

Evidence of a Strong Correlation between the Achievements in L1 and L2 in Grade 5 Children

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Abstract

Research has shown that both the L1 and the L2 are processed by the same neural networks (e.g. Perani & Abutalebi, 2005), therefore there is possibility to find similarities and transfer between L1 and L2 skills (Wade-Woolley, 1999). Even if the writing systems are not similar, but share some characteristics (e.g., if both are deep and alphabetic) there are good chances of a positive transfer of reading skills from L1 (Urdu) to L2 (English) (Farukh & Vulchanova, 2015).

In the present study, we explored the relationship between Urdu and English scores of grade 5 children. The children were from public sector schools and the data used was from their District primary board of Examination. The main objective of the study was to explore the correlation between both languages i.e. Urdu and English. The scores of children were selected randomly from 6 schools i.e. 4 boys' schools and 2 girls' schools. The study began with collection of record of scores in 2 languages e.g. Urdu (L1) and English (L2), taught as compulsory subjects. Scores of 200 students (166 boys and 34 girls) were collected in this way. Results from Pearson's correlation indicated that there was a strong co-relation between the two language scores. A pedagogic implication of the results is that if a child is not performing in correspondence with his performance in L1, having similar or even different orthographic features then there are more chances of the failure of teaching method, and it is not because of any deficit in the child.

Furthermore, a t-test showed that the achievement of girls was better than boys for both languages.

Keywords: Cross-Linguistic transfer of language skills, correlation in language skills, deep orthography, shared features, L2 learning predictors.

1. Introduction

Learning of L2 is dependent on learning skill of L1, and the achievements of L2 depend on phonological, semantic, and syntactic skills of L1. Therefore, these L1 skills of an individual help him/her learn the second language successfully (Ismail, 1991; Farukh & Vulchanova, 2015). It is reported that basic learning process of both L1 and L2 is the same, and if there is a problem with any of L1 skills it would be transferred to L2 language skills (e.g. Ganschow, Sparks & Javorsky, 1998; Farukh & Vulchanova, 2015).

Evidence shows that acquisition of both L1 and L2 has same neural procedures, but learning of a second language involves some other factors like age, level of mastery, and exposure to language (Perani & Abutalebi, 2005; Farukh & Vulchanova, 2015).

Both L1 and L2 learning depend on common inherited generic systems and if one skill in the first language is compromised (for example in the case of orthography / phonology), it might have an effect on both first and second language systems (Ganschow, Sparks & Javorsky, 1998).

A recent study (Farukh & Vulchanova, submitted) focused on the relationship of word reading skills between first and second language, and the impact of L2 exposure on second language skills of reading words. Their findings show that second language reading skills are correlated to first language reading skills in spite of different orthographical systems of the languages.

It is described that learning of L2 reading becomes easy if both L1 and L2 share the same systems of orthography as readers can transmit/ transfer the techniques and methods that the readers utilised for reading their L1 (Wade-Woolley (1999)). On the other hand if two languages do not share the same orthographic systems, the facilitation process is reduced or finished completely (Bialystok, Luk & Kwan, 2005).

There is another evidence from same/similar orthographic systems which suggested that bilinguals who have shared orthographical systems for both first and second language (e.g. Hebrew, Spanish, English) enjoy an advantage over those who don't have the same alphabetic systems (Chinese & English) (Bialystok, Luk & Kwan, 2005). Moreover, the bilinguals who have two languages with varying orthographical systems (Chinese-English) still hold an advantage over monolinguals in reading skills.

It has also been noticed in a recent study focusing on selected words' reading from a text (Farukh & Vulchanova, 2015) that even if the writing systems are not similar, but share some characteristics (e.g., if both are deep and alphabetic) there are good chances of positive transfer of reading skills from L1 (Urdu) to L2 (English).

It is also noted that the readers of L2 whose L1 is not alphabetic (e.g. Chinese, Japanese) have less proficiency in executing the phoneme-grapheme agreement for English words over those whose L1 has alphabetic orthography (e.g. Persian, Spanish) (Brown & Haynes, 1985; Akamatsu, 1996; Koda, 1988, 1990).

The LCDH (the Linguistics Coding Difference Hypothesis) (Sparks & Ganschow, 1995; Sparks, Ganschow & Pohlman, 1989; Sparks & Ganschow, 1991 etc.) is an important theory in this context. The term "linguistic coding" means that coding of information in an L2 requires the use of phonological, syntactic, and semantic knowledge of L1. This theory implies that these skills of L1 provide a base to learn L2 (e.g. Sparks & Ganschow, 1991; Farukh & Vulchanova, 2015). On the basis of the literature presented here, it can be predicted that there may exist a correlation between Urdu and English language skills if we explore our education system. The current study therefore, investigates the presence of the same relationship already studied for other languages.

Both Urdu and English are related to the Indo-European family of languages. Urdu belongs to the Indo-Aryan family while English is a branch of the Germanic family (Farukh & Vulchanova, 2015). English has difficult orthography. It has 26 letters, 40 phonemes and about 500 graphemes (Helland, 2008; Farukh & Vulchanova, 2015). As compared to English, Urdu is more complex with 44 consonants, 8 long vowels (oral), 7 long vowels (nasal), 3 short vowels, many diphthongs (Saleem et al., 2002; Hussain, 2004).

English orthography is considered as deep because it has less grapheme-phoneme and phoneme-grapheme agreement. English has 26 letters corresponding to approximately 40 phonemes that are represented by 500 graphemes. Urdu has complexity and richness because of its sound system as compared to English. As compared to English, Urdu is more complex with 44 consonants, 8 long vowels (oral), 7 long vowels (nasal), 3 short vowels, and many diphthongs. Diacritics symbolize many vowel sounds. Some diacritics represent extra sounds (Hussain, 2004).

Urdu has a difficult orthographic system. Its writing style is taken from Arabic and Persian languages. It has also many new words that are not part of either Arabic or Persian languages. The multilevel script of Urdu is known as Nastaliq and has 38 letters with approximately 60 phonemes (McGregor, 1992; Naim, 1999; Schmidt, 2003).

2 vowels out of 3 represent semi-vowels too. Others are denoted by diacritics placing them below or above the letters. However, in common Urdu prints, diacritics are omitted and only consonant letters are left behind (Rao et al. 2010). Omission of diacritics leaves the reader in an awkward position where only the previous word knowledge helps the reader in guessing the word and its correct pronunciation. Sometimes, omission of diacritics leaves homographs behind, and the readers recognize the word with the help of its context (Farukh & Vulchanova, 2015).

The orthography of Urdu poses extra difficulties for the learners, the same alphabets are arranged in different positions in the same word. Another property of Urdu is that many graphemes are same in shape and even identical in many ways, and they are differentiated only by the number, position, or the presence of dots (Mirdehghan, 2010). Urdu has “many-to-one” mapping which means that more than one letters have the same sound (Rao et al., 2010).

Despite the orthographic nature of Urdu, both English and Urdu has many common characteristics like both have difficult orthographies as well as are difficult for beginners (Farukh & Vulchanova, 2015).

1.1 School System in Pakistan

In Pakistan, Urdu is used as a national as well as language of common people. There are two types of schools, government sector, and private sector schools. Government schools and some private schools use Urdu as their medium of instruction. A few schools of private sectors use English as their medium of instruction. The children with high SES (socioeconomic status) take admission in those private schools where medium of instruction is English, and Urdu is taught as one compulsory subject (Farukh & Vulchanova, 2015). In Punjab, Punjabi is spoken as the L1. Nevertheless, some children have Urdu as L1 with Punjabi as well. However, the children have no exposure to Punjabi script. They only have oral exposure to it, while they have an exposure to Urdu and English at schools as a medium of instruction (Farukh & Vulchanova, 2015).

In the context of common orthographical features between Urdu and English, we could predict a strong correlation between these two languages.

Rationale of the study is to find an evidence of correlation between the achievement/performance in L1 and L2 skills. If we are able to find a correlation, this result would support the idea that if a

child is not performing well in L2, but in L1, there might be a problem with teaching process and not with the child. It will lead us to the fact that the problem with second/foreign language learning should be considered a *language* problem (Sparks, 1995) first, and after ruling out this possibility (by checking the child's L1 performance) a teacher might change the teaching strategy. The study also showed a comparison of scores of boys and girls on both languages which might contribute to the data investigating the controversial issue whether boys or girls are better at language skills (e.g. White, 2007; Ready, LoGerfo & Burkam, 2005; Coley, 2001).

We, in this article, are not going in details of the debate, but just presented a description of results we obtained.

1.3 Hypothesis

Performance in L2 could be predicted by the concurrent performance in L1; if it is true there would be a strong correlation between the scores of children in Urdu and English.

2. Methodology

This study was based on collection of scores of students in Urdu and English. The students were promoted in grade 6 and took the annual examination of grade 5 through PEC (Punjab Examination Commission) in 2015, to measure the correlation of two languages (Urdu and English). These students were from different public sector schools in Central Punjab, Pakistan. Data was collected from 5 schools (4 boys' schools, and 1 girls' school). 200 children (166 boys and 34 girls) were randomly selected. Data was collected by noting the scores of children in annual examination of Urdu and English. All the students appeared in the same examination for both subjects.

2.1 Description of Tests (Examinations)

Urdu test consisted of 2 parts i.e. objective and subjective. Objective part contained 25 MCQ's (multiple choice questions), each carrying two marks. The content of MCQ's was "fill in the blanks, words-meanings, grammar (noun, pronoun etc.), vocabulary, and proverbs. Students were asked to read a passage from the textbook carefully and give answer of MCQ's given at the end of the passage. Subjective part had 5 long questions, each carrying 10 marks. The questions were about grammar, comprehension, essay writing, story writing and, application or letter writing. A similar pattern was followed in English paper (25 MCQ's and 5 long questions). The content of MCQ's was grammar, vocabulary, sentence completion and correction, spelling correction, and a passage out of which some MCQ's were asked. The long questions were essay or paragraph writing, moral story writing, application writing, translation from English into Urdu (a passage given from the textbook), use of words into meaningful sentences and complete a paragraph by using the given words.

The total marks secured in both Urdu and English examinations were analysed through SPSS, and a strong correlation was observed between the scores.

2.2 Results

To find the relationship between the participant's L1 and L2, a Pearson's correlation was run for the marks of both subjects. Table 1. Shows a high correlation between Urdu and English scores of children.

Table 2.1: **Summary of Inter-correlations for scores in English and Urdu**

Variables	1	2
Urdu Scores		.43**
Englishcores		-

*.Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01level (2-tailed).

Furthermore, a t-test was run to see the difference of performance on L1 and L2 by girls, and boys. The girls scored higher than boys in both L1 and L2 examinations. The t-test equation for L1 was t-value=3.93, df =198, p <.001, and for L2 was t-value=8.85, df =198, p <.001.

A group statistics (Table A) is given in appendix to explain the scores of both languages.

3. Discussion and Pedagogical Implications

The results of the present study show a significant correlation between the achievement scores of two languages Urdu (L1) and English (L2).

The present study shows that language skills of a child (person) in his/her L1 and L2 could be correlated (cf: Koda, 2007; Farukh & Vulchanova, 2015). The evidence also supports the idea that the same neural networks are used to acquire different languages (cf: Perani & Abutalebi, 2005). It could be added that children aware of the repetitive statistical patterns in L1 would have a trend to transfer their skills in storing those structures in their L2 but if these systematizing skills, in the L1, are not present, a transfer to L2 cannot be likely to happen (e.g. Durgunoglu, 2002; Gottardo, Yan, Siegel, & Wade-Woolley, 2001).

The results from the study indicate that the system of orthography of Urdu helps the children transfer the strategies, and literacy skills to another system with a deep orthography (cf: Bialystok, Luk, and Kwan, 2005).

We also find favour for the observation that literacy strategies could be positively transmitted between two languages when both languages do not have the same alphabetic systems but have some common features (Koda 1999, 2007; Farukh & Vulchanova, submitted). Our results are also in conformity with the Linguistic Coding Difference Hypothesis (Sparks & Ganschow, 1995; Sparks et al., 1989; Sparks & Ganschow, 1991 etc.) by presenting a strong correlation between 2 languages.

The proficiency in reading in the L1 can be a predictor of future interest and success in L2. Even the quantity of exposure to L1 print, and how good reader you are can be predictors of L2 proficiency. It can also cause a good aptitude for L2 learning. Early success in first language reading and quantity of reading exposure prior to second language study might be linked to differences in L2 achievement, and other L2 related skills several years later (Sparks, Patton, Ganschow & Humbach, 2012). This may prove to be a very good pedagogical strategy to start literacy training with the first language, and give a good exposure of L1 literacy skills. It might

then be expected that if the child is performing well in L1 with a considerable exposure, these skills could be predictors of a good L2 performance.

L1 achievements could be predictors of L2 high- or low-proficiency, and aptitude. Research has already supported the observation that L1 skill differences emerge early at elementary level and could be related to L2 aptitude, and achievement several years later in higher classes of school (Sparks, Patton, Ganschow, & Humbach, (2009). In comparison to the earlier studies providing support for a long-term cross-linguistic transfer of L1 skills to L2 skills, our study is providing evidence for a concurrent cross-linguistic transfer of the skills from L1 to L2.

Previously, Sparks (1995) proposed that foreign language learning difficulties could be a result of problems with first language learning. It was further explained that faults in phonological processing may be the origin of foreign language learning problems for the learners who are performing poorly in foreign language. It was emphasized that foreign/second language problem should be conceptualized as *language* problem when L1 problems also exist. It would make the diagnosis as well as remedial measures specific. Furthermore, good and poor foreign language learners have corresponding levels in native language skill.

The pedagogical implication of the study is that if the children have had considerable exposure and proper instructions in their L2, then because of their competence in L1, their L2 achievements could be estimated. If the children do not exhibit a good competence in L2 but a good proficiency in L1, then there could be great chances that the reason of the inadequate L2 proficiency is not some disability but, less exposure and practice in L2. Therefore, the cross-linguistic transfer of L1 phonological, and syntactic knowledge, awareness of genres, and meaning-making strategies might be used as a diagnostic tool for achievements in L2.

Although our results also showed the advantage of girls over boys in language skills, but the sample was not big enough to generalize the results. The number of girls was also small in comparison to boys. Therefore, further studies with bigger and proportionate samples are required to testify the results.

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Appendix

	Gender	N	Mean	Std. Deviation	Std. Mean	Error
L1	GIRL	34	68.88	12.47	2.14	
	BOY	166	59.46	14.03	1.09	
L2	GIRL	34	71.97	13.40	2.30	
	BOY	166	45.20	16.55	1.29	