

An Investigation of Specific Learning Disability Content Knowledge Competencies of Teachers In Different Branches

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ABSTRACT

In general, students with specific learning disabilities may have retardation in one or more of reading and comprehension, spelling, mathematics and language development compared to their peers. Children with specific learning disabilities constitute an important part of students with special needs. This study aims to investigate the content knowledge competencies of teachers in different branches of specific learning disabilities. A total of 133 teachers, 96 females and 37 males, working in various provinces of Türkiye participated in the study. In the study, which was designed with a single survey model, data were collected with the Teacher Competency Scale for Specific Learning Disabilities. As a result, it was determined that teachers in different branches had a moderate level of specific learning disability content knowledge. It was determined that the participants' content knowledge competencies did not differ according to gender, age, graduated faculty, branch, education level, years of experience, institution of employment, taking a course on specific learning disabilities at undergraduate or graduate level, and participating in in-service training on specific learning disabilities before. Suggestions were made for practice and further research.

KEYWORDS

Special education; specific learning disability; teacher; specific learning disability content knowledge

INTRODUCTION

The first studies on specific learning disabilities (SLD) date back to the 1800s (Hallahan & Mercer, 2001). In the early periods, it was mostly evaluated within the field of medical science and studies based on concussion and brain damage were carried out (Çakıroğlu, 2017; Wiederholt, 1974). In the past period, concept confusion has emerged due to the different definitions put forward by various disciplines on SLD, which has become one of the common working subjects of medicine, psychology and education fields (Kaçar & Düzkanar, 2019). Students with SLD are known not have significant differences from their peers in physical and mental terms, but generally have differences in one or more of reading and comprehension, writing, mathematics and language development (Deniz & Sarı, 2021). SLD is defined as a type of special need in which a child cannot exhibit success commensurate with his/her age and ability, there is an inconsistency between his/her academic skills and mental abilities, and his/her inability in academic skills is not caused by any visual, auditory, motor or mental skills deficiencies, emotional, behavioral disorders, environmental, cultural or economic disadvantages (McGill et al, 2016).

The American Psychiatric Association (APA) emphasizes that the prevalence of SLD in school-age children varies between 5% and 15% (APA, 2013). While the rate of individuals diagnosed with SLD among individuals with special needs in the United States is 38%, this rate is evaluated as 6% in our country (Ministry of National Education [MEB], 2019; U.S. Department of Education, 2020). It is thought that this significant difference may be due to the problems experienced in the diagnosis process in our country (Melekoğlu, 2017). Despite different statistics, individuals with SLD constitute a significant portion of individuals with special needs. Students with SLD may experience academic failure in reading, writing and mathematics, as well as language and speech, generalization and motivation problems (Fletcher, Lyon, Fuchs, & Barnes, 2018). In addition, social competence problems, memory problems and attention deficit can also be observed in these students (Diken, 2015; Gürsel, 2017; Karagiannakis & Cooreman, 2015). These problems may cause students with SLD not to take advantage of the general education system at a desired level (Fletcher, et al., 2018). However, it should not be forgotten that students with SLD have normal and above normal intelligence levels (APA, 2013). For a successful educational process, it is important for teachers to develop strategies by adopting an approach based on students' competencies (Winebrenner, 2003). Meeting the educational needs of students with SLD and providing learning support requires teachers to have certain competencies. In terms of SLD, it is very important for teachers to have competencies such as identifying learning disabilities, evaluating students, designing interventions such as differentiating the education program, and referring students to relevant institutions (Mavuso, 2022).

The recognition of SLD, which are characterized by problems in the acquisition and use of academic skills, occurs predominantly at the beginning of the school period (Melekoğlu &

Sak, 2018). This situation makes it necessary for classroom teachers who work in the first years of the education process and the staff working in guidance services to have knowledge about the subject and to recognize the differences in students. Early recognition of students with SLD is very crucial in terms of their ability to benefit from support services (Turnbull, Turnbull, & Wehmeyer, 2007). Otherwise, the education process may result in students not being diagnosed and not providing equal opportunity in education (Shukla & Agrawal, 2015). For this reason, recognizing students with SLD and providing appropriate educational environments are considered among the responsibilities of teachers (Kuruyer & Çakiroğlu, 2017). Considering individual differences, although the symptoms exhibited by students with SLD in the early period differ, problems such as lower than expected performance in academic achievement, focusing problems, receptive and expressive language problems, problems in distinguishing letters and numbers, incorrect use of symbols in grammar and mathematics can be observed (MEB, 2014; Rief & Stern, 2010). In the process, teachers are expected to monitor students carefully, provide individual support in case of a possible suspicion and try to increase the success level of students, and refer them to Guidance and Research Centers if the desired change is not achieved and the teacher suspects SLD (Kuruyer & Çakiroğlu, 2017). After the diagnosis, the content and quality of the education that teachers will provide to these individuals gain importance. An effective teaching process includes good planning, implementation and evaluation processes (Ysseldyke, 1999). In the process, it is expected to assess and analyze the performances of students with SLD and to plan a target content based on the needs (Kargın et al, 2010). Similarly, in the implementation and evaluation processes of the content, the necessity of making adaptations by taking into account student characteristics comes to the fore (Özkubat et al, 2021). All these factors are thought to be directly related to teachers' competencies regarding SLD.

When the international literature is examined, there are mainly branch-based studies in which the knowledge levels of teachers in different branches within the general education system about SLD are examined. In most of the studies, classroom teachers (Alahmadi & El Keshky 2019; Cornoldi et al, 2016; Kocsis, 2016; Lingeswaran, 2013; Padhy et al, 2015; Shukla & Agrawal, 2015), while there are several studies that include subject teachers as participants (Menon, 2016; Saravanabhavan & Saravanabhavan 2010; Sawhney & Bansal, 2014; Shetty & Rai, 2014; Washburn, Joshi, & Binks-Cantrel, 2011; Yin, Joshi, & Yan, 2020). There are a limited number of studies on this subject. Some of the studies reveal that teachers' level of knowledge about SLD is evaluated as adequate (Cornoldi, et al., 2016; Kocsis, 2016), while in most of them it is evaluated as inadequate (Alahmadi & El Keshky 2019; Cornoldi, et al., 2016; Padhy, et al., 2015; Saravanabhavan & Saravanabhavan 2010; Sawhney & Bansal, 2014; Shetty & Rai, 2014; Shukla & Agrawal, 2015; Washburn, Joshi, & Binks-Cantrel, 2011; Yin, Joshi, & Yan, 2020). On the other hand, there are research findings showing that teachers' knowledge levels about SLD do not differ according to their teaching experience and gender (Alahmadi & El Keshky 2019; Menon, 2016; Shukla & Agrawal, 2015), but may differ according to socioeconomic level and

the development level of the region where teachers work (Alahmadi & El Keshky 2019; Yin, Joshi, & Yan, 2020).

In the research conducted in Türkiye on the subject, classroom teachers are the participants are predominant, in parallel with the international literature (Altun & Uzuner, 2016; Altuntaş, 2010; Arabacı, 2018; Aslan, 2016; Avcı & Beyhan, 2022; Çoğaltay & Çetin 2020; Kara, 2022; Karadeniz, 2013; Ketenoğlu-Kayabaşı 2019; Şahin, Güven, & Alatlı, 2020; Yangın, et al., 2016; Yiğiter, 2005), but there are also studies involving teachers working in different branches (Arttırıcı, 2018; Ceray-Ertaş, 2022; Köşk, 2019; Sezer & Akın, 2011). In the research findings, it is stated that teachers' level of knowledge about SLD is insufficient (Arttırıcı, 2018; Arabacı, 2018; Çoğaltay & Çetin 2020; Altuntaş 2010; Altun & Uzuner, 2016; Kara, 2022; Sezer & Akın 2011; Yiğiter, 2005), they have concept confusion about the subject (Karadeniz, 2013; Sezer & Akın 2011), and problems are encountered in the implementation of methods (Arabacı, 2018; Aslan, 2016; Ketenoğlu-Kayabaşı 2019). On the other hand, in addition to the studies showing that the level of insufficient knowledge does not differ by age, gender and professional experience (Arttırıcı, 2018; Avcı & Beyhan, 2022; Yiğiter, 2005), there are also studies reporting differentiation according to the variables of having received in-service training and having students with special needs in their classes (Ceray-Ertaş, 2022; Köşk 2019). The number of studies in which it was found that teachers evaluated their level of knowledge about SLD as sufficient is quite limited (Avcı & Beyhan, 2022; Ketenoğlu-Kayabaşı 2019). The basic understanding of the situation of students with SLD in both international and national literature is that teachers generally do not effectively address the needs of students with SLD in general education classrooms (Alhassan & Abosi, 2014).

It is thought that the repetition of similar studies in different countries is due to the low generalizability of the findings due to the differentiation of the education systems of the countries (Kaçar & Düzkantar, 2019). The differentiation of the content of the teacher training programs of the countries requires each of them to be evaluated separately regarding SLD and necessary steps to be taken (Alkhateeb, 2014). As a matter of fact, while Special Education and Inclusion is included as a field course in the content of teaching programs carried out in universities in our country, there is no compulsory course on individuals with special needs other than this course, and various elective courses that are not compulsory to be taken by teacher candidates can be opened (Higher Education Council [YÖK], 2018). This situation may cause teachers' knowledge levels about SLD to differ even within each university.

Teachers have critical importance in the education dimension, which is decisive in the preparation process of individuals with SLD for independent living. It is inevitable that the quality of educational services to be provided in the process is directly related to teacher competencies. Evaluating the competencies of teachers regarding SLD and evaluating the levels of differentiation in terms of various variables will provide the opportunity to evaluate the in-service training processes as well as the teaching undergraduate programs, which are the basic education process of teachers. In this way, it will be possible to promote to the improvement of

the educational life of individuals with SLD as well as planning improvement studies in the knowledge levels of teachers on the subject.

In this context, this study aims to examine the competencies of teachers in different branches in SLD content knowledge. In line with this purpose, the following sub-objectives were examined

- What is the SLD content knowledge competencies level of teachers in different branches?
- Do the content knowledge competencies of teachers in different branches differ according to gender, age, graduated faculty, branch, education level, years of experience, institution of employment, taking undergraduate or graduate courses on SLD and receiving in-service training (IST) on SLD before?

METHOD

Research Model

This research has been designed with a single survey model. Research models conducted to determine the occurrence of variables individually, in terms of type or quantity are called single survey models. In this type of approach, the variables belonging to the event, item, individual, group, institution, subject, etc. unit and situation are tried to be described separately (Karasar, 2002).

Sample

The sample consists of teachers from different branches working with students with SLD in Türkiye. The sample of the study was selected by convenience sampling technique from the teachers in different branches working in various provinces of Türkiye who were reached through social networking groups and who volunteered to participate in the study. Convenience sampling, also known as accidental sampling, is one of the non-probability sampling methods in which the target group of the research meets criteria such as easy accessibility, availability at a certain time, or volunteerism (Etikan et al, 2016). A total of 133 teachers working in various provinces of Türkiye and in different branches participated in the study. The demographic characteristics of the participants are given in Table 1.

Table 1. Demographic characteristics of the participants

Variable	Category	N	%
Gender	Women	96	72,2
	Man	37	27,8
Age	22-28	9	6,8
	29-35	31	23,3
	36-42	48	36,1
	43-49	35	26,3
	50-57	7	5,3
	58-64	3	2,3
Faculty of Graduation	Faculty of Education	89	66,9
	Other	44	33,1
Branch	Classroom	19	14,3
	Social Studies-History-Geography	7	5,3
	Mathematics-Primary Mathematics	13	9,8
	Science-Biology-Physics	18	13,5
	Turkish-Turkish Language and Literature	14	10,5
	Information Technologies (IT)	3	2,3
	Preschool	9	6,8
	Psychological Counseling and Guidance (PDR)	9	6,8
	Foreign Language (English-German)	13	9,8
	Special Education	5	3,8
	Music-Visual Arts	7	5,3
	Religious Culture and Ethics (RCME)-Imam Hatip Vocational Courses	4	3,0
Education Status	License	104	78,2
	Master's Degree	28	21,1
	PhD	1	0,8
Year of Experience	1-5 years	15	11,3
	6-10 years	28	21,1
	11-20 years	53	39,8
	21-30 years	33	24,8
	30 years and above	4	3,0
Institution Type	Public school	120	90,2
	Private school	13	9,8
Status of taking courses on SLD	Yes	45	33,8
	No	88	66,2
Participation in In-Service Training on SLD	Yes	50	37,6
	No	83	62,4

According to Table 1, 96 of the teachers who participated in the study were female (72.2%) and 37 were male (27.8%). 9 of the participants were between the ages of 22-28 (6.8%), 31 between the ages of 29-35 (23.3%), 48 between the ages of 36-42 (36.1%), 35 between the

ages of 43-49 (26.3%), 7 between the ages of 50-57 (5.3%) and 3 between the ages of 58-64 (2.3%). While 89 of the participants graduated from the Faculty of Education (66.9%), 33.1% graduated from other faculties (33.1%). Nineteen of the participants were Classroom Teachers (14.3%), 7 were Social Studies-History-Geography Teachers (5.3%), 13 were Mathematics-Primary Mathematics Teachers (9.8%), 18 were Science-Biology-Physics Teachers (13.5%), 14 were Turkish-Turkish Language and Literature Teachers (10.5%), and 3 were IT Teachers (2.3%), 9 were Preschool Teachers (6.8%), 9 were Psychological Counselors (6.8%), 13 were Foreign Language Teachers (English-German) (9.8%), 5 were Special Education Teachers (3.8%), 7 were Music-Visual Arts Teachers (5.3%), 4 were Religious Religious Education - Religious Vocational Courses Teachers (3.0%) and 12 were Philosophy Group Teachers (9.0%). 104 of the participants were bachelor's graduates (78.2%), 28 were master's graduates (21.1%), and 1 was a doctoral graduate (0.8%). 120 of the participants work in public schools (90.2%) and 13 of them work in private schools (9.8%). 45 of the participants stated that they had taken a course on SLD at undergraduate and graduate level (33.8%), while 88 of them stated that they had not (66.1%). 50 of the participants stated that they attended an IST on SLD (37.6%), 83 of them stated that they did not (62.4%).

Data Collection Tools

Personal Information Form: The form consists of 9 questions asking personal information such as gender, age, faculty of graduation, branch, education level, years of experience, institution of employment, taking courses on SLD at undergraduate or graduate level, and receiving previous IST on SLD.

Teacher Efficacy Scale for Specific Learning Disability: The tool is a five-point Likert-type measurement tool developed by Deniz and Sarı (2021) to determine the SLD content knowledge competencies of teachers teaching students with SLD. Factor Analyses revealed a three-factor structure. Cronbach's alpha coefficient is 0.985, test split was 0.942, test-retest reliability coefficient was 0.862 and RMSEA value was 0.070. The dimensions of the scale were named as "SLD Field Knowledge", "SLD Academic Skills Teaching Knowledge" and "SLD Professional Knowledge". The scale is 5-point Likert type. The scale scores differ between 165 and 33. The total score range between 33-77 indicates that teachers' teacher efficacy in the field of SLD is low, 78-122 points range indicates that teachers' teacher efficacy in the field of SLD is at a medium level, and 123-165 points range indicates that teachers' teacher efficacy in the field of SLD is at a high level.

Data Collection Process

To collect the data, the data collection tools were first digitized with Microsoft Forms. Then, the data collection tools were sent to teacher social networking groups in various provinces of Türkiye and volunteer participants were asked to join in the study. Data were collected in March 2023.

Data Analysis

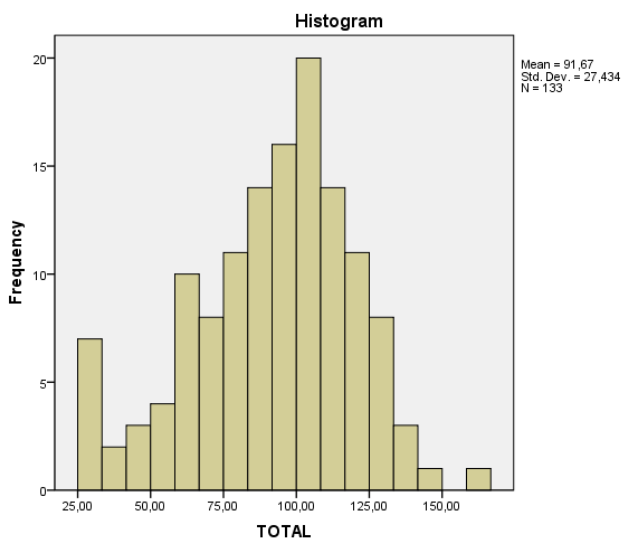
To decide on the tests to be conducted to examine the participants' SCL content knowledge competencies, the kurtosis and skewness values and the normalcy of the scale was tested with the Kolmogorov-Smirnow (K-S) Test (Can, 2017), which is applied when the group size is greater than 30. The results are given in Table 2.

Table 2. K-S Test

	Z	Kurtosis	Skewness	p
Teacher Efficacy Scale for Specific Learning Disability	.088	-,242	-,345	,013

As seen in Table 2, when we look at the data collected with the Teacher Efficacy Scale for SLD [(Z=-,088; kurtosis=-,242, Standard error=,417; skewness=-,345, Standard error=,210); $p < ,05$], it is seen that although the Z statistic does not meet the normality condition, the kurtosis and skewness values meet the normality condition. The histogram graph shows that the data are normally distributed.

Figure 1. Histogram Graph



Accordingly, Independent Sample t-Test was applied when the distribution was normal and the number of groups was two, and Analysis of Variance (ANOVA) was applied when there were more than two groups. Statistical significance level .05 was accepted.

Ethics Committee Permission Certificate

This research was ethically approved by Bolu Abant İzzet Baysal University Social Sciences Human Research Ethics Committee with the decision numbered 2023/02 (Protocol No: 2023/92) on 02.03.2023.

RESULTS

The findings obtained in this study are given below.

1. What is the SLD content knowledge competencies level of teachers in different branches?

Table 3. Mean and standard deviation of participants' scores

	\bar{x}	S
Teacher Efficacy Scale for Specific Learning Disability	91,67	27,43

According to Table 3, the mean score of the participants on the scale was 91.67. Considering that the scale scores differ between 33 and 165, the participants' scores are at a medium level and the teachers' teacher efficacy in the field of SLD is at a medium level.

2. Do the content knowledge competencies of teachers in different branches differ according to gender, age, graduated faculty, branch, level of education, years of experience, institution of employment, taking undergraduate or graduate courses on SLD, and participation in previous IST on SLD?

Table 4. T-test and analysis of variance results of the participants' scores from the teacher efficacy scale in the field of SLD according to various variables

Variable	Category	N	\bar{x}	S	Sd	t/F	p
Gender	Female	96	93,46	26,31	13	1,221	,224
	Male	37	87,00	30,03	1	t	
Age	22-28	9	104,56	22,78	5	1,824	,113
	29-35	31	95,06	25,24		F	
	36-42	48	92,48	25,51			
	43-49	35	84,12	30,08			
	50-57	7	103,00	29,11			
Faculty of Graduation	58-64	3	66,67	38,73			
	Faculty of Education	89	92,72	27,18	13	,626t	,532
	Other	44	89,55	28,13	1		
	Classroom Teaching	19	94,26	25,71	12	1,192	,296
Social Studies-History-Geography		7	93,57	20,57		F	
	Mathematics-Primary	13	89,15	25,73			
	Mathematics						

Branch	Science-Biology-Physics	18	79,22	28,15		
	Turkish-Turkish Language and Literature	14	96,29	27,39		
	Information Technologies	3	85,00	23,64		
	Preschool	9	110,89	17,94		
	Psychological Counseling and Guidance	9	102,56	23,72		
	Foreign Language	13	88,46	32,84		
	Special Education	5	101,40	14,74		
	Music-Visual Arts	7	97,86	35,79		
	Religious Education and Humanities Vocational Courses	4	79,00	20,05		
Philosophy Group	12	81,58	33,38			
Education Level	License	104	92,32	28,34	2	,618F ,540
	Master's Degree	28	88,39	24,09		
	PhD	1	116,00	-		
Year of Experience	1-5 years	15	101,47	29,33	4	,887F ,474
	6-10 years	28	94,82	22,08		
	11-20 years	53	89,62	27,70		
	21-30 years	33	87,24	30,16		
	30 years and above	4	96,50	28,61		
Employed Institution	Public School	120	92,11	27,50	13	,559t ,577
	Private School	13	87,62	27,55	1	
Status of taking courses on SLD	Yes	45	96,62	25,71	13	1,496 ,137
	No	88	89,14	28,08	1	t
Participation in IST	Yes	50	96,44	26,02	13	1,565 ,120
	No	83	88,80	28,01	1	t

According to Table 4, the participants' scores on the Teacher Efficacy Scale for SLD Scale were analyzed according to gender [$t(131)= 1,221, p>.05$], age ([$F: 1,824$] $p>.05$), faculty of graduation [$t(131)= ,626, p>.05$], branch ([$F: 1,192$] $p>.05$), educational status ([$F: ,618$] $p>.05$), years of experience ([$F: ,887$] $p>.05$), institution of employment [$t(131)= ,559, p>.05$], undergraduate or graduate level SLD [$t(131)= ,559, p>.05$], undergraduate or graduate level SLD. 05), according to years of experience ([$F: ,887$] $p>.05$), according to the institution they work in

[$t(131) = .559, p > .05$], according to taking courses on SLD at undergraduate or graduate level [$t(131) = 1.496, p > .05$] and according to participating in IST on SLD before [$t(131) = 1.565, p > .05$].

DISCUSSION AND CONCLUSION

Considering the first finding, the content knowledge competencies of teachers in different branches were found to be at a medium level. The findings of the research are similar to the studies in the related literature. Ghimire (2017) conducted a study to measure the learning disability knowledge competencies of primary school teachers and found that the knowledge levels of teachers were at a medium level. Arabacı (2018) found prospective classroom teachers' knowledge about SLD was at a medium level. Alahmadi and El Keshky (2019) aimed to evaluate the knowledge of primary school teachers about SLD and concluded that teachers did not have adequate knowledge of SLD. Echegaray-Bengoa et al. (2017) also concluded that pre-service and in-service teachers' knowledge about SLD were insufficient. Altun and Uzuner (2016) concluded that the knowledge level of classroom teachers about SLD is insufficient. Doğan (2013) found that classroom and Turkish teachers' knowledge of SLD was not at a high level. Aslan (2016) concluded that classroom teachers have insufficient knowledge about SLD. Considering the recent research and the findings of this study, the teachers' knowledge about SLD is observed at a medium level or insufficient. It may be recommended that teachers receive in-service training and attend seminars in order to be informed about this issue. It should not be forgotten that these trainings will be effective in the academic success of students with SLD and that students' confidence or self-esteem will increase with increased academic success (Kalsoom et al., 2020).

It was concluded that the content knowledge competencies of teachers in different branches did not differ significantly according to gender. Ceray- Ertaş (2022), Kalsoom et al. (2020), Acharya (2016), Kaptanoğlu (2016) and Yiğiter (2005) also found that there was no significant difference in teachers' SLD by gender. These studies support the findings of this study. It can be thought that the reason for the result in the research is that teachers are subjected to similar training regardless of gender. However, unlike the findings of this research, Arttırıcı (2018) and Dada and Sulyman (2021) determined that females had a higher level of knowledge than males in their research in which teachers' knowledge levels about SLD were determined.

Regarding another finding of the study, the participants' SLD content knowledge competencies are found to not to exhibit significant differences by age. Ceray- Ertaş (2022), Arttırıcı (2018) and Al Khatip (2007) concluded that no significant difference has been observed by the age and participants knowledge for SLD. Oral (2017), Kaptanoğlu (2016) and Demir (2005) revealed that there was a significant difference between learning disability knowledge depending on age.

In the study, no significant difference was observed in the SLD content knowledge competencies of teachers in different branches according to the faculty and branch of

graduation. White et al. (2020) investigated university students' knowledge about SLD and their perceptions of responsibility for SLD and concluded that university students studying in general education, special education and school psychology departments did not differ according to the branch. Washburn et al. (2017) found that teachers' knowledge about SLD did not lead to a significant difference by the branch of the teachers. It can be said that the fact that teachers have taken similar courses on special education in undergraduate education is effective in the emergence of such a result. It can be recommended to increase the number of courses on special education in undergraduate programs and to include detailed and practical courses. Another finding was that the participants' SLD content knowledge competencies do not exhibit a significant difference by education level. Arttırıcı (2018) determined that the knowledge levels of teachers working in vocational high schools about SLD did not differ by the level of education. As a result, undergraduate and graduate education does not affect teachers' knowledge about SLD.

No significant difference was found in the SLD content knowledge competencies of teachers in different branches according to their years of experience. Ceray- Ertaş (2022), Duyar (2020), Öztürk (2019), Arttırıcı (2018), Menon (2016), Kamala and Ramganes (2013), Washburn et al. (2011) and Yiğiter (2005) found that there was no significant difference between teachers' years of experience and learning disability knowledge competencies. As a result, it can be said that this finding of the study coincides with the literature. Mullikin et al. (2021) concluded in their study that teachers with less years of experience had lower knowledge of SLD than those with more years of experience.

No significant difference was found between the institution where the teachers in different branches worked and their SLD content knowledge competencies. Similar to the study, Altuntaş (2010) determined that the knowledge of classroom teachers about SLD did not differ according to the type of school where teachers worked. Kalsoom et al. (2020) also concluded that there was no significant difference between teachers' knowledge of SLD and teachers' perceptions of dyslexia by their employment in private or public schools. Therefore, this finding coincides with the literature.

It was determined that the content knowledge competencies of teachers in different branches do not differ significantly by the status of taking courses on SLD at undergraduate or graduate level. Arttırıcı (2018) found that the knowledge levels of teachers working in vocational high schools about SLD did not differ by the variable of taking courses on SLD. Similarly, Ceray- Ertaş (2022) concluded that the level of knowledge about SLD did not differ according to the level of education. This can be explained by the fact that teachers take similar courses on SLD. When the last finding of the study is examined, it was found that the content knowledge competencies of teachers in different branches did not exhibit any significant difference between their previous participation in IST for SLD. It is stated that teachers' knowledge about SLD is insufficient because teachers do not receive enough in-service and pre-service training (Öztürk, 2019). In the studies conducted, teachers state that the courses and in-service courses

they take on special education during undergraduate education are insufficient (Ceray- Ertaş, 2022; Kodan, 2020). Considering the results of this study and other studies, it may be recommended that teachers receive in-service training in order to overcome teachers' lack of knowledge about SLD. It should not be forgotten that teachers' professional development and competencies should be supported by courses and seminars at regular intervals. Lu et al. (2014) stated that teachers who receive training on SLD will be beneficial for students' academic success and motivation.

In this study, it was aimed to examine the specific learning disability content knowledge competencies of teachers in different branches. The study found that teachers in different branches had a moderate level of knowledge about SLD, and this knowledge was not affected by factors such as gender, age, education level, years of experience, or training. For further research, it may be recommended to collect more in-depth information about teachers' learning disability knowledge levels by conducting qualitative research on SLD with teachers from different branches. In order to reach more general data, it may be recommended to investigate this issue with larger groups.

REFERENCES

- Acharya, P. K. (2016). A study on the awareness of secondary school teachers towards language learning difficulties of students. *Scholarly research journal for interdisciplinary studies*, 4(26), 2889-2898.
- Alahmadi, N. A., & El Keshky, M. E. S. (2019). Assessing Primary School Teachers's Knowledge of Specific Learning Disabilities in the Kingdom of Saudi Arabia. *Journal of Educational and Developmental Psychology*, 9(1), 9-22. <http://doi.org/10.5539/jedp.v9n1p9>
- Alhassan, A. R. K., & Abosi, O. C. (2014). Teacher effectiveness in adapting instruction to the needs of pupils with learning difficulties in regular primary schools in Ghana. *Sage Open*, 4(1), 1-16. <https://doi.org/10.1177/2158244013518929>
- Alkhateeb, N. A. (2014). *Female general education teachers' knowledge of and perceived skills related to learning disabilities in the Qassim Region, Kingdom of Saudi Arabia* [Doctoral dissertation, Washington State University] https://rex.libraries.wsu.edu/view/pdfCoverPage?instCode=01ALLIANCE_WSU&filePid=13349997820001842&download=true
- Altun, T., & Uzuner, F. G. (2016). Sınıf öğretmenlerinin özel öğrenme güçlüğü olan öğrencilerin eğitimine yönelik görüşleri [Classroom teachers' views on the education of students with special learning disabilities]. *The Journal of Academic Social Science Studies*, 44, 33-49. <http://dx.doi.org/10.9761/JASSS3366>
- Altuntaş, F. (2010). *Sınıf öğretmenlerinin disleksiye ilişkin bilgileri ve dislektik öğrencilere yönelik çalışmaları* [Classroom teachers knowledge about dyslexia and their trainings for dyslectic students]. (Dissertation Number. 265296). [Master's thesis, Hacettepe University], YÖK Thesis Center.

<https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=6Ny0lpwz3GI8gt7nblVpww&n o=L30mN5RyvUtX-vd5iNwIag>

American Psychiatric Association [APA]. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.

Arabacı, Ö. (2018). *[Sınıf öğretmeni adaylarının özel öğrenme güçlüğüne ilişkin bilgi düzeylerinin ve yeterlilikleri hakkındaki düşüncelerinin incelenmesi [The investigation of elementary school teachers candidates' information level and thoughts about their competence about spesific learning disabilities]*. (Dissertation Number. 503852).

Master's thesis, Gaziantep University]. YÖK Thesis Center.

<https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=k7adtZSlYw9YYbpAgdPHTQ&no=bHDgfUr2oauhwVCaEUfGaw>

Arttırıcı, A. (2018). *Meslek liselerinde çalışan öğretmenlerin öğrenme güçlüğü konusundaki bilgi düzeylerinin incelenmesi [Investigating knowledge levels of the teachers about learning disabilities at vocational high schools]*. (Dissertation Number. 524656). [Master's thesis, Okan University]. YÖK Thesis Center.

<https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=TcRVgfgECCLdMFEx0bv8sw&no=f-t65YUGo0kK-2xTrcwGTQ>

Aslan, Y. (2016). Sınıf öğretmenlerinin disleksiye ilişkin bilgileri ve dişlektik öğrencilere yönelik çalışmaları [Classroom teachers' knowledge about dyslexia and their studies on dyslexic students]. *Turkish Studies International Periodical for the Languages, Literature and History of Turkish or Turkic*, 11(3), 237-254.

<http://dx.doi.org/10.7827/TurkishStudies.9340>

Avcı, A., & Beyhan, N. (2022). Sınıf öğretmenlerinin öğrenme güçlüğü yaşayan öğrencilere yönelik öğretmen yeterliliklerinin incelenmesi [Investigation of classroom teachers' teacher competencies for students with learning disabilities]. *Ahmet Keleşoğlu Eğitim Fakültesi Dergisi*, 4(1), 43-59. <http://dx.doi.org/10.38151/akef.2022.3>

Can, A. (2017). *Bilimsel araştırma sürecinde nicel veri analizi* (5th ed.). Pegem.

Ceray-Ertaş, H. (2022). *Okul öncesi öğretmenlerin öğrenme güçlüğüne ilişkin bilgi düzeylerinin belirlenmesi [Determination of preschool teachers' knowledge levels on learning disabilities]*. [Master's thesis, Trakya University]. (Dissertation Number.726142). YÖK Thesis Center.

<https://dspace.trakya.edu.tr/xmlui/bitstream/handle/trakya/8014/0187790.pdf?sequence=1>

Cornoldi, C., Capodici, A., Colomer Diago, C., Miranda, A., & Shepherd, K. G. (2018). Attitudes of primary school teachers in three western countries toward learning disabilities. *Journal of Learning Disabilities*, 51(1), 43-54.

<http://dx.doi.org/10.1177/0022219416678408>

- Çakıroğlu, O. (2017). Özel öğrenme güçlüğüne giriş[Introduction to specific learning disabilities]. M. A. Melekoğlu ve U. Sak (Ed.), *Öğrenme güçlüğü ve özel yetenek [Learning disabilities and giftedness]*. (pp. 2-23). Pegem Akademi.
- Çoğaltay, N., & Çetin, İ. (2020). Sınıf öğretmenlerinin özel öğrenme güçlüğüne ilişkin yeterlilikleri: Nitel bir araştırma [Classroom teachers' competencies related to specific learning disabilities: A qualitative research]. *Academia Eğitim Araştırmaları Dergisi*, 5(1), 126-140.
- Dada, O. C., & Sulyman, H. T. (2021). Teachers' knowledge of pupil with learning disability in ilorin south local government area, kwara state. *IFE Psychologia: An International Journal*, 29(2), 79-88.
- Demir, B. (2005). *Okul öncesi ve ilköğretim birinci sınıfa devam eden öğrencilerde özel öğrenme güçlüğü'nün belirlenmesi [Assesment of learning disability in kindergarden and first grade pimary school students]*. [Master's thesis, Marmara University]. (Dissertation Number. 188756). YÖK Thesis Center.
<https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=4kCCoQoyN0y5MTFNTdPxOw&no=T-QHJH4HYbYmTbEU4XPbpg>
- Deniz, S., & Sarı, H. (2021). Özel Öğrenme Güçlüğü Alanı Öğretmen Yeterlik Ölçeğinin geliştirilmesi [Development of the Teacher Efficacy Scale for Specific Learning Disabilities]. *Trakya Üniversitesi Sosyal Bilimler Dergisi*, 23(1), 1-20. <https://doi.org/10.26468/trakyasobed.636959>
- Diken, İ. H. (Ed.). (2015). *Özel eğitime gereksinimi olan öğrenciler ve özel eğitim [Students in need of special education and special education]*. Pegem Akademi Yayıncılık. Ankara.
- Doğan, B. (2013). Türkçe ve sınıf öğretmenlerinin okuma güçlüğüne ilişkin bilgileri ve okuma güçlüğü olan öğrencileri belirleyebilme düzeyleri [Turkish and classroom teachers' knowledge about reading disabilities and their level of identification of students with reading disabilities]. *Okuma Yazma Eğitimi Araştırmaları*, 1(1), 20-33.
- Duyar, S. N. (2020). *Bilim ve sanat merkezi öğretmenlerinin iki kere farklı öğrenciler hakkındaki bilgi ve öz yeterliklerinin incelenmesi [Examination of knowledge and self-efficacy of science and art center teachers about twice-exceptional students]*. [Master's thesis, Ankara University]. (Dissertation Number. 636215). YÖK Thesis Center.
https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=G6gNLahnli7TaUvnEwu2dw&no=kUjhnU_1Jq7a912o525w_Q
- Echegaray-Bengoa, J., Soriano-Ferrer, M., & Joshi, R. M. (2017). Knowledge and beliefs about developmental dyslexia: A comparison between pre-service and inservice Peruvian teachers. *Journal of Hispanic Higher Education*, 16(4), 375-389.
<https://doi.org/10.1177/1538192717697591>
- Etikan, I. Musa, S. A., & Alkassim, R.S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1),1-4.
<https://doi.org/10.11648/j.ajtas.20160501.11>

- Fletcher, J. M., Lyon, G. R., Fuchs, L. S., & Barnes, M. A. (2018). *Learning disabilities: From identification to intervention*. Guilford Press.
- Ghimire, S. (2017). Knowledge of primary school teacher regarding learning disabilities in school children. *Journal of Nobel Medical College*, 6(1), 29-35.
<https://doi.org/10.3126/ionmc.v6i1.18084>
- Gürsel, O. (2017). Matematik öğretiminde öğrenme alanları ve temel beceriler [Learning areas and basic skills in mathematics teaching]. O. Gürsel (Ed.), *Özel gereksinimli öğrencilere matematik beceri ve kavramlarının öğretimini planlama ve uygulama [Planning and implementing the teaching of mathematics skills and concepts to students with special needs]*. (pp. 1-22). Vize Yayıncılık. Ankara.
- Hallahan, D. P., & Mercer, C. D. (2001). Learning disabilities: historical perspectives, executive summary. Educational Resource Information Center (ERIC), ERIC Number: ED458756.
- Kaçar, E., & Düzkantar, A. (2019). Öğretmenlerin öğrenme güçlüğü hakkındaki bilgi düzeylerine ilişkin yapılan araştırmalar [Research on teachers' level of knowledge about learning disabilities]. *Uluslararası Sosyal Araştırmalar Dergisi*, 12(65), 813-819.
<http://dx.doi.org/10.17719/jjsr.2019.3493>
- Kalsoom, T., Mujahid, A. H., & Zulfqar, A. (2020). Dyslexia as a learning disability: Teachers' perceptions and practices at school level. *Bulletin of Education and Research*, 42(1), 155-166.
- Kamala, R., & Ramganes, E. (2013). Knowledge of specific learning disabilities among teacher educators in Puducherry, Union Territory in India. *International Review of Social Sciences and Humanities*, 6(1), 168-175.
- Kaptanoğlu, H. (2016). *Sınıf öğretmenlerinin özgül öğrenme güçlüğüne yönelik tutumlarının incelenmesi ve bilgi düzeylerinin saptanması [Investigation of classroom teachers' attitudes towards specific learning disabilities and determination of their level of knowledge]*. [Master's thesis, Yakın Doğu University]. YÖK Thesis Center.
<http://docs.neu.edu.tr/library/6414775567.pdf>
- Kara, T. (2022). *Sınıf öğretmenlerinin özel öğrenme güçlüğüne sahip öğrenciler ile yürüttükleri öğretim sürecinin incelenmesi [Examining the teaching process of classroom teachers with students with special learning disabilities]*. [Master's thesis, Trabzon University]. (Dissertation Number. 764086). YÖK Thesis Center.
<https://tez.yok.gov.tr/UlusalTezMerkezi/TezGoster?key=qVqOZFj2DwNmvd1oGFYiFKB COEQzhy6PifTxnmmKu5soZjuqcJ80w1eNQZdnp4N>
- Karadeniz, M. H. (2013). Diskalkuli yaşayan öğrencilere ilişkin öğretmen görüşlerinin değerlendirilmesi [Evaluation of teachers' views on students with dyscalculia]. *Education Sciences*, 8(2), 193-208. <http://dx.doi.org/10.12739/NWSA.2013.8.2.1C0581>
- Karagiannakis, G., ve Cooreman, A. (2015). *Focused MLD intervention based on the classification of MLD subtypes*. In S. Chinn (Ed.), *The Routledge international handbook of dyscalculia and mathematical learning difficulties* (pp. 265-276). Routledge.

- Karasar, N. (2002). Bilimsel araştırma yöntemi [Scientific research method]. (11th ed.). Nobel. Ankara.
- Kargın, T., Güldenöğlü, B., & Şahin, F. (2010). Genel eğitim sınıflarındaki özel gereksinimli öğrenciler için yapılması gereken uyarlamalara ilişkin sınıf öğretmenlerinin görüşlerinin incelenmesi. *Kuram ve Uygulamada Eğitim Bilimleri*, 10(4), 2431-2464.
- Ketenöğlü-Kayabaşı, Z. E. (2019). *Sınıf öğretmenlerinin okuma güçlüklerine ilişkin görüş ve uygulamaları* [Classroom teachers' opinions and practices on reading difficulties]. [Master's thesis, Gazi University]. (Dissertation Number. 552096). YÖK Thesis Center. https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=UGIPAtPalji_PC_3-CA_4g&no=FFO9tbJiUN85hnrwJYgSQ
- Kocsis, J. (2016). Primary teachers' knowledge about learning disabilities [Doctoral dissertation Nipissing University]. <https://tspace.library.utoronto.ca/handle/1807/92937>
- Kodan, H. (2020). Okuma güçlüğüne ilişkin öğretmen görüşleri [Teachers' views on reading difficulties]. *Bayburt Eğitim Fakültesi Dergisi*, 15(29), 204-222. <https://doi.org/10.35675/befdergi.644534>
- Köşk, T. (2019). *Orta öğretim kurumlarında görev yapan öğretmenlerin öğrenme güçlüğü hakkında bilgi düzeylerinin belirlenmesi* [Determining the level of knowledge of teachers working in secondary education institutions about learning disabilities]. [Master's thesis, Yakın Doğu University]. <http://docs.neu.edu.tr/library/6811132940.pdf>
- Kuruyer, H., & Çakıroğlu, A. (2017). Sınıf öğretmenlerinin özel öğrenme güçlüğü olan öğrencilerin eğitsel değerlendirme ve eğitimsel müdahale sürecinde görüş ve uygulamaları [Classroom teachers' opinions and practices in the educational evaluation and educational intervention process of students with special learning disabilities]. *International Periodical for the Languages, Literature and History of Turkish or Turkic*, 12(28), 539-555. <http://dx.doi.org/10.7827/TurkishStudies>
- Lingeswaran, A. (2013). Assessing knowledge of primary school teachers on specific learning disabilities in two schools in India. *Journal of Education and Health Promotion*, 2(30), 1-5. <http://dx.doi.org/10.4103/2277-9531.115807>
- Lu, J., Woodcock, S., & Jiang, H. (2014). Investigation of Chinese university students' attributions of English language learning. *SAGE Open*, 4(4), 1-15. <http://dx.doi.org/10.1177/2158244014562391>
- Mavuso, M. F. (2022). Exploring Senior Phase teachers' competencies in supporting learners with specific learning difficulties: Implications for inclusive education. *African Journal of Disability* 11(0), a901. <https://doi.org/10.4102/ajod.v11i0.901>
- McGill, R. J., Styck, K. M., Palomares, R. S., & Hass, M. R. (2016). Critical issues in specific learning disability identification: What we need to know about the PSW model. *Learning Disability Quarterly*, 39(3), 159-170. <https://doi.org/10.1177/0731948715618504>

- Melekođlu, M. A. (2017). Özel öğrenme güçlüğüne giriş [Introduction to specific learning disabilities]. M. A. Melekođlu ve O. Çakırođlu (Ed.), [Özel öğrenme güçlüğü olan çocuklar Children with specific learning disabilities]. (pp. 15-44). Vize Yayıncılık. Ankara.
- Melekođlu, M. A., & Sak, U. (Ed.). (2018). Öğrenme güçlüğü ve özel yetenek [Learning disabilities and giftedness]. Ankara: Pegem Akademi.
- Menon, K. P. (2016). Awareness on Learning Disabilities among Elementary School Teachers. *Asian Journal of Education and Training*, 2(2), 78-83. <https://doi.org/10.20448/journal.522/2016.2.2/522.2.78.83>
- Milli Eğitim Bakanlığı (MEB). (2014). Çocuk Gelişimi ve Eğitimi, Öğrenme Güçlüğü [Child Development and Education, Learning Disabilities]. Ankara.
- Milli Eğitim Bakanlığı (MEB). (2019). Strateji Geliştirme Başkanlığı resmî yazısı. No:49614598/622.03/18863985. 03.10.2019
- Mullikin, K., Stransky, M., Tendulkar, S., Casey, M. & Kosinski, K. (2021). Informal preparation and years of experience: Key correlates of dyslexia knowledge among Massachusetts early elementary teachers. *Dyslexia*, 27(4), 510-524. <https://doi.org/10.1002/dys.1701>
- Oral, E. (2017). 60-72 aylık çocuklar için özgül öğrenme bozukluğu tarama ölçeğinin geliştirilmesi [The development of determination of having special learning disabilities scale for 60-72-month-old children]. [Master's thesis, Okan University]. (Dissertation Number. 487429). YÖK Thesis Center. <https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=lrZMLAQiJkNT3OM1YYEyKw&no=d1k0eiPL9shEq-NmpzvfZA>
- Özkubat, U., Sanır, H., & Özmen, E. (2021). Öğrenme güçlüğü olan öğrenciler için yapılan öğretimsel uyarlamalara yönelik öğretmen görüşleri [Teachers' views on instructional adaptations for students with learning disabilities]. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 7(3), 881-900. <https://doi.org/10.31592/aeusbed.979746>
- Öztürk, Ş. (2019). Sınıf öğretmenlerinin öğrenme güçlüğü yaşayan öğrencilere yönelik uygulama yeterliliklerinin incelenmesi [Examination of classroom teachers' application competencies for students with learning difficulties (Example of Afyonkarahisar)]. [Master's thesis, Necmettin Erbakan University]. (Dissertation Number.560819). YÖK Thesis Center. <https://acikerisim.erbakan.edu.tr/xmlui/bitstream/handle/20.500.12452/7010/560819.pdf?sequence=1&isAllowed=y>
- Padhy, S. K., Goel, S., Das, S. S., Sarkar, S., Sharma, V. & Panigrahi, M. (2015). Perceptions of teachers about learning disorder in a northern city of India. *Journal of Family Medicine and Primary Care*, 4(3), 432-434. <https://doi.org/10.4103/2249-4863.161347>
- Rief, S. F., & Stern, J. (2010). *The dyslexia checklist: A practical reference for parents and teachers* (Vol. 3). John Wiley & Sons.

- Saravanabhavan, S., & Saravanabhavan, R. C. (2010). Knowledge of Learning Disability among Pre-and In-Service Teachers in India. *International Journal of Special Education*, 25(3), 132-138.
- Sawhney, N., & Bansal S. (2014). Study of awareness of learning disabilities among elementary school teachers. Conference Paper. Retrieved from https://www.researchgate.net/publication/278029676_STUDY_OF_AWARENESS_OF_LEARNING_DISABILITIES_AMONG_ELEMENTARY_SCHOOL_TEACHERS
- Sezer, S., & Akin, A., (2011). 6-14 yaş arası öğrencilerde görülen matematik öğrenme bozukluğuna ilişkin öğretmen görüşleri [Teachers' views on mathematics learning disorders in students aged 6-14 years]. *İlköğretim Online*, 10(2), 757-775.
- Shetty, A., & Rai, B. S. (2014). Awareness and knowledge of dyslexia among elementary school teachers in India. *Journal of Medical Science And Clinical Research*, 2(5), 1135-1143.
- Shukla, P., & Agrawal, G. (2015). Awareness of learning disabilities among teachers of primary schools. *Online Journal of Multidisciplinary Research*, 1(1), 33-38.
- Şahin, R., Güven, S., ve Alatlı, B. K. (2020). Sınıf öğretmenlerinin disleksiye yönelik bilgi ve tutumlarının incelenmesi. *Turkish Studies- Educational Sciences*, 15(4), 2355-2372. <http://dx.doi.org/10.47423/TurkishStudies.42099>
- Turnbull, A., Turnbull, R., & Wehmeyer, M. L. (2007). *Exceptional Lives: Special Education in today's schools*. Prentice Hall.
- U.S. Department of Education. (2020). *41th annual report to congress on the implementation of the individuals with disabilities education act*. Washington, DC: Author.
- Washburn, E. K., Joshi, R. M., & Binks-Cantrell, E. S. (2011). Teacher knowledge of basic language concepts and dyslexia. *Dyslexia*, 17(2), 165-183. <https://doi.org/10.1002/dys.426>
- Washburn, E. K., Mulcahy, C. A., Musante, G., & Joshi, R. M. (2017). Novice teachers' knowledge of reading-related disabilities and dyslexia. *Learning Disabilities: A Contemporary Journal*, 15(2), 169-191.
- White, J., Mather, N., & Kirkpatrick, J. (2020). Preservice educators' and noneducators' knowledge and perceptions of responsibility about dyslexia. *Dyslexia*, 26(2), 220-242. <https://doi.org/10.1002/dys.1653>
- Wiederholt, J. L. (1974). Historical perspectives on the education of learning disabled. In L. Mann & D. Sabatino (Eds.), *The second review of special education* (pp. 103-152). JSE Press.
- Winebrenner, S. (2003). Teaching Strategies for Twice-Exceptional Students. *Intervention in School and Clinic*, 38(3), 131-137.
- Yangın, S., Yangın, N., Önder, V., & Şavlığ, A. (2016). Sınıf öğretmeni adaylarının ve öğretim elemanlarının çeşitli öğrenme güçlüklerine yönelik farkındalıkları [Classroom teacher candidates' and instructors' awareness of various learning difficulties]. *Education Sciences*, 11(4), 243-266. <https://doi.org/10.12739/NWSA.2016.11.4.1C0664>

- Yiğiter, S. (2005). *Sınıf öğretmenlerinin özel öğrenme güçlüğüne ilişkin bilgi düzeyleri ile özel öğrenme güçlüğü olan çocukların kaynaştırılmasına yönelik tutumları arasındaki ilişkinin incelenmesi* [The study of relation between primary school teachers' level of knowledge related to specific learning disability and the teachers' attitudes towards integration of learning disabled students]. [Master's thesis, Marmara University]. (Dissertation Number. 158642). YÖK Thesis Center.
https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=BnAKbBMv39hJ0IXi6pwpIQ&n_o=Qj9U2ar-KwoES-VRLUDNSQ
- Yin, L., Joshi, R. M., & Yan, H. (2020). Knowledge about dyslexia among early literacy teachers in China. *Dyslexia*, 26(3), 247-265. <https://doi.org/10.1002/dys.1635>
- Ysseldyke, J. (1999). Improving teaching and learning: a thermos bottle keeps things hot and cold, but how does it know? *Australian Journal of Special Education*, 22(3), 133-147. <https://doi.org/10.1017/S1030011200024416>
- Yüksek Öğretim Kurumu. (2018). Öğretmen Yetiştirme Lisans programları. Yüksek Öğretim Kurumu. <https://www.yok.gov.tr/kurumsal/idari-birimler/egitim-ogretim-dairesi/yeni-ogretmen-yetistirme-lisans-programlari>