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Article

Relation Between Teachers' Perception of Language Skills and Social Behaviors of Students with Dyslexia in Central Macedonia (Greece)

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Abstract

The present study investigates the views of Secondary Education teachers in Central Macedonia regarding the ability of students with dyslexia to understand and produce oral and written communication. Furthermore, the possibility of intrapersonal and interpersonal adaptation of students in the classroom is studied. For this purpose, a questionnaire was constructed and distributed to 375 teachers (283 females and 92 males) who teach in Central Macedonia. The sample was selected by the "snowball" method. The teachers who participated in the research were divided into those who teach in formal education and those who teach in special education. After comparing the two groups in terms of their answers to the main questions of the research, each group of teachers was studied in terms of differences based on each of their demographic characteristics (gender, age, educational level, years of service in formal education, years of service in special education). The general conclusion is that teachers in special education recognize significantly greater difficulty of students with dyslexia in understanding and producing oral and written communication. Also, students with inclusive class dyslexia show significantly lower levels of introversion, apathy, and negative behavior than those in formal education. Gender and age influence teachers' perception.

Keywords

Dyslexia • understanding • production • interpersonal adaptation • intrapersonal adaptation • teachers' attitudes

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In the theoretical analysis of the article there is an attempt to present the relation between understanding and production of language (oral and written) in students with dyslexia and their adaptation in the classroom. For this reason, the study was conducted with participants with dyslexia, which is defined as a learning difficulty.

Dyslexia is a disorder which affects the neurological system of an individual while it obstructs the understanding as well as the production of speech (International Dyslexia, 2017). Dyslexia is often a hereditary learning difficulty but also it may differ in each person due to its several characteristics. An individual with dyslexia may present serious difficulties in understanding and producing oral and written communication. Some of these difficulties could be the following: the task of writing, reading and processing phonological skills and mathematic skills. However, there is a high chance of successfully responding to difficulties if a specialized intervention occurs (British Dyslexia Association, 2017).

The findings of Tsampalas et al. (2018), define a number of differentiated learning characteristics, needs, and achievements of students with dyslexia. That heterogeneity of individuals with dyslexia requires the introduction of sophisticated and meticulous learning styles in school.

In Greece, 56% of students have specific learning difficulties. This number includes dyslexia as an important category of specific educational needs due to the fact that about 80% of students with learning difficulties show reading difficulties (Feskemenidou, 2016; Tzouridou et al., 2015).

Previous Studies in Understanding and Production of Oral and Written Communication among Students with Dyslexia.

Before presenting the results of the present study, it is worth mentioning the results of previous surveys conducted in other countries. Children with dyslexia and language disorders were studied by Farquharson et al. (2014). Specifically, the researchers contemplated that children with dyslexia had a clear weakness in phonological processing which is associated with a greater risk of showing deficits in the reading process. Furthermore, the awareness of Spanish language in children with dyslexia was the main theme of Jimenez-Fernandez et al. (2015) research. The researchers found that students with developmental dyslexia showed lower performance in each test and also used the same cognitive strategy in both words and pseudo-words. In conclusion, the researchers argued that students with dyslexia show difficulties in other languages such as German or English.

In the same context, language deficits are detected, which in turn creates barriers to the production of speech (Morrow et al., 2015).

Previous Studies in Intrapersonal and Interpersonal Adaptation among Students with Dyslexia

Moreover, this article investigates the ability of interpersonal and intrapersonal adaptation of students with dyslexia in the classroom. Their participation in school activities with other students and their general socialization with other students improves their adaptability (Tarasova et al., 2017). Another basic point in perceiving the meaning of performance is that children compare themselves to their classmates (Haft et al., 2016).

However, students with learning difficulties often find it difficult to respond to social relationships. Students' social participation in primary and secondary education is mentioned and evaluated by the expression of positive social contacts and interactions that may occur among peers, the acceptance and the social relationships. Specifically, children with dyslexia show lower cooperation skills than children that do not show learning difficulties. This may result in their difficulties in socializing with their peers (Cavioni et al., 2017). Furthermore, high levels of loneliness have been found in children with dyslexia after comparison to children who show no learning difficulties (Pesli, 2018).

Also, interaction with other pupils in the classroom can promote their desire for further knowledge. There is evidence that children with specific learning difficulties show low self-esteem and anxiety when asked to read aloud, lack of self-confidence, and false self-perception (Leontopoulou, 2013). Finally, researchers note lower academic performance of children with dyslexia comparing to students with low self-esteem that do not show learning difficulties or dyslexia (Zheng et al., 2014). Lastly, it has been shown that children with dyslexia usually develop introspective characteristics and distinguished apathy (Cavioni et al., 2017).

This research investigates the aforementioned learning and socializing difficulties of students with dyslexia through the view of their teachers. Specifically, this study examines the following hypotheses:

(H1) Teachers in mainstream classroom perceive students with dyslexia as significantly different regarding their oral and written language production in comparison to mainstream students.

(H2) Teachers in special education classrooms perceive students with dyslexia as significantly different in their perception of intrapersonal and interpersonal adaptation in classroom in comparison to mainstream students.

(H3) Demographic characteristics of teachers in mainstream education significantly affect their perception of language deficits and behaviors of students with dyslexia.

(H4) Demographic characteristics of teachers in special education significantly affect their view of intrapersonal and interpersonal adaptation in classroom of students with dyslexia.

(H5) Production and understanding of oral and written language of students with dyslexia is significantly related to their interpersonal and intrapersonal adaptation in both mainstream and special education.

Methods

Participants

The sample of the survey consisted of 375 teachers that teach in secondary schools in Central Macedonia (Greece). First, the researcher sent the questionnaire to teachers in Central Macedonian schools that she was already familiar with. These teachers forwarded the questionnaire to other colleagues. Finally, a required sample size was achieved. This process is called “snowball sampling” (Qureshi, 2018).

The demographic characteristics of the teachers in both mainstream and special education are shown in the Table 1. During the school year of the survey, 67.7% of teachers worked in mainstream education while 32.3% worked in special education classrooms. The sample included 75.5% of women and 24.5% of men. In terms of age, the group with the highest participation was the 41-50 age group (54.3% of teachers in mainstream education and 59.5% in special education). By examining the level of education, 76.8% of teachers in mainstream education had a university degree or they have also completed a postgraduate program of studies. It is also notable that 24% of teachers in special education had a master's degree and 48.8% had training in special education apart from their bachelor and master's degree.

In table 1, the years of service in mainstream and special education are shown for both groups of teachers. It is worth noting that 67.7% of teachers have only worked in mainstream education, 14.7% have worked only in special education and 17.6% have worked both in mainstream and special education.

It is notable that there are no teachers in mainstream education with 0-2 years of service in this kind of education while 74% of them have completed 9-20 years of service. On the other hand, 45.5% of teachers in special education declared they have completed 0-2 years of service in mainstream education while 37.2% of them answered 3-8 years. Furthermore, none of the teachers in mainstream education have completed

more than 2 years of service in special education while 87.5% of the second group have completed 3-14 years in this kind of education.

Table 1. Frequencies and percentages of demographic characteristics of the teachers who participated in the research

Demographic characteristic	Groups	Teachers in mainstream education		Teachers in special education	
		N	%	N	%
Gender	Male	72	28.3%	20	16.5%
	Female	182	71.7%	101	83.5%
Age	21-30 years old	0	0%	2	1.75
	31-40 years old	37	14.6%	33	27.3%
	41-50 years old	138	54.3%	72	59.5%
	>=51 years old	79	31.1%	14	11.6%
Educational level	University degree	78	30.7%	0	0%
	University and master degree	117	46.1%	29	24%
	University degree, master degree and PhD	24	9.4%	11	9.1%
	University degree and training in special education	19	7.5%	15	12.4%
	University degree, master degree and training in special education	14	5.5%	59	48.8%
	University degree, master degree, PhD and training in special education	2	0.8%	7	5.8%
Teaching years in a typical classroom	0-2 years	0	0%	55	45.5%
	3-8 years	33	13%	45	37.2%
	9-14 years	97	38.2%	21	17.4%
	15-20 years	91	35.8%	0	0%
	>=21 years	33	13%	0	0%
Teaching years in a special classroom	0-2 years	254	100%	0	0%
	3-8 years	0	0%	41	33.9%
	9-14 years	0	0%	77	63.6%
	15-20 years	0	0%	3	2.5%
	>=21 years	0	0%	0	0%

Instruments

The instrument was a questionnaire consisted of 5 parts with questions. This questionnaire was administered in “Google Forms” platform. In this electronic way, it can be sent to geographical locations without the presence of the researcher, which eliminates the potential influence of the researcher and last but not least, it provides time to be answered (Filiás, 2003).

In the part A of the questionnaire, participants' demographic characteristics were included. Part B contained 54 close-ended statements and participants were asked to respond to each statement. The questionnaire was answered on a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

This questionnaire was a synthesis of other validated questionnaires that were used in Greece and were related to this topic. The abovementioned statements were divided into 2 separated units (Units 2 and 3). In Unit 2, the researcher examined the teachers' views of understanding and production of oral and written language by students with dyslexia. This is a set of criteria that assess speech and reading skills of students (Tzouriadou, 2008a). The sentences in Unit 3 referred to intrapersonal and interpersonal adaptation in an inclusion classroom by students with dyslexia (Tzouriadou, 2008b).

A factor analysis was conducted for units 2 and 3. The “Varimax” method along with the Kaiser normalization were used. Factor loadings were calculated for each item. Items with loadings below 0.4 were eliminated as too low for consideration.

Regarding to the ability of students in understanding and producing oral and written language 3 factors emerged (see Appendix 1). The data were suitable a factor analysis as indicated by Kaiser-Meyer-Olkin statistic ($KMO = .91$) and the Bartlett's test ($\chi^2_{(276)} = 9576.481, p < .001$). The 3 factors accounted for 70.02% of the total variance in teachers' answers. These factors represent the "Effectiveness in simple oral and written requirements", the "Effectiveness in composite oral and written requirements" and the "Critical ability" of students with dyslexia.

On the other hand, 2 factors emerged from the items in Unit 3 (see Appendix 2). These factors refer to the students "Introversion and violent behaviors" and their "Ignorance and indifference". In this case some sentences with almost identical content with others were excluded to implement the factor analysis. The suitability of data was verified with both the Kaiser-Meyer-Olkin statistic ($KMO = .94$) and the Bartlett's test ($\chi^2_{(253)} = 8272.092, p < .001$). The 2 factors accounted for 61.65% of the variance.

Cronbach's alphas were calculated for each scale. It worth noting that, in each of the final 5 factors, some sentences were reversed as they have negative meaning while others have positive meaning. As can be seen in Appendix 3, all groups are characterized of high reliability in the total sample. In the cases where the value is lower than .7 the reliability is still confirmed as the value of the Cronbach's alpha measured in the total sample satisfies the lower value of .7.

Procedure

Data collection was carried out using a questionnaire through "Google Forms" platform. The language used in the questionnaire was Greek. The survey was conducted from December 2018 to March 2019. The electronic form was sent online to teachers of secondary education schools and have students with dyslexia in their classrooms. The participants were informed about their right to not participate in the research. Furthermore, they were asked to sign a consent form that they accept the terms of the research. The questionnaires were anonymous. Ethical standards were followed (Greek Data Protection Law).

Data Analysis

The procedure followed for the analysis of our data includes statistical measures and hypothesis tests computed and performed through version 21 of the SPSS (Statistical Package for Social Sciences). In order to discover statistical differences between the 2 main groups of the teachers according to the kind of education they work in, a *t*-test for independent samples was conducted. Additionally, analysis of variance was used when 3 or more independent samples were compared. In the cases that data are not normally distributed, these tests were substituted by their non-parametric counterparts which are Mann-Witney and Kruskal-Wallis test, respectively. In order to find statistically significant differences, the means and standard deviations of the answers of each group of teachers were computed. Finally, the possible linear correlation between the total scores in each group of sentences in Units 2 and 3 was examined through the Pearson's correlation coefficient.

Results

In this part, all the tests of differences and correlations are shown in order to examine if the research hypotheses are confirmed. The first tests are implemented comparing teachers in mainstream and special education. Subsequently, it was examined if their demographic characteristics significantly affect their perception of students with dyslexia. Finally, the correlation tests were conducted to examine if the language deficits were correlated with bad behavior from students with dyslexia. These tests were conducted separately for teachers in mainstream and special education.

Tests of Differences Between the Perceptions of the Teachers Servicing in Mainstream and Special Education

After conducting the independent samples *t*-test to compare the opinions of teachers in mainstream and special education, it was found that hypothesis 1 is confirmed. Specifically, as can be seen in Table 2, teachers in special education seem to recognize that their students express greater difficulty in both simple and complex oral and written requirements than it is found by teachers in mainstream education.

Table 2. *The effect of the kind of education the teachers work to their responses about the comprehension and production of oral and written speech by students with dyslexia*

<i>Group of questions</i>	<i>Mainstream (M±SD)</i>	<i>Special (M±SD)</i>	<i>p</i>
Q1. They can find words from oral description.	3.42±0.97	2.82±0.90	<.001
Q2. They can orally describe common words.	3.49±0.89	2.88±0.90	<.001
Q3 They find it difficult to find the meaning of an unknown word.	2.74±1.07	3.22±1.26	<.001
Q4. They do have the ability to associate words that express concepts relevant to each other.	3.37±1.03	2.52±0.83	<.001
Q5. They can place the words they read in the right order so as to produce a proper conceptual sentence.	3.63±0.90	2.63±1.25	<.001
Q6. When sentences are given to them, they reproduce a paragraph that makes sense.	3.50±0.95	2.83±1.13	<.001
Q7. They can respond to questions referring to the context (side headings, details, conclusion) associated with narrative paragraphs.	3.68±0.79	3.00±1.05	<.001
Q8. They can foresee the continuing of a story.	3.67±0.76	3.17±1.14	<.001
Q9. They can produce critical conclusions of the texts.	3.19±0.94	3.00±1.16	.112
Q10. They use strategies so as to organize information in a narrative text.	2.58±0.77	2.01±1.18	<.001
Q11. They are able to summarize in writing extensive narrative or descriptive texts.	2.21±0.74	1.88±1.12	.003
Q12. They are able to understand a daily basis dialogue about topics considering subjects related to their own interests.	4.41±0.77	4.55±0.63	.063
Q13. They are able to understand oral public announcements addressed to the wide school audience.	4.07±0.64	3.36±1.30	<.001
Q14. They are able to produce a daily oral speech about topics considering subjects related to their own interests.	4.10±0.74	4.26±0.51	.027
Q15. They able to understand short texts of everyday use.	3.91±0.67	3.17±1.46	<.001
Q16. They are able to understand texts they might encounter in special occasions of their everyday life.	3.37±0.76	2.52±1.44	<.001
Q17. They are able to produce descriptive and experiential texts.	3.46±0.76	2.89±0.95	<.001
Q18. They are able to compose short texts of everyday use.	3.74±0.53	3.00±1.00	<.001
Q19. They have difficulty in recognizing the requirements arising from a school project.	2.98±1.04	3.29±1.17	.013
Q20. They have difficulty in selecting and implementing strategies when a simple project is assigned.	3.09±1.06	3.52±1.19	.001
Q21. They have difficulty in focusing in a project and have low performance.	3.78±1.00	4.09±0.93	.004
Q22. They have difficulty in assessing their own cognitive performance.	2.81±1.05	3.36±1.26	<.001
Q23. More time is needed so as to comprehend teachers' oral speech during the class.	2.48±1.35	3.07±1.60	.001
Q24. They can express themselves through writing with limited skills in designing, producing and controlling the phases of the writing process.	4.39±0.73	4.38±0.71	.904
Q25. They are able to produce speech in a variety of conditions in school life to successfully solve issues related to their transfer and their relationships with others.	3.95±0.68	2.73±1.29	<.001

Furthermore, the same test (independent samples *t*-test) was used to examine the hypothesis 2. As shown in Table 3, teachers in mainstream education consider that students with dyslexia have a significantly higher degree of introversion, apathy, and negative behavior compared to the opinions of teachers working in inclusion classrooms (Table 3).

Table 3. *The effect of the type of education in which the teachers work on their responses about the behaviors and problems of students with dyslexia*

<i>Group of questions</i>	<i>Mainstream (M±SD)</i>	<i>Special (M±SD)</i>	<i>p</i>
Q1. Follow the school rules.	3.87±0.77	1.56±0.50	<.001
Q2. Show adhesion and dependence on another classmate.	1.84±0.79	4.35±0.53	<.001
Q3. React to the approach and guidance from the teacher.	1.94±0.70	4.40±0.49	<.001
Q4. Do not protect themselves and do not defend themselves when someone is attacking them.	2.28±0.80	4.29±0.46	<.001
Q5. Are uninterested in others feelings.	1.84±0.65	4.50±0.50	<.001
Q6. Seem happy when joining the school.	3.74±0.80	1.47±0.50	<.001
Q7. Turn away their gaze when someone speaks to them.	4.11±0.75	4.45±0.50	<.001
Q8. Deny anything that is being proposed to them.	4.11±0.75	4.45±0.50	<.001
Q9. Claim their rights.	3.65±0.73	1.10±0.30	<.001
Q10. Cannot overcome their anger.	2.76±0.68	4.91±0.29	<.001
Q11. Discuss with the teacher about anything they are concerned.	3.67±0.90	1.47±0.50	<.001
Q12. Fight with other children.	2.76±0.68	4.91±0.29	<.001
Q13. Complicate the function of the classroom.	4.08±0.70	4.27±0.45	<.001
Q14. Indicate anxiety (complain about physical disturbances).	2.38±0.73	4.34±0.48	<.001
Q15. Do not answer when someone speaks to them.	4.11±0.75	4.26±0.44	.022
Q16. Have violent reactions.	2.08±0.60	4.45±0.50	<.001
Q17. Speak back and behave badly to their teacher.	4.25±0.81	4.38±0.49	.051
Q18. Have the acceptance of their peers.	3.68±0.76	1.52±0.50	<.001
Q19. The lack of incentives can be distinguished.	4.02±0.67	4.48±0.50	<.001
Q20. It is characterized by low expectations of success.	3.96±0.69	4.40±0.49	<.001
Q21. It shows a lack of self-confidence and self-esteem.	3.96±0.69	4.40±0.49	<.001
Q22. Often are lonely and have no friends.	3.90±0.86	1.65±0.48	<.001
Q23. Usually develop an introverted character and distinguished apathy.	3.90±0.86	1.65±0.48	<.001
Q24. Often deal with problems referring to their skills and as a result they find difficulty in socializing.	3.90±0.86	1.65±0.48	<.001
Q25. They get encouragement and support from peers.	3.74±0.85	1.52±0.50	<.001
Q26. Their classmates ignore them.	2.28±0.80	1.52±0.50	<.001
Q27. Their classmates exclude them from class activities.	2.28±0.80	4.29±0.46	<.001
Q28. Their classmates bully them.	2.60±0.95	2.38±0.95	.035
Q29. It is not just enough the effort a mainstream teacher make, but it is also necessary to provide support coming from a teacher with special training.	4.24±0.83	4.71±0.46	<.001

Effect of the Demographic Characteristics of Teachers in Mainstream Education on Their Responses about Language Deficits and Behaviors of Their Students with Dyslexia

The tests of this subsection refer to the effect of the demographic characteristics of teachers in special education on their perceptions about the students' language deficits and interpersonal and intrapersonal adaptation (hypothesis 4).

Gender is the first demographic characteristic that was examined (Table 4) through independent samples *t*-test. Regarding the ability of students with dyslexia in understanding and producing oral and written language men and women seem to have similar opinion. Moreover, their opinions about their students' behavior seem to be the same in most of the sentences. They significantly differ only on the

reaction of the students to their approach and guidance and the dysfunction of the classroom. Specifically, men agree to a larger degree than women that students with dyslexia perform bad behavior in the classroom.

Table 4. *Impact of gender on the responses of the teachers working in special education*

<i>Group of questions</i>	<i>Males (M±SD)</i>	<i>Females (M±SD)</i>	<i>p</i>
3.3. React to the approach and guidance from the teacher.	4.70±0.47	4.34±0.48	.003
3.13. Complicate the function of the classroom.	4.65±0.49	4.20±0.40	<.001

The age of the teachers in special education is another factor which was examined through Kruskal-Wallis tests. This factor seems to significantly differ regarding teachers' opinions about the critical ability of students and their response in simple and composite oral and written requirements (see Table 5). Older teachers seem to have worse opinion in this topic than their younger colleagues. In Table 5, their opinion about the students' behavior can be seen. In most of the cases, teachers performed similar opinions. However, in older teachers view, students with dyslexia were more prone to be excluded by their classmates than in younger teacher's view.

Table 5. *Impact of age on the responses of the teachers working in special education*

<i>Group of questions</i>	<i>31-40 years old (M±SD)</i>	<i>41-50 years old (M±SD)</i>	<i>>=51 years old (M±SD)</i>	<i>p</i>
2.1. They can find words from oral description.	3.18±1.01	2.71±0.80	2.36±0.84	.006
2.2. They can orally describe common words.	3.18±0.92	2.83±0.89	2.29±0.61	.007
2.3 They find it difficult to find the meaning of an unknown word.	2.94±1.12	3.21±1.28	4.14±1.10	.011
2.8. They can foresee the continuing of a story.	3.55±1.23	3.10±1.08	2.50±1.02	.013
2.10. They use strategies so as to organize information in a narrative text.	2.24±1.25	2.01±1.18	1.43±0.94	.049
2.12. They are able to understand a daily basis dialogue about topics considering subjects related to their own interests.	4.76±0.50	4.44±0.69	4.57±0.51	.045
2.13. They are able to understand oral public announcements addressed to the wide school audience.	3.70±1.29	3.33±1.29	2.50±1.02	.017
2.14. They are able to produce a daily oral speech about topics considering subjects related to their own interests.	4.52±0.51	4.18±0.51	4.07±0.27	.002
2.15. They able to understand short texts of everyday use.	3.73±1.44	3.10±1.38	2.07±1.33	.001
2.16. They are able to understand texts they might encounter in special occasions of their everyday life.	3.00±1.48	2.43±1.38	1.71±1.33	.014
2.17. They are able to produce descriptive and experiential texts.	3.09±0.95	2.88±0.93	2.36±0.75	.040
2.18. They are able to compose short texts of everyday use.	3.24±0.97	2.97±0.99	2.43±0.85	.033
2.21. They have difficulty in focusing on a project and have low performance.	4.33±0.99	3.97±0.92	4.21±0.80	.052
2.22. They have difficulty in assessing their own cognitive performance.	3.03±1.13	3.38±1.27	4.21±1.12	.013
3.3. React to the approach and guidance from the teacher.	4.21±0.42	4.49±0.50	4.36±0.50	.028
3.4. Do not protect themselves and do not defend themselves when someone is attacking them.	4.33±0.48	4.21±0.41	4.57±0.51	.018
3.26. Their classmates ignore them.	4.33±0.48	4.21±0.41	4.57±0.51	.018
3.27. Their classmates exclude them from class activities.	4.33±0.48	4.21±0.41	4.57±0.51	.018

The next demographic characteristic to be examined was teachers' educational level. The teachers who worked in mainstream education were divided in 5 categories: holders of a university and master's degree (1), holders of a university, master's and doctoral degree (2), holders of a university degree and

having training in special education (3), holders of a university and master's degree and having training in Special Education (4) and holders of a university, master's and doctoral degree and having training in Special Education (5). As can be seen in Table 6, through the Kruskal-Wallis test, teachers with a bachelor, master's and doctoral degree as well teachers with these degrees and training in Special Education seems to be the most satisfied among their colleagues regarding to the oral and written abilities of their students. On the other hand, this demographic characteristic does not significantly differentiate their opinions on students' behavior except some cases which do not reveal a specific pattern in the teachers' answers according to their educational level.

Table 6. Impact of educational level on the responses of the teachers working in special education

Group of questions	1 (M±SD)	2 (M±SD)	3 (M±SD)	4 (M±SD)	5 (M±SD)	p*
2.1. They can find words from oral description.	3.07±1.03	3.00±0.63	2.80±0.78	2.59±0.85	3.43±0.98	.035
2.2. They can orally describe common words.	3.10±0.94	3.18±0.75	3.00±0.93	2.61±0.85	3.43±0.79	.021
2.3 They find it difficult to find the meaning of an unknown word.	3.07±1.28	2.45±0.82	3.00±1.31	3.58±1.25	2.57±0.79	.026
2.4. They do have the ability to associate words that express concepts relevant to each other.	2.86±0.88	3.09±0.83	2.47±0.64	2.22±0.72	2.86±0.90	<.001
2.5. They can place the words they read in the right order so as to produce a proper conceptual sentence.	2.90±1.29	3.18±1.25	2.93±1.16	2.22±1.15	3.43±1.13	.005
2.6. When sentences are given to them, they reproduce a paragraph that makes sense.	3.24±1.19	3.36±1.12	2.80±1.21	2.44±0.95	3.57±1.13	.002
2.7. They can respond to questions referring to the context (side headings, details, conclusion) associated with narrative paragraphs.	3.28±1.13	3.64±0.81	3.27±0.96	2.61±0.93	3.57±1.13	.002
2.8. They can foresee the continuing of a story.	3.31±1.17	3.73±0.91	3.47±1.13	2.81±1.09	4.00±0.00	.010
2.9. They can produce critical conclusions of the texts.	3.21±1.21	3.82±1.08	3.13±1.19	2.63±1.02	3.71±1.25	.003
2.10. They use strategies so as to organize information in a narrative text.	2.34±1.32	2.82±1.25	1.93±1.03	1.63±0.96	2.71±1.38	.003
2.11. They are able to summarize in writing extensive narrative or descriptive texts.	2.14±1.22	2.64±1.29	2.20±1.08	1.49±0.88	2.14±1.35	.001
2.13. They are able to understand oral public announcements addressed to the wide school audience.	3.59±1.32	4.00±1.10	3.80±1.37	2.93±1.22	4.00±1.00	.011
2.15. They able to understand short texts of everyday use.	3.34±1.37	3.91±1.30	3.60±1.55	2.75±1.45	4.00±1.00	.028
2.16. They are able to understand texts they might encounter in special occasions of their everyday life.	2.69±1.47	3.36±1.21	2.87±1.51	2.08±1.37	3.43±0.98	.008
2.17. They are able to produce descriptive and experiential texts.	3.03±0.98	3.18±0.75	3.33±1.11	2.61±0.87	3.29±0.76	.018
2.18. They are able to compose short texts of everyday use.	3.14±1.03	3.64±0.81	3.40±1.12	2.66±0.90	3.43±0.79	.004
2.19. They have difficulty in recognizing the requirements arising from a school project.	2.90±0.98	3.18±0.87	2.93±1.10	3.66±1.24	2.71±0.95	.011
2.20. They have difficulty in selecting and implementing strategies when a simple project is assigned.	3.10±1.08	3.27±1.19	3.53±1.06	3.83±1.21	3.00±1.29	.040
2.22. They have difficulty in assessing their own cognitive performance.	3.07±1.25	2.82±0.98	3.07±1.34	3.73±1.22	2.86±1.22	.036
2.23. More time is needed so as to comprehend teachers' oral speech during the class.	2.79±1.47	2.36±1.43	2.60±1.45	3.56±1.61	2.14±1.46	.021
2.25. They are able to produce speech in a variety of conditions in school life to successfully solve issues related to their transfer and their relationships with others.	2.83±1.42	3.27±1.19	3.07±1.16	2.37±1.22	3.71±0.76	.019
3.3. React to the approach and guidance from the teacher.	4.28±0.46	4.18±0.41	4.60±0.51	4.47±0.50	4.14±0.38	.044
3.17. Speak back and behave badly to their teacher.	4.48±0.51	4.18±0.41	4.00±0.00	4.46±0.50	4.43±0.54	.008
3.29. It is not just enough the effort a mainstream teacher make, but it is also necessary to provide support coming from a teacher with special training.	4.48±0.51	4.36±0.51	4.73±0.46	4.86±0.35	4.86±0.38	<.001

Furthermore, the years of working experience in mainstream education are taken into consideration for an analysis of differences in the teachers' opinions about language deficits and behavior of their students with dyslexia. As can be seen in Table 7, teachers with 9-14 years of service in mainstream education are more positive regarding their students' oral and written speech abilities than their colleagues with less years of experience. Regarding the students' behavior, the years of service in mainstream education seem to significantly differentiate some of the teachers' opinions but there is no clear view of their perceptions. In each case the Kruskal-Wallis test was conducted.

Table 7. *Impact of years of work in mainstream education on the responses of the teachers working in special education*

<i>Group of questions</i>	<i>0-2 years (M±SD)</i>	<i>3-8 years (M±SD)</i>	<i>9-14 years (M±SD)</i>	<i>p*</i>
2.2. They can orally describe common words.	2.73±0.91	2.84±0.88	3.33±0.80	.026
2.3 They find it difficult to find the meaning of an unknown word.	3.51±1.32	3.13±1.16	2.67±1.11	.030
2.6. When sentences are given to them, they reproduce a paragraph that makes sense.	2.65±1.11	2.78±1.09	3.38±1.16	.035
2.7. They can respond to questions referring to the context (side headings, details, conclusion) associated with narrative paragraphs	2.76±1.02	3.04±1.07	3.52±0.93	.017
2.9. They can produce critical conclusions of the texts.	2.71±1.10	3.13±1.24	3.48±0.98	.009
2.10. They use strategies so as to organize information in a narrative text.	1.71±1.06	2.13±1.29	2.52±1.03	.005
2.11. They are able to summarize in writing extensive narrative or descriptive texts.	1.60±0.99	1.98±1.22	2.38±1.02	.003
2.13. They are able to understand oral public announcements addressed to the wide school audience.	3.05±1.25	3.38±1.35	4.10±1.00	.010
2.16. They are able to understand texts they might encounter in special occasions of their everyday life.	2.18±1.39	2.60±1.53	3.24±1.09	.014
2.17. They are able to produce descriptive and experiential texts.	2.73±0.95	2.82±0.86	3.48±0.93	.007
2.18. They are able to compose short texts of everyday use.	2.80±0.99	3.00±0.98	3.52±0.93	.018
2.19. They have difficulty in recognizing the requirements arising from a school project.	3.51±1.15	3.33±1.19	2.62±0.92	.011
2.20. They have difficulty in selecting and implementing strategies when a simple project is assigned.	3.80±1.13	3.49±1.25	2.86±0.96	.008
2.21. They have difficulty in focusing in a project and have low performance.	4.36±0.75	3.98±0.94	3.62±1.12	.009
2.22. They have difficulty in assessing their own cognitive performance.	3.55±1.26	3.44±1.24	2.67±1.11	.026
2.23. More time is needed so as to comprehend teachers' oral speech during the class.	3.35±1.59	3.09±1.73	2.29±1.01	.046
2.25. They are able to produce speech in a variety of conditions in school life to successfully solve issues related to their transfer and their relationships with others.	2.55±1.33	2.60±1.27	3.48±0.93	.014
3.1. Follow the school rules.	1.42±0.50	1.67±0.48	1.71±0.46	.014
3.3. React to the approach and guidance from the teacher.	4.53±0.50	4.27±0.45	4.33±0.48	.025
3.13. Complicate the function of the classroom.	4.42±0.50	4.13±0.34	4.19±0.40	.004
3.16. Have violent reactions.	4.45±0.50	4.31±0.47	4.71±0.46	.009
3.17. Speak back and behave badly to their teacher.	4.49±0.51	4.24±0.44	4.38±0.50	.042
3.29. It is not just enough the effort a mainstream teacher make, but it is also necessary to provide support coming from a teacher with special training.	4.78±0.42	4.87±0.34	4.19±0.40	<.001

Finally, teachers in special education were examined according to their experience in this kind of education. According to the independent samples *t*-tests of the Table 8, teachers with 3-8 years of service

in special education declare that students are rudimentary in oral and written requirements while teachers with 9-14 years of service seem to be extremely displeased. On the other hand, teachers with less years of service detect more negative behaviors of the students with dyslexia towards other students or towards them from their classmates than teachers with 9-14 years of service in special education do.

Table 8. *Impact of years of work in special education on the responses of the teachers working in special education*

<i>Group of questions</i>	<i>3-8 years (M±SD)</i>	<i>9-14 years (M±SD)</i>	<i>p*</i>
2.1. They can find words from oral description.	3.59±0.71	2.44±0.73	<.001
2.2. They can orally describe common words.	3.61±0.59	2.52±0.81	<.001
2.3 They find it difficult to find the meaning of an unknown word.	2.22±0.48	3.71±1.23	<.001
2.4. They do have the ability to associate words that express concepts relevant to each other.	3.02±0.85	2.29±0.69	<.001
2.5. They can place the words they read in the right order so as to produce a proper conceptual sentence.	3.46±1.14	2.23±1.08	<.001
2.6. When sentences are given to them, they reproduce a paragraph that makes sense.	3.56±1.21	2.47±0.90	<.001
2.7. They can respond to questions referring to the context (side headings, details, conclusion) associated with narrative paragraphs.	3.76±0.77	2.64±0.97	<.001
2.8. They can foresee the continuing of a story.	4.10±0.49	2.71±1.10	<.001
2.9. They can produce critical conclusions of the texts.	3.68±1.06	2.68±1.07	<.001
2.10. They use strategies so as to organize information in a narrative text.	2.73±1.03	1.66±1.10	<.001
2.11. They are able to summarize in writing extensive narrative or descriptive texts.	2.59±1.07	1.53±0.97	<.001
2.13. They are able to understand oral public announcements addressed to the wide school audience.	4.46±0.51	2.82±1.22	<.001
2.14. They are able to produce a daily oral speech about topics considering subjects related to their own interests.	4.49±0.55	4.16±0.46	.002
2.15. They are able to understand short texts of everyday use.	4.44±0.50	2.56±1.37	<.001
2.16. They are able to understand texts they might encounter in special occasions of their everyday life.	3.63±0.86	1.99±1.35	<.001
2.17. They are able to produce descriptive and experiential texts.	3.71±0.68	2.49±0.79	<.001
2.18. They are able to compose short texts of everyday use.	3.80±0.60	2.61±0.92	<.001
2.19. They have difficulty in recognizing the requirements arising from a school project.	2.51±0.81	3.65±1.12	<.001
2.20. They have difficulty in selecting and implementing strategies when a simple project is assigned.	2.66±0.94	3.94±1.07	<.001
2.21. They have difficulty in focusing in a project and have low performance.	3.73±1.05	4.29±0.83	.005
2.22. They have difficulty in assessing their own cognitive performance.	2.27±0.55	3.87±1.15	<.001
2.23. More time is needed so as to comprehend teachers' oral speech during the class.	1.78±0.69	3.68±1.53	<.001
2.25. They are able to produce speech in a variety of conditions in school life to successfully solve issues related to their transfer and their relationships with others.	3.88±0.60	2.14±1.16	<.001
3.2. Show adhesion and dependence on another classmate.	4.49±0.51	4.29±0.54	.049
3.4. Do not protect themselves and do not defend themselves when someone is attacking them.	4.41±0.50	4.22±0.42	.037
3.7. Turn away their gaze when someone speaks to them.	4.76±0.44	4.48±0.50	.003
3.10. Cannot overcome their anger.	5.00±0.00	4.86±0.35	.001
3.12. Fight with other children.	5.00±0.00	4.86±0.35	.001
3.15. Do not answer when someone speaks to them.	4.41±0.50	4.18±0.39	.012
3.20. It is characterized by low expectations of success.	4.22±0.42	4.52±0.50	.001
3.21. It shows a lack of self-confidence and self-esteem.	4.22±0.42	4.52±0.50	.001
3.22. Often are lonely and have no friends.	1.78±0.42	1.60±0.49	.037
3.23. Usually develop an introverted character and distinguished apathy.	1.78±0.42	1.60±0.49	.037
3.24. Often deal with problems referring to their skills and as a result they find difficulty in socializing.	1.78±0.42	1.60±0.49	.037
3.26. Their classmates ignore them.	4.41±0.50	4.22±0.42	.037
3.27. Their classmates exclude them from class activities.	4.41±0.50	4.22±0.42	.037
3.28. Their classmates bully them.	2.15±0.69	2.52±1.06	.023
3.29. It is not just enough the effort a mainstream teacher make, but it is also necessary to provide support coming from a teacher with special training.	4.51±0.51	4.81±0.40	.002

As a result, the hypotheses 3 and 4 seem to be, to a large degree, confirmed. However, there are cases where the demographic characteristics do not significantly differentiate the opinions of the different groups of teachers.

Correlations Among the Study Variables

In this section, the last hypothesis of the research (hypothesis 5) is examined. As mentioned above, the application of factor analysis highlighted specific factors in the understanding and production of oral and written language and in the behavior of students with dyslexia. In this section the correlation of the factors is studied both in the case of teachers who teach in mainstream education and those in special education.

As shown in Table 12, almost all variables are uncorrelated. The only case of a significant positive correlation occurs between the variables "Effectiveness in composite oral and written requirements" and "Ignorance and indifference" ($r = .12, p = .05$). Therefore, the fifth hypothesis of the present investigation does not seem to be confirmed.

Table 12. Correlation tests between the study variables (mainstream and special education)

Teachers' group	Variables	<i>r</i>	<i>p</i>
Mainstream education	Effectiveness in composite oral and written requirements – Introversion and violent behaviors	.06	.367
	Effectiveness in composite oral and written requirements – Ignorance and indifference	.12	.050
	Effectiveness in simple oral and written requirements – Introversion and violent behaviors	-.03	.668
	Effectiveness in simple oral and written requirements – Ignorance and indifference	.08	.185
	Critical Ability – Introversion and violent behaviors	-.03	.624
	Critical Ability – Ignorance and indifference	.03	.601
Special education	Effectiveness in composite oral and written requirements – Introversion and violent behaviors	-.02	.800
	Effectiveness in composite oral and written requirements – Ignorance and indifference	.02	.843
	Effectiveness in simple oral and written requirements – Introversion and violent behaviors	-.08	.396
	Effectiveness in simple oral and written requirements – Ignorance and indifference	.01	.879
	Critical Ability – Introversion and violent behaviors	-.05	.623
	Critical Ability – Ignorance and indifference	-.06	.483

Discussion

Taking into account the objective of exploring the effects of teachers' profile on their perceptions of the language skills and intrapersonal and interpersonal adaptation of students with dyslexia, some interesting results have been obtained. This discussion is formed taking into account the proposed hypotheses.

According to our results, the first two hypotheses are confirmed. Teachers from mainstream education respond mostly, in agreement with Cavioni et al (2017), that point out the low level of students to cooperate and socially contact with their peers due to their difficulties. Also, Papadopoulou (2017) mentioned the similar findings regarding mainstream education teachers. She concluded that students with dyslexia show more difficulties in socializing comparing to students who do not face learning difficulties. On the contrary, teachers in special education responded that students with dyslexia were not lonely, they did not appear to be introverted and apathetic, nor were they particularly difficult to socialize which is not consistent with Pesli's (2018) findings who pointed out higher level of loneliness in students with dyslexia. However, different levels of education may demand different educational needs, as students' special education needs are mentioned through the diagnosis of dyslexia (Agrafioti, 2019).

Gender and age significantly affect teachers' responses in both mainstream education and special education. Specifically, older people from both settings seem to provide more negative responses. Martimianaki's study (2015) also pointed out that the older teachers seemed to agree about the inability of students with dyslexia to defend themselves. Also, as Basu (2018) pointed out, teachers' educational level affects their responses regarding students' behaviors with those with higher level in special education to respond more positively as in our findings. Another demographic characteristic with significant effect on the teachers' responses is the years in service but only in those in mainstream education. Papaeliou's research (2018) also found that teachers with less educational experience in teaching students with dyslexia provide more negative responses about students' introversion, loneliness or misconduct with peers.

Furthermore, the age of teachers in mainstream education significantly affects their answers with the younger ones presenting more knowledge about dyslexia as also found by Thompson (2013). Teachers who were more qualified or had training in special education as Chong Shu Sze et al. (2017) points out, are more positive regarding students' with dyslexia critical ability. On the other hand, teachers from special education settings present differences in their responses about the comprehension and production of oral and written language of students with dyslexia and those findings are consistent with Zika's study (2017). Also, their experience in this kind of education affects their strong support on several responds regarding students with dyslexia. Finally, Basu et al. (2014), refers to this issue by stating that special education teachers have more awareness of dyslexia regardless of their years in education.

The 5th hypothesis of this research is the only one that was not confirmed. According to the answers of teachers in both mainstream and special education, no significant correlations were detected among the factors of the second part of the questionnaire.

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Appendix 1

Table 1. Loadings of the "Unit 2" sentences of the questionnaire

<i>Sentences</i>	<i>A</i>	<i>B</i>	<i>C</i>
Q1. They can find words from oral description.		.821	
Q2. They can orally describe common words.		.811	
Q3. They find it difficult to find the meaning of an unknown word.	.858		
Q4. They do have the ability to associate words that express concepts relevant to each other.		.816	
Q5. They can place the words they read in the right order so as to produce a proper conceptual sentence.	.456	.765	
Q6. When sentences are given to them, they reproduce a paragraph that makes sense.	.490	.707	
Q7. They can respond to questions referring to the context (side headings, details, conclusion) associated with narrative paragraphs.	.607	.556	
Q8. They can foresee the continuing of a story.	.686		
Q9. They can produce critical conclusions of the texts.	.467		.519
Q10. They use strategies so as to organize information in a narrative text.	.419	.421	.516
Q11. They are able to summarize in writing extensive narrative or descriptive texts.		.415	.547
Q12. They are able to understand a daily basis dialogue about topics considering subjects related to their own interests.		.499	
Q13. They are able to understand oral public announcements addressed to the wide school audience.	.547	.511	.533
Q14. They are able to produce a daily oral speech about topics considering subjects related to their own interests.		.536	
Q15. They are able to understand short texts of everyday use.	.482	.604	
Q16. They are able to understand texts they might encounter in special occasions of their everyday life.	.608	.531	
Q17. They are able to produce descriptive and experiential texts.	.605	.535	
Q18. They are able to compose short texts of everyday use.	.511	.652	
Q19. They have difficulty in recognizing the requirements arising from a school project.	-.801		
Q20. They have difficulty in selecting and implementing strategies when a simple project is assigned.	-.782		
Q21. They have difficulty in focusing in a project and have low performance.			-.742
Q22. They have difficulty in assessing their own cognitive performance.	-.799		
Q23. More time is needed so as to comprehend teachers' oral speech during the class.	-.879		
Q24. They can express themselves through writing with limited skills in designing, producing and controlling the phases of the writing process.			-.646
Q25. They are able to produce speech in a variety of conditions in school life to successfully solve issues related to their transfer and their relationships with others.		.669	.499

Appendix 2

Table 2. Loadings of the sentences of the fourth part of the questionnaire

<i>Sentences</i>	<i>A</i>	<i>B</i>
Q1. Follow the school rules.	-.894	
Q2. Show adhesion and dependence on another classmate.	.876	
Q3. React to the approach and guidance from the teacher.	.914	
Q5. Are uninterested in others feelings.	.913	
Q6. Seem happy when joining the school.	-.881	
Q7. Turn away their gaze when someone speaks to them.		.891
Q8. Deny anything that is being proposed to them.		.909
Q9. Claim their rights.	-.904	
Q11. Discuss with the teacher about anything they are concerned.	-.869	
Q12. Fight with other children.	.863	
Q13. Complicate the function of the classroom.		.541
Q14. Indicate anxiety (complain about physical disturbances).	.861	
Q15. Do not answer when someone speaks to them.		.927
Q16. Have violent reactions.	.875	
Q17. Speak back and behave badly to their teacher.		
Q18. Have the acceptance of their peers.	-.872	
Q19. The lack of incentives can be distinguished.		
Q21. It shows a lack of self-confidence and self-esteem.		
Q23. Usually develop an introverted character and distinguished apathy.	-.783	
Q25. They get encouragement and support from peers.	-.869	
Q27. Their classmates exclude them from class activities.	.824	
Q28. Their classmates bully them.		
Q29. It is not just enough the effort a mainstream teacher make, but it is also necessary to provide support coming from a teacher with special training.		

Appendix 3

Table 3. Cronbach's alpha (measured in the total sample and each group of teachers) for each factor of the research

<i>Units</i>	<i>Groups</i>	<i>Sentences</i>	<i>Total</i>	<i>Mainstream Education</i>	<i>Special Education</i>
Unit 2	Effectiveness in composite oral and written requirements	3*, 7, 8, 13, 16, 17, 19*, 20*, 22*, 23*	.94	.89	.98
	Effectiveness in simple oral and written requirements	1, 2, 4, 5, 6, 12, 14, 15, 18, 25	.92	.90	.94
	Critical ability	9, 10, 11, 21*, 24*	.74	.63	.84
Unit 3	Introversion and violent behaviors	1*, 2, 3, 5, 6*, 9*, 11*, 12, 14, 16, 18*, 23*, 25*, 27	.98	.69	.26
	Ignorance and indifference	7, 8, 13, 15	.88	.91	.48

*These questions are inversed.