Running head: ENGLISH LANGUAGE IN ADOPTEES

Running fast but running behind:

Language abilities in internationally-adopted children arriving between ages 2 and 9

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Abstract

Internationally-adopted (IA) children are not typical ESL learners. Rather than becoming bilingual, they become English monolinguals and must rely entirely on English for communication and education. Purpose: To determine the pattern of English language development in IA children adopted after 2.5 years old. Method: This study describes the acquisition of receptive vocabulary (PPVT-III) and general language skills (DELV) of 78 children (aged 3.9-9.9 years) adopted from Asia and Eastern Europe. Children were also assessed on nonverbal cognitive abilities using the KBIT-II matrices section. Results: Language skills increased with time in the U.S. Children who were older at adoption acquired English more rapidly; however, they had greater initial delays relative to native speakers and thus took longer to attain proficiency. Nonverbal cognitive ability appeared to mitigate verbal performance, while educational placement was not significantly correlated with test scores. Half of the participants scored within one SD of the norm for their age on vocabulary (PPVT-III) and general language (DELV) measures after 2 years of English exposure. Conclusions: Results suggest that language difficulties become apparent sooner in IA children than in typical ESL learners. Evaluating English skills after no more than 2 years of exposure may be beneficial for early detection of problem areas.

Keywords: international adoption, language development, vocabulary, adoption age effects, ESL

INTRODUCTION

International adoption has brought nearly 200,000 children into the U.S. over the past decade (U.S. Department of State, 2008). Most of these children arrive in the U.S. without any prior exposure to English and must learn English without assistance from anyone fluent in their native language. Some studies have demonstrated lasting differences between internationally adopted (IA) children and their non-adopted peers including neurological variations, attachment problems and lower school performance (*e.g*. Dalen, 2001; Nelson, Zeanah, & Fox, 2007; Tottenham *et al*., in press). However a number of studies have demonstrated that IA children adopted as infants and toddlers are able to master their new language– perhaps one area in which there isn't a lasting difference. A study by Roberts, Krakow and Pollock (2003) examined English performance in preschool age children who were adopted from China between the ages of 6 and 25 months. Eighty-five percent of the children scored in the normal range or above for their age, with 42 percent scoring above average on two or more of the tests. Glennen and Masters (2002) found similar rapid early progress in English with most children adopted prior to age two being near or at age level in English by the time they were three and a half years old. Another study (Scott, Roberts & Krakow, 2008) examined the written and oral language abilities of 7 and 8 year old children who were adopted from China before the age of two and found the majority of children to have skills at or above age level.

Despite early adversity, most internationally adopted infants and toddlers are able to master English (but see Gauthier & Genesee, 2007). However, children entering the U.S. at preschool age or later are faced with even greater linguistic challenges. Older children have to learn more English than toddlers to reach the level of their native English-speaking peers and they often begin their formal education in English before they have fully mastered the language.

This leads to questions of how to best support oral language development and academic achievement in this population. Their unique background makes evaluation difficult and may lead to questions of whether the children are progressing as expected given their background, or whether they could benefit from additional assistance. A first step toward addressing these concerns is to gain a better understanding of typical English language development in this population by documenting the progress of a group of older international adoptees.

There is little research on the subsequent language development of children who are adopted after two or three years of age. In our previous work we examined the earliest stages of English acquisition in children adopted from China between 2;6 and 5;6 (Snedeker, Geren, & Shafto, 2007).Three to eighteen months after arrival, parents filled out the MCDI (Fenson *et al*., 1993) Words and Sentences form, and collected videotaped speech samples. We found that the IA children learned English much faster, but followed many of the same developmental shifts as the infant learners. Specifically, they initially learned a disproportionate number of nouns (like typical toddlers), and developed a more balanced lexicon over time.

The finding that these older IA children rapidly learned English is in line with results from studies of younger IA children (*e.g*. Glennen & Bright, 2005; Krakow, Tao, & Roberts, 2005; Pollock, 2005; Roberts *et al*., 2005). However, because the MCDI is designed to be used with children aged 16-30 months, it is not sensitive to more complex language skills. Thus, we do not know at what point (or if) these children attained age-appropriate proficiency in English. The present study seeks to expand our understanding of IA children's English language development by following them beyond the earliest stages to determine when and whether they attain English abilities on par with their native English-speaking peers.

IA children, like children who do not speak English at home, need a period of adjustment to the English language before they can fully benefit from classroom instruction presented in English. However, because IA children do not typically have another language to support their intellectual development outside of school, it is even more important that they quickly master their new tongue. The language abilities of IA children could have potentially vast effects on their education, as there is mounting evidence that oral language abilities are highly correlated with literacy abilities (*e.g.,* Ehri, 2004; Hirsch, 2003; McCardle, Chhabra, & Kapinus, 2008; Wagner & Torgesen, 1987).

Because adopted children have had little time to learn English, comparing their English language skills soon after arrival to those of native English-speaking children is likely to result in misclassifying many IA children as having a language delay. However, comparing them at that point to other English as a Second Language (ESL) learners wrongly assumes continued use of their first language. A recent systematic review of the literature on older IA children's English language development (Scott, 2009) concluded that an appropriate time to start assessing English language abilities relative to their chronological peers was after about 2 years in the U.S. While this review provides some insight into older IA children's trajectory, because the reviewed studies were based on small samples, more evidence is needed.

Additional documentation of the course of language progress in IA children who are becoming English monolinguals is needed in order to inform parents and educators as they try to determine whether a child needs special education services or simply additional time to master English. It may also help in making school placement decisions. Namely, in deciding whether placing a child at age level or with younger children, in an ESL classroom or a typical classroom (with or without pull out services) will be most beneficial to the child.

This study examines English language development by testing the vocabulary and general English language abilities of children adopted from Asia and Eastern Europe. We begin to examine the influence of age at adoption and time in the U.S. on progress in learning English. Measures of nonverbal cognitive abilities from a standardized assessment of intelligence, and differences in pre-adoptive background including region of birth and history of institutionalization are also examined. A common concern for those working with this population is determining how long a child should be exposed to English before standard language assessments become appropriate. The present study begins to address this concern by examining how long after coming to the U.S. it takes IA children to achieve language scores in the typical range for their chronological age.

METHOD

Participants

Data are reported from 78 child participants[1] (42 female) adopted from Eastern Europe and Asia. The children ranged in age from 3.9 to 9.9 years (M=7.3, SD=1.7) at the time of testing and had been in the U.S. between 0.3 and 6.5 years (M=2.4, SD=1.7). Approximately half of the children (n=40) had been in the U.S. for less than 2 years. Age of arrival in the U.S. (AoA) ranged from 2.4 to 8.4 years (M=4.9, SD=1.8). All children were adopted by monolingual English speakers. Children were excluded from participation if they had been diagnosed with a sensory, motor, or developmental condition that could affect language development (*e.g.* hearing loss or Down syndrome). The children were adopted from Russia (n=31), Kazakhstan (n=16),

[1] Four additional children participated, but were excluded from analyses due to extensive exposure to an additional language (n=1), scheduling problems that prevented completion of testing (n=2), and a participant opting to discontinue participation (n=1).

China (n=18), India (n=11), South Korea (n=1) and Cambodia (n=1). Fifty-four children had no continued exposure to their native language, fifteen had less than two hours per week, and six children had between 2 and 10 hours a week of continued exposure. Continued language exposure came from friends, caregivers, or instruction in the child's native language. Only two of these children were reported to use more than 50 different words or combine words in their native language at the time they participated in this study, suggesting that they had become functionally monolingual English speakers despite some continued exposure to their birth language. The remaining three children had been in the U.S. for less than a year and were adopted as part of sibling groups. Their parents reportedt that they used their native language with their siblings at a decreasing rate over time.. See Table 1 for full details of AoA, country of origin and time in the U.S.

Seventy-four participants were living in an orphanage at the time of adoption. Time in institutional care ranged from 0.3 to 8.1 years (M=2.9, SD=1.6). Forty-nine of those children were with their birth family beyond early infancy (range 0.8-6.4 years, M=2.8, SD=1.7) and eight had spent time in both foster and institutional care. The remaining four children were placed in foster care in infancy and never spent time in an orphanage.

Insert Table 1 about here

Participants were primarily recruited through national adoption support groups (*e.g.* Families for Russian and Ukrainian Adoption). The groups posted information about the study in their newsletters and on their web sites. Additional families were recruited through a national adoption agency specializing in international adoptions and yahoo adoption support groups. In

order to insure confidentiality, the adoption agency sent a mailing to the parents of all children who appeared to meet the study's criteria, with information about contacting the researcher in order to participate.

Materials

Two standardized English language measures were used. The Peabody Picture Vocabulary Test-III (PPVT-III; Dunn & Dunn, 1997) was administered as a test of receptive English vocabulary. General English language abilities were assessed using the Diagnostic Evaluation of Language Variation (DELV; Seymour, Roeper, & de Villiers, 2005), a broad test of syntactic, semantic, pragmatic and phonological development. Analyses focused on the syntax, semantics, and pragmatics sections which contribute to the total language composite score. The phonology section was analyzed separately.

Children's nonverbal cognitive abilities were assessed using the matrices section of the Kaufman Brief Intelligence Test-II (KBIT-II NV; Kaufman & Kaufman, 2004). We chose not to use the verbal section of the test, as we wanted a cognitive assessment that was independent of English language ability.

Since one of our measures was only suitable for children under age 10 (DELV), children who entered the U.S. later in childhood could only be tested within their first few years post-adoption, while children who entered as preschoolers could be tested as much as 7 years after arriving in the U.S. This resulted in a strong negative correlation between AoA and time in the U.S. (r=-.54, p<.001), which was controlled for in the analyses.

Parents completed a background questionnaire to document early language experience, pre-adoptive living situations, physical health parameters, and information about the child's school placement in the U.S.

Procedure

Assessments were administered according to standard procedures. Each participant's testing lasted between 2 and 4 hours and was conducted over one to three sessions Participants were recruited from across the United States and were tested in our lab, their homes, or a hotel suite. In all cases testing was done in a quiet room with minimal distractions.

RESULTS

Because IA children have delayed exposure to English, we hypothesized that they might be behind their chronological peers in English language abilities. Overall, children performed well on the measures, particularly given the relatively short duration of English exposure for many of them. On the PPVT-III the mean standard score (SS) was within one standard deviation of normal (M=85.2) and performance on the DELV yielded a mean SS in the low average range (M=79.7). This was largely a result of the low scores obtained by the children adopted at the oldest ages who had been in the U.S. for the least amount of time. Specifically, twenty of the children were adopted over age 6 and had been in the U.S. for less than 2 years. Their mean SS on the PPVT-III was 71.6 and their mean DELV SS was 65.5. When these children were excluded the group means increased to 90.0 and 82.0 on the PPVT-III and DELV respectively. See Table 2 for the full list of descriptive statistics on all of the measures.

Insert Table 2 about here

To understand these scores and how they changed over time, we conducted three kinds of analyses: a preliminary analysis exploring whether language skills depended on country of origin, stepwise regressions to examine the predictors of English language ability, and a

categorical analysis examining the proportion of children who had achieved age-appropriate English language skills. We then conducted analyses to explore the effects of educational placement on children's performance.

Effects of Origin

First the effects of language/area of origin on English language abilities were examined. This was motivated by: higher rates of alcohol consumption in Eastern Europe and the consequential concerns about prenatal alcohol exposure in this population; the rarity of foster care in Eastern Europe relative to Asia (4% of our Eastern European participants and 32% of our Asian participants spent time in foster care). In addition, we were motivated by previous findings that found significant differences in the cognitive and motor development of children adopted from China, East Asia, and Russia (*e.g.* Pomerleau *et al.,* 2005). Participants were divided into 2 groups: a Russian-speaking group of 47 children (41 Russian monolingual and 6 bilingual in Russian and a second language) from Eastern Europe (Russia and Kazakhstan), and a heterogeneous Asian group comprised of the remaining participants[2]. The Asian group included children with backgrounds in Mandarin, Cantonese or some other Chinese dialect (n=18), Marathi, Hindi, Bengali, or Tamil (n=11), Korean (n=1) and Khmer (n=1). Nine of the children were bilingual prior to arriving in the U.S. and many are suspected to have learned a distinct regional dialect rather than the "official" language of their birth country.

In a stepwise regression, after AoA (R^2=.513, p<.001) and time in the U.S. (R^2=.178, p<.001) were removed, Eastern European compared to Asian origin was not a significant

[2] Additional analyses were conducted excluding the children adopted from India (N=11), in order to check for effects of native language more specifically. Because the results of this analysis did not change (R^2=.00, p>.10; R^2=.00, p>.10; PPVT-III and DELV respectively), the Indian adoptees were combined with other Asian adoptees.

predictor of PPVT-III raw score (receptive vocabulary; R^2=.00, p=.79). Similarly for DELV raw score (broad oral language ability), after time in the U.S. (R^2=.262, p<.001) and AoA (R^2=.395, p<.001) were removed, origin was not a significant predictor (R^2=.01, p=.18). In a direct comparison the groups also did not differ on KBIT-II NV SS ($t_{(76)}$=1.14, p=.26). Further analysis of the role played by region/language of origin was impractical due to the small size and heterogeneity of the sample. Thus all participants were combined for the remaining analyses.

Effects of Nonverbal Cognitive Ability

Next we examined children's nonverbal cognitive performance as measured by the KBIT-II NV. Standard scores ranged from 65-124 (M=93.3, SD=15.2), with one third of the group falling more than one standard deviation below the mean for their age. This is more than twice the percentage expected in a typical population. However, in a stepwise regression, AoA (p=.941) and time in the U.S. (p=.381) were both non-significant predictors of KBIT-II NV SS. This suggests that children's nonverbal cognitive abilities were not significantly affected (positively or negatively) by the amount of time they had spent in the U.S., or the age at which they were adopted (at least within the ranges of our sample).

Performance on the PPVT-III

Regression analyses were conducted in order to examine performance on the PPVT-III. First we entered time in the U.S. and AoA into the regression. Both of these variables were predictive of PPVT-III raw vocabulary score (R^2=.513, p<.001; R^2=.178, p<.001, respectively). After removing those variables, KBIT-II NV SS accounted for a significant amount of additional variance (R^2=.047, p<.001). Regression analyses were also conducted with PPVT-III SS. Again time in the U.S. and AoA were entered first and both were significant (R^2=.046, p<.001; R^2=.406, p<.001, respectively) and once those variables were removed, KBIT-II NV SS

accounted for a significant amount of additional variance (R^2=.093, p<.001). This means that children who were older at the time of adoption acquired vocabulary more rapidly; however, they still require longer to attain age-appropriate language skills than children adopted at younger ages because they have more total vocabulary to acquire in order to be proficient. Additionally, children learn more English vocabulary the longer they are in the U.S., and children who have been in the U.S. longer have made more gains relative to their peers. General cognitive ability also played a role in the pace of acquisition with higher KBIT-II NV SS being associated with both raw and standardized vocabulary scores.

Performance on the DELV

Regression analyses were conducted in order to examine children's oral language abilities, as assessed by performance on the DELV. Time in the U.S. and AoA were entered into the regression first, and both were significantly predictive of DELV raw score (R^2=.262, p<.001; R^2=.395, p<.001, respectively). Once those variables were removed, KBIT-II NV SS accounted for a significant amount of additional variance (R^2=.050, p<.001). Regression analyses were also conducted with DELV SS. Again time in the U.S. and AoA were entered first, but only time in the U.S. was significant (R^2=.205, p<.001). Once those variables were entered, KBIT-II NV SS accounted for a significant amount of additional variance (R^2=.105, p<.001).

As with the PPVT-III, these results suggest that children adopted at older ages learned broad oral language abilities (as measured by the DELV) faster than younger adopted children. However, when examining SSs we found no difference in how fast they attained proficiency relative to younger adoptees. This suggests that children adopted at younger ages were not necessarily more likely to have age-appropriate DELV SSs. Additionally, results suggest that children improve in English language ability the longer they are in the U.S., and children who

have been in the U.S. longer are more likely to have attained English proficiency. Higher scores on the test of general cognitive ability (KBIT-II NV SS) were associated with both higher level of linguistic achievement (raw scores) and better performance relative to age-based expectations (standard scores). See Table 3 for full set of regression statistics.

Insert Table 3 about here

DELV Phonology Results

The DELV phonology score is based on the production of 25 consonant clusters produced during a sentence repetition task. This task does not penalize based on accent; an item is only scored as incorrect if one or more phonemes in the scored cluster is deleted, added, or replaced. Overall the children did quite well on this task with 44% of the children achieving perfect scores. The mean score was 22.2 (SD 4.5). Five children scored greater than 2.5 standard deviations below the group mean; these include the 3 youngest children in the study as well as 2 whose scores cannot easily be attributed to age or recent arrival in the U.S. These five children were removed from additional analyses.

Analysis of the remaining participants' scores revealed no correlation between time in the U.S. and Phonology score (r=.05, p=.67). A stepwise regression revealed a significant effect of current age on Phonology score (R^2=.208, p<.001) but no significant effect of Origin (R^2<.001, p=.20).

This is far from a complete measure of pronunciation in this population. However the lack of relationship between Phonology scores and time in the U.S. suggests that IA children

who have severe pronunciation problems should be assessed by a speech and language pathologist, as this is not a typical part of the English learning process.

Proficiency Analyses

The rate of below-average KBIT-II NV scores posed a problem for determining which children had attained proficiency in the English language. A criterion of achieving a SS in the average range (within one SD or better) makes sense for children with normal nonverbal cognitive abilities, but not for those with generally depressed cognitive skills. To address this issue we set two levels of criteria for defining a child as having attained English language proficiency.

The first criterion, mentioned above, required a child's DELV language and PPVT-III vocabulary SSs to fall within one standard deviation of the mean for their age (or higher). None of the children tested less than one year post-adoption (n=15) were at age-level (SS of 85 or higher). However, 24% of participants tested in the first 12-23 months in the U.S. (n=25), 36% of those tested in the first 24-35 months (n=14), and 50% of those tested 3 or more years post-adoption (n=24) had attained age-appropriate English proficiency on both the DELV and the PPVT-III.

The second criterion considered children with a below-average KBIT-II NV SS (more than 1SD below the mean) to have attained proficiency in English if there was no significant difference between their KBIT-II NV SS and their language scores, or if language scores exceed KBIT-II NV scores, indicating that they are performing at least as well on the linguistic tasks as on a general cognitive task. Paired *t*-tests found that in the group of 13 children with below-average KBIT-II NV SS and 2 or more years of experience with English, DELV scores did not differ significantly from general cognitive scores ($t_{(12)}$=.50; p<.62) and PPVT-III scores were

marginally higher than general cognitive scores ($t_{(12)}$= 2.15; p=.053). While Table 4 illustrates that few children with low KBIT-II NV SSs had attained English proficiency based on their chronological age, relative to the level of their nonverbal cognitive ability these children are mastering both vocabulary and general English skills.

Overall, we found that after 24 months or more in the U.S., children with average or above-average nonverbal cognitive abilities were more than twice as likely to be at age-level in vocabulary, and more than four times as likely to be at age-level in general English language abilities than children with below-average nonverbal cognitive abilities (see Table 4). However, when children who have below-average KBIT-II NV SSs are evaluated using criterion for proficiency that is adjusted based on their KBIT-II NV SS, we find that the majority of kids in both groups achieve proficiency in English during their first few years in the U.S.

Insert Table 4 about here

Effects of Education Placement

To determine whether school placement was related to nonverbal cognitive skills we examined all of the children in the sample who were school aged at the time of testing. Analyses were based on the 67 children aged 5 years or older for whom grade level information was available. A logistic regression was used to predict grade-level placement from KBIT-II NV SS level (normal or below-average). A child's KBIT-II NV SS level was a significant predictor of grade-level placement, such that having a KBIT-II NV SS of 85 or above increased the odds of being placed at grade level by a factor of 3.55 (p<.05). In an additional logistic regression KBIT-II NV SS level was not a significant predictor of whether or not a child was receiving special

language services (p=.127). Table 5 shows the grade placement and language-related special education services of this sample.

Insert Table 5 about here

Educational placements were then examined for the 36[3] children who had been in the U.S. for at least 2 years. Two factors were considered: whether the child was placed in school based on chronological age and whether the child was currently receiving any language-related special education services (including speech and language therapy or ESL). A logistic regression was used to predict grade-level placement from PPVT-III SS level (normal or below-average). PPVT-III SS level was not a significant predictor of grade-level placement (p=.283) or whether or not a child was receiving special language services (p=.085). Additional logistic regressions were conducted with DELV SS, which was also not significantly predictive of children's grade-level placement (p=.506) or whether or not a child was receiving language services (p=.638).

All of the 27 school-aged participants who had been in the U.S. for less than two years were receiving some sort of special language service, most commonly ESL (n=23). Sixty percent (n=24) of the school aged children who had been in the U.S. for more than two years were still receiving special services. Reading (n=8), ESL (n=7), and speech therapy for articulation (n=9) were the most common services reported.

Summary

[3] Two additional children were excluded from the analysis because they were in non-graded school programs or did not provide this information.

Our pattern of vocabulary results suggests that children who were adopted at older ages acquired English vocabulary more rapidly than younger adoptees. Since older adoptees have more catching up to do, they were less likely to have reached the vocabulary level of their native English-speaking peers when compared to children adopted at younger ages (who had spent the same amount of time in the U.S.). As expected, time spent in the U.S. strongly predicted English vocabulary size after removing the influence of AoA.

Children's broader language performance, as measured by the DELV, suggests that the acquisition of other English language abilities is also influenced by age. Specifically, older children develop these skills more rapidly. However, these data suggest no age-related differences in how rapidly children attain age-level proficiency. There are several possible reasons for this finding. First, children who are adopted at an older age may make such rapid progress, relative to the younger children, that they are able to make up for extra distance that they must travel. This is consistent with the larger effect of AoA on raw scores for the DELV (relative to the PPVT). Another possibility is that this measure (DELV) does not have the sensitivity required to detect a difference given that the children adopted at older ages have necessarily spent less time in the U.S. It is also possible that the DELV taps more age-linked cognitive abilities. The nonlinguistic demands of the PPVT-III are minimal (you must point to response to test items), while the nonlinguistic demands of the DELV seem far more substantial.

DISCUSSION

Our goal was to determine the pattern of English language development in IA children adopted after the age of 2.5 years. We attempted this by assessing the vocabulary and general English language abilities of a group of children adopted from Asia and Eastern Europe. We examined the influence of adoption age and time in the U.S. on their progress in learning

English. We also assessed their nonverbal cognitive abilities and differences in pre-adoptive background. We determined that it takes IA children about 2 to 3 years to achieve test scores in the typical range for their chronological age (if they have normal nonverbal intelligence), and in the same time children with below-average nonverbal intelligence achieve language scores comparable to their cognitive scores. This recommendation is in line with findings from a recent systematic review of the literature on IA children's English language development (Scott, 2009).

Mitigating Factors in English Language Development

The majority of the IA children in this study had achieved language scores commensurate with their general cognitive abilities within two years of arrival in the U.S. This strongly suggests that English language proficiency occurs more rapidly in this population than in typical ESL learners. Many researchers have stated that it takes ESL students approximately 5 to 7 years to catch up to their English-speaking peers (*e.g.* Clegg, 1996; Portland Public Schools, 2009; Public schools of North Carolina, 2009; Thomas, & Collier, 2002). Given the scarcity of research on IA children's English language development, many adoptive families (including many who participated in this study) are told by their child's school that they should be given 5 to 7 years to reach age-level. This is problematic for several reasons. First, this does not account for the fact that while typical ESL students are presumed to have age-appropriate language skills in their first language (which they are continuing to use on a regular basis) IA children would potentially be spending 5 to 7 years of their childhood with no age-appropriate language abilities. Second, since our research demonstrates that at least half the children attained age-appropriate abilities after only 2 years of English exposure, waiting 5 to 7 years before evaluating a child for language impairments is likely to delay necessary services to an extent that is detrimental to that child's education.

Next we consider which factors determine how long an individual child requires to gain age-appropriate English language abilities. A first possibility we explored was the child's region of origin. The heterogeneity of the sample made it difficult to explore this possibility in depth; however, we could compare Eastern European adoptees to Asian adoptees. This comparison was motivated by: higher rates of alcohol consumption in Eastern Europe and the consequential concerns about prenatal alcohol exposure in this population, and the rarity of foster care in Eastern Europe relative to Asia. Surprisingly, despite having the statistical power to detect a medium effect, origin was not found to be a significant predictor of vocabulary or general language abilities, nor was it found to predict nonverbal cognitive abilities.

Adoption age (AoA) was found to influence attainment of proficiency in English receptive vocabulary. Specifically, children adopted at younger ages were more likely to be in the normal vocabulary range for their age (PPVT-III SS of 85 or greater) within a few years of arrival in the U.S. For children with average or above-average nonverbal cognitive abilities, 88% were proficient in vocabulary and 68% were proficient in general language abilities (DELV) after 2 or more years in the U.S. Thus it appears that the majority of IA children were able to speak and understand English at a level appropriate to their cognitive abilities after only 2 years in the U.S. This suggests that after 2 years in the U.S. the appropriate comparison group would consist of same-age peers but that nonverbal intelligence should be taken into account when considering the nature of the child's linguistic delay.

Our analysis of educational placements suggests that in our sample there was little or no relationship between placements and individual children's language performance. This analysis confirms our belief that educators have difficulties in evaluating and selecting services for these children– who are neither native speakers of English nor typical ESL students. Anecdotal

evidence from parent reports suggests that the decision to initially place a child at age-level or below is shaped by everything from academic and social skills to physical size; this data set gives no insight into what placements are most effective. On the other hand it seems reasonable that children who are scoring below average in language abilities should be receiving special language services at higher rates than those who are currently performing at age level. The absence of this finding is likely attributed to the variety of criteria used to assess IA children. The same child could be considered a typical emergent English learner or a severely language-impaired student depending on whether assessment assumes a 5 to 7 year grace period for learning, or compares the child to age-matched peers.

Our results indicate that most children attained proficiency in receptive English vocabulary and the language skills measured by the DELV after only 2 to 3 years in the U.S. Of course this does not rule out the possibility that these children lag behind their native English-speaking peers in other areas of language development (e.g., pronunciation or narrative skill). However, this research suggests that two years might be a reasonable amount of time for an IA child to be considered an ESL learner before s/he is evaluated for specific language or learning disabilities. At that point identifying asymmetries in language abilities or general delays in development may help to pinpoint areas in which educational assistance may be beneficial.

Educational Implications

The adoptive language abilities of IA children have potentially vast implications for their educational achievement. In populations of children learning to read in their native language, oral language abilities such as vocabulary and phonological skills are highly correlated with literacy abilities (*e.g.,* Ehri, 2004; Hirsch, 2003; McCardle *et al.,* 2008; Wagner & Torgesen, 1987). Lindsey, Manis, and Bailey (2001) presented evidence that English vocabulary and

phonological processing levels are predictive of English reading abilities in ESL children too. While IA children fit neither of those learner categories, two of the authors recently reported on the correlations between English language and English literacy abilities in a group of IA children, and found similar correlations among vocabulary, phonological processing, and reading ability (Shafto, Geren, & Mervis, in preparation).

Although the current study demonstrates rapid overall language development, previous research on IA children's school performance has presented mixed results. Dalen (2001) measured school performance in 193 11- to 16-year-old children adopted into Norway from Columbia or Korea. She found no link between adoptees' day-to-day language and school performance, but a strong link between school language (as measured by items like "the child understands very well what the teacher is lecturing about in a classroom session") and school performance. In a dissertation by Hough (2005) many Eastern European adoptees evidenced poor written language abilities after 5 or more years in the U.S. However, a more recent study (Scott, Roberts, & Krakow, 2008) found that 7– 9-year-old children adopted from China before age 24 months (who were incidentally adopted during the same time frame as the children in the Hough dissertation) were performing at age-level on written and spoken language measures. They also found significant correlations between phonological processing and reading performance.

Taken together these findings suggest that IA children's adoptive language abilities could negatively impact their school achievement, but there is a great deal of variability. While many international adoptees rapidly achieve proficiency, parents and teachers need to be aware of specific linguistic weaknesses that may appear as children mature. Careful attention is also

needed to identify the special needs of the portion of the adopted population who present with language or learning disabilities in addition to their late exposure to English.

Limitations

Our study has several limitations. The first is the strong negative correlation between adoption age and time in the U.S.– a direct result of the age limits we imposed for participation. This means that the sample of children who had been in the U.S. for 2 years or longer was comprised entirely of children adopted prior to age 7, making our results only applicable to children adopted in the preschool and early elementary years. We also expect some bias in our sample due to the types of families who are most likely to be interested in this research. Both of these problems could be remedied in a follow-up study that recruits all participants soon after adoption and follows them longitudinally for three to four years using measures that would allow children to be tracked beyond age 10.

This sample bias is also a possible contributor to the lack of correlation between age of adoption and nonverbal cognitive abilities. While some previous research has found that increased duration of institutionalization is associated with decreased cognitive abilities (*e.g.* O'Connor, 2000; Rutter & the English and Romanian Adoptees Study Team, 1998), others have found no correlation after 12 or even 6 months post-adoption (CITE). This suggests that early adoption may be protective, but that the effects are not linear. This is in line with the pattern of results found in the present study. In our sample the children who had been in the U.S. the longest were also adopted at the youngest ages, and thus had spent the least time in institutional care. The current sample may include a more balanced sample of adoptees that had spent a short time in the U.S. (and thus more time in institutional care), but there were fewer of them.

Conclusions

Children adopted from Eastern Europe and Asia at preschool and school age learn to speak English more rapidly than infant learners or typical ESL students. The older the child is at the time of adoption the more rapidly they acquire both English vocabulary and general English language abilities. However, older children have many more words to acquire to reach the level of their native English-speaking peers and therefore take longer to achieve age-appropriate proficiency in vocabulary.

No differences were revealed in IA children's performance based on their region of origin, despite previous findings of regional differences (*e.g.* Pomerleau *et al*., 2005). Neither language abilities nor general cognitive abilities varied systematically with place of birth. Nonverbal cognitive abilities were also unaffected by adoption age or time since adoption. However, more participants performed below average on the test of nonverbal cognitive abilities than would be expected in a typical population (33% compared to 16%, respectively). The below-average performers were less likely to have achieved age-appropriate language proficiency than children scoring average or above average on the nonverbal cognitive measure.

The results of this study suggest evaluating IA children's nonverbal cognitive skills shortly after adoption. However, English verbal abilities should not be assessed until after two years in the U.S. There are several reasons to suggest that IA children should be assessed for special education services at that point, rather than allowing 5 or more years for English language mastery as many ESL programs recommend. First, correcting for nonverbal cognitive ability, the majority of participants were proficient in English after two years in the U.S. which suggests that children should have acquired enough English after two years to allow for the assessment of their relative strengths and weaknesses. Second, the children in this sample were more than twice as likely to fall below average in their nonverbal cognitive abilities compared to

a typical population. This suggests a greater need for assistive educational services in this population– independent of their English language skills. Finally, children in this population are in the unique position of not being proficient in any language for a period of time. Unlike children who speak a non-dominant language at home, these IA children have no language to support their intellectual growth aside from English.

In conclusion, internationally-adopted preschoolers and school age children demonstrate an amazing ability to rapidly acquire their adoptive language. While this population is extremely diverse both in their backgrounds and their individual abilities, this study provides some preliminary evidence about their course of English language acquisition in the years following adoption. An increasing number of older children are being adopted into the U.S. emphasizing the importance of proper educational placement and services for this growing population.

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Figures and Tables

Table 1

Time in the U.S., Country of Origin and Age of Arrival Ranges for all Participants

	Age of Arrival in U.S. in years				
	2.4-3.9	4.0-5.9	6.0-7.9	8.0-8.9	Total
Years in U.S.					
< 1	3	4	4	4	15 (19%)
1-2	6	7	10	2	25 (32%)
2-3	7	3	4	-	14 (18%)
3-5	8	8	-	-	16 (21%)
6+	8	-	-	-	8 (10%)
Origin					
Russia	7	11	11	2	31 (40%)
Kazakstan	4	4	4	4	16 (21%)
China	12	4	2	-	18 (23%)
India	8	2	1	-	11 (14%)
S. Korea	1	-	-	-	1 (1%)
Cambodia	-	1	-	-	1 (1%)
Total	32 (41%)	22 (28%)	17 (22%)	6 (8%)	

Table 2

Descriptive Statistics for each of the Measures.

	KBIT-II nonverbal	PPVT-III	DELV
Raw Score			
M	19.5	78.4	63.1
SD	7.5	26.5	22
range	4-36	23-145	1-100
Standard Score			
M	85	85.2	79.7
SD	15.3	15.3	12.9
range	57-127	65-124	50-118

Table 3

Regression Statistics.

	Age of Arrival	Time in U.S.	KBIT-II NV SS
KBIT-II NV SS			
	R^2=.000, p=.941	R^2=.010, p=.381	N/A
PPVT-III raw			
	R^2=.178, p<.001	R^2=.513, p<.001	R^2=.047, p<.001
PPVT-III SS			
	R^2=.406, p<.001	R^2=.046, p<.001	R^2=.093, p<.001
DELV raw			
	R^2=.395, p<.001	R^2=.262, p<.001	R^2=.050, p<.001
DELV SS			
	R^2=.012, p<.001	R^2=.205, p<.001	R^2=.105, p<.001

Table 4

Percentage of Children in each Time in the U.S. Range who have standardized language scores within the normal range.

KBIT-II nonverbal score category	Time in the U.S. (months)								
		0-11			12-23			24+	
	n	PPVT	DELV	n	PPVT	DELV	n	PPVT	DELV
Normal (SS ≥85)	12	17% (2)	0	15	47% (7)	20% (3)	25	88% (22)	68% (17)
Low (SS<85)	3	0	0	10	30% (3)	30% (3)	13	39% (5)	15% (2)

Table 5

Educational Placement of IA Children Aged Five and Older

	KBIT-II NV SS		
	Average (≥85)	Below Average (<85)	Total
Grade Placement			
age based	25	6	31 (46%)
below age level	20	16	36 (54%)
Language Services*			
no	14	4	18 (27%)
yes	31	18	49 (73%)

*Includes ESL, speech therapy, and special assistance with reading