ATINER CONFERENCE PAPER SERIES No: LIT2012-0296

Athens Institute for Education and Research
ATINER

ATINER's Conference Paper Series
LIT2012-0296

Phonological Awareness in Two Transparent Languages: The Impact of Turkish Phonological Awareness on the Development of Greek Phonological Awareness

Helen Kyratji
Ministry of Education and Culture
Cyprus

Chryso Pelekani
University of Cyprus
Language Centre
Cyprus

ATINER CONFERENCE PAPER SERIES No: LIT2012-0296

Athens Institute for Education and Research
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece
Tel: + 30 210 3634210 Fax: + 30 210 3634209
Email: info@atiner.gr URL: www.atiner.gr
URL Conference Papers Series: www.atiner.gr/papers.htm

ISSN **2241-2891**
15/11/2012

An Introduction to ATINER's Conference Paper Series

ATINER started to publish this conference papers series in 2012. It includes only the papers submitted for publication after they were presented at one of the conferences organized by our Institute every year. The papers published in the series have not been refereed and are published as they were submitted by the author. The series serves two purposes. First, we want to disseminate the information as fast as possible. Second, by doing so, the authors can receive comments useful to revise their papers before they are considered for publication in one of ATINER's books, following our standard procedures of a blind review.

Dr. Gregory T. Papanikos
President
Athens Institute for Education and Research

This paper should be cited as follows:

Kyratji, H. and Pelekani, C. (2012) **"Phonological Awareness in two transparent languages: The impact of Turkish Phonological Awareness on the Development of Greek Phonological Awareness"** Athens: ATINER'S Conference Paper Series, No: LIT2012-0296.

Phonological Awareness in Two Transparent Languages: The Impact of Turkish Phonological Awareness on the Development of Greek Phonological Awareness

Helen Kyratji
Ministry of Education and Culture
Cyprus

Chryso Pelekani
University of Cyprus
Language Centre
Cyprus

Abstract

This paper explores the children's (Turkish speaker's with Turkish as a first language-L1) phonological reading abilities in Greek as a Second Language (L2). In particular, there is exploration of theories of transfer/interference that are actively involved with reading development in bilingual populations. In order to find out possible "transfer" or "interference" of Turkish as a first language (L1) on the Reading Development in Greek as a second language (L2); we explored the reading abilities of eight-year olds Turkish speakers in Greek language using curriculum based phonological assessment. Three phonological tests were distributed to the children (letter recognition: phoneme-grapheme correspondence, alliteration: identification of the initial sound and segmentation: analysis of the word into constituent sounds). The results were analyzed (a) by looking at the formal school curriculum in teaching Greek to Turkish children and (b) by possible differences and similarities between Turkish (L1) and Greek (L2) languages' phonemes' articulation. It is evident that both Turkish and Greek languages are phonological transparent (characterized by a regular phoneme-grapheme correspondence). Differences between the two languages are attributed to articulation. Reading in Turkish language facilitated learning reading in Greek as phonemes with the same articulation in the two languages were transferred from Turkish (L1) to Greek (L2). On the contrary, phonemes differently articulated in L1 were transferred to L2; therefore children replaced the Greek phoneme with the Turkish. Obviously reading development in Turkish enabled reading development in Greek. Findings could be further used in language pedagogy as methodological suggestions for teaching reading.

Keywords: phonology, phonological awareness, phonological tasks, curriculum based assessment, phonics training, reading.

Contact Information of Corresponding author:
Helena_Kyradji@yahoo.com
pelekani.chryso@ucy.ac.cy

1.0 Introduction

The aim of this paper is to present possible impact of learning the phonology of Turkish as a first language on the phonology of Greek as a second language. We also explore the application of positive vs negative transfer/interference of L1(Turkish) on L2 (Greek). The study took place at a Cypriot Primary school and the sample were four(4) seven-year (7-year) olds Turkish emmigrant children in Cyprus. The children began reading in Greek at the same time they began reading in Turkish. Their reading ability in Greek was explored with three phonological, curriculum based tests. The children in this study displayed a difficulty in reading the sound of the Greek phonemes: θ [th as in thin] , δ [th as in then], φ [ph, f as in fan or phone] , β [v as in vote], λ [l as in light], μ [m as in mouse] ξ [ks as in kicks], ψ [ps as in lips] and γ [y as in yet]. Other phonemes of the Greek alphabet similar to the Turkish alphabet were acquired with competence by the Turkish children. Initial phoneme deletion test was extremely difficult for the children of this study and we did not use it in the final testing. This finding was consistent with the findings by Durgunoglu and Oney (1999, cited in Anthony and Francis; 2005).

2.0 Literature Review

Most L2 (Second Language) researchers agree that language learners' native language influences some aspects of second language acquisition, a process known as L1 transfer (Schwartz, 1998). Several researchers agree that differences between L1 and L2 linguistic structures interfere with L2 acquisition: cross-linguistic influence. Therefore, the influence of the native language must not be overlooked. (Genesee, Paradis and Crago, 2004). Transfer of language skills from L1(first language) to L2 (second language) might be occurred resulting to positive transfer. On the contrary, if a language skill has not been applied properly in L1 and it has been transferred to L2, then negative L1 transfer could be occur (Figueredo, 2006).

Normal development of phonological awareness as it has been revealed through recent multidisciplinary and cross-cultural research argues that a consensus on the definition of phonological awareness has emerged, that research has identified a general sequence of phonological awareness development that is universal across languages, and that certain characteristics of spoken and written languages influence the rate of normal development and levels of phonological awareness that are normally achieved (Anthony and Francis, 2005). Phonological Awareness is important for using sound-letter knowledge effectively in reading and writing (Adams et al., 1998). For some researchers, there is a debate for the term phonological awareness and phonemic awareness. According to Torgesen (2004) phonemic awareness facilitates growth in printed word recognition. Adams et al (1998) states that phonemic awareness is one component of phonological awareness that is knowledge of words at the level of the individual sounds –how to segment, blend or manipulate individual sounds in words. Phonological sensitivity refers to a rudimentary recognition of phonological aspects of oral language such as rhyme and alliteration. According to Stanovich (1986), phonological sensitivity

facilitates early reading acquisition, and learning to read facilitates subsequent phonological awareness.

Numerous studies demonstrate that the greater a child's awareness of the phonological structure of words prior to reading instruction, the greater will be that child's success in learning to read (Bowey and Frances, 1991). Early intervention studies have shown that phonological skills' training facilitates the acquisition of reading skills (Frederickson, Frith and Reason 1997). A longitudinal intervention study (Hatcher, Hulme, and Ellis, 1994) with 7-year-old poor readers cited in Hatcher and Hulme (1998) assessed the extent to which five separate factors (phoneme manipulation, rhyme, verbal ability, non-verbal ability, phonological memory, and rhyme) were predictive of children's responsiveness to the teaching interventions they received. Reading accuracy, verbal ability, phonological memory, and rhyme made no significant contribution to predicting responsiveness to teaching, while phoneme manipulation was a very strong predictor. Children who acquire the skill to reflect upon and explicitly manipulate the constituent speech sounds of language are capable of "cracking the alphabetic code" involved in reading (Byrne and Buckley, 2002). To conclude, literature on reading development makes clear that the ability to deal with speech at the level of the phoneme at an early age is a good predictor of later reading achievement (Snowling, 1987, p. 95).

There were positive and negative results concerning the reciprocal relationship between phonological awareness and bilingualism in the children's results in a number of studies (Bialystok, 2002, Paradis, Crago, Genesee, and Rice, 2003). In view of the relationship between phonological awareness and reading the investigation of how phonological awareness develops in bilingual children would be useful, to find out how reading develops in bilingual children. Research evidence states that a combination of reading skills (e.g., phonological awareness, cognitive characteristics) is crucial for reading development in alphabetic languages like Greek and Turkish (Kyratji, 2008). The Threshold Hypothesis (Cummins, 1979) assumes that those aspects of bilingualism that might positively influence cognitive growth are unlikely to have come into effect until children have attained a certain minimum or threshold level of proficiency in the second language. Similarly, if bilingual children attain only a very low level of proficiency in one or both of their languages, their long-term interaction with their academic environment through these languages, both in terms of input and output, is likely to be impoverished. In addition, in support of Cummins' threshold hypothesis is a study by Wagner et al., (1989), who found that early differences in the reading and language skills of the two groups of children disappeared, by the later grades. However, some researchers state that there may be a reluctance to accept this, based on an older idea of "interference" (Lado, 1957). This is an interpretation of bilingualism which argues that where two languages are developing and functioning together as one language, the first usually "interferes" with the development of the other, shown by grammatical, phonological and lexical confusions. "Transfer" is a traditional term from psychology of learning which

means imposition of previously learned patterns onto a new learning situation. In second language acquisition, the knowledge of the native language (L1) in acquisition of a second language (L2) can indeed have a facilitation or inhibition effect on the learner's progress in mastering a new language. Traditionally, facilitation effect is known as positive transfer, while inhibition is considered negative transfer (Isurin, 2005). A number of Linguistic studies may use phonological assessment tests as a mean of testing linguistic transfer/inhibition between first and second languages.

Assessment in education is a systematic process of gathering information that will be used to make decisions related to the children. Curriculum-based assessment refers to models of assessment that emphasize a direct relationship to the student's curriculum. Phonological assessment is based on the theory that phonological awareness is related to reading development. A number of studies have developed tests in phonological awareness in languages other than English, see, for example, Cossu et al., 1988; Italian, Caravolas and Bruck, 1993 Czech; Babayigit and Stainthorp, 2007 ; Turkish). Reason and Boote (1994) and Frederickson, Webster and Wright (1991) have argued that bilingual children should be assessed with curriculum-based tests, which assess phonological tasks. An extension of this notion is the results of a study in phonological assessment of bilingual (English-Punjabi) children in both their languages by Stuart and Smith, 1999. Indeed, there are other studies with

3.0 Greek and Turkish languages

Greek and Turkish languages are both transparent languages and there is regularity in grapheme-phoneme correspondence. Durgunoglu (1997) states that Turkish language is characterized as a phonological transparent orthography with regular letter sound correspondence, therefore, phonological awareness contributes to word recognition in the early stages of reading acquisition. According to Anthony and Francis (2005) "children in linguistic environments where spoken syllables are highly salient, as determined by a number of factors including clarity of boundaries between syllables, develop syllable awareness sooner than children in linguistic environments where syllables are less salient. For example children who speak Turkish, Greek, or Italian attain syllable awareness more quickly than children who speak French or English." (p.256).

The 8 vowels of Turkish language are divided into two groups: the four vowels (e i o u) are pronounced at the front of the tongue and the other four (a ı o u)are pronounced at the back of the tongue, as it is presented in table 2 (p.16).

From this vowel the phoneme /oe/ does not exist in the Greek alphabet and it is pronounced as the French /eu/ as in the world *peur*. The phoneme /y/ does not exist in the Greek alphabet and it is pronounced as the Frence /u/ as in the word *pur*. The phoneme /w/ as it is pronounced in the Greek *raki* exists only in the Turkish language and it is pronounced as /ı/.

There are five phonemes in the Greek language. The letters *α, ε/αι, η/υ/ι/ει, ο/ω, ου* are vowels. They are pronounced with an open mouth, loudly and clearly. Examples are listed as follows: *Mati, xieri, milo, spiti, topi, miti, fos, ouranos.*

The Turkish phonemes /y/, /oe/ and /w/ does not exist in the Greek language. There are no front vowels in the Greek language. There are only two front vowels in Greek /e/ /i/ instead of the four front vowels in Turkish language /e/, /i/, /oe/, /y/. There are no rounded vowels in the Greek language. The Greek vowels /e/, /o/ and /a/ are articulated in the middle of the mouth contrary to the Turkish language where the above vowels are opened.

In conclusion, there are five common vowels in Greek and Turkish languages. These are: /a/, /e/, /o/, /i/, and /u/. The Turkish vowels /y/, /oe/ and /w/ are articulated in Greek as in the most similar Greek phonemes sounds. The Turkish-Greek reader is probably more competent in Greek reading than the Greek-Turkish reader in Turkish. This is due to the fact that the Turkish language includes all the sounds of the Greek phonemes. In addition, there are three sounds that are not included in the Greek language and that enables the Turkish-Greek readers to decode Greek effectively (Sella, 2004, pp. 74-80).

In the Turkish language there are eighteen consonants. Fourteen consonants have "common" sounds in Turkish and Greek languages. Four consonants have different sounds. *(ç, ğ, ş, j*). (for review table 3, p.17)

Turkish and Greek languages include 18 (eighteen) consonants. 14 out of 18 consonants are articulated the same. 4 out of 18 consonants have different articulation. In table 4 (p.18) there is a presentation of the differences and similarities between Turkish and Greek consonants. Turkish students could possibly face difficulties in articulating the Greek consonant sounds (/θ/ /ð/) as these are articulated in the English words *then*, *think* and *clothes*. Consonant clusters (two or more consonants together) are rare in Turkish, so learners often stagger with Greek words initializing with two or more consonants such as [**str**ophi=turn] and [**str**ata=street] as in the English [**str**awberry]. This finding was attributed to the fact that when a Turkish word initializes with two or three consonants, then an auxiliary vowel is added in the beginning of the word (e.g., *I-stanbul*); Turkish speakers usually pronounce Greek words (starting with a combination of consonants) adding an initial vowel (e.g., e-s*xolio*=e-school). Therefore, when selecting the words for the test, we omit Greek words starting with a combination of consonants.

4.0 Methodology

4.1 Participants

Four seven-year old male children were assessed in this study. The children came from Turkish origin emigrant parents. Their families were speaking only Turkish at home. The children attended the second grade in one Cypriot state Primary School. Gender of the sample was not controlled. The children were selected because of their age, grade and the fact that they had regularly attended school program (boys in the Turkish Cypriot community of Limassol attend school more often than girls do). The latter could be explained by the religious and cultural attitudes of the Turkish community. They started learning how to read in L1 (Turkish) and in L2 (Greek) at the age of six. Turkish language was taught by Turkish teachers and Greek language was taught by Greek teachers. The children received extra Greek lessons by one of the researchers in this study (qualified in bilingual teaching). Teaching Greek as extra lesson was based on phonics training, whereas teaching Greek in the classroom was based on the formal method (applied by the Cyprus Ministry of education) of mixing whole word and phonics. Turkish teachers followed the phonics training in learning reading in Turkish language. According to formal assessment of children's ability in Turkish language, their knowledge of Turkish phonemes was related to their knowledge of Greek phonemes. In particular, their knowledge of Turkish and Greek phonemes similarly articulated was better than their knowledge of Turkish phonemes differently articulated or not existing in the Greek language (Cummins, threshold theory; 1989).

4.2 Materials and Procedures

Testing was conducted at the third month of Semester one (September-December). The children were tested individually in a quiet classroom at their school. Three phonological awareness tasks were developed for this study: letter recognition, alliteration and segmentation. In order to avoid fatigue effects, three testing sessions were administrated for all the four children. In one testing session, letter knowledge was tested, at the second session alliteration and finally at the third session segmentation. Testing was administrated by the two researchers of this study. The first researcher was giving the instructions and the second researcher was recording children's answers.

In order to assess letter knowledge all 24 letters of the Greek alphabet were randomly presented on an A4 size card. There were two trials, one with lower case letters and one with upper case letters. The children's answers were recorded on an answer sheet with the letters' names. The alliteration test included fourteen (14) sets of four (4) words each (three words starting with the same phoneme and one starting with a different phoneme, it was important

to notice the difference in the initial sound). The children had to identify the odd word from each set. Their responses were recorded in an answer sheet. A list of words (the most common words selected from the children's school curriculum) was used for the segmentation test. The children had to segment thirty four (34) words into their constituent sounds. The words initialized from each one of the 24 letters of the Greek alphabet and contained letter combinations that were taught to the children. Children's responses were recorded on the answer sheet.

5.0 Results

Evidently, there were cases of positive and negative transfer. There were cases of replacement (similar Turkish phoneme instead of Greek phoneme-positive transfer) and error replacement (Different Turkish phoneme instead of the appropriate Greek phoneme-negative transfer). Examples of linguistic positive/negative transfer are presented as follows: Negative transfer <θ>- <f>, <θ>- /<t>, <ğ>, <δ>-<v>, <θ>- <d> and <t>.

In particular, all the four children were reading the Greek consonant [Θ, θ] with the same sound as they were reading the Greek consonant [Δ, δ]. This was expected by the review of previous studies with Turkish-Greek pupils (Sella, 2004). One out of the four children could not identify most of the consonant sounds of the Greek alphabet. One out of the four boys could only read the sounds of vowels but he could not identify the sounds of consonants. One out of the four boys confused the sound of the Greek consonant [Θ, θ] with the sound of the Greek consonant [Δ, δ] and with the sound of the Greek consonant [M, μ]. In addition, he could not articulate the sound of the Greek consonant [Ξ, ξ]. This result could be explained under the umbrella of differences between Turkish and Greek phonologies. The Greek grapheme-phoneme [Ξ, ξ] does not exist in the Turkish phonological system. One of the boys could read the sound of Greek consonant [Δ, δ] with the sound of Greek consonant [B, β] and the sound of Greek consonant [Θ, θ] with the sound of Greek phoneme [Φ, φ]. The sounds of the Greek consonants: [Δ, δ], [Ξ, ξ], [Θ, θ] and [Ψ, ψ] do not exist in the Turkish phonological system; therefore, it was possible to be confused or not identified by the children. Nevertheless, the children could identify the grapheme [Ψ, ψ] as the word /ψωμί/ (*psomi*= bread) starting with the sound [ψ] was part of their daily school life.

The phonological reading test Phoneme Deletion was initially planned to be administrated, but it was extremely difficult for the children, therefore, it was omitted in the final testing. According to Babygiyit and Stainthorp (2007) research, initial and final phoneme deletion task proved to be an extremely difficult task for Cypriot-Turkish children in primary schools at the occupied by the Turkish troops part of Cyprus, therefore, there was no analysis of the phoneme deletion results.

The other phonological reading test Alliteration was found to be easy for all the four children due to the transparent Greek orthography. All the four children could identify the odd words. Nevertheless, the words beginning with the sounds /φ/, /δ/, /θ/, /β/, /λ/,/ψ/ and /ξ/ were most difficult to be decoded. The children could not read words including the above consonants accurately. However, accurately decoding was not expected from the children at this test. It was more important to be able to identify the odd word out of the other words in the list.

Segmentation reading test was the most difficult test of all. Difficulty was displayed in the recognition of the initial phoneme. The words *θάλασσα* [thalassa= sea], *δέντρο*[dentro=tree], *ξύλο*[ksilo=wood], *ψωμί*[pswmi=bread], *λεμόνι*[lemoni=lemon] begin with consonants that are not identified by the Turkish speaking children because the letters *θ, δ, ξ, ψ* do not exist in Turkish alphabet. Although, the letters *β* and *λ* do exist in Turkish alphabet, it was difficult to be identified by the children due to differences in the grapheme representation. Nevertheless, due to the transparent nature of the Greek language, it seems that the children are quite able to analyze the test items-words into their constituent sounds.

In the table 5 (p.19), there is a presentation of the most important errors/ replacements made by Turkish speaking children in the Greek tests. One boy was replacing the sound of phoneme /φ/ with the sound of phoneme /β/. This was possibly attributed to the fact that both /φ/ and /β/ are fricative consonants. Phoneme /φ/ is voiceless labiodentals fricative and /β/ is voiced. One boy could segment all the words and two out of them had difficulty in decoding and/or articulating correctly the phonemes /φ/, /δ/, /θ/, /β/, /λ/, /ψ/ and /ξ/. For example, one of the boys could not decode the phoneme /λ/ and instead he read it as /γ/. We noticed that he articulated the phoneme / γ / as the Turkish phoneme /ɣ/which it is articulated at the back toque.
Two boys identified the phonemes /δ/, /θ/ but they articulated them as the Turkish /d/ and /t/. This was possibly due to the fact that the phoneme /δ/ does not exist in the Turkish alphabet and instead exists the phoneme /d/. Similarly, the phoneme /θ/ does not exist in the Turkish alphabet and instead exists the phoneme /t/. The words *ξύλο* and *ψωμί* are part of the children's daily routine reading list of words. Therefore, the children were able to identify and decode the words when presented in the segmentation test. However, when the phonemes /ψ/ and /ξ/ presented in the letter test three out of the four children were not able to decode these. Therefore *ξύλο* and *ψωμί*, are identified by employing visual reading strategies instead of phonological strategies. In addition, one of the boys was able to decode the words *ξύλο* and *ψωμί* correctly although he added the sound /i/ in the beginning of the words. This is related to the fact that Turkish language does not contain any words starting with a combination of two consonants (*ks, ps, sp, tr, rt, st, ts etc).*

It is quite remarkable that when one of the boys was asked to decode words, he was using whole sentences instead, who had memorized in the classroom. We found that "whole sentence" teaching method could possibly not be the best method for these children. Turkish language is a phonological language and learning Turkish as a first language and Greek as a second language enables children to employ and develop phonological strategies in decoding. As a result, phonics training could be a possibly better method in teaching reading.

To conclude, similarities in articulation of Greek and Turkish phonemes enabled the children to develop their reading ability in the two languages. On the contrary, differences in phonemes articulation inhibit early reading development. Reading development in the first language could enhance reading development in the second language, considering that phonics method and phonological awareness tasks would be applied in teaching methodology in L1 and L2. In addition, curriculum based assessment could enable teachers to make use of "authentic" material provided in their daily repertoire in order to monitor progress and design appropriate syllabus.

REFERENCES

Adams, M. (1990). *Beginning to Read.* Cambridge, Massachusetts, London, England.

Anthony, Jason and Francis David. (2005). 'Development of Phonological Awareness'. *American Psychological Society*, Volume 14-Number 5.

Babayigit, S., and Stainthorp, R. (2007), 'Preliterate phonological awareness and early literacy skills in Turkish', *Journal of Research in Reading*, 30, 394-413.

Bialystok, E. (2002). 'Acquisition of literacy in bilingual children: A framework for research'. *Language Learning* 52 (1), 159-199.

Bialystok, E., Majumder, S., and Martin, M. (2003). 'Developing phonological awareness: Is there a bilingual advantage?' *Applied Psycholinguistics* 24, 27-44.

Bowey, J. A. and Francis, J. (1991). 'Phonological analysis as a function of age and exposure to reading instruction'. *Applied Psycholinguistics* 12, 91-121.

Bradley, L. and Bryant, P. 1985. 'Rhyme and Reason in Reading and spelling'. Ann Arbor: University of Michigan Press.

Bradley, L. Bryant, P. (1983). 'Categorising Sounds and Learning to read: A causal connection'. *Nature* 301, 419-421.

Byrne, A. M., J. and Buckley, S. (2002). 'Reading, language and memory skills: A comparative longitudinal study of children with Down Syndrome and their mainstream peers'. *British Journal of Educational Psychology* 72, 513-529.

Caravolas, M. and Bruck, M. (1993). 'The effect of oral and written language input on children's phonological awareness: A cross-linguistic study'. *Journal of Experimental Child Psychology* 55, 1- 30.

Cossu, G., Shankweiler, D., Liberman, I.Y, Tola, G., and Katz, L. (1988). Awareness of phonological segments and reading ability in Italian. *Applied Psycholinguistics* 9, 1-16.

Cummins, J. (2000). *Language, power, and pedagogy: Bilingual children in the crossfire*. Clevedon, England: Multilingual Matters.

Cummins, J. (1979). 'Linguistic Interdependence and the educational development of bilingual children'. *Review of Educational Research* 49, 222-251.

Frederickson, N., Frith, U., and Reason, R. (1997). *Phonological Assessment Battery:Standardisation Edition*. 123. Windsor: NFER-Nelson.

Frederickson, N., Webster, A. and Wright, A. (1991). 'Psychological assessment: A change of emphasis'. *Educational Psychology in Practice* 7 (1), 20-29.

Goswami, U., and Bryant, P. (1990). *Phonological skills and learning to read*. Hove, U. K.: Lawrence Erlbaum Associates.

Hatcher, P. and Hulme, C. (1998). 'Phonemes, Rhymes and Intelligence as Predictors of Children's Responsiveness to Remedial Reading Instruction: Evidence from a Longitudinal Intervention Study'. *Journal of Experimental Child Psychology* 72, 130-153.

Hengirmen, Mehmet. (2005). *Turkce Dilbilgisi*. Engin Yayın Evi. Ankara.

International Phonetic Association.(1999). *Handbook of the International Phonetic Association: A guide to the use of the International Phonetic Alphabet*. Cambridge: Cambridge University Press.

Isurin, Ludmila. (2005). ISB4: Proceedings of the 4th International Symposium on Bilingualism, ed. James

Cohen, Kara T. McAlister, Kellie Rolstad, and Jeff MacSwan, 1115-1130. Somerville, MA: Cascadilla Press

Koc, Nurettin. (1998). *Yeni Dilbilgisi*. İnkılap Kitabevi, İstanbul.

Lado, R. (1957). *Linguistics Across Cultures*. University of Michigan Press, Ann Arbor.

Metsala, J. (1999). 'Young children's phonological awareness and non-word repetition as a function of vocabulary development'. *Journal of Educational Psychology* 91, 3-19.

Nikolopulos, D. (1999). Cognitive and Linguistic predictors of literacy skills in the Greek language: The manifestation of reading and spelling difficulties in a regular orthography. *Unpublished PhD Thesis.* University College of London Department of Human Communication Sciences.

Paradis, M., Genesee, F., Rice, M. and Crago, J. (2003). 'French-English Bilingual Children with SL1: How Do They Compare with their Monolingual Peers?' *In: Journal of Speech, Language and Hearing Research* 46 (1), 113-127.

Perfetti, C. A., Beck, I., Bell, L. C. and Hughes, C. (1987). 'Phonemic knowledge and learning to read are reciprocal: A longitudinal study of first grade children'. *Merrill-Palmer Quarterly* 33, 283-319.

Pumfrey, P. (1991). Improving Children's Reading in the Junior School: Challenges and Responses. Cassell.

Reason, R. (1998). 'Effective Academic Interventions in the United Kingdom: Does the "Specific" in Specific Learning Difficulties (Disabilities) Now Make a Difference to the Way We Teach?' *School Psychology Review* 27 (1), 57-65.

Reason, R. and Boote, R. (1994). Helping Children with Reading and Spelling: A *Special Needs Manual*. London: Rootledge.

Sella–Mazi, Eleni. (1999). *La minorite musulmane turcophone de Grece. Approche sociolinguistique d'une communaute bilingue*, εκδόσεις Τροχαλία, Αθήνα.

Σελλά-Μάζη, Ελένη. (2004). *Στοιχεία αντιπαραβολικής γραμματικής Ελληνικής-Τουρκικής. Η Ελληνική στα μειονοτικά σχολεία της Θράκης,* Πρόλογος Χρήστου Κλαίρη, 1η έκδοση Οργανισμός Εκδόσεως Διδακτικών Βιβλίων, Αθήνα, 1994, 2η εκδόσεις Παπαζήση, Αθήνα.

Snowling, M. (1987). *Dyslexia: A Cognitive Developmental Perspective*. Oxford: Blackwell.

Stanovich, K. E. (1986). 'Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy'. *Reading Research Quarterly* 21, 360-407.

Stuart-Smith, J. and Deirdre, M. (1999). 'Developing Assessment Procedures for Phonological Awareness for use with Panjabi-English Bilingual Children'. *The International Journal of Bilingualism* 3(1), 55-80.

Symeonidis, K. (1989). *The pronunciation of Greek and Latin*. A Symposium in Linguistics, University of Salonica.

Wagner, R. and Torgesen, J. K. (1987). 'The nature of phonological processing and its causal role in the acquisition of reading skills'. *Psychological Bulletin* 101,192-212.

Wagner, R., et al. (1989). 'Does learning to read in a second language always put the child at a disadvantage? Some counterevidence from Morocco'. *Applied Psycholinguistics* 10, 31-48.

TABLES

Table 1 : The Greek alphabet (capital and lower case)

Capital case	**Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω**
Lower case	**α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ/ς τ υ φ χ ψ ω**

Table 2: Turkish vowels

	Front		**Back**	
	Unrounded	**Rounded**	**Unrounded**	**Rounded**
High	**i**	**ü**	**ı**	**u**
Low	**e**	**ö**	**a**	**o**

Table 3: Consonant phonemes of Standard Turkish

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Nasal	m		n					
Plosive	p b		t d			c ɟ	k g	
Fricative		f v	s z		ʃ ʒ		ɣ	h
Affricate					tʃ dʒ			
Tap				ɾ				
Approximant			ɬ		l	j		

Table 4: Comparison of Turkish and Greek consonants

Turkish	Greek	Results
P	p [π]	Same articulation
B	b [β]	Same articulation however [b] is articulated as [mb] [babas] in Greek and [baba] in Turkish.
T	t [τ]	Same articulation-however
D	d [δ]	Same articulation however [d] is articulated as [nd] [ndomada] in Greek and [dolu] in Turkish.
K	k [κ]	Same articulation
G	g [γ]	Same articulation
F	f [φ]	Same articulation
V	v [β]	Same articulation
does not exist	Θ	Like [t] in Turkish
does not exist	δ	Like [d] in Turkish
S	S	Same articulation
Z	Z	Same articulation
ʃ	does not exist	Like [s] in Greek
tʃ	does not exist	Like the combination of

		[t]+[s] in Greek
dζ	does not exist	Like the combination of [t] + [z]
H	X	Different articulation as [h] in [havutʃ Turkish and [χ] as in [χoma] Greek
/γ/r	Γ	Different articulation as /γ/ [γamos] in Greek and [aγa] in Turkish
M	m [μ]	Same articulation
N	n[ν]	Same articulation
L	l [λ]	Same articulation
R	r [ρ]	Same articulation
does not exist	ψ [ψ]	Like the combination of diphthongs [p] +[s]> [ps], [hapsi= the prison] in Turkish
does not exist	[ξ ξ]	Like the combination of diphthongs [k]+ [s]> [ks], [aksesuar=accessory] in Turkish

Table 5: A list of errors (E)/replacements (R) in Greek Phonemes

BOYS	**PHONEMES**	**/φ/ E R**		**/δ/ E R**		**/θ/ E R**		**/ψ/ E R**		**/ξ/ E R**		**/β/ E R**		**/λ/ E R**		**/γ/ E R**	
1					/d/		/t/		/ιψ/		/ιξ/			/ɣ/			/ɣ/
2		/β/							/ιψ/		/ιξ/						/ɣ/
3		/γ/		/γ/		/γ/		/γ/		/γ/				/γ/		/γ/	/ɣ/
4									/ιψ/		/ιξ/	/φ/					/ɣ/