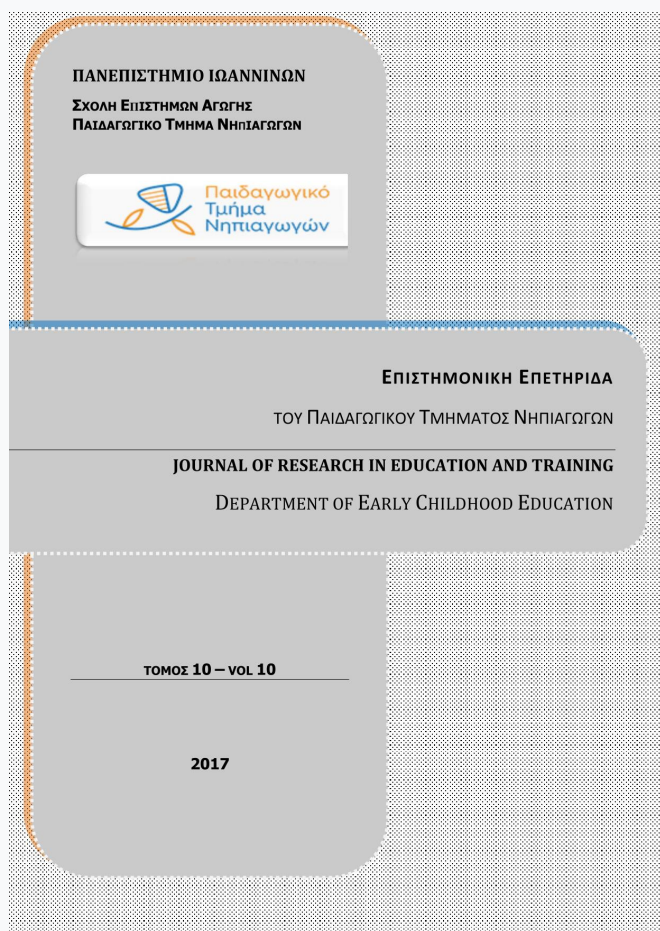


# Επιστημονική Επετηρίδα Παιδαγωγικού Τμήματος Νηπιαγωγών Πανεπιστημίου Ιωαννίνων

Τόμ. 10, Αρ. 1 (2017)



## Primary school pupils with speech disorders (Spoken and written language)

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doi: [10.12681/jret.10396](https://doi.org/10.12681/jret.10396)

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### Βιβλιογραφική αναφορά:

Milona, A., & Koutras, V. (2017). Primary school pupils with speech disorders (Spoken and written language). *Επιστημονική Επετηρίδα Παιδαγωγικού Τμήματος Νηπιαγωγών Πανεπιστημίου Ιωαννίνων*, 10(1), 124–141. <https://doi.org/10.12681/jret.10396>

## **Primary school pupils with speech disorders within intercultural context**

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### **Abstract**

The present study aims to investigate speech disorders among bilingual pupils and to assess their performance in primary school according to the didactic and pedagogical methods of education. In particular, we investigate: a) speech disorders among culturally different pupils in primary school, b) whether and to what extent they affect pupils' school performance according to the goals of modern education in primary school and c) factors that influence speech disorders in combination with bilingual pupils' school performance. The questionnaire was the main research tool that was used to investigate all the above aspects. A total number of 736 pupils participated at the research. Among the main research results was that the majority (81.9%) of foreign pupils in Greece who do not present articulation problems have many difficulties in oral expression, while 25% of the Greek pupils in Greece and 8.3% of the Greek pupils in Germany who often experience articulation problems also have many difficulties in oral expression.

**Key words:** Bilingualism, Multicultural environment, Primary school, School performance, Speech disorders.

## **Introduction**

The problem of speech disorders among culturally and socially different foreign pupils identified in many primary schools has a negative effect on school performance. Pupils coming from different cultural and linguistic environments and presenting school difficulties (social, learning) are thought of as deficit pupils. (Kesidou, 2008).

## **Speech Disorders: Conceptual Definition**

Many studies from around the world have investigated speech disorders in primary school and their association with school performance and particular forms of behavior (Antoniazzi, Snow, Dickson-Swift, Gallagher, & Chiat, 2009; Law, Dennis, Charlton, 2017; Chatzichristou-Hopf, 1991, 1995). Speech disorders in school children are related to many aspects of education science and psychology, such as their learning and performance, their perception of themselves and their abilities (self-perception), and their emotional and psychological state.

Difficulties in school and in class have been associated with mental disorders during childhood, adolescence or adult life, as well as with juvenile delinquency (Cowan, Wood, Wood, Keller, Nugent, & Keller, 1998) and school failure. Many factors need to be considered in order to characterize a behavior as problematic and to evaluate its development. Among these factors are age, gender, social and financial state, parents' educational level, pupil's relationships with other family members or with other peers, values and models of the pupil's specific social and cultural environment within which he/she lives and develops. (Chatzichristou-Hopf, 1991)

It should be noted that speech disorders of pupils from different cultural environment – for example, immigrants – should be accurately interpreted, so that they are provided with the necessary special education and psychology services. These pupils represent a special category, due to the fact that they have special educational needs that should be taken into account. (Geraris, 2011)

Greek researchers have underlined the need to conduct research on foreign pupils' speech disorders, to identify their learning and behavior difficulties (Papastylianou, 1992. Georgas-Papastylianou, Chatzichristou, 1991, 1992, 1995). According to the international literature, bilingual pupils present difficulties in oral expression in class (Peer & Reed, 2014). They also have poor school performance and display low participation in the learning process (Palaiologou, 1998).

Researchers' estimations of the difficulties of bilingual primary school pupils with speech disorders can be used to define the type and severity of school difficulties, in order to deal with them effectively. According to the assimilation approach (Markou, 1997; Damanakis, 2001), pupils with a different linguistic expression from the official are treated as "problematic". The only way for them to be rapidly assimilated and to deal with their learning difficulties is by learning the official language of the host country.

When a multicultural approach is applied within a school, it will give pupils of all ethnicities the opportunity to enhance their self-perception and self-esteem, and to improve their school performance (Markou, 1997). Moreover, the presence of foreign pupils underlines the diversity and heterogeneity in school class, which is best manifested by multiculturalism (Markou, 1997).

### **Bilingualism**

The term bilingualism refers to the normal phenomenon of two languages coming into contact, such as when a person wants to communicate with another who speaks a different language from his/her own, or when groups of people who speak different languages need to communicate (Triarchi-Herrmann, 2000). Political, religious, social or educational factors can contribute to the promotion of bilingualism.

Thus, bilingualism is regarded as a state imposed on individuals by external factors, but it may be due to personal will and interests. Whatever the causes of bilingualism, its involvement in the individual's development and personality is multifaceted (Triarchi-Herrmann, 2000). As a multifactoral and multidimensional system, bilingualism attracts the interest of many disciplines, such linguistics, psychology,

sociology, sociolinguistics, didactics and pedagogics - so much so that it is impossible to define it conceptually without the contribution of these disciplines (Mackey, 1968).

*Psychology* studies bilingualism as an important factor in an individual's cognitive, linguistic and emotional development during childhood and it is interested in finding which language is stronger and in which individuals (Fishman, 1999).

*Sociology* and *sociolinguistics* study bilingualism within the bilingual's cultural and social relationships (Triarch, 2000). *Didactics* and *pedagogics* are interested in second language teaching methods, as well as in matters of bilingual education (Triarchi-Herrmann, 2000).

*Bilingualism* is the person's ability to master both languages to a satisfactory degree or his/her ability to understand and pronounce only a few words or phrases of the second language (Triarchi-Herrmann, 1998). All the above definitions have one common characteristic: they refer to a state where an individual masters and uses more than one language.

According to Konstantinou (1998), educational goals and practices need to be re-determined and school programs re-planned in order to meet pupils' specific requirements and special features of each school type.

### **Aim of the study**

The present research is based on a study of culturally and linguistically different primary school pupils who present speech disorders. It aims to record the type and frequency of foreign pupils' speech disorders during the learning process, as well as to formulate specific proposals for the improvement of their adjustment in the Greek educational system. Other goals of the research are investigation of the relationship between speech disorders and foreign pupils' school performance and of the factors that contribute to the effect of such disorders on learning and school performance. Finally, the study aims to show that speech disorders and school difficulties could be affected by specific factors like gender, nationality/bilingualism, school class and socio-economic environment. Thus, we describe the participants' specific speech

disorders and attempt to investigate the factors on which the appearance of these disorders depend.

The need for, as well as the importance of, such a study is indicated by the lack of research within the Greek context in connection with foreign pupils' education in primary school.

## **Method**

### *Sample*

For the realization of this study, we used written questionnaires, a method often chosen to investigate individual and group attitudes (due mainly to its advantages such as objectivity, reliability and validity of the findings), with every individual participating anonymously in the research. A total of 736 questionnaires were completed – 100% of the final sample of pupils with speech disorders – and included in the statistical analysis. All the questionnaires contained the necessary information for the statistical analysis. The 736 questionnaires corresponded to 736 pupils; however, these questionnaires were completed by the pupils' teachers<sup>1</sup>.

Our research focused on the six grades of primary school, with the aim of investigating speech disorders among immigrants. The results were compared to those of Greek pupils in Greek primary schools. The population from which our sample was chosen comprised foreign pupils and Greek pupils in Greece. The foreign pupil group was subdivided into two groups by home country, which constitutes the basic variable of our research. The sample was carefully selected to be representative of the populations of interest: immigrant pupils in Greek schools (mostly Albanians) and Greek pupils in German schools (mostly second- and third-generation Greek pupils in Northern Rhine and Westphalia).

Accordingly, the following three groups were used:

a) Foreign pupils in Greece (first group)

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<sup>1</sup> The total number of the teachers that had the task to completed the questionnaires is not under the scope of this research.

b) Greek immigrant pupils in Germany (second group)

c) Greek pupils in Greece (third group)

### *Questionnaire*

The questionnaire<sup>2</sup> consisted of two parts. The first part aimed at collecting information about the teachers (level of education, foreign languages knowledge, training programs, years of experience, attending seminars for foreign students, total number of pupils in the class number of foreign pupils in the class). The second part aimed at collecting information about the pupils (relations and cooperation of foreign pupils with the rest of the pupils, cooperation with the foreign pupils' families, proposed education for foreign pupils, proposed measures for better school performance of foreign pupils, proposals for the improvement of the current situation, speech disorders, oral and written expression, written text comprehension, dysanagnosia).

### *Data statistical analysis methods*

For the statistical analysis of the data we used the SPSS program, version 16 (Karakostas, 2002, 2004). Data were analyzed using exploratory factor analysis in the form of the Principle Component Analysis method and the rotation method – Oblimin with Kaiser normalization – for the seven variables identifying difficulty of school performance and for the nine variables for speech disorder. All variables are qualitative, thus the main analysis tools a) were two-dimension correlation tables, b) stratified three-dimension correlation tables. For both these tables the statistics used were the  $\chi^2$  and the Fisher test<sup>3</sup>.

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<sup>2</sup> The questionnaire was carefully elaborated and received its final form by the contribution of Professor Vasileios Koutras (University of Ioannina), Professor Gregor Depuis (University of Dortmund) and Dr. Anna Milona. This questionnaire was designed for the purposes of Dr. Milona's PhD thesis on Speech Disorders in Bilingual Environment among pupils in Greece and Germany.

<sup>3</sup> The statistical elaboration of the research was made by Professor Karakostas, University of Ioannina, Department of Mathematics, Section of Statistical Analysis.

All variables, except age, are qualitative and the statistical analysis methods are adjusted accordingly. The main analysis tools are two- and three-dimensional contingency tables. Whenever possible we used  $\chi^2$  statistics in both types of table, but in cases where that was not possible, e.g. when some table cells contained zeros, we used the Fisher test. In tables where the independence among variables was rejected, we used adjusted residuals in order to determine concrete pairs of variables which form the above correlation. Additionally, through adjusted residuals, we were able to estimate whether the correlation between specific pairs was positive or negative.

One question to be answered is whether classification of learning difficulties and speech disorders is possible. Based on Cronbach analysis, our findings suggest that a more refined classification based on factor analysis is not possible<sup>4</sup>.

Another question is whether we can say anything further about speech disorders by locating the learning problem. In order to answer this question we used two-dimensional contingency tables combined with correlation measures for cross-classified tables. In particular, we tested every possible combination between learning difficulties and speech disorders. In the case of a statistically significant correlation, we estimated the Gamma( $\gamma$ ) ordinal measure of correlation.

Furthermore, in order to answer whether a specific learning difficulty implies a speech disorder, and, if so, which disorder in priority order, we used  $\chi^2$  combined with the Gamma( $\gamma$ ) measure of correlation. In terms of nationality/origin, 300 out of the 736 pupils (40.76%) are foreign children in Greece, 193 (26.2%) are Greek pupils in Greece, and 243 (33.02%) are Greek immigrant pupils in Germany.

Based on the questionnaire analysis, Table 1 and the relative frequency diagram show the distribution by gender of pupils with speech disorders. As shown in Table 1, the one out of four pupils with speech disorders that participated in the research is a girl, while three out of four are boys.

### *Research reliability and validity*

<sup>4</sup> As defined by the statistical analysis.



In order to ensure research validity we conducted a pilot study using a sample of 100 pupils (75 foreign pupils and 25 Greek pupils). Research reliability is enhanced by the “internal consistency” of the measurements of the studied difficulties, as it is shown by the high rates of the Cronbach alpha coefficient,  $\alpha=0.876$  (the standardized value of the same coefficient is 0.801). The analysis shows that if we exclude a variable, there will be no more than a slight increase in the Cronbach coefficient, thus indicating that the variable contributes equally to the research.

Among the main research validity problems we encountered were: a) representativeness of the sample size, b) the rate of pupils with speech disorders, c) the average error probability, d) and the statistical validity of the results. In order to estimate the sample size per group we used the formula

$$n = \frac{z^2}{\alpha^2} p(1-p)^5$$

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<sup>5</sup> See Karakostas ( 2002, 2004).

## Results

### *Oral expression by school grade*

The relative frequencies in Table 2 show that almost 80% of the 1<sup>st</sup> and 4<sup>th</sup> grade pupils present too many difficulties, while the corresponding percentages for the 5<sup>th</sup> and 6<sup>th</sup> grades are 84.5%, and for the 2<sup>nd</sup> and 3<sup>rd</sup> grades are 67.2% and 68.6%, respectively. The percentages among pupils with many difficulties in oral expression are quite the opposite. In particular, 21.6% of the 2<sup>nd</sup> grade pupils, 18.6% of the 3<sup>rd</sup> grade, 16.2% of the 1<sup>st</sup> grade, 11% of the 4<sup>th</sup> and 6<sup>th</sup> grades and 9.2% of the 5<sup>th</sup> grade pupils report many difficulties<sup>6</sup>.

The results of the  $\chi^2$  test ( $\chi^2=26.880$ ) indicate that the crucial probability is greater than 0.05, that is, the null hypothesis is not rejected and there is independence between the two variables (oral expression –school grade, that corresponds to the pupil’s age).

### *Written expression by grade*

The data in Table 3 show that 94.6% of the 1<sup>st</sup> grade pupils, 91.1% of the 2<sup>nd</sup> grade, 87.2% of the 3<sup>rd</sup> grade, 92.8% of the 4<sup>th</sup> grade, 93.4% of the 5<sup>th</sup> grade and 95.8% of the 6<sup>th</sup> grade present too many and many difficulties in written expression. Examining the data further we come to the conclusion that 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> grade pupils present low levels of too many difficulties while the corresponding percentages of the 1<sup>st</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade pupils are higher.

The results of the  $\chi^2$  test ( $\chi^2=23.937$ ) show that the crucial probability is greater than 0.05, that is, the null hypothesis is not rejected and there is independence between the two variables (i.e. written expression- school grade).

### *Presence of articulation problems*

<sup>6</sup> The full range of the research findings are include at the Dr. Milona’s PhD Thesis, University of Ioannina, Department of Early Childhood Education.

We found that 81.9% of foreign pupils in Greece who do not present articulation problems have too many difficulties in oral expression, while the corresponding percentages in the other groups are 76% for the Greek pupils in Greece and 68.8% for the Greek pupils in Germany (Table 4). Moreover, 66.7% of the foreign pupils in Greece who often experience articulation problems have also too many difficulties in oral expression. The corresponding percentages in the other groups are 50% for the Greek pupils in Greece and 83.3% for the Greek pupils in Germany. Additionally, 25% of the Greek pupils in Greece and 8.3% of the Greek pupils in Germany who often experience articulation problems also have too many difficulties in oral expression.

Finally, it should be noted that the crucial probabilities ( $p$ ) relating to the groups of foreign pupils in Greece and Greek pupils in Greece are less than 0.05, thus indicating that the correlation between the two groups is statistically significant at the 0.05 level.

### **Discussion and recommendations**

Any speech disorder assessment process and any interventional supportive education program which is in conformity with the process described above must be flexible and based on pupils' cognitive skills and weaknesses, taking into account their developmental stage. However, we must note that the results of any assessment process should be treated with scientific reservation and regarded as an opportunity for supporting pupils with special needs because no diagnostic process should begin unless it is practically useful and combined with a suitable interventional program. Therefore, any interventional education is much more efficient when it is theoretically combined with the assessment criteria of the degree and the nature of the behavior under consideration, as well as diachronically evaluated for its efficiency among pupils of the same school class. The role of the school and all the agents participating in the pupils' education is to help them to exploit their potential and deal with their weaknesses, thus facilitating the learning process. We believe that the present research expands the results of other studies published in Greek concerning speech disorders in school children.

According to tables 1, 2, 3 and 4, where the teachers' views of cross-cultural education are presented, most of the teachers agree on the necessity of a "special" education program for foreign pupils, as well as on cross-cultural education enhancement. In particular, based on the questionnaires analysis, almost all teachers agree on an education based on bilingual programs (99.1%) and on establishing cross-cultural education schools for foreign pupils (98.2%).

Moreover, all teachers (99.2%) think that foreign pupils should attend some lessons in their mother tongue. But, it should be also noted that 55.9% of the teachers think that foreign pupils should be in a regular class, while 22.2% of the teachers think that it would be better if all foreign pupils went to separate schools.

According to Damanakis (2001), "cross-cultural education" must be "addressed to all pupils and must aim at student's sensitization so as to promote mutual tolerance, comprehension, recognition and acceptance". On the other hand, "bicultural-bilingual education" refers mostly to "minority pupils who receive cultural stimuli by their social environment about their home country culture and by the wide socio-cultural environment about the hosting county culture". This education makes a "biculturally-bilingually developing person able to combine his/her bicultural experiences so as to obtain a "bicultural identity" (Damanakis, 2001, pp. 40). An education towards treating different cultures as different expressions of the central concept "culture" aims at the use of the term "civilized" for western European groups and "uncivilized" for other groups, as well as at understanding "cultural difference" which results from different expressions and not by qualitative classification in "upper" and "lower" cultural expressions.

In this "post-modern" society, respecting different and diverse cultures does not inhibit society modernization; on the contrary, it enriches it, while enhancing thought and resistance to homogeneity in life. Thus, we are able to reject nationalistic ways of thinking and acting, that is, we reject stereotypical attitudes and neo-racist ideas, which support cultural relativism theory and consider some cultures and values superior to others. Through education, cultural traditions can be known to everybody and stop being the monopoly of dominant cultures or minority social groups.

Pedagogical proposals that are not based on cultural relativism lead to eurocentrism. Accepting the autonomy of different cultural systems is a safety valve against ethnocentric views and promotes the understanding of relativity which is included in various personal views in connection with different cultures.

According to cultural ecumenism theory, cross-cultural education aims at finding common elements among cultures in order to create common fundamental rules for everybody. Rational and reflective thought promotion on different cultural systems redefines personal attitudes in connection with cultural differences.

The state has not helped teachers to develop bilingual education methods in order to facilitate foreign pupils' integration in primary school and in the educational system in general. Moreover, it has not adopted a systematic or efficient policy on this matter.

In order to deal with foreign pupils' problems, we believe the following initiatives are necessary:

1. **Speech disorder assessment:** Pupils' linguistic and cognitive abilities may be the first and perhaps the most useful step to enable primary school teachers to identify intrinsic factors related to written and spoken language skills. Additionally, teacher training would certainly contribute to the school's attempt to establish possible problems in connection with pupils' linguistic performance.
2. **Intervention programs:** In the light of our findings in connection with the nature and the linguistic complexities of speech disorders among school children, remedial exercises should begin with awareness-raising about the syllabic structure of oral speech, moving on to its phonemic structure. The exercising of these metaphonological abilities is extremely important for children who are about to begin to learn how to read and it is even more necessary for those with speech disorders. Defining the type and degree of written language learning difficulties would contribute to the planning and formulation of a special intervention exercise program, as well as of appropriate education material to deal with such disorders effectively.

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3. **Analytical programs and speech disorders:** In the case of pupils, who, according to the present research, experience speech disorders, the Greek primary school analytical program does not provide any kind of supportive teaching mediated by special education material so as to enable teachers to deal with disorders, in particular learning disorders. Taking into account all the Greek and international research data, we have to enrich these programs with carefully evaluated intervention activities adjusted to each child's special learning needs.

## REFERENCES

- Antoniazzi D., Snow, P and Dickson-Swift. V. (2010). Teacher identification of children at risk for language impairment in the first year of school. *International Journal of Speech-Language Pathology*, 12(3), 244-252.
- Chatzichristou, Ch., & Hopf, D. (1991). Behavior and school performance problems among primary and secondary education pupils according to teachers' estimations. *Pedagogical Review*, 107-143. [in Greek]
- Chatzichristou, Ch., (1995) Students with special needs in primary education, Review World Organization for Early Childhood Education, issue 1, Ellinika Grammata. [in Greek]
- Cowan, N., Wood, N. L., Wood, P. K., Keller, T. A., Nugent, L. D., & Keller, C. V. (1998). Two separate verbal processing rates contributing to short-term memory span. *Journal of Experimental Psychology: General*, 127, 141-160.
- Damanakis, M., (2001). *The Education of Repatriated and Foreign Pupils in Greece. An intercultural approach*. Athens: Gutenberg. [in Greek]
- Damasio, A. R. (1994). *Descartes' Error. Emotion, Reason, and the Human Brain*. New York: Pergamon Press.
- Fishman, J. A. (1999). *Handbook of Language and Ethnicity*. New York, Oxford University Press.
- Gallagher, A., & Chiat, S. (2009). Evaluation of speech and language therapy interventions for pre-school children with specific language impairment: a comparison of outcomes following specialist intensive, nursery-based and no intervention. *International Journal of Language and Communication Disorders* 44(5), 616–638.
- Georgas, D., & Papastilianou, A., (1993). *Acculturation of Pontians and Northern Epirotes in Greece. Psychological adjustment processes*. Athens: The General Secretariat for Greeks Abroad. [in Greek]

- Geraris, I. (2011). Inclusion and integration of foreign students through the intercultural education. *“Ekpaideutika” Journal*, 99-100. [in Greek]
- Greek Ministry of Education-UNESCO (1984). *School reintegration of repatriated students: Problems and Perspectives*. Athens. [in Greek]
- Konstantinou, Ch. (1998). *School Reality and Student’s Socialization. An outline of the Socializing Messages from the School and the Teachers*. Athens: Gutenberg.
- Law 2413 (O.G. 124). Greek education abroad, cross-cultural education and other provisions.
- Law, J., Dennis, J. Charlton, J. (2017). Speech and language therapy interventions for children with primary speech and/or language disorders. Retrieved in 30/03/2017, by <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD012490/full>
- Karakostas. K. (2002). *Linear Models: Regression, Variance Analysis*. University of Ioannina. [in Greek]
- Karakostas K. (2004). *Statistics applied to social sciences*. Teaching notes. Post Graduate Studies Program, Department of Philosophy, Education and Psychology, University of Ioannina (edited by E. Sourlou). [in Greek]
- Kesidou, A. (2008). “Intercultural education: an introduction”. In Z. Papanauom (ed.) *Training guide: Intercultural Education (Thessaloniki, Ministry of Education and Religious Affairs)*. [in Greek]
- Markou, G., (1997). *Introduction to Cross-cultural education. Greek and international experience*. Athens: Cross-cultural Education Center.
- Nikolopoulos, D. (ed.) (2008). *Linguistic development and disorders*. Athens: Topos. [in Greek]
- Palaiologou, N. (1998). Learning difficulties among primary school pupils of the USSR: Research results. Center of Interdisciplinary Research and Innovation, University of Patras. 231-248.



Peer, L., & Reed, G. (2014). *Multilingualism, Literacy and Dyslexia: A challenge for educators*. London/New York: Routledge.

Triachi-Herrmann, V. (2000). *Bilingualism in Childhood*. Athens: Gutenberg. [in Greek]

Triarchi-Herrmann, V. (1998). *Die Ausbildung von griechischen Beratungspädagogen*. Akademiebericht 290. Dillingen.

## Appendix

<b>Table 1. Frequencies and relative frequencies (%)</b>		
Sample distribution by gender		
	Frequency	Relative frequency (%)
Boy	550	74.73
Girl	186	25.27
TOTAL	736	100

<b>Table 2. Oral expression by grade - relative frequencies (%) and correlation coefficients</b>												
	1 <sup>st</sup>		2 <sup>nd</sup>		3 <sup>rd</sup>		4 <sup>th</sup>		5 <sup>th</sup>		6 <sup>th</sup>	
	%	N.A.*	%	N.A.	%	N.A.	%	N.A.	%	N.A.	%	N.A.
5 Too many	79.2	1.0	67.2	-2.5	68.6	-2.5	79.7	1.3	84.2	1.8	84.5	1.8
6 Many	16.2	0.2	21.6	2.2	18.6	1.3	11.1	-1.7	9.2	-1.6	11.3	-1.0
7 Several	3.8	-0.7	6.7	0.9	7.6	1.6	5.9	0.5	1.3	-1.6	1.4	-1.5
8 Few	0.8	-1.4	3.0	0.3	4.1	1.4	2.0	-0.5	3.9	0.8	1.4	-0.7
9 None	0.0	-1.3	1.5	0.5	1.2	0.1	1.3	0.3	1.3	0.2	1.4	0.3
Total	100		100		100		100		100		100	

\*Not Applicable

	1 <sup>st</sup>		2 <sup>nd</sup>		3 <sup>rd</sup>		4 <sup>th</sup>		5 <sup>th</sup>		6 <sup>th</sup>	
	%	N.A.	%	N.A.	%	N.A.	%	N.A.	%	N.A.	%	N.A.
5 Too many	82.3	1.8	75.4	-0.3	65.7	-3.7	77.1	0.3	81.6	1.2	84.5	1.7
6 Many	12.3	-1.1	15.7	0.0	21.5	2.4	15.7	0.0	11.8	-1.0	11.3	-1.1
7 Several	4.6	0.0	5.2	0.3	7.0	1.6	3.3	-1.0	5.3	0.2	1.4	-1.4
8 Few	0.8	-1.3	2.2	0.0	4.7	2.3	2.6	0.3	0.0	-1.4	1.4	-0.5
9 None	0.0	-1.3	1.5	0.5	1.2	0.1	1.3	0.3	1.3	0.2	1.4	0.3
Total	100		100		100		100		100		100	

		Presents articulation problems				
		Never	Rarely	Sometimes	Often	Always
1 Foreign pupils in Greece FET: 17.922 p=0.040	Too many	81.9	74.3	0.0	66.7	0.0
	Many	15.4	21.4	0.0	0.0	0.0
	Several	2.2	1.4	0.0	33.3	0.0
	Few	0.0	2.9	0.0	0.0	0.0
	None	0.4	0.0	0.0	0.0	0.0
2 Greek pupils in Greece FET: 21.963 p=0.026	Too many	76.0	78.8	0.0	50.0	0.0
	Many	9.7	6.1	0.0	25.0	0.0
	Several	5.8	15.2	50.0	0.0	0.0
	Few	5.9	0.0	50.0	25.0	0.0
	None	2.6	0.0	0.0	0.0	0.0
3 Greek pupils in Germany FET: 11.125 p=0.460	Too many	68.8	68.4	100.0	83.3	0.0
	Many	21.0	18.4	0.0	8.3	0.0
	Several	6.8	10.5	0.0	0.0	0.0
	Few	1.7	2.6	0.0	8.3	0.0
	None	1.7	0.0	0.0	0.0	0.0