant in a minority language generally speak to their children in their native language, while their children tend to respond in the language of the host society. This well-documented phenomenon usually leads to rapid language shift within a single generation. This language shift is sensitive to exposure factors such as CA, AoO, and LoE, which are more proximal, and parental education, family size, and birth order, which are more distal; together they influence the quantity and quality of L2 input. Language shift can also contribute to and be motivated by the development of multiple identities (e.g. Alba 1999; Cameron 2004; Portes & Schauffler 1994; Walters, Armon-Lotem, Altman, Topaj & Gagarina, in press; Weinreich & Saunderson 2003) that are maintained and/or modified through childhood and adolescence.

The impact of exposure factors and sociolinguistic factors on L2 proficiency is evaluated here by comparing the L2 Hebrew proficiency of Russian-Hebrew and English-Hebrew sequential bilingual (second-generation immigrant) preschool children, who come from distinct populations with different motivations for migration and different opportunities for linguistic exposure. The Russian-Hebrew migration is motivated by a search for economic success with identity in transition (Lissak & Leshem 1995); the English-Hebrew migration is ideologically motivated with a more stable identity, since migration to Israel was motivated by the desire to live in a Jewish country (Amit 2008). In terms of L2 exposure, on the one hand, the Russian-Hebrew group has more opportunities for L2 exposure outside the community than the English-Hebrew group owing to their linguistically mixed residential patterns (Kosher, Ben-Arye & Cohen 2011). On the other hand, the Russian-Hebrew group maintains smaller family units where L2 might be more easily marginalized (Blum-Kulka 1997). Identity, attitudes, and sociolinguistic preferences are brought by the preschool child to the language acquisition process, and along with exposure to L2, are viewed as crucial factors in this process. These ideological differences, thus, offer an opportunity to test the validity of previously reported correlations between exposure factors and language proficiency (see 2.1) in two immigrant groups acquiring the same L2.

Both language and identity are viewed here as involving a complex set of component structures. The identity construct includes personal as well as social identity, with a particular focus here on ethnolinguistic identity (Walters 2005; Weinreich & Saunderson 2003). In the language domain, we focus on language proficiency as assessed by a standardized test for placement

of preschool children in educational programs. This test measures proficiency in grammar, vocabulary, listening comprehension, expression, and storytelling abilities.

2. Language proficiency of immigrant children

2.1 Linguistic proficiency in L2 and exposure factors

Research on the factors that influence language proficiency has been conducted mainly among bilingual children where one of the languages is English (e.g. Gleitman & Newport 1995; Hoff 2006; Paradis 2010) and the focus has been on the relationship between extralinguistic factors and language development in English as the societal language. More proximal exposure factors, such as CA, AoO and LoE, serve as robust predictors in various studies. Paradis' (2011) study examined how internal (e.g. language aptitude) and external (e.g. LoE) factors predict acquisition of L2 English vocabulary and verb morphology. Results showed that first language (L1) typology, LoE, language aptitude, age, and richness of English environment predicted variation in L2 acquisition outcomes. The author suggested that internal factors (e.g. language aptitude) explained more of the variance than external factors. Similarly, Chondrogianni and Marinis (2011) conducted a study exploring the extent to which internal and external factors affect the performance of English monolinguals and Turkish-English sequential bilingual children. They reported that approximately 50% of the variance in performance on vocabulary tests could be accounted for by a combination of AoO, LoE, and mother's self-rated proficiency. This finding implied that L2 proficiency develops as a function of more exposure. Golberg, Paradis, and Crago (2008) found that older children who began to learn L2 English after age 5;0 accumulated an English vocabulary faster than children who began to learn English before age 5;0. The authors concluded that cognitive maturity accounted for their vocabulary development. However, Chondrogianni and Marinis (2011) found that older AoO and more exposure were not correlated with ability to reach age-appropriate norms; in fact, only a third of the study's participants reached age-appropriate norms.

More distal factors, such as L2 density at home and in the neighborhood, home activities, parental education and occupation, and family size often influence the amount and quality of L2 exposure (see also Hoff, Welsh, Place & Ribot this volume). Hoff and Tian (2005), for example, found a significant correlation between maternal education and the language development of monolingual children such that mothers who had high school education or more had children with larger vocabularies than mothers who had less than high school education.

Similarly, Golberg, Paradis, and Crago (2008) found that L2 development in bilingual children was associated with mothers' educational levels, but not with home use of L2 English. Scheele, Leseman, and Mayo (2010) examined the relationship between home language activities and vocabulary in monolingual Dutch children (mean age of 3) as well as in two bilingual immigrant groups: Moroccan–Dutch and Turkish–Dutch. Language input, measured by home activities, correlated with language outcomes in L1, and L1 vocabulary correlated with L2 vocabulary, suggesting possible transfer of knowledge from L1 to L2. The importance of the home language arose in Gathercole and Thomas (2009), who examined children aged 7–11 and found that while L2 English developed in an equivalent manner for children who came from Welsh-only, English-only, or Welsh-English homes, the mastery of L1 Welsh was correlated with the level of Welsh input in home and school settings. Armon-Lotem, Gagarina, and Walters (2011) investigated both proximal and distal factors in children with Russian as L1 and German/Hebrew as their L2. Proximal exposure factors showed a stronger relationship with L2 language measures than (environmental) distal exposure factors: Proximal exposure factors (AoO and LoE) correlated with L2, while distal exposure factors (parents' education/occupation) showed positive correlations with both L1 and L2 measures. Similarly, Bohman, Bedore, Peña, Mendez-Perez, and Gillam (2010) explored the factors that contributed to Spanish-English preschool children's language development. They found that language input and age contributed to L1 and L2 performance, while parent education, input/output and age contributed to further development and strengthening of L2.

2.2 Linguistic proficiency and exposure factors in Hebrew as an L2 of migrant children in Israel

Both groups in this study come from communities that have strong support for their L1s at home, in the media, and in afterschool activities, and both view their heritage languages as a central component of their sociolinguistic identity, with many parents opting for maintaining L1 at home (Blum-Kulka 1997; Schwartz, Kozminsky & Leikin 2009). Massive immigration from the former Soviet Union in the 1990s created a rich ethnolinguistic community with its own economic, social, and political networks based on Russian language and culture. As a result, these immigrants have identity choices ranging from assimilation to separatism (Berry 1997). And while in the 1960s most immigrants from English-speaking countries dropped their English upon immigration to Israel, since the 1980s there has been a growing body of parents who choose to speak English with their children, leading to the formation of "Anglo-Saxon" communities in which the native language has become a marker of collective identity (Blum-Kulka 1997).

Russian-Hebrew bilingual children have more opportunities for L2 exposure outside the Russian community. The Russian-Hebrew children were drawn from communities that are well integrated into Israeli society. Only 5% of the residents in their communities are immigrants, according to the latest Ministry of Immigrant Absorption report (Kosher et al. 2011). By contrast, the English-Hebrew group comes from bilingual neighborhoods where English is the dominant language at home, on the street, and at the playground. The immigrant population is as much as 30% in these communities (Kosher et al. 2011). Moreover, while Russian is strongly supported within the Russian-Hebrew community, its status within Israeli society is relatively low. English, however, is an important language for international communication, and its prestige in Israeli society has increased over the past decades (Ben-Rafael 1994).

Both communities value education, with a very high percentage of parents with post-secondary education and professional jobs. Schwartz et al. (2009) reported that success in L2 Hebrew (measured by lexical abilities) was related to parents' educational level and experience in L2, as well as the length of residence in Israel. Households, however, vary in the number of children, with one to two children in the Russian-Hebrew community, but up to seven children in the English-Hebrew community. Family size is thus expected to impact L2 acquisition as children report that Hebrew is used with older siblings more often than with parents (Schwartz et al. 2009). This is further supported by Blum-Kulka's (1997) observation that children used L1 English in more than 80% of the communication with their parents around the dinner table but only in 50% of the communication with each other.

2.3 Identity, attitudes, and sociolinguistic preferences

Little research exploring the relation between L2 proficiency and sociolinguistic factors has been done with bilingual preschool children. Unidimensional views of identity, based on classical social variables such as social class, gender, ethnicity, nationality, territory, religion, family, and occupation are giving way to more dynamic approaches that allow for multiple, fluid identities. In current social psychology, Brewer's three-tiered model (Brewer & Chen 2007) distinguishes three levels of identity: personal, relational, and collective. The present research is most interested in the personal/individual level, and its application to identity in preschool, as it is expected to be the most related to an individual's L2 proficiency.

Language-identity relations have been widely investigated with tasks adapted from social psychology and sociolinguistics (Allard & Landry 1994; Bourhis & Landry 2008; Lambert 1990; Sachdev, Arnold & Yapita 2006; Taylor, Meynard & Rheault 1977), but preschool and early elementary school children have not found

their way into this literature, in part because of the notion that sociolinguistic identity develops later and in part because of the lack of methods which are appropriate for very young children. Sociolinguistic identity is conceptualized here as a complex of (1) ethnic and ethnolinguistic identity and (2) attitudes to speakers and languages. The ethnolinguistic construct is centered on personal identity; attitudes are an indirect way of getting at both personal and interpersonal identity.

Ideologically, the two populations in this study have different motivations for migration, which influences their identity. The Russian-Hebrew group is a secular group and is economically driven with identity in transition (Lissak & Leshem 1995). Remennick (2003a, 2003b) points out that the acquisition and mastery of Hebrew is a key trigger for the inclusion of new Israeli elements in the identity of Russian-Hebrew immigrants and to successful integration within the host society. The English-Hebrew group is a more religious group and ideologically motivated with a more stable pro-Israeli identity (Amit 2008). Such sociolinguistic motivations for social integration, along with greater and more varied exposure, could account for variation in L2 success (see also Yelenevskaya & Fialkova 2003).

3. Research questions, hypotheses and predictions

As noted above, exposure factors (both proximal and distal) have been correlated with L2 proficiency in previous studies, but sociolinguistic factors, such as ethnolinguistic identity, attitudes toward speakers of different languages, and preferences for monolingual or bilingual speakers of the languages have not been examined, to our knowledge, in preschool children with respect to their impact on L2 proficiency. The central hypotheses were:

I. Level of language proficiency, as well as sociolinguistic identity and attitudes, would be different in the two communities.
II. The various exposure factors would have a different impact on L2 proficiency within each community.

Five comparative questions guided this research, in order to test these hypotheses. Predictions are presented for each question.

(i) *Would there be a difference in language proficiency between the two communities?*

For language proficiency, it was predicted that the Russian-Hebrew bilingual children would outperform the English-Hebrew bilingual children in their Hebrew L2. The economically motivated transition in social identity of the Russian-Hebrew community would be accompanied by increased L2 proficiency, increased L2 use,

and increased interaction with speakers of the host language. This would lead to higher L2 proficiency in the Russian-Hebrew group than in the English-Hebrew group due to greater exposure to Hebrew resulting in more opportunities for L2 exposure outside the community. On the other hand, the more stable, ideologically motivated migration which characterizes the English-Hebrew community, would not necessarily be accompanied by increased L2 proficiency, use, and interaction with speakers of the host language. This would result in lower L2 proficiency in the English-Hebrew group, since this group, with its already stable identity, has less motivation for transition away from English and towards Hebrew.

(ii) *Would there be a difference between the two populations for sociolinguistic identity and attitudes?*

Differences were hypothesized between the two populations for sociolinguistic identity and attitudes. We predicted that:

a. The economically motivated transition in the social identity of the Russian-Hebrew community would lead to inclusion of new Israeli elements resulting in multiple Russian-Israeli identities and positive attitudes to the L2 among Russian-Hebrew children.
b. The religious and ideological motivation of the English-Hebrew group would lead to an *a priori* pro-Israeli, unidimentional sociolinguistic identity of the children even prior to L2 acquisition.
c. The transition to multiple identities would be accompanied by a rapid transition from L1 dominance to mastery of L2 and bilingualism while the more unidimensional form of identity which involves no transition is expected to involve no transition from L1 dominance to L2 dominance, showing only limited mastery of L2.

(iii) *To what extent would L2 language proficiency be related to sociolinguistic measures* (*ethnolinguistic identity and attitudes*) *within each community?*

In terms of sociolinguistic factors, such as ethnolinguistic identity and attitudes, L2 language abilities were expected to correlate with the self-defined identity of the child. On the one hand, we expected that children with better language skills in Hebrew would relate to themselves more as Israelis, and those with lower L2 proficiency would relate to themselves as Russians or Americans. On the other hand, transition in identity was expected more for the Russian-Hebrew children than the English-Hebrew children whose identity is more stable. Thus, higher Hebrew proficiency was expected to correlate with stronger Israeli identity in the Russian-Hebrew group more than in the English-Hebrew group.

(iv) *To what extent would L2 proficiency be related to proximal exposure factors such as CA, AoO and LoE within each community?*

Proximal exposure factors were predicted to be related to L2 proficiency only in the Russian-Hebrew community. In this community, age of onset and LoE were expected to show strong correlations with L2 proficiency, as observed in other economically motivated migrations. By contrast, in the English-Hebrew community, age of onset and LoE would not necessarily correlate with L2 proficiency, due to the limited role L2 acquisition plays in their acculturation.

(v) *To what extent would L2 language proficiency be related to distal exposure factors, such as parents' education, family size and birth order within each community?*

Of the distal exposure factors, parents' education was expected to correlate with success in L2 in both communities, with better success for children of more educated parents. Family size differentiates the two communities, with smaller households in the Russian-Hebrew community and large households in the English-Hebrew community. L2 was expected to be more prominent in bigger households than in smaller households.

4. Method

4.1 Participants

Two groups of typically developing, sequential bilingual children, ages 4;4–6;1, were tested: thirty-one Russian-Hebrew bilingual children and 18 English-Hebrew bilingual children, all attending public preschools where classes were taught exclusively in Hebrew by Hebrew-speaking teachers. Russian and English were the predominant languages spoken in their homes. All children had been exposed to the Hebrew language for at least one year, and more than fifty percent of their classmates were speakers of Hebrew as their L1, so Hebrew was the primary, and almost only, language spoken in the preschool classrooms. All children were screened at the time of the study for proficiency in L1 and L2. Parental consent was secured, and the study was approved by the university IRB and by the Israeli Ministry of Education. Background information was gathered through parent interviews.

Details of the participants are presented in Table 1. Table 1 shows no between-group differences for proximal exposure factors (CA, AoO or LoE), but significant differences for distal exposure factors (family size and parents' education,

with a marginally significant difference for birth order). These differences are addressed below.

Table 1. Background Demographic Information: CA, AoO and LoE are in months and parental education in years. Also included are significance levels comparing the two groups using ANOVAs for interval scales (*F* and *p* values provided) and χ^2-tests for nominal scales (χ^2 and *p* values provided)

	Mean (SD) Russian-Hebrew	**Mean (SD) English-Hebrew**	***F***	χ^2	***p***
N	31	18			
Gender	19 female	11 female		.001	.99
Chronological age -range	66.59 (4.9) 54–73	63.83 (6.1) 52–73	2.893		.095
Age of L2 Onset -range	37.41 (13.32) 12–60	34.38 (11.4) 11–49	.654		.423
Length of L2 exposure -range	29.19 (14.23) 5–60	29.44 (10.5) 15–48	.004		.947
Birth order	17 first-born	5 first-born		3.37	.066
Family size -range	1.81 (0.4) 1–2	3.94 (1.6) 1–7	50.448		.000
Mothers' education -range	14.92 (2.4) 9–21	16.4 (2.2) 12–22	4.668		.036
Fathers' education -range	13.71 (2.4) 10–20	17.41 (2.6) 12–22	24.694		.000

Note. L2 = second language

4.2 Materials, tasks, and procedures

4.2.1 *Language measures*

Language proficiency data were collected from children individually in monolingual sessions with native Russian-, English-, and Hebrew-speaking research assistants. Language proficiency in L2 Hebrew was assessed by the Goralnik Diagnostic Test (Goralnik 1995), which includes measures of vocabulary, listening comprehension, sentence repetition, sentence production, narratives, and pronunciation. In order to avoid using monolingual norms as a sole measure of L2 proficiency in bilingual children (cf. Kohnert 2010), the raw scores of the two groups were used. The Goralnik raw scores represent command of Hebrew while the Goralnik *z*-scores determine whether a child is within the monolingual range of age-related norms. Only results for the raw scores are reported with occasional reference to

the *z*-scores, when meaningful differences are found between the two types of scores, since the aim of this study was to explore factors which influence language proficiency, that is, the amount of language acquired by the child, and not those which influence the ability to achieve monolingual norms.

4.2.2 *Sociolinguistic measures*

Ethnolinguistic identity questions. Each child was presented with a series of identity statements and asked to rate on a 'magic ladder' (a graphic Likert scale with 10 rungs, a smiley face at one end and a frown at the other – see Figure 1) how much they agreed or disagreed with each statement. Statements included:

"I am Israeli."
"I am American."
"When I grow up I want to be Israeli."
"When I grow up I want to be Russian."

Figure 1. The magic ladder graphic rating scale

After being presented with each identity statement, the child was asked to place a figure on the ladder to indicate how much s/he agreed or disagreed with the statement. Similar identity statements were used by Sachdev et al. (2006) with bilingual children. Surber (1982) used a similar scale of happy faces and sad faces to help kindergarten children explain their moral judgments about stories.

Sociolinguistic attitudes. Attitudes to identity were elicited using the same method by asking: "How much do you like to be Israeli/Russian/American?" Attitudes to speakers and languages were elicited by asking questions probing their feelings about speaking the two languages and speakers of the two languages (e.g. "How much do you like to speak English/Russian/Hebrew?" "How much do you like people who speak English/Russian/Hebrew?"). Responses were made on the same 10-point graphic rating scale.

5. Results

5.1 Language proficiency in L2 Hebrew

Raw scores for the two groups on the Goralnik Diagnostic Test (Goralnik 1995) were compared on five of the six sub-tests (maximum 30 points each) and on the total score (180 points). The pronunciation subtest was excluded, since all children performed at ceiling. Table 2 presents a between-group comparison of the scores in the different subsets using multiple *t*-tests.

Table 2. Mean proficiency scores in Hebrew as L2 on five language subsets (max. 30), and total scores

Task	Mean (SD) Russian-Hebrew	Mean (SD) English-Hebrew	*t*	*p*
Vocabulary	17.87 (5.74)	15.78 (5.40)	1.577	.213
Comprehension	25.16 (3.61)	24.17 (3.48)	.887	.351
Sentence Repetition	24.19 (5.64)	24 (4.93)	.015	.904
Sentence Production	25.52 (3.70)	23.40 (5.02)	2.890	.096
Narratives	19.55 (5.36)	12.17 (6.46)	18.55	.001
Total	141.4 (16.88)	129.2 (14.4)	6.720	.013

The Russian-Hebrew bilinguals exhibited higher L2 abilities than English-Hebrew bilingual children in narratives, but not in any other measures. The significant difference in narratives, together with non-significant differences in the expected direction for all other measures, contributed to a significant difference between the two groups in the total score.

5.2 Sociolinguistic measures

Sociolinguistic measures included ethnolinguistic identity and attitudes to identity, speakers, and languages.

5.2.1 *Ethnolinguistic identity*

Ethnolinguistic identity was examined via responses to statements regarding present self-identity ("I am …") and future self-identity ("When I grow up I want to be…"), for Israeli and home (Russian/American) identity. Table 3 presents the mean scores for the two groups on the identity questions.

A three-way mixed ANOVA comparing Group (between subjects: Russian-Hebrew, English-Hebrew), Time (within subjects: Present – I am…, Future – When I grow up…), and Identity (within subjects: Israeli, Home – Russian/American)

Table 3. Present and Future Identity of Russian-Hebrew and English-Hebrew Bilingual Children on the magic ladder rating scale of 1 to 10 (Figure 1; 1 = frowny face, 10 = happy face)

	Mean (SD) Present identity		Mean (SD) Future identity	
Group	**Israeli**	**Home**	**Israeli**	**Home**
Russian-Hebrew	6.23 (4.01)	6.61 (3.80)	6.61 (4.11)	6.29 (4.00)
English-Hebrew	8.05 (3.07)	5.61 (3.72)	6.27 (4.28)	4.22 (4.13)

Note. Home = Country of origin (Russian/American)

was conducted. A significant effect was obtained only for the Group by Identity interaction, $F(1,188) = 3.94$, $p < .05$. This was due to a gap between Israeli identity and home identity of the English-Hebrew group, which is significant only for present identity (I am…; $p = .012$), and not found in the Russian-Hebrew group that shows multiple identities. That is, the Russian-Hebrew group presented a dual identity, while the English-Hebrew group presented a unidirectional identity: stronger Israeli identity and weaker home identity.

5.2.2 *Sociolinguistic attitudes to identity, speakers and languages*

Sociolinguistic attitudes were examined via responses to a statement about attitude to ethnolinguistic identity as Russian/American/Israeli ("I like being …"), as well as statements about attitudes toward the use of L1 and L2 by self and others ("I like to speak …", "I like people who speak …"). Table 4 presents children's attitudes to ethnolinguistic identity, and Table 5 presents children's sociolinguistic attitudes to languages and speakers.

Table 4. Attitudes to Israeli and Home (Russian/American) Identities on the magic ladder rating scale of 1 to 10 (Figure 1; 1 = frowny face, 10 = happy face)

	Attitude to self-identity	
Group	**Mean (SD) Israeli**	**Mean (SD) Home**
Russian-Hebrew	6.26 (4.22)	7.32 (3.68)
English-Hebrew	6.89 (3.74)	5.94 (3.97)

Note. Home = Country of origin (Russian/American)

Both groups show balanced attitudes to both L1 and L2 identities with no significant difference between them (Table 4), despite the gap between Israeli

Table 5. Attitudes to Languages and Speakers on the magic ladder rating scale of 1 to 10 (Figure 1; 1 = frowny face, 10 = happy face)

	Attitudes to languages		Attitudes to speakers	
Group	Mean (SD) L1	Mean (SD) L2	Mean (SD) L1	Mean (SD) L2
Russian-Hebrew	8.55 (3.21)	7.74 (3.47)	8.48 (2.87)	8.26 (3.19)
English-Hebrew	8 (3.74)	4.76 (3.72)	8.24 (3.21)	4.18 (3.79)

Note. L1= First language, L2 = Second language

identity and home identity of the English-Hebrew group (Table 3). For attitudes to L2 and its speakers, a three-way mixed ANOVA was conducted comparing Group (between subjects: Russian-Hebrew/English-Hebrew), Attitude (within subjects: to language/to speakers), and Language (within subjects: L1[Russian/English], L2 [Hebrew]). Main effects emerged for Group, $F(1,184) = 15.08$, $p < .001$, and Language, $F(1,184) = 11.29$, $p < .001$. Russian-Hebrew bilingual children showed stronger preferences for speaking and speakers of Hebrew ($M = 8.12$) than English-Hebrew bilinguals ($M = 4.77$). No difference was found between the groups in attitudes to L1 and its speakers. In addition, a Group by Language interaction emerged, $F(1,184) = 9.58$, $p < .01$, with no significant difference for the type of attitude (attitude to language/attitude to speakers). That is, Russian-Hebrew bilingual children showed equal and strong positive attitudes to both languages and the speakers of both languages, while English-Hebrew bilingual children showed significantly stronger preferences for speaking their L1 English over their L2 Hebrew and for speakers of their L1 English over speakers of their L2 Hebrew.

5.3 Sociolinguistic measures and language proficiency in L2

A linear regression was conducted to test the impact of Israeli present and future identity as independent variables on the Goralnik raw scores as the dependent variable. For the Russian-Hebrew group, future Israeli identity made a marginally significant contribution to the language score (*Beta* = .400, $p = .052$), while none of these variables correlated with command of Hebrew as L2 in the English-Hebrew group. That is, children with stronger Israeli identity showed better performance in Hebrew only in the Russian-Hebrew but not in the English-Hebrew group.

A separate linear regression model was employed to test the relation between L2 proficiency and sociolinguistic attitudes to identity, speakers, and languages. For the Russian-Hebrew group, the Goralnik raw scores were used as the dependent variable and attitudes to Israeli identity, and the use of Hebrew as L2 by self and others were introduced as the independent variables. Of these three variables, only attitudes to ethnolinguistic identity as Israeli made a significant

contribution to the language score (*Beta* = .434, p = .022). Due to the small size of the English-Hebrew group, it was impossible to conduct a regression with three predictor variables; however, correlation analyses revealed that none of these variables correlated with proficiency in L2 Hebrew in the English-Hebrew group. In sum, attitudes to the language and its speakers did not correlate with proficiency in the L2, but attitudes to self-identity as Israeli show that children who strongly like their Israeli identity show better performance in Hebrew, yet this was only significant in the Russian-Hebrew group.

5.4 Proximal exposure factors: CA, AoO and LoE and L2 proficiency

Since LoE is derived by deducting AoO from CA, LoE and AoO strongly correlate with each other (r = –.939). Children who acquired Hebrew at a younger age usually had longer exposure to Hebrew at the time of testing than children who acquired Hebrew at a later age. CA correlated significantly with neither. Since the correlation between LoE and AoO is higher than .75, only LoE was used for further analyses. In addition, because CA and AoO are conceptually related, only CA was included as a measure of the impact of age. A linear regression model was employed using the Goralnik raw scores as the dependent variable and these two proximal exposure factors as the independent variables.

For the Russian-Hebrew group, only LoE made a significant contribution to the language score (*Beta* = .465, p = .008), while for the English-Hebrew group only CA made a significant contribution (*Beta* = .623, p = .007). That is, for the Russian-Hebrew group, but not for the English-Hebrew group, children who had longer exposure to Hebrew had better command of Hebrew regardless of their CA, while for the English-Hebrew group, but not for the Russian-Hebrew group, older children had better command of Hebrew than younger children regardless of LoE. For the Goralnik *z*-scores, a similar picture emerged for the Russian-Hebrew group, but not for the English-Hebrew group, in which both variables had no significant contribution. For this latter group, however, AoO (which was not used in the regression) correlated positively with the language score (r = .414, p = .044), suggesting that children who started to acquire Hebrew as L2 at an older age were closer to the monolingual norm for their age.

5.5 Distal exposure factors: Parents' education, family size and birth order, and L2 proficiency

While significant between-group differences were found for two distal exposure factors, family size and parents' education (see Table 1), significant correlations of these factors with L2 proficiency, measured by the Goralnik raw scores, were rather sparse. For the Russian-Hebrew group, only family size correlated with the

Goralnik raw scores, while for the English-Hebrew group, only mothers' education correlated with the Goralnik raw scores.

A linear regression model was employed to explore the relative impact of these two factors as independent variables on the Goralnik raw scores as the dependent variable. For the Russian-Hebrew group, only family size made a significant and negative contribution to the language score (*Beta* = −.434, p = .028), while for the English-Hebrew group, only mother's education made a marginally significant positive contribution to the language score (*Beta* = .460, p = .057). In sum, for the Russian-Hebrew group, but not for the English-Hebrew group, children who come from smaller families had better command of Hebrew regardless of their mother's education, while for the English-Hebrew group, mothers' education correlated with better command of Hebrew among their children. Note, however, that in the Russian-Hebrew group, households were generally smaller and family size and birth-order cannot be decorrelated since singletons are part of smaller families in which they are first born. Yet, a moderate negative correlation was observed not only between family size and language success but also between birth-order and language success (r = −.351, p = .027) suggesting that first-borns, who are often members of smaller families, have a better command of L2 Hebrew. For the Goralnik z-scores, a similar picture emerged for the Russian-Hebrew group, but not for the English-Hebrew group, where none of these variables correlated with the ability to score within the monolingual norms.

5.6 Comparing exposure factors and sociolinguistic factors

To summarize, different variables seem to contribute to success in L2 in the two populations. For the Russian-Hebrew group, in which ethnolinguistic identity was balanced, significant predictors of success in Hebrew as L2 included longer LoE, smaller family size, and liking the Israeli identity. In order to explore the relative impact of these three variables on success in L2 within the Russian-Hebrew group, a stepwise regression was conducted. For the Goralnik raw scores, LoE accounted for 27% of the variance, and family size for an additional 10.5% of the variance in the raw scores ($F(2,28) = 8.414$, p = .001), with similar findings for z-scores. Liking the Israeli identity did not explain significant additional variance, suggesting that it does not enhance the impact of LoE in the Russian-Hebrew group, while being part of a smaller family does.

By contrast, in the English-Hebrew group, which showed a significant pro-Israeli identity, neither identity or attitude variables, nor LoE contributed to success in L2. Rather, older CA (and to a certain extent later AoO) as well as mothers' education, seemed to have the greatest contribution to success in L2 Hebrew. A linear regression model with CA and mother's education as independent variables

and Goralnik raw scores as the dependent variable showed that only CA made a significant contribution to the language score (*Beta* = .496, p = .024). By contrast, for z-scores, none of these variables made a significant contribution.

6. Discussion: The relative contribution of exposure and sociolinguistic factors to language proficiency

The present study examined L2 proficiency in two child populations with different motivations for migration and social integration and different exposure opportunities within and outside the home. We hypothesized that the level of language proficiency, as well as sociolinguistic identity and attitudes would be different in the two communities, and that the various exposure factors would impact L2 proficiency in a different way within each community. Both hypotheses were largely borne out. Below we address the five questions that guided the research and discuss to what extent our predictions were confirmed.

6.1 Language proficiency

Predictions concerning L2 proficiency for the two groups were confirmed. Russian-Hebrew bilingual children demonstrated higher proficiency in their L2 Hebrew than the English-Hebrew speakers. The different motivations for migration and social integration at the community level can readily account for these findings. Children in the economically motivated Russian-Hebrew community, a community that supports integration, show higher L2 proficiency than children in the ideologically motivated English-Hebrew community that showed weaker motivation for integration in the host society. In addition, the fact that the families in the English-Hebrew group lived in a highly enclaved English-speaking environment where English is the language of the home and the neighborhood gave these children fewer opportunities to acquire Hebrew than children whose parents chose to live in a mixed Hebrew-speaking environment. These findings suggest that more attention should be given to social variables, such as motivation for migration and parental choices that follow it, when assessing the L2 proficiency of migrant children.

6.2 Sociolinguistic measures and L2 proficiency

Differences between the two populations were also expected for the sociolinguistic factors: identity and attitudes to speakers and languages. In particular, it was expected that the economically motivated transition reported for the social identity of the Russian-Hebrew community would lead to inclusion of new Israeli

elements in the identity of these children, resulting in multiple Russian-Israeli identities and positive attitudes to the L2 among Russian-Hebrew children. By contrast, it was predicted that children in the ideologically motivated English-Hebrew group would show an *a priori* pro-Israeli unidimensional identity. It was further predicted that L2 proficiency would correlate positively with higher L2 identity and positive attitudes to L2 and its speakers.

The Russian-Hebrew group showed multiple identities, while the English-Hebrew group professed a unidimensional, pro-Israeli identity, reflecting their ideology. However, for the latter group, the gap between Israeli identity and home identity was significant only for 'present' identity ("I am a…"). These findings among the children reflect the multidimensional nature of identity in the Russian-Hebrew migrants, who immigrated to improve their economic situation, versus the more stable pro-Israeli identity of the English-Hebrew families, who immigrated in order to become Israelis and be able to maintain their religious practices. Nevertheless, stronger Israeli identity, as expressed in aspirations for the future, was related to L2 success only in the Russian-Hebrew group but not in the English-Hebrew group. This relationship supports our claims regarding the strong motivations of Russian immigrants to learn Hebrew, motivations which are attenuated in the English-Hebrew group.

Despite the pro-Israeli identity of the English-Hebrew group, both groups showed balanced attitudes to L1 (self) as well as L2 identities, as they 'liked' being both Israeli and Russian/American. Russian-Hebrew bilingual children showed equal and strong sociolinguistic preferences for both languages and their speakers, while English-Hebrew bilingual children showed significantly stronger preferences for speaking English over Hebrew and for speakers of English over speakers of Hebrew. For the Russian-Hebrew group, these sociolinguistic preferences reflect their balanced dual identity, whereas for the English-Hebrew group, the balanced attitude towards their identity goes exactly in the opposite direction of the finding for identity, which was unidimensional, pro-Israeli. While this difference in the attitude to Hebrew and speakers of Hebrew is suggestive of the finding related to Hebrew proficiency in both populations, sociolinguistic attitudes nonetheless showed no significant influence on Hebrew language proficiency for either group. That is, the expectation that higher proficiency in Hebrew would accord with preference for the language and its speakers was borne out in the between-group comparison, but not in the within-group analysis (see 5.2.2).

The findings that emerge from the sociolinguistic measures further show how the parental motivation for migration is reflected in the children's identity and attitudes, and thus, shed light on the potential impact of such sociolinguistic factors on L2 learning.

6.3 Exposure factors and L2 proficiency

In addressing the relative contribution of proximal exposure factors (CA, AoO, and LoE), and distal exposure factors (parental education and family size) to L2 language proficiency, as expected, we found CA, LoE, parents' education, and family size to predict success in L2. AoO was excluded from the models due to its strong correlation with LoE, and birth order was excluded since it had correlated highly with family size in the Russian-Hebrew cohort. Yet, different factors were found to contribute to higher levels of L2 proficiency in the two populations.

6.3.1 *Proximal exposure factors*

CA and LoE showed no significant difference across the two populations, but contributed differentially to L2 proficiency in each. CA contributed to L2 success in the English-Hebrew group but not the Russian-Hebrew group. LoE contributed to L2 success in the Russian-Hebrew group, where correlations with LoE were found for language scores. Later AoO was found to be correlated with scores within monolingual norms for the English-Hebrew group, where LoE had no impact. These findings suggest that children from English-speaking backgrounds who began learning the L2 later can build on a more solid L1 background for L2 acquisition (e.g. Cummins 1979; Verhoeven 1994).

6.3.2 *Distal exposure factors*

Parents' education and family size were significantly different across the two populations. The English-Hebrew group had higher parental education and larger families, while the Russian-Hebrew group was less educated and had smaller families, the latter resulting in more singletons and more first-born children. These factors had different impacts in the two groups. Mothers' education contributed to L2 proficiency in the English-Hebrew group, but not in the Russian-Hebrew group. Family size contributed to L2 proficiency in the Russian-Hebrew group, but not in the English-Hebrew group. However, despite our prediction that children from smaller families, who were mostly singletons, would show strong maintenance of L1 even at the expense of L2, these children actually showed better performance in L2 compared to children with bigger families. As stated with regard to the L2 proficiency advantage for Russian-Hebrew children, greater exposure to Hebrew is not simply quantitative. The quality and diversity of the input that children receive is also relevant, and it is possibly more intensive in smaller families.

6.4 Summary and conclusions

The present study profiles two immigrant groups whose L2 acquisition patterns differ from each other. Moreover, one of these groups, the English-Hebrew

group, differs from previously reported patterns in other populations. A variety of sociolinguistic measures were marshaled to account for the different acquisition patterns and the varied influence of exposure factors. One community, the Russian-Hebrew group, is economically motivated and presents a transitional identity pattern from unicultural (Russian) to bicultural (Russian-Israeli). For this community, where ethnolinguistic identity is bicultural, LoE, aspirations for future Israeli identity and 'liking' Israeli identity (all potentially related to each other) as well as family size, are predictors of success in Hebrew as L2. Of these factors, LoE and family size account for most of the variance in language proficiency. That is, aspiring to future Israeli identity and 'liking being Israeli' do not seem to enhance the impact of LoE in the Russian-Hebrew group, but being part of a smaller family does. For children in this community, dual identity is their present identity while being Israeli is their future identity.

The English-Hebrew community is ideologically motivated with a very stable identity at onset and less motivation for L2 acquisition. The stable identity is reflected in the choice of Israeli present identity and lower rating of the importance of acquiring Hebrew. In this pro-Israeli identity group, success in L2 was not important for their identity, and success in the L2 was not determined by identity, attitudes, or LoE. CA and mothers' education contributed most to success in L2 Hebrew, but none of these factors contributed to the ability to perform within monolingual norms. For children in this community, 'Israeli' is already part of their present identity. That is, the difference between transient identity and stable identity due to different motivation for migration is reflected in the present and future identity of the children in both groups.

These group differences suggest that positive L2 ethnolinguistic identity is not necessarily a key to L2 acquisition, but successful L2 acquisition goes hand-in-hand with positive L2 ethnolinguistic identity in children from economically driven immigrant communities. Attitudes of Russian-Hebrew children were similar for their two languages and speakers of those languages, whereas English-Hebrew children preferred their native language and speakers of English. For this group, the influence of LoE on the L2 seemed to be outweighed by the prestigious status of English, their L1, and the more limited opportunities for exposure outside of school among the English-Hebrew participants.

These group differences argue for linking higher L2 proficiency and stronger integrative motivation. The three constructs – proficiency, ethnolinguistic identity, and attitudes to speakers and languages – all lead to a multidimensional identity. For the English-Hebrew children, we would be more cautious in arguing that they are less motivated to learn Hebrew, since they clearly see themselves as Israelis regardless of their L2 proficiency. Yet data from children in this group clearly show that L2 success is related to attitudes toward L2 rather than to identity. The relatively

negative attitude to L2 and its speakers, which characterizes English-Hebrew children, can explain their lower L2 proficiency despite a strong pro-Israeli identity. The present collective identity of the English-Hebrew group, in and of itself, is not a major factor in L2 success, while L2 success might be a key to adoption of collective identity in the future, as shown for the Russian-Hebrew group. This research thus shows that ethnolinguistic identity and attitudes can and should be examined in very young children who are very much aware of their "identities."

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