English Second Language Acquisition from Early Childhood to Adulthood: The Role of Age, First Language, Cognitive, and Input Factors

Johanne Paradis

1. Introduction

Popular beliefs hold that migrant children in a host society learn a second language (L2) quickly, effortlessly and with uniform outcomes, in contrast to migrant adults. This paper, based on the plenary talk, draws on 10 years of research with over 300 early English L2 learners of various ages and first language (L1) backgrounds to show that these popular beliefs are myths. Our findings demonstrate that English L2 children take years in elementary school for their English abilities to approach that of their monolingual peers, and some linguistic domains are acquired faster than others. Throughout the elementary school years, children show wide individual variation in their rates of English L2 acquisition for vocabulary, morphology, syntax and narrative skills. Sources of these individual differences include both child-internal (age, L1, cognitive capacities) and child-external (input and language environment) factors, indicating that multiple mechanisms underlie child L2 acquisition. Finally, not all early English L2 learners converge with their monolingual peers in late elementary school or even by young adulthood, for morphosyntax in particular, and some individual difference factors continue to influence L2 abilities at these later stages. Overall, this research suggests we need to re-consider assumptions about early L2 learners, such as quick and effortless acquisition leading to uniform outcomes. The protracted rate of acquisition and the sensitivity of L2 children’s developmental trajectories to individual difference factors have both theoretical and applied implications.

2. Overview of studies

The studies discussed in this paper were conducted with individuals who began to learn English as an L2 mainly in the preschool years and were from

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immigrant and refugee families residing in Canada. Participants had diverse L1 backgrounds, including Arabic, Cantonese, Hindi, Mandarin, Punjabi, Spanish, Somali and Urdu. Participants were either Canadian-born or foreign-born but their parents were all foreign born and L2 speakers of English. All participants had significant or exclusive exposure to their L1 at home before starting preschool or school in English. The research reviewed in sections 3 and 4 focusses on the early years of English L2 acquisition where children are 4;0-7;0 years old and have 1 to 3 years of exposure to English in preschool/school. In section 5, the research reviewed focusses on long-term outcomes and includes older children, aged 8;0-10;0, and young adults, all of whom were early English L2 learners.

These studies examined multiple linguistic sub-domains in L2 English, e.g., vocabulary, morphology, syntax and narrative skills, and include measures of cognitive abilities and various demographic, input and experience factors. Details on the measures used in the studies are presented in Table 1.

For reasons of space and focus, this paper is based on research from my lab and referencing to other child L2 research is minimal. Citations for the growing body of child L2 acquisition research can be found in the journal articles and chapters from my lab reviewed in this paper.

Table 1. Summary of measures in studies with child L2 learners reported in this paper

<table>
<thead>
<tr>
<th>Measure Name</th>
<th>What is measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edmonton Narrative Norms Instrument (ENNI: Schneider, Dubé &amp; Hayward, 2005)</td>
<td>Narrative story grammar, referring expressions in first mentions, mean length of utterance, lexical diversity, story length, production of complex sentences</td>
</tr>
<tr>
<td>Peabody Picture Vocabulary Test (PPVT: Dunn &amp; Dunn, 1997; 2007)</td>
<td>Receptive vocabulary size</td>
</tr>
<tr>
<td>Test of Early Grammatical Impairment (TEGI: Rice &amp; Wexler, 2001)</td>
<td>Production and grammaticality judgements of verb morphology (3rd sing. –s, past –ed, past irregular, BE, DO)</td>
</tr>
<tr>
<td>Columbia Mental Maturity Scales (CMMS: Burgemeister, Hollander Blum &amp; Lorge, 1972) and Test of Non-Verbal Intelligence (TONI: Brown, Sherbenou &amp; Johnsen, 1997)</td>
<td>Non-verbal analytic reasoning</td>
</tr>
<tr>
<td>Spontaneous language samples</td>
<td>Production of complex sentences</td>
</tr>
</tbody>
</table>
Sub-tests: Sentence recall, word classes receptive and expressive, understanding spoken paragraphs

Grammaticality Judgement Task: Non-local agreement (Rusk & Paradis, under review)  
Accuracy and reaction time for judgements of BE, DO and 3rd sing. –s in subject-verb agreement contexts

3. Profile effects in child L2 acquisition

“How long does it take for L2 children to catch up to their monolingual peers?” This is a question frequently asked by educators and clinicians. The answer to this question is important for setting appropriate academic expectations, planning second language instructional support, and interpreting the results of standardized assessments. However, there is no straightforward answer to this question because L2 children approach monolingual abilities for different linguistic sub-domains at a different pace, a phenomenon referred to as profile effects (Oller, Pearson & Cobo-Lewis, 2007).

Paradis, Genesee and Crago (2011) discuss profile effects based on a longitudinal study of 25 children (mean age = 5;6 at the outset; mean exposure to English in preschool/school = 9.5 months at the outset), who were given a battery of English language measures every 6 months for 2 years (Paradis et al., 2011, pp. 126-127). The percentage of children in the sample whose performance fell within the normal range of performance for monolingual age peers was calculated at each round. Over this longitudinal study, a larger percentage of children reached monolingual performance for narrative story grammar than for inflectional verb morphology, with vocabulary falling in the middle. This approach was repeated with a cross-sectional sample of different English L2 children (N = 169; mean age = 5;10) in Paradis (2016), where children were divided into groups based on their length of exposure to English (see Figure 1), and the same pattern emerged where children were closer to monolingual levels of performance for narratives and non-word repetition before vocabulary, and vocabulary before morphology. (Non-word repetition is not a linguistic sub-domain, but it indexes language learning ability and the task is often used in clinical assessment.) Paradis and Kirova (2014) also found profile effects on a narrative task given to 4-year-olds who had completed 1 year of a half-day preschool program. Children were more likely to perform at monolingual age-expectations for narrative macrostructure skills like story grammar than for linguistic skills like lexical diversity and mean length of utterance.

The reasons underlying profile effects are likely numerous and could include aspects of the testing instrument as well as the linguistic sub-domain. In our studies, we put forward the view that sub-domains at the interface between language and cognition would be easier for L2 children to catch up on than sub-domains that are highly specific to the target language. Narrative macrostructure, also referred to as story grammar, measures coherence, meaning
the elements that are included by the child to create a coherent story, e.g., establishment of characters and setting, initiating event leading to a problem, attempt to solve the problem, and outcome. Inclusion of story grammar elements taps into both cognitive and linguistic resources, and thus, even if children make errors with morphosyntax in their L2, they can still manage to include sufficient story grammar elements to tell a coherent story. In a similar vein, non-word repetition is a task that draws on cognitive-perceptual mechanisms like short-term memory, as well as existing lexical and phonological knowledge (Sorenson Duncan & Paradis, 2016). The repetition of nonce words is not a “language-free” task, but it draws on less language-specific knowledge than tests of vocabulary size and accuracy with verb morphology. The cognitive underpinnings of both narrative and non-word repetition tasks can be shared between the two languages of bilingual children, and this can enable them to advance their skills for these sub-domains faster than for sub-domains where sharing/transferring L1 linguistic skills are less likely.

The studies reviewed in this section included children within the first 3 years of learning English as an L2. Although the children showed profile effects in how they approach monolingual levels of performance in their L2, they had not all converged on monolingual levels of performance by their third year, even for narrative story grammar. Therefore, we return to the question of “how long does it take?” in section 5.

![Figure 1. Profile effects for English L2 children across different tasks.](image)

Percent of children who scored within the normal range of performance on each task is given as a function of length of exposure to English. Adapted from Paradis (2016).
4. Sources of individual differences in child L2 acquisition

Global estimates of how long it takes for L2 children to converge with their monolingual peers are complicated by profile effects across linguistic sub-domains. They are also complicated by the wide range of individual variation in children’s acquisition rates. Multiple factors contribute to explaining individual differences in child L2 acquisition. Before reviewing research investigating these factors, it is important to draw a distinction between the language-level properties and child-level properties that influence acquisition rates (Paradis, 2018). Language-level properties refer to frequency, distributional and complexity factors pertaining to the target language structures. For example, morphological structures with greater type frequency/regularity are often acquired faster than morphological structures with low type frequency/irregularity (Yang, 2018; Bybee, 2008). These language-level properties determine differential acquisition rates for certain linguistic structures, somewhat akin to the profile effects discussed in section 3. However, differences in language-level properties do not determine individual differences between learners. By contrast, differences in the properties of children’s language environments, e.g. in the quantitative and qualitative aspects of their input and output, do influence how quickly individual children acquire language. Children also vary with respect to their cognitive capacities for learning language, e.g., in their verbal memory abilities, and this influences acquisition rates as well. Child-level factors, from input experiences to cognitive capacities, modulate access to – and uptake of – language-level properties, and thus are determinants of acquisition rates and outcomes. Viewed this way, individual difference factors index resources and/or mechanisms for language learning, and therefore, are theoretically important in L2 acquisition research, regardless of nativist vs. non-nativist assumptions (cf. Rankin & Unsworth, 2016).

Consideration of individual difference factors is arguably more vital when researching bilingual/L2 acquisition because there are simply more sources of variation in these factors than in monolingual acquisition. Bilingual children have their input space divided between two languages; this division is seldom 50-50 and the relative quantity of input in each language can change over time and according to context, e.g., migration or school entry. Bilingual children might be exposed regularly to L2 input from speakers with varying degrees of L2 fluency, especially at home. In the case of children from migrant families, the linguistic diversity and complexity of the input in their L2 likely exceeds that of their heritage L1. Finally, bilingual children’s onset of acquisition of their two languages can be staggered, which means they can be older when access to L2 input begins than children acquiring the same language as an L1. Since cognitive capacities, such as verbal memory and analytic reasoning, improve with age, this suggests that L2 children have access to superior internal mechanisms for uptake of the input than their younger monolingual peers.
4.1. The role of age, cognitive capacities and L1 in child L2 acquisition

It is commonly believed that the younger the onset of L2 acquisition, the better the outcomes for the learner. Much research supports this view when comparing average long-term outcomes between early bilinguals who began to learn the L2 in childhood with late bilinguals who began to learn the L2 in adulthood (DeKeyser, 2012). In contrast, when we consider different ages of acquisition onset within the early childhood years, an older age of acquisition onset is associated with faster rates of L2 acquisition. Golberg, Paradis and Crago (2008) followed 19 English L2 children (mean age = 5;4 at the outset) from their first to their third year of learning English L2 vocabulary. The children who began to learn English before age 5;0 had consistently smaller vocabularies than children who began to learn English older than 5;0 at each round of data collection, even though both groups had similar months of exposure to English as an L2 at each round. Paradis (2011) found a similar advantage of older age for both vocabulary size and accuracy with verb morphology in a sample of 169 children (mean age = 5;10; mean length of exposure to L2 = 20 months). Older age made an independent contribution to variance in L2 abilities beyond length of exposure to the L2. Finally, Paradis, Rusk, Sorenson Duncan and Govindarajan (2017) compared the proportion of complex vs. simple sentences in language samples from child L2 learners with proportions reported in existing research for younger, English L1 learners. We found that even child L2 learners with a few months of exposure to English were using complex sentences more frequently than L1 learners who were 2;0-4;0 years of age. Moreover, unlike young monolinguals, child L2 learners did not show a sequence of emergence for complex sentences, but instead used a range of different types, e.g., sentential complements, coordinated clauses, subordinate clauses and relative clauses, from the earliest period of L2 exposure. In each of these studies, we hypothesized that the older age advantage was likely due to greater linguistic and cognitive maturity: older child L2 learners have more advanced cognitive mechanisms and linguistic knowledge in their L1 to support their L2 acquisition compared with younger child L2 learners or younger monolinguals.

Even if cognitive capacities improve with age, children show individual variation in these capacities at all ages. How much does this individual variation in cognitive capacities influence L2 acquisition rates? Paradis (2011) and Paradis et al. (2017) examined the impact of short-term verbal memory and analytic reasoning abilities on children’s L2 acquisition of vocabulary, morphology and complex syntax. These mechanisms have been found to index language-learning aptitude in studies on adult L2 acquisition (Skehan, 2012). Paradis (2011) found that both short-term verbal memory and analytic reasoning contributed significantly to the variance in children’s L2 vocabulary size and accuracy with verb morphology. Verbal memory in particular accounted for more variance than input factors in morphological accuracy. Similarly, Paradis et al. (2017) found that both of these cognitive factors contributed significantly
to explaining how frequently children used complex syntax in their spontaneous and narrative language production.

How does the L1 influence L2 acquisition in children? One possibility is positive transfer, which means that if the L1 and L2 share a morphological feature or syntactic structure, then this could facilitate acquisition of that feature or structure in the L2. Another possibility is negative transfer, which means that if L1 and L2 differ for morphosyntactic features or structures, transfer from the L1 would result in errors in L2 morphosyntax. Blom, Paradis & Sorenson Duncan (2012) and Paradis (2011) found evidence for L1 influence that appears to be a case of positive transfer. In Blom et al. (2012), language samples from some of the children in the Golberg et al. (2008) longitudinal study were analyzed for children’s use of 3rd sing. –s in obligatory contexts. Because children had diverse L1 backgrounds, they were divided into typological groups: those with languages that inflect for tense and agreement (inflecting: Romanian, Spanish) and those that do not (isolating: Cantonese, Mandarin). From 1 to 3 years of exposure to English, the children who spoke Mandarin or Cantonese as their L1 showed consistently lower accuracy rates with this morpheme in spontaneous speech than children who spoke Romanian or Spanish. Paradis (2011) also examined the role of the L1 on L2 morphological acquisition using a cross-sectional design. L1 background was a significant and strong predictor of a composite score for accuracy with 3rd sing. –s, past tense, BE and DO. For this study, the isolating L1 group also consisted of children whose L1s were Cantonese and Mandarin, but the inflecting group included children who spoke Arabic, Punjabi, Hindi, Spanish and Urdu. In both Blom et al. (2012) and Paradis (2011), it appeared that the children whose L1s marked tense-agreement grammatically had an advantage compared with children whose L1s lacked these grammatical features. For this reason, we argued that this pattern in English L2 morphological acquisition is a case of positive transfer. It is worth asking whether the influence of the L1 on child L2 acquisition diminishes over time such that there would be no difference in ultimate attainment with morphology between early L2 learners with isolating and inflecting L1s. We address this question in Section 5.2.

4.2. The role of language environment factors in child L2 acquisition

Language environment encompasses both quantitative and qualitative aspects of children’s experiences with L2 input. It includes both proximal input factors like the amount of the L2 spoken at home, as well as more distal input factors, like maternal education levels.

The most straightforward input factor is length of exposure to the L2, which is significantly and positively associated with larger vocabularies, greater accuracy with morphology, stronger narrative skills and greater use of complex sentences (Golberg et al., 2008; Blom et al., 2012; Paradis, 2011; Paradis et al., 2017; Govindarajan & Paradis, 2019). However, for our studies, length of L2 exposure was measured as exposure in a preschool or school program and
excluded home exposure. The rationale for making this distinction is that school exposure can be assumed to include quality L2 input while we cannot make this assumption about the home context since, in our participant samples, both parents are foreign-born and L2 speakers of English. Estimates of the relative amount of L2 input spoken at home among family members has predicted little variance in children’s L2 outcomes in our studies (Golberg et al., 2008; Paradis, 2011, Paradis & Kirova, 2014; Paradis et al., 2017), which seems to support our assumptions about differences between the quality of school vs. home L2 input.

Since some researchers have found a positive association between L2 input at home and children’s L2 abilities (Prevo et al., 2014; Unsworth, 2013), Sorenson Duncan and Paradis (2017; under review) investigated whether the source of the L2 input at home, e.g., interlocutor, made a difference. This study included 113 L2 children with diverse L1 backgrounds (mean age = 5;10; mean length of L2 exposure in preschool/school= 17 months). Hierarchical regression models revealed that children’s narrative story grammar, use of referring expressions in narratives, morphological accuracy and vocabulary size varied as a function of the use of the L2 with the child by older siblings, but not by mothers. Sorenson Duncan and Paradis (2017; under review) hypothesized that this differential effect was based on the older siblings having greater L2 fluency than the mothers because they had substantial exposure to the L2 through schooling, typically more than the child being tested. Mothers’ self-rated L2 fluency in this study was 2.1 on a 0-4 scale. It is worth noting that sibling L2 input contributed uniquely to the variance beyond children’s length of L2 exposure in school.

Investigating the impact of L2 input outside school goes beyond the amount of the L2 heard and used in conversations at home. Children’s engagement with books and other media in English, participation in extra-curricular activities in English and playing with friends in English could all contribute to the richness of their L2 environment, and in turn, advance their L2 acquisition (Jia & Aaronson, 2003). Through a parent questionnaire, we obtained information about the richness of children’s L2 environment, and found that the density of L2 rich activities in an average week was significantly associated with larger vocabularies, more accuracy with morphology, greater use of complex sentences and superior narrative skills (Govindarajan & Paradis, 2019; Paradis, 2011; Paradis et al., 2017). One additional note on this topic is that Sorenson Duncan and Paradis (2019) found that, for younger L2 children who were at the early stages of L2 acquisition, unsupervised, lengthy screen-time had a negative effect on their L2 abilities.

Let us now turn to a distal language environment factor, maternal education. In research with monolinguals, there is a robust relationship between maternal education and the quantity and quality of input children receive at home (Hoff, 2006). In Golberg et al. (2008)’s longitudinal study of L2 vocabulary development, children were divided into a group whose mothers had either primary- or secondary-level education and another group whose mothers had college- or university-level education. The children whose mothers had
post-secondary education had consistently larger English L2 vocabularies across all five rounds of the study. On the surface, these findings appear to line up with the research with monolinguals, but closer inspection indicates that these results beg further questions. For example, were the mothers using the L1 or the L2 with the children, and how fluent were the mothers in their L2? In the sample studied by Golberg et al. (2008), mothers with higher levels of education reported speaking more of the L1 with their children, and yet, those children had larger L2 vocabularies. Sorenson Duncan and Paradis (2018) aimed to unpack some details of the relationship between maternal education and child L2 acquisition in a sub-sample (N=89) of the children who participated in Sorenson Duncan and Paradis (2017; under review) discussed above. First, we found that the level and language of mothers’ education impacted their choice of language use with their child. For mothers educated mainly in the L1, higher levels of education meant they spoke more of the L1 to their child. For mothers educated mainly in the L2, higher levels of education meant they spoke more of the L2 to their child. The choice of using the L1 over the L2 at home was associated with children having greater L1 proficiency. However, the choice of using more of the L2 with children had a limited direct effect on its own, but was instead mediated by mothers’ fluency in the L2. Mothers with higher education (regardless of language), were more fluent in the L2, and greater L2 fluency predicted stronger L2 abilities in children, such as greater use of complex sentences.

![Figure 2](image.png)

**Figure 2.** Child-internal and child-external factors that account for individual variation in English L2 acquisition rates
5. Early L2 learners’ long-term outcomes
5.1. Late-elementary school

One of the popular beliefs noted in section 1 is that child L2 learners acquire their L2 quickly and that they eventually become indistinguishable from their monolingual peers. Our studies reviewed in sections 3 and 4 show that L2 acquisition is still ongoing after 3 years of exposure and so, catching up with monolingual age peers takes longer. Some researchers have found that L2 children take 3-5 years in school to catch up to monolinguals for basic interpersonal communication skills (BICS) and 5 to 7 years for cognitive academic language proficiency (CALP) (Cummins, 2000; Hakuta, Butler & Witt, 2000; Saunders & O’Bien, 2006). The timelines associated with BICS and CALP indicate that children need until at least the end of elementary school (K-6 = 7 years) to catch up. But, The BICS-CALP model is based on functions and contexts of language use, therefore, cannot easily be used to make predictions for discrete linguistic sub-domains, e.g., accuracy with morphology cuts across both BICS and CALP contexts. More important, most research on the long-term outcomes of early L2 learners has focused on reading and often includes just receptive vocabulary as a measure of language (Murphy, 2014; Saunders & O’Brien, 2006). Given the profile effects L2 children show in their early years there is a need to know more about how L2 children approach monolingual norms of performance across linguistic sub-domains in the later elementary school years.

Accordingly, we conducted a longitudinal study of the English L2 abilities of children from 8 1/2 to 10 1/2 years old and from 4 1/2 to 6 1/2 years of English schooling. We aimed to determine when they reached monolingual levels of performance across different linguistic sub-domains and whether individual difference factors were still shaping their language abilities at this stage (Paradis, Tulpar & Arppe 2016; Paradis & Jia, 2017). The 21 children participating all had a Chinese L1 (Mandarin or Cantonese). By the final round of the study, 90% or more of the children scored within the normal range of age-expected performance for tests measuring receptive vocabulary size, receptive and expressive knowledge of lexical semantics, general morphosyntactic abilities and comprehension of short oral stories (PPVT and CELF, see Table 1) (Paradis & Jia, 2017). The expressive lexical semantics and the story comprehension subtests were the most challenging, possibly because children had to produce answers to questions rather than recognize words or repeat sentences. In contrast, by the final round, only 60% of the children reached age-expected criterion scores for production and grammaticality judgements of verb morphology on the TEGI (Table 1), and moreover, children’s performance showed plateau effects by this final round (Paradis et al., 2016). Monolingual children 5-6 years old show more uniform and higher accuracy on the TEGI than the L2 children in this study. Recall that morphology was the slowest linguistic domain to be acquired in the early stages of L2 acquisition (Figure 1). Thus, it seems that this profile effect for morphology extends to later stages of L2 acquisition.
At this later stage of acquisition there was wide variation in individual L2 children’s performance on these standardized tests. For example, at the final round/at 6 ½ years of English schooling, children’s mean accuracy with DO morphemes was 81% with a standard deviation of 20%. Regression models examining sources of individual variation for each test were conducted. In general, we found that many of the same factors were modulating children’s performance as we found in our studies of children within 1-3 years of L2 exposure (section 4.2). For instance, length of English exposure in school, richness of the English environment at home, maternal L2 fluency, maternal education and verbal memory emerged as significant fixed effects in the models. However, we found that vocabulary size, verbal memory and language-level properties like allomorph frequency explained more of the variance in accuracy with verb morphemes than input factors. We found the reverse for the PPVT and CELF sub-tests where input variables explained most of the variance. English use at home emerged as a significant predictor of stronger L2 abilities at this stage, which was not the case in our studies with younger L2 learners (section 4.2).

5.2. Early L2 learners in adulthood

Studies reviewed in 4.1 found that, within the early childhood years, an older start to learning the L2 was associated with faster acquisition. However, age of L2 onset also has a relationship with ultimate attainment in the L2. Childhood onset of L2 learning typically results in higher levels of attainment than adult onset of L2 learning (DeKeyser, 2012). Nevertheless, some studies have found that even early L2 learners do not always converge with monolinguals in adulthood for some linguistic abilities, notably morphology (e.g., McDonald, 2000). A recent study from our lab examined how early English L2 learners’ morphosyntactic abilities in young adulthood compared with those of their monolingual peers (Rusk & Paradis, under review).

Participants were monolingual (N= 53) and bilingual (N = 53) 1st year undergraduate students, the latter being early English L2 learners (EL2) whose mean age of L2 onset was 3;2. Monolinguals and EL2ers were matched for age and parental levels of education. The EL2 group had diverse L1 backgrounds and had received all of their education in English in Canada. Participants were given the PPVT, an adapted version of the ALEQ (language background questionnaire, see Table 1) and an auditory, online grammaticality judgement task (GJT; Table 1). The GJT was designed to be challenging even for the monolinguals in order to avoid ceiling effects for this group. Participants had to detect errors in sentences with BE, DO and 3rd sing. -s in nonlocal agreement positions, shown in (1), and accuracy and reaction time were measured.

(1) a. The problems with the computer were fixed by a technician
    b. *The problems with the computer was fixed by a technician
The EL2ers had significantly lower PPVT standard scores than the monolinguals, but for both groups, mean PPVT scores were above average, 106 and 113 respectively. For the GJT, the EL2ers were significantly less accurate than the monolinguals in detecting ungrammatical sentences with each morpheme type and had longer reaction times; however both groups showed wide variation in performance and some individual EL2ers had scores comparable to some individual monolinguals. L1 background was a predictor of accuracy scores and Figure 1 illustrates the difference between the EL2ers with L1s that mark agreement grammatically (Korean, Punjabi, Tagalog, French, Farsi, Arabic, Indonesian, Malayalam, Polish, Russian, Serbian and Spanish) and EL2ers with L1s which do not mark agreement (Cantonese, Vietnamese, Mandarin, Taishanese and Teochew). Cumulative and current input factors did not influence the performance of the EL2 participants in either group, nor were there between-group differences for these factors. This study suggests that even early L2 learners can diverge from monolinguals in their morphosyntactic abilities in adulthood. This study also shows that L1 influence on L2 acquisition can extend from childhood to adulthood. It is important to emphasize that this study included a challenging GJT, which might not reflect the morphological abilities of our EL2 participants in a real-life task. No differences in English language use were noticeable between the monolingual and EL2 participants in their interactions with the experimenters.

![Figure 3. Accuracy in judging grammaticality in sentences with nonlocal agreement morphosyntax](image)

Participants are monolinguals (MONO), early L2 learners with L1s that include agreement inflection (EL2-Inflecting L1) and L1s that do not mark subject-verb agreement (EL2-Isolating L1). TPS = 3rd sing. -s.

6. Conclusions and Implications

The research reviewed in this paper shows the following in a nutshell: 1) Early L2 learners take years to converge on monolingual levels of performance.
Acquisition rates differ across linguistic sub-domains and, for morphology, not every individual L2 speaker has abilities indistinguishable from their monolingual peers in adulthood. 2) Multiple internal and external individual difference factors shape the process of L2 acquisition throughout the childhood years. L1 background still exerts an effect on L2 abilities in young adulthood.

The most basic implication of profile effects in child L2 acquisition is that there is no simple answer to the question of “how long does it take?” because timelines depend on the linguistic sub-domain. Protracted L2 acquisition timelines, together with profile effects, are highly relevant for clinicians like speech-language pathologists who administer standardized tests in assessment. Findings from this research program suggest that, when assessing children within their first 3 years of English L2 exposure, monolingual test norms cannot be relied upon for accurate identification of language disorder in L2 children and doing so could result in over-identification of language disorder in this population. This is especially the case for tests measuring language-specific knowledge like morphology. Tests measuring skills at the cognitive-linguistic interface are less likely to lead to mis-identification, but norm-referencing still needs to be approached with caution. See Paradis (2016), Paradis et al. (2013), Paradis et al. (2011) and Sorenson Duncan and Paradis (2016) for more discussion of the use of standardized assessment tools with child L2 learners. Profile effects and protracted acquisition timelines also have educational implications. Children might need L2 learning support for a longer period of time than what many school districts provide. General expectations of language skill level and of performance on achievement tests needs to take into account protracted and asynchronous L2 learning patterns. It is likely that child L2 learners will show stronger abilities when some aspects of English are required for a task (e.g., verbal memory) than when others are required (e.g., grammatical accuracy).

Both clinicians and educators should be aware of the wide range of individual variation in the rate of L2 learning. Furthermore, our research shows that language input factors explain a great deal of this variance, and importantly, many input factors are malleable. Since we know that L2 acquisition can be advanced by a richer L2 environment, this argues for more enriched L2 support in and outside of schools. If the use of English at home by non-fluent speakers has a limited impact on children’s advancement in their L2 learning, then this should play a role in advice given to parents about language choices in the home. Parents should be encouraged to speak and read with children in the L1 since this is the best way for them to provide a rich home language environment.

Variation in long-term outcomes also leads us to consider how to interpret divergence between bilinguals and monolinguals. On one hand, lower performance by bilinguals on our subject-verb agreement task could lead some to conclude that dual language learning limits linguistic capacity and so bilinguals will always have inferior linguistic capacities compared with monolinguals. This is the “bilingual deficit” interpretation. On the other hand, variability in outcomes across linguistic sub-domains and individuals could be seen as a natural outcome of the complexity of dual language learning;
therefore, early L2 learners could end up with mostly similar linguistic abilities as monolinguals but still have some subtle differences, e.g., their precision with morphology might be less tight. This would be the “bilingual difference” interpretation, which is the view I espouse and the one I think is appropriate in our increasingly multilingual societies. Related to the deficit-difference issue is the question of what it means to be a native-speaker. Many research programs, including my own, is founded on bilingual-monolingual comparisons with the implicit or explicit assumption that the monolinguals are the “native-speaker controls”. But, should the category of native-speaker be synonymous with “monolingual”? If native-speakers are defined as being those individuals who were strictly monolingual throughout their childhood years, a significant number of people globally would not be native speakers of any language. Furthermore, a glance at Figure 3 tells us that even monolinguals can show variation in their morphological abilities on a challenging task. I believe the EL2 adults in the study reviewed in section 5.2 are bilingual native-speakers of English. They have had all their education in English, they are very English dominant (some have only passive abilities in their L1), and they are indistinguishable from monolingual speakers of English in conversation. Part of embracing the “bilingual difference” requires us to broaden our views on who is considered to be a native-speaker, and to understand that some minor differences are to be expected between monolingual and bilingual native-speakers.

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