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and  
Literacy Acquisition**

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## NON-LITERATE L2 ADULTS' SMALL STEPS IN MASTERING THE CONSTELLATION OF SKILLS REQUIRED FOR READING

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### 1 Introduction

Can adult immigrants without native language education or literacy learn to read in a second language? That is, can such immigrants reach the point where their literacy practices begin to approximate those of the educated adults surrounding them – their teacher, the supermarket cashier, the doctor? This is a question that LESLLA proceedings have addressed over the past several years, and while there are many LESLLA learners who are low-educated, it is also important to keep in mind that it may be the NESLLA learners – the *non*-educated learners – who face the greatest challenges. In the last US census, estimates indicated that 40% of working-age immigrants had primary schooling or less (Coulombe *et al.* 2004; Mace-Matluck *et al.* 1999; *The Skills Gap* 2001). An indication of comparable UK numbers are the statistics Baynham *et al.* (2007) provide: 14% of the over 500 learners the authors worked with reported no ability to read or write in their native language. As Kurvers *et al.* (2006:69) observe ‘hardly anything is known about the emergent literacy or metalinguistic awareness of adults [=immigrants] in Western countries who never went to school.’

There are two ways to approach this issue. We can find successful NESLLA readers and ask what internal and external factors underlie their success and then conclude that those who do not succeed lack the skills/opportunities involved. Or, we can look at those cognitive and linguistic pre-requisites which are assumed to underpin young children’s reading and study adult first-time L2 readers in the same way that first-time native language readers have been studied while developing literacy. The first option is currently excluded (but see below); we have discovered too few successful first-time L2 readers. Because there are still too few documented cases of success, researchers are thus currently left with no choice but to pursue the second option.

In second language (L2) acquisition it has long been argued that for acquisition of morpho-syntax (e.g. Bailey *et al.* 1974) and the acquisition of phonology (e.g. Eckman 1981) the errors learners make resemble those made by young children, and indicate that L2 adults make use of the same linguo-cognitive mechanisms children do. Children acquire most syntactic, morphological and phonological competence by ages 4-5, before they have begun to learn to read. Children also develop considerable linguistic awareness such as pre-literacy skills, prior to learning to read. For example, they develop phonological awareness of the syllable and of sub-syllabic units, onset, and rhyme (Bryant & Bradley 1983; Goswami 2001). However, without the further phonemic/segmental awareness which is involved in the mastery of grapheme-phoneme correspondences, children cannot sound out new words or read independently. Research points to children’s development of phonemic awareness only during the process of learning to read in an alphabetic script (Goswami & Bryant 1990). Over the past half decade,

contributions to the preceding LESLLA proceedings have pointed to the conclusion that when it comes to learning to read, adults make use of the same mechanisms as do children. However, answers to the question above cannot yet be given affirmatively, and we therefore need to continue to look both at whether first-time L2 readers demonstrate evidence of the knowledge and skills that underlie learning to read in an alphabetic script and also at the myriad additional pedagogical and social factors involved in the adult-level literacy that allows full participation in society.

This chapter is a UK follow-up of a US study conducted prior to the establishment of LESLLA. We begin by taking another look at the results of this study, which suggest a possible categorical difference between those with some schooling/some native language literacy and those without any at all. We then move on to the new study which set out to collect data from only those learners without any schooling, doing so through application of a short-term longitudinal design to measure learners' changes in knowledge and skills relevant to literacy. The data do not point to a categorical difference, but rather reveal small steps similar to those taken by pre- and early school children. We conclude this chapter by noting the importance of documenting such steps in NESLLA learners' progress.

## 2 Children's and LESLLA adults' phonological awareness

In their comprehensive study of phonological awareness, Burt et al. (1999) studied children in the UK and confirmed what a range of other studies before and since have shown. Their results, shown in Table 1, show that regardless of environment (social class in this instance), children exhibit common patterns of development for phonological awareness, where syllable awareness, followed by onset awareness, followed by rhyme awareness have been confirmed to emerge prior to phonemic awareness; and that all aspects of the development of awareness have been found to follow an upwards trajectory once the child begins to work on reading in school. Given the low transparency of English orthography when compared with those of other languages (e.g. Ziegler & Goswami 2005), mastery of reading in English is later than for other alphabetic orthographies, and it is thus not surprising that children begin to be introduced to the basics of reading somewhat earlier, e.g. in the UK before their fifth birthday.

Table 1: Burt et al.'s (1999) study of UK children in two age groups

	3 yrs ten mnths – 4 yrs 3 mnths	4 yrs 4 mnths - 4 yrs 10 mnths
syllable	55.6%	64.9%
rhyme	39.3%	41.3%
onset	25.6%	45%
phoneme	8%	24.9%

There is further evidence, from studies of adults who were not exposed to (alphabetic) literacy as children, that the awareness of syllables and sub-syllabic units emerges naturally, but phonemic awareness is dependent on learning to read in an alphabetic script. Individuals who have not been exposed to an alphabetic script in childhood because their language is written with a logographic script (e.g. Chinese) perform well on tasks testing syllable, onset and rhyme tasks, but poorly

on tasks testing phonemic awareness (Read et al. 1986). Moreover, those who have had no opportunity at all to become literate as children in their native language (in this case Portuguese) have been shown to perform well on syllable, rhyme and onset awareness tasks, but much worse on phonemic awareness tasks (Morais et al. 1979, 1987, 1988). Taken together, studies of children and of late literate native language adults point to the natural emergence of syllabic and sub-syllabic awareness on the one hand, and to exposure to an alphabetic script dependent on the development of phonemic awareness. Age does not seem to be a factor.

### 2.1 *The previous study*

Young-Scholten & Strom (2006) undertook a partial replication of Burt et al., using much the same tasks. The study involved the collection of data from 17 adult immigrants in Seattle who spoke Somali and Vietnamese, both of which use the Roman alphabet. Eight learners had immigrated with no schooling, nine with 1-5 years schooling. The age range at testing was 26 to 70 years old. The people tested had been in the USA from 3/4 years to 20 years and they had been taking ESL from two weeks to four years. In addition to tests of various reading sub-skills, the test battery also included measures of phonological and morpho-syntactic competence. It was assumed that a language threshold needs to be attained to provide the basis for reading skills to develop (Alderson 2000; Bernhardt & Kamil 1995). The influential Common European Framework of Reference (CEFR) was not used as a measure for two reasons. (1) It does not go low enough to capture the oral abilities of LESLLA learners, whose proficiency typically places them at a level below A1 - the lowest CEFR level (see Janssen-van Dielen 2006 and Kurvers & Stockman, this volume); (2) while the CEFR measures what the individual can do with language, it excludes the fine points morpho-syntactic and phonological competence, the acquisition of which is indispensable for those without any native language literacy skills to transfer. NESLLA learners are unique. Unlike the aforementioned Chinese readers being introduced to reading in English, they have no literacy. In addition, unlike the Portuguese adults introduced to literacy for the first time, they do not have target-like linguistic competence in the language in which they must try to read. This means that they must often grapple with reading words that contain consonant clusters not yet part of their interlanguage phonology. It also means that they will be confronted with sentences that contain inflectional morphology and syntactic patterns they have not yet acquired. The inclusion in a study of information about level of phonological and morpho-syntactic development is thus instrumental in forming a complete picture of NESLLA learners' emerging knowledge and skills.

The 2006 study's test battery included tasks that measured syllable, onset, rhyme, and phoneme awareness (adapted from Burt et al. 1999). The study also included a word awareness task, based on Karmiloff-Smith et al.'s 1996 study. These tasks were all both in English and also in the learners' native languages, given Morais et al.'s findings regarding native language phonological awareness. The measures of reading were those used in other studies such as Condelli et al.'s (2003), e.g. recognition of signs, knowledge of the alphabet and both single word and paragraph reading. The test battery also included tasks measuring morpho-syntactic and phonological competence which were devised by the researchers.

When compared to Burt et al.'s results, Young-Scholten & Strom's 2006 study revealed child-adult similarities as well as some important differences. The adults in the study patterned like children in both their native language and in English with respect to phonological awareness for those tasks which measured onset, rhyme and phoneme awareness. Performance on the task testing phonemic awareness was considerably worse. There were, however, two differences. First, unlike for children, performance on the syllable awareness task was not invariably as good or better on rhyme and onset tasks (see Table 1). Second, data from the application of Karmiloff-Smith et al.'s word awareness task showed that both non- and low-literate adults differentiated between content and function words, where their ability to repeat content words exceeded their ability to repeat function words. Karmiloff-Smith et al. found no such differences. We attribute these child-adult differences to L2 learners' low level of morpho-syntactic competence, where function words have not yet been acquired. Importantly, the study showed the expected strong relationship found for children (e.g. Goswami & Bryant 1990) between phonemic awareness and single word decoding. That is, there were no adults in the study who were able to decode/read words in isolation without manifesting phonemic awareness, and there were no adults in the study who exhibited phonemic awareness but could not decode.

While there was a good amount of variation in the results from those with 1-5 years of schooling (i.e. those with some native language literacy in the alphabetic scripts used in Vietnamese and Somali), including attainment of the highest level in the study for reading and for linguistic competence, results for those with no schooling were almost uniformly low, as shown in Table 1. Arranged in ascending order by morpho-syntactic competence level and reading level, we see that only one of the unschooled adults in the study had moved beyond the lowest two levels (levels 1 and 2) of morpho-syntactic competence, and only two had moved beyond the lowest level of reading development (level 1). Phonological competence varied much more (due to some extent to positive transfer from the learners' native language phonologies) as we see by the percentages of target-like single vowels and consonants and consonant clusters learners produced. Relative to their phonemic awareness, onset and rhyme awareness were impressive, with percentages considerably exceeding those for phonemic awareness for most learners.

Table 2: *Young-Scholten & Strom's 2006 study of non-schooled learners*

	Target-like oral phonology	Morpho- syntactic competence (1-5)	awareness tasks % correct		reading level (1-5)
			onset and rhyme	phoneme/ segment	
Nien	3%	1	34%	17%	1
Shamey	54%	1	20%	16%	1
Phung	29%	2	51%	0%	1
Keif	69%	2	61%	8%	1
Abba	56%	2	56%	17%	1

Aliya	63%	2	37%	0%	1
Asia	81%	2	36%	0%	2
Sharif	71%	5	68%	42%	4

The data from the non-educated adults in the study also reveal variation. For example, Phung had participated in ESL classes for one year at the time of testing, she had lived in the USA for 20 years, her children had all attended school and some were even studying at university level. On this basis, one would predict that she would have made progress in both oral English and in reading. Yet her reading was at the lowest level and her morpho-syntactic competence nearly as low. Sharif, on the other hand, had only participated in ESL classes for two weeks when he was tested, he had lived in the USA for only two years and while his family members were literate in Arabic and Somali, none were literate in English. One would predict a much lower level of success for him, yet he had managed to acquire near-native morpho-syntax (level 4) and to master the basics of reading in English (level 5). Where Kurvers and van de Craats (2008) conclude that fully successful learners who started as complete non-literates are rare, given the evidence that NESLLA learners seem to make use of the same cognitive mechanisms as do children in their reading (and also in their linguistic) development, with sufficient opportunities/time spent on task, we ought to find more individuals like Sharif.

A follow-up study, this time in the UK, was set up to look only at adults with either no schooling or with minimal schooling in a language which does not use the Roman alphabet and to do so over a period of time. Development of phonological awareness in tandem with decoding skills would bolster the case that first-time L2 readers make use of the same cognitive mechanisms as do children when learning to read. In addition, while the 2006 study included a task to measure vocabulary, because Young-Scholten & Strom concluded on several grounds that the task was not a valid measure, given the importance of vocabulary in reading, another means was developed to test it in the follow-up study. (By one calculation, beginning readers need a vocabulary of roughly 5,000 words and should know 95% of the words in a text to adequately comprehend it and be able to guess unknown words from context Alderson 2000:35). .

### 3 *The follow-up study: Further evidence for child-adult similarities in learning to read*

The UK replication of Young-Scholten & Strom (2006) involved adults from two pre-entry (sub-CEFR A1 level) classes at two local ESL programmes. Information is shown in Table 3 about these learners whose names are shortened to the first syllable protect their identities. Tasks similar to the 2006 study's phonological awareness and reading tasks were administered, with the addition of a test of words learners were learning to read (henceforth 'ESL words') and with a vocabulary test (British Picture Vocabulary Scale). The phonological awareness tasks were not conducted in the learners' native languages. In order to observe the small steps we predicted learners would take on the path to learning to read, they were tested twice, in June 2008 and March 2009.



Table 3: Follow-up study learners

Learner	Sex	NL(s)	reported NL school	UK arrival	Age	ESL	extra-classroom English
Abd	M	Nouba; Arabic	0	2006	32	1 yr	Friends
Far	F	Urdu	2 yrs	2005	48	1 yr	tv; family
Faz	F	Panjabi	0	2001	38	1 yr	Children
Hak	F	Dari	0	2001	66	3 yrs	Children
Nag	M	Tamil	9 yrs (?)	1998	43	2 yrs	tv; children
Nig	F	Arabic; Tigrinia	1 yr	2003	44	4 yrs	tv; family
Nas	M	Urdu	0	2003	48	5 yrs	Children
Sar	F	Kurdish, Farsi; Arabic	3 yrs	2004	37	1 yr	tv; children
Shaf	F	Urdu; Mirpuri	1 yr	1999	35	1 yr	Children
Shag	F	Dari; Pushto	0	2005	28	1 yr	tv; family
Yas	F	Panjabi	0	2006	35	1 yr	tv; family

A questionnaire was orally administered to gather information about learners' first language(s), their schooling, their arrival in the UK, age at testing, amount of ESL instruction and exposure to English. This information is also shown in Table 3. For those learners who had schooling, it was in a language which does not use the Roman alphabet. Where they reported '0' schooling, we determined that they could not read in any language upon UK immigration. Analysis of the effect of external factors on learners' progress is a complex matter, requiring either a longer-term longitudinal study involving a more qualitative approach and/or cross-sectional study with larger numbers of learners (see e.g. Kurvers and van de Craats 2008), and we leave this for future papers. Ideally, one would also have information about learners' frequency of attendance in ESL classes and treat this as a variable, but this information was not available.

### 3.1 Results

We first look at whether these 11 learners showed improvement over the seven months that elapsed between the two testing sessions. Analysis of the data shows that small steps are indeed taken on the road to literacy. (In Table 4, '(1)' refers to results found only at one of the two classes). Worrying, however, is the drop in learners' medial and final phoneme awareness, but we suggest that this can be attributed to what is essentially a testing effect where due to lack of additional testing in the learners' native language, the learners may not have always understood the requirements of the task. The Young-Scholten & Strom study included awareness tasks in Somali and Vietnamese to explore whether adults'

native language phonological awareness follows patterns found for children and for adults (i.e. Read et al. and Morais et al.), but due to the greater number of native languages spoken by the learners in the UK study, this was not feasible. We are, however, convinced that simply conducting challenging tasks in the learners' native languages before conducting them in English serves the additional function of aiding their understanding of the task before they attempt it in English.

Table 4: *Changes in task performance between June 2008 and March 2009*

	Stable	improvement	drop
linguistic competence	Morpho-syntactic competence	1. vocabulary 2. phonological competence	
phonological awareness	1. syllable 2. rhyme (1) 3. medial phoneme (1)	1. rhyme, onset 2. word-initial phoneme	1. medial phoneme 2. final phoneme
reading skills		1. signs 2. alphabet 3. single words 4. ESL words	

Taking a closer look at the data from the phonological awareness tasks and additional tasks, we found a considerable number of positive (and some negative) correlations. We found correlations similar to those found in the studies of children and other studies of LESLLA learners in terms of what learners are being taught (ESL words; the alphabet), actual word attack skills, phonological awareness, environmental print (sign recognition), aspects of linguistic competence, complex onsets/consonant clusters, segments (vowels) and vocabulary. We also looked for correlations between sets of scores (typically correct/attempts made) and found statistically significant correlations between the sub-components of phonological awareness, reading skills and vocabulary. These correlations suggest positive developments in (1) these learners' cognitive processing of graphemes, (2) their linguistic competence and (3) their reading skills. By examining under a microscope these learners' knowledge and skills, we can show that they indeed take steps, albeit small, as they learn to read in English. Before discussing each set of correlations, we briefly describe how the relevant data were collected.

As noted above, vocabulary was tested using the British Picture Vocabulary Scale, which is similar to the Peabody Picture Task used in the USA; both involve the researcher showing the learner pictures which she/he must then name. Knowledge of the alphabet involved learners' identification of letters in different fonts, e.g. **B X L / p**. Rhyme awareness required learners to listen to sets of three words, instead of four words as used in Burt et al. 2006 studies (this was suggested by ESL teachers). Learners had to then pick the 'odd one out'. For example: can, SHOP, man; SIT, thin, skin; hot, SHIRT, not; sun, fun, LEG; chip, CAR, lip. Significant and highly significant correlations were found for vocabulary scores at time 1 (June 2008) and time 2 (March 2009), and between the alphabet at time 1 and rhyme awareness at time 1 and vocabulary at time 1 and time 2. An analysis of the data collected at time 1 revealed that participants' vocabulary scores correlated

positively with their alphabet knowledge scores ( $r=.93$ ,  $p<.02$ ) and with rhyme awareness ( $r=.92$ ,  $p<.02$ ). Also, when looking at time 2 vocabulary score in relation to other variables, we found a strong positive and highly significant correlation with vocabulary score at time 1 ( $r=.98$ ,  $p<.002$ ). Strong positive correlations were also found between learners' vocabulary score at time 2 and alphabet score ( $r=.91$ ,  $p<.03$ ) and rhyme awareness at time 1 ( $r=.94$ ,  $p<.01$ ). This suggests that alphabet knowledge and rhyme awareness both underpin vocabulary growth.

We also looked for a relationship between onset awareness, phonemic awareness and one of the aspects of linguistic competence, i.e. phonological production. With respect to onset awareness, learners were tested in the same manner as for rhyme awareness; which word is the odd one out in a set of three (sleep, sport, CASH; red, WITH, ring; KICK, this, that; big, MILK, bus; fast, fish, PARK). For initial, medial and final phonemic awareness, learners listened to the researcher read a word and were instructed to repeat the word without the first sound, the middle sound or the final sound; they were tested with the words shown in the Appendix. Finally, syllable awareness was measured in terms of counting syllables in familiar words which the researcher read to learners (pencil, Manchester, Victoria, supermarket, Paracetamol) and unfamiliar ones (agility, nomenclature, derelict, abyss, periodical). For phonological production, consonant learners were prompted to say words with word-initial and word-final consonant clusters using pictures of 14 objects (e.g. clock, train, bread, desk, milk, six). This provided an indication of whether learners' interlanguage phonologies contained the syllable onsets and rhymes/codas the awareness of which was also tested. Our assumption was that a language learner cannot be aware of something that s/he has not acquired, that metalinguistic knowledge piggybacks on linguistic competence (Gombert 1992). Since adults with little or no native language schooling lack the sort of meta-phonological awareness educated L2 learners have, examination of the low-literate immigrants' linguistic competence is important. Attempts were counted only if the word which learners produced contained a cluster. For vowel production, learners were again prompted with 14 pictures to say words containing monophthongs, especially lax vowels, and diphthongs (e.g. metro, chicken, cat, smile).

For learners in one of the two ESL classes, phonemic awareness with respect to medial segments correlated significantly at time 2 with consonant (onset/coda) production at time 1 ( $r=.91$ ,  $p<.02$ ). For the same learners, there was also a strong, significant correlation between consonant production at times 1 and 2 ( $r=.95$ ,  $p<.01$ ). Rhyme awareness at time 1 also correlated with single word attack at time 2 ( $r=.94$ ,  $p<.01$ ) while at time 2 rhyme awareness correlated strongly and significantly with phonic/ESL word reading ( $r=.98$ ,  $p<.002$ ). Thus, the improvement reported earlier in relation to single word attack was associated with how well the participants did on the rhyme awareness task at time 1, while their phonic/ESL word reading underpinned their improvement in relation to rhyme awareness at time 2.

For learners in the other class, slightly different correlations were found: consonant production at time 1 correlated strongly and significantly with rhyme awareness at time 1 and 2 and onset awareness at time 2 ( $r=.99$ ,  $p<.0001$  in all cases). Significant correlations were also found between syllable counting at time 2 and alphabet knowledge at time 1 ( $r=.99$ ,  $p<.000$ ) and phoneme awareness at time 1 ( $r=-.98$ ,  $p<.000$ ).

To examine single word attack/decoding, learners read familiar words such as mobile phone, supermarket, teacher, station, community, medicine, floor, table, wedding, and breakfast. The phonic/ESL words were mono- and disyllabic words from the ESL programmes' literacy-level syllabuses and included 59 monosyllabic: verbs (crash, sit), nouns (man, leg), adjectives (red, sick) and function words (not, this, can) and four disyllabic words (garden, flower, market, today).

For the first class, time 1 rhyme awareness correlated with time 2 word attack ( $r=.98$ ,  $p<.01$ ) and time 2 rhyme awareness with time 2 phonic/ESL word reading ( $r=.98$ ,  $p<.002$ ). For the other class, correlations were again slightly different. Strong, significant correlations were only found between rhyme and onset awareness at time 2 ( $r=.99$ ,  $p<.000$ ).

For this class, ESL/phonic word reading at time 1 correlated with single word attack at time 2 ( $r=.97$ ,  $p<.004$ ) while single word attack at time 1 correlated strongly with alphabet reading at time 1 ( $r=.87$ ,  $p<.04$ ), and for the second class, there was a strong correlation between ESL phonic word reading at time 1 and single word attack at time 1.

For the second class, correlations were also found between Time 1 segment production and medial phonemic awareness time 2 ( $r=.97$ ,  $p<.001$ ).

#### *4 Discussion and conclusion*

What the above points to is correlations similar to those found in the studies of children and other studies of LESLLA learners. These are correlations between what learners are being taught (phonic/ESL words; the alphabet), actual word attack skills, phonological awareness, environmental print (sign recognition), phonological competence pertaining to vowels and to syllables and vocabulary. The many correlations point to the development of reading as a complex and systematic process. That we do not see random patterns strongly indicates that immigrant adults with little or no schooling/literacy at their disposal upon starting to read in an L2 are able to draw on cognitive resources that for them have remained dormant since childhood. Our results provide further evidence that first-time second language readers are making use of the same mechanisms children use in learning to read in their native language, given the similar patterns across the child and NESLLA populations. Such adults take small steps that are not detectable by the measures applied to educated second language learners. The use of tasks given to young pre-school and early school children allows us to observe steps that should, in theory, lead to the full development of reading by NESLLA adults. Compared with the considerable amount of research on children's literacy, the amount of research on NESLLA learners is indeed miniscule. While none of the learners in the follow-up study turned out to be as successful as Sharif in Young-Scholten & Strom's 2006 study, until the volume of NESLLA research begins to approach that undertaken with young children, we will not be in a position to know whether it is not only in theory but also in practice that NESLLA learners' small steps will, with persistence by learner and teacher alike, result in the full development of literacy. Until there is an exponential increase in studies contributing to our evidence base, we will be unable to say for certain how those immigrants with no native language schooling/literacy can become proficient readers in a second language at age 20, 30 or 70. In the meantime, teachers can best

do what they are already doing: engage their learners in activities that accelerate their phonological acquisition, promote phonological awareness and build their vocabulary.

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*Appendix: Phonemic awareness words.*

**Remove the initial sound**

<u>from</u>	<u>to get</u>
broom	room
leg	egg
meat	eat
clock	lock
train	rain

**Remove the middle sound**

<u>from</u>	<u>to get</u>
frog	fog
swing	sing
spoon	soon
glass	gas
sport	sort

**Remove the final sound**

<u>from</u>	<u>to get</u>
lamp	lamb
weak	we
fork	for
soup	Sue
port	poor