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Oral Reading Skills and Comprehension Test-II (SOBAT®-II): Assessment of reading fluency and comprehension of Turkish students with specific learning disabilities

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Efforts to diagnose students with specific learning disabilities (SLD) have increased in recent years in Turkey. However, the limited number of assessment tools used to identify students with SLD is one of the most important concerns in this area, since 8 out of 10 students with SLD have difficulty in reading, which affects other academic areas. Considering reading performance scores from standardised reading tests may help eliminate difficulties in SLD assessment. Reading problems are often observed with or without SLD, especially in primary and middle school age groups. However, standardised reading tests are usually not used in screening and diagnosis of these children, and in planning, monitoring, and evaluation of the effectiveness of reading intervention programmes in Turkey. The purpose of the study reported on here was to provide findings of a project that was carried out to develop a standardised reading test, SOBAT®-II, for the assessment of reading and reading comprehension skills development of children with SLD between 7 and 14 years of age. A total of 1,133 test administrations were performed within the scope of this study. As a result of this study, the Oral Reading Skills and Comprehension Test (SOBAT®), of which the preliminary study was conducted between 2002 and 2012, was expanded to include children between the ages of 7 and 14, and the parallel form of the test, A and B, was formed. In future studies, expanding the number and diversity of the sample by including students from different provinces, and adding motivation resources to increase voluntary participation may be beneficial for standardisation of the test.

Keywords: comprehension; fluency; reading; SOBAT®-II; special education; specific learning disabilities; test development

Introduction

As a high-incidence disability, SLD consist of the largest category of special education in the United States of America (USA). Students with SLD constitute 38.6% of all students with disabilities from age 6 through 21 (U.S. Department of Education, 2018). Approximately 5% of all school-aged children are diagnosed with SLD (Pierangelo & Giuliani, 2006). Cognitive/intellectual disabilities are considered as a part of SLD in South Africa, and 15.7% of learners with disabilities have been diagnosed with intellectual/learning difficulties (Nel & Grosser, 2016). Moreover, in the Turkish educational system, in addition to the increase in the number of students receiving special education services, the importance given to the special education field has also increased in recent years (Melekoğlu, 2014). When the statistics of the Ministry of National Education (Turkish: Millî Eğitim Bakanlığı [MEB]) for the last 5 years are analysed, the results show that there was an increase of 45% in the number of special education students in formal education. According to the MEB data, 242,716 students received special education services in formal education in the 2013–2014 academic year, while this number increased to 353,610 in the 2017–2018 academic year (MEB, 2014a, 2018). SLD is a special education category that has become prominent in Turkey in recent years, and awareness among educators and families has started to increase (Melekoğlu, 2018).

According to the Individuals with Disabilities Education Act (IDEA), SLD means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Moreover, SLD does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, intellectual disability, emotional disturbance, or environmental, cultural, or economic disadvantage (IDEA, 2015). A similar definition of SLD exists in the Special Education Services Regulation in Turkey: SLD is a difficulty in listening, speaking, reading, writing, spelling, attention, concentration or performing mathematical operations that appear in one or more of the information-gathering processes required to understand and use the written or spoken language (MEB, 2006). However, the definition and understanding of learning disabilities are extremely complicated in South Africa. Although the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013) indicates specific criteria to diagnose SLD, several factors including central nervous system, genetics, medical and health risk factors, socio-economic factors and pedagogical factors may be important to be diagnosed with learning disabilities in South Africa (Nel & Grosser, 2016).

Educating learners with disabilities in inclusive environments is the primary approach in South Africa, and Education White Paper 6 that guides the implementation of inclusive education practices was published (Department of Education, 2001). Based on this policy document, learners with SLD need to be supported in inclusive classrooms (Nel & Grosser, 2016). A similar approach is valid in Turkey, and all of the students with SLD continue their formal education in inclusive environments. The number of children diagnosed with SLD by the Guidance and Research Centers (RAM) seems to be increasing in Turkey. In the 2011–2012 academic year, while 4,888 students with SLD were receiving education in inclusive classrooms (MEB, 2014b), this number increased by 89.3% to 9,253 in the 2016–2017 academic year (MEB, 2017). However, due to the lacking identification process of students with SLD, the actual number could be higher in Turkey. Researchers indicate that many students with SLD, but who have not been officially diagnosed, continue their education in schools (Cakiroglu & Melekoglu, 2014).

Literature Review

In terms of diagnosis of learners with SLD, a transdisciplinary collaborative approach is widely accepted in South Africa, and all stakeholders, including teachers, parents, and health professionals work actively and in coordination during the process (Nel & Grosser, 2016). Although the systematic approach is widely accepted for the diagnosis of students with SLD, Güzel Özmen (2008) states that SLD is an official special education category in Turkey, but problems exist in diagnosis and provision of necessary special education services for these students. Also, necessary accommodations are not provided in general education settings, and teachers could not access guidance on the education of these children. Özyürek (2005, 2009) also states that although the diagnosis of SLD has been frequently observed in Turkey, problems emerged in the differential diagnosis and identification of SLD. Moreover, the teaching accommodations required for students with SLD are not ensured in Turkish schools. Studies reveal that the majority of teachers in inclusive classrooms in Turkey do not make any adaptations for students with special needs in their classes, and those teachers do not use teaching strategies, such as peer-assisted teaching, that can positively impact class participation and academic achievement in inclusive classrooms (Sucuoğlu, Demirtaşlı & Güner, 2009). In addition, the majority (81.5%) of teachers working in inclusive classrooms in Turkey stated that they were against inclusive education and that students with special needs should be educated in separate classrooms or schools (Melekoğlu, 2014). Therefore, the majority

of students with SLD may encounter negative teacher attitudes and do not receive academic accommodations and effective interventions in Turkey. Similarly, teachers in South Africa have not been trained to teach learners with disabilities in an inclusive environment, and therefore, those teachers may manifest negative attitudes towards learners with SLD in regular education (Donohue & Bornman, 2014).

The main areas where students with SLD experience failure and difficulty are academic areas such as reading, writing, and mathematics. The degree and type of difficulties in these areas may be different for each individual. Some individuals have difficulties in reading only, others may have difficulty in mathematics or writing, and still others may have difficulty in all areas. However, studies show that students who have difficulty in mathematics and writing also have difficulty in reading (Nel & Grosser, 2016; Pierangelo & Giuliani, 2006; Zimmerman & Smit, 2014). Among the SLD subgroups, the most frequently observed and researched group is the group with reading difficulties. It is reported that approximately 80% of all cases of SLD are those with reading difficulties and such reading difficulties are observed in 5 to 17.5% of the population (Shaywitz & Shaywitz, 2005). In other words, four out of five children diagnosed with SLD have difficulty in reading. Similar problems in reading are observed among learners in South Africa. The quality of general education is low and academic performances of learners, especially in reading and mathematics on standardised tests are low (Donohue & Bornman, 2014).

The most basic and ultimate purpose of reading is to derive meaning from the text. Acquiring and developing this important skill involve some complex processes and skills (Snow, 2002). One important aspect of the reading skill is fluency. Many studies emphasise the effect of reading fluency on achievement in reading comprehension (Fuchs, Fuchs, Hosp & Jenkins, 2001; Jenkins, Fuchs, Van den Broek, Espin & Deno, 2003; Kim, Park & Wagner, 2014; Kim, Wagner & Lopez, 2012). Although reading skill has many different dimensions such as word recognition, reading fluency, vocabulary and comprehension, the majority of reading problems are observed in accuracy and rate, which are defined as reading fluency. Problems in these areas may negatively affect the comprehension dimension as the main purpose of reading (National Reading Panel, 2000).

According to a model developed by Stanovich (1980), the most important problems of students with poor reading skills are difficulties in recognising and decoding words. According to this model, students use a large part of their cognitive capacity and attention to analyse words because

they cannot recognise the words they read quickly and automatically. After so much effort, the students do not have enough attention and cognitive energy to realise what they read. Therefore, it is almost impossible for students to make sense of what they read. However, it is observed that when students develop their word recognition skills and acquire fluency in reading, reading comprehension improves. In other words, fluent reading helps students understand what they are reading.

Conceptual Framework

Efforts to diagnose students with SLD have increased in recent years in Turkey (MEB, 2017). However, there are still some difficulties in the assessment tools. The diagnosis of disabilities is a common problem in South Africa because experts do not agree on the symptoms of such disability (Donohue & Bornman, 2014). One of the most important challenges with regard to students with SLD in Turkey is encountered in evaluation and diagnosis. The limited number of assessment tools that can be used to identify students with SLD is one of the most important concerns in this area in Turkey (Görgün, 2018). When an accurate and timely diagnosis cannot be made for students with SLD, problems may arise. First of all, the lack of early identification of students with SLD may block early intervention opportunities for these students. However, many studies emphasise the importance of early intervention in the SLD area (Lyon, Fletcher, Shaywitz, Shaywitz, Torgesen, Wood, Schulte & Olson, 2001). In addition, the inability to identify the right students due to misdiagnosis may result in limited educational resources being spent on students who do not need them, and those who do need additional support may be deprived of such educational support (Brueggemann Taylor, 2014).

For the reasons mentioned above, there is a great need for assessment tools to be developed in the diagnosis of students with SLD in Turkey. In particular, since eight out of 10 students with SLD have difficulty in reading and reading success (Valleley & Shriver, 2003), considering reading performance scores from standardised reading tests may help eliminate the difficulties in assessment. Reading problems are often observed with or without SLD, especially in the primary and middle school age group. However, standardised reading tests are usually not used in screening and diagnosis of these children, and in planning, monitoring and evaluation of the effectiveness of reading intervention programmes (Bingöl, 2003; Duman & Çiftçi-Tekinarslan, 2007; Yılmaz & Köksal, 2008).

The purpose of this study was to provide findings of a project that was carried out to develop a standardised reading test, SOBAT®-II, in the

assessment of reading and reading comprehension skills development of children with SLD between 7 and 14 years of age. In fact, the development process of SOBAT®-II can be a good example for many countries and researchers who experience problems in this area. Furthermore, findings related to participants may provide valuable information for researchers and lead scientists to further national and international studies. The development of this type of tests may help countries to allocate economic resources to students who really need the support. The research project was supported by the Scientific and Technological Research Council of Turkey (Turkish: Türkiye Bilimsel ve Teknolojik Araştırma Kurumu [TUBITAK]) and was completed between 2013 and 2015.

Methodology

Study Design

This study was designed according to the quantitative research design, and the survey research method was used to obtain data. Since the purpose of this project was to develop a standardised reading test, the survey research method was selected for this study.

Data Collection

SOBAT®-II tests were administered individually and took about 30 to 45 minutes to complete. All students started reading from the first text and continued until they had encountered 10 or more reading errors in two texts consecutively or until the end of the test. During administrations, stopwatches were used to measure reading rate, and reading errors were recorded on the administrator forms. Students answered comprehension questions at the end of each reading. All the test administrations were recorded on a digital voice recorder.

Test Development Procedure

There are difficulties and a need for a standardised achievement test in the diagnosis of SLD in Turkey. Furthermore, problems exist in the assessment of reading and mathematics difficulties, and a standardised measurement tool is absent for differential diagnoses. Aforementioned problems in the assessment and diagnosis of SLD lead researchers, clinicians and educators to various measurement tools. To overcome these problems, some studies have been planned (Erden & Çelik, 2019; Melekoğlu, Erden & Çakıroğlu, 2019) to develop a standardised Oral Reading and Comprehension Test. Various stories have been prepared from expert opinion, frequently read short-story books and MEB primary school curriculum. First of all, four Turkish and classroom teachers were consulted about the appropriateness of the stories, and two linguists evaluated the stories. Finally, SOBAT®, which consists of 11 reading texts and reading comprehension questions

based on these texts, emerged. The validity and reliability studies of SOBAT® were conducted between 2002 and 2012 (Erden & Çelik, 2019). The SOBAT®-II project was being prepared while the reliability and validity studies carried out following SOBAT®'s pilot studies and the research continued using some original SOBAT® texts.

During the SOBAT®-II project, a pilot study was conducted and all the texts and comprehension questions were set during this stage (Melekoğlu et al., 2019). Both narrative and informative text structures were used, and all reading texts and comprehension questions were prepared originally based on expert opinions. After the pilot study, the final stage of the project, finalisation, and administration of the test were carried out. In this process, the texts to be included in the test and reading comprehension questions were finalised. The texts were reviewed by the test development team both in terms of writing and psychological characteristics of the children and necessary arrangements were made in line with the recommendations. Furthermore, the predictability of the answers to the comprehension questions was evaluated to ensure that reading comprehension questions could be answered only after the text had been read. SOBAT®-II consists of two forms, form A and B, and each form consists of 13 reading texts. Eventually, a total of 26 texts were used in the test. The texts were prepared by using the font used in the MEB books.

The finalised test was administered in primary and middle schools in the following provinces in Turkey: İstanbul, Eskişehir and Trabzon. During the administration, 571 students used form A while 562 students used form B. A total of 1,133 test administrations were performed. When both forms were administered to the same student, the second administration was carried out at least 3 days after the first administration. For this stage, the following steps were performed:

- 1) Schools were visited and teachers recommended by the school principals were contacted to voluntarily participate in the project.
- 2) At least one member of the project team introduced the project briefly in the classrooms of the volunteer teachers, and the students who volunteered to participate in the project were identified. Envelopes containing parental consent forms and demographic information forms were distributed to these students to participate in the project. Students whose parents signed the consent forms and completed the demographics information forms were asked to deliver their envelopes to their class teachers or guidance counselors.
- 3) The test administrations were started immediately with the students whose parental consent forms had been received. The test administration consisted of completing the student information in the administrator form, and the student was asked to follow the process by reading the instructions. The student started reading with the "begin" command for

each text and the test administrator from the project team measured their reading time using a stopwatch. In addition, the entire test process was recorded on a digital voice recorder.

- 4) After each reading text, the test administrator read the comprehension questions out loud and the student was asked to provide the answer.
- 5) During the test, the reading rate/time (in seconds), the number of reading errors, and the comprehension score (one point for each correct answer, for each reading text) were noted on the administrator form. If the number of reading errors in the text was 10 or more in two consecutive texts, the student was stopped and the test was terminated. Otherwise, students continued reading until the last text in the test.

Participants

According to the results of the demographics information form, the test was administered in nine schools and 601 students completed the test. The school information of the students is provided in Table 1.

Table 1 Participating schools

School type	Province	<i>N</i>	%
Primary school #1	Eskişehir	90	15.0
Primary school #2	Eskişehir	76	12.6
Primary school #3	Eskişehir	38	6.3
Middle school #1	Eskişehir	48	8.0
Primary school #4	Trabzon	95	15.8
Primary school #5	Trabzon	149	24.8
Middle school #2	İstanbul	24	4.0
Middle school #3	İstanbul	17	2.8
Middle school #4	İstanbul	64	10.6

When the characteristics of the students participating in the test administration are examined, results show that 55.6% were girls and 44.4% were boys. The mother tongue of the majority of the students participating in the test was Turkish (98.6%). From the demographics information it was clear that most of the students had attended the same school for 3 years (31.1%). Table 2 presents the general characteristics of the participating students.

Table 2 Characteristics of students

Characteristics	<i>n</i>	%
Gender		
Female	334	55.6
Male	267	44.4
Mother tongue		
Turkish	553	98.6
Kurdish	7	1.2
Other	1	0.2
Years in same school		
One year	64	11.4
Two years	153	27.3
Three years	187	33.4
Four years	89	15.9
Five years	41	7.3
Six years	15	2.7
Seven years	2	0.4
Eight years	9	1.6

Data Analysis

All data collected during the project were entered into a statistical program. Descriptive analyses were conducted to obtain information about the characteristics of participants and reading performances on the test. Demographic information consisted of items such as study environment, daily reading activities of students, time spent on television (TV) and computer, and library at home. In addition, reading performances of students from SOBAT@-II were collected in terms of reading rate, reading errors, and reading comprehension. All the reading performances were recorded on a digital voice recorder and all reading performances were checked for accuracy of data.

Findings

Demographic Information

When the demographic information obtained from the families of participating students were examined, results show that 10.1% of parents applied to child mental health or child neurology specialists, while 89.9% never applied to these specialists. The majority of applications were as a result of attention deficits, and complaints of abdominal pain was second. The reasons for parents applying to child mental health or child neurology specialists are given in Table 3.

Table 3 Reasons for applying to specialists

Reasons	<i>n</i>
Attention deficits	33
Abdominal pain	14
Hyperactivity	12
Headache	8
Not willing to go to school	8
Difficulty in reading and writing	7
Bed wetting	6
Maladaptation	6
Tooth grinding	4
Seizures	3

Only 4% of the students who participated in the study were referred to the RAM for any reason. In addition, parents stated that only five students (0.9%) were referred to special education and these diagnoses were about attention deficit and literacy issues.

In the context of questions related to the daily lives of the students with regard to studying, reading and spending time on other activities, the majority of the students had their own study environment (91%), most students read one to 15 pages in books on average (42.4%) and devoted 16 to 30 minutes to daily reading (26.7%). In addition, the majority of students did not exercise regularly (64.9%), but the majority of those who did regular sports spent more than 120 minutes per week (29.9%). Moreover, 25.3% of the students did not play any games in the street or park during the day and 46.3% of them played 1 to 60 minutes in the

street or the park. In addition, 41.8% of the students spent 61 to 120 minutes watching TV and 56.3% of them spent 1 to 60 minutes on the computer. The findings on the study environment and daily activities of the students are provided in Table 4.

Table 4 Study environments and daily activities of students

Study environments and daily activities	<i>n</i>	%
Does the child have his/her own study environment (room, table, area, etc.)?		
Yes	516	91.0
No	51	9.0
Number of pages read daily		
0 pages	30	5.4
1–15 pages	237	42.4
16–30 pages	149	26.7
31–50 pages	91	16.3
51–75 pages	20	3.6
76–100 pages	23	4.1
101 pages and above	9	1.6
Reading time allocated daily		
0 minutes	28	5.0
1–15 minutes	170	30.2
16–30 minutes	238	42.3
31–60 minutes	100	17.8
61 minutes and above	26	4.6
Regular sports		
Yes	197	35.1
No	365	64.9
Average time per week if exercising regularly		
1–30 minutes	16	8.2
31–60 minutes	35	18.0
61–90 minutes	40	20.6
91–120 minutes	45	23.2
120 minutes and above	58	29.9
Daily play time in the street/park		
0 minutes	140	25.3
1–60 minutes	256	46.3
61–120 minutes	110	19.9
121–180 minutes	29	5.2
180 minutes and above	18	3.3
Daily time for TV		
0 minutes	13	2.3
1–60 minutes	230	41.1
61–120 minutes	234	41.8
121–180 minutes	58	10.4
180 minutes and above	25	4.5
Daily time for computer use		
0 minutes	128	23.2
1–60 minutes	311	56.3
61–120 minutes	79	14.3
121–180 minutes	23	4.2
180 minutes and above	11	2.0

In terms of questions about the students' exposure to reading materials, 23.7% of the parents did not buy any newspapers and 25.1% of the houses did not have a library or bookshelf. In addition, 68.1% of the parents and/or children did not have library membership and/or did not use the library, and 89.8% of the parents did not have magazine subscriptions. Details of the students' exposure to reading materials are given in Table 5.

Table 5 Students' exposure to reading materials

Variables	<i>n</i>	%
Availability of library/bookshelf at home		
Yes	421	74.9
No	141	25.1
Library membership/use of child/parent		
Yes	179	31.9
No	383	68.1
Magazine subscription		
Yes	57	10.2
No	503	89.8

When the characteristics of the individuals living in the home environment as the participating students are examined, findings yield that 3.7% of the students lived in a house with an individual with disabilities, who was either sibling, uncle,

aunt, grandfather or grandmother. In addition, results indicate that the mean age of the mothers was 37 ($M = 37.42$; range = 27–55; $SD = 5.248$), and the average age of the fathers was 41 ($M = 41.23$; range = 28–60; $SD = 5.355$). Moreover, 94.5% of the parents lived together, the majority of mothers were high school (34.1%) or university (34.1%) graduates and the majority of fathers were university graduates (40.2%). When the total number of children living in the students' homes was examined, findings show that there were two children (54.2%) in most homes. Detailed information about the characteristics of individuals living in the home environment with participating students is provided in Table 6 and Table 7.

Table 6 Characteristics of individuals living at home

Characteristics	<i>n</i>	%
Individuals with disabilities		
Yes	21	3.7
No	540	96.3
Characterics of mother		
Alive	561	99.8
Dead	1	0.2
Illiterate	4	0.8
Literate	4	0.8
Primary school graduate	77	15.7
Middle school graduate	55	11.2
High school graduate	168	34.1
Bachelor degree	168	34.1
Graduate degree	16	3.3
Characterics of father		
Alive	546	98.6
Dead	8	1.4
Illiterate	1	0.2
Literate	1	0.2
Primary school graduate	54	11.1
Middle school graduate	57	11.7
High school graduate	146	30.0
Bachelor degree	196	40.2
Graduate degree	32	6.6
Marriage status		
Parents together	515	94.5
Parents seperated	30	5.5
Total number of children at home		
One child	87	15.5
Two children	295	52.4
Three children	146	25.9
Four children	28	5.0
Five children and more	7	1.2

Table 7 Characteristics of parental age and number of children

Characteristics	Minimum	Maximum	<i>M</i>	<i>SD</i>
Mother's age	27	55	37.42	5.248
Father's age	28	60	41.3	5.355
Total number of children	1	10	2.25	0.879

Reading Performance

The results for reading rate, number of errors and reading comprehension scores for each text

gathered from Forms A and B are shown in Tables 8, 9, 10, 11, 12 and 13.

Table 8 Form A reading rate

Texts	<i>N</i>	Minimum (seconds)	Maximum (seconds)	<i>M</i> (seconds)	<i>SD</i> (seconds)
A1	571	3	60	8.10	4.00
A2	571	6	141	21.98	9.30
A3	570	17	158	33.15	15.47
A4	568	11	176	40.13	15.85
A5	562	25	228	57.68	21.07
A6	554	26	154	47.03	15.27
A7	547	33	332	66.34	25.77
A8	530	19	325	74.21	25.65
A9	514	12	445	72.82	36.44
A10	493	50	317	91.75	32.06
A11	464	63	481	121.63	44.09
A12	434	86	444	119.06	34.86
A13	396	94	769	168.19	62.90

Table 9 Form B reading rate

Texts	<i>N</i>	Minimum (seconds)	Maximum (seconds)	<i>M</i> (seconds)	<i>SD</i> (seconds)
B1	562	3	122	7.19	5.34
B2	562	10	90	18.84	7.17
B3	560	15	117	28.18	11.61
B4	559	20	183	39.12	16.05
B5	557	20	117	37.37	12.91
B6	546	21	162	40.63	15.30
B7	541	31	291	86.02	32.14
B8	527	34	323	73.69	32.44
B9	496	40	254	71.44	27.90
B10	478	41	311	76.83	30.98
B11	460	43	398	113.98	42.70
B12	424	60	922	118.43	55.03
B13	403	85	825	219.78	71.40

Table 10 Form A reading errors

Texts	<i>M</i> (number of errors)	<i>SD</i> (number of errors)
A1	0.54	1.25
A2	1.99	2.56
A3	3.89	3.98
A4	3.39	3.97
A5	5.26	5.18
A6	3.83	4.03
A7	7.56	6.30
A8	6.04	5.33
A9	8.80	6.34
A10	8.16	5.67
A11	11.58	8.02
A12	11.05	7.46
A13	18.63	14.92

Table 11 Form B reading errors

Texts	<i>M</i> (number of errors)	<i>SD</i> (number of errors)
B1	0.32	0.80
B2	1.69	2.20
B3	1.98	2.84
B4	3.82	4.55
B5	3.59	3.50
B6	3.07	3.10
B7	7.96	6.38
B8	8.30	6.47
B9	7.25	5.92
B10	8.44	5.93
B11	11.17	7.19
B12	9.25	6.51
B13	18.19	11.13

Table 12 Form A reading comprehension scores

Texts	<i>M</i> (comprehension score)	<i>SD</i> (comprehension score)
A1	4.36	0.81
A2	4.77	0.50
A3	4.45	0.80
A4	4.41	0.78
A5	4.88	0.34
A6	4.86	0.38
A7	4.37	0.70
A8	4.89	0.35
A9	4.20	0.82
A10	3.63	1.14
A11	3.38	1.16
A12	2.37	1.17
A13	2.88	0.97

Table 13 Form B reading comprehension scores

Texts	<i>M</i> (comprehension score)	<i>SD</i> (comprehension score)
B1	4.45	0.77
B2	4.63	0.65
B3	4.67	0.62
B4	4.47	0.84
B5	4.29	0.78
B6	4.85	0.39
B7	3.78	1.07
B8	4.00	0.99
B9	4.58	0.67
B10	3.77	1.08
B11	3.63	0.99
B12	4.24	0.89
B13	3.69	1.16

Reading Test Reliability

To determine the reliability of SOBAT®-II, Cronbach alpha and parallel form reliability were

calculated. In addition, validity coefficients were calculated by assuming age criteria. Results are provided in Tables 14, 15 and 16.

Table 14 Cronbach alpha results of SOBAT®-II

	Form A			Form B		
	Reading rate	Reading accuracy	Reading comprehension	Reading rate	Reading accuracy	Reading comprehension
Cronbach alpha	0.97	0.93	0.60	0.97	0.93	0.73

Table 15 Parallel form reliability of SOBAT®-II

	Reading rate	Reading accuracy	Reading comprehension	Total score
Parallel form reliability	0.92	0.87	0.82	0.91

Table 16 Validity coefficients by assuming age criteria of SOBAT®-II

	Reading rate	Reading accuracy	Reading comprehension	Total score
Form A	0.40	0.49	0.40	0.58
Form B	0.42	0.49	0.42	0.59

Discussion

Within the scope of this study, a standardised oral reading test was developed to evaluate the development of reading and comprehension skills of children with SLD aged 7 to 14 years. This type of standardised tests may be helpful to make definition and understanding of SLD clearer (Nel & Grosser, 2016). First of all, the developed test can be used by teachers to determine reading fluency and reading comprehension, which are among basic reading skills of all 7 to 14 years old children with or without SLD (Nel & Grosser, 2016; Pierangelo & Giuliani, 2006; Zimmerman & Smit, 2014). In this way, teachers will be able to determine the individual needs of the students who will be educated in their classrooms to improve their basic reading skills and will be able to make the necessary adaptations for individualised education considering these needs while studying. Thus, teachers of students with SLD may gain a positive attitude towards educating those students (Donohue & Bornman, 2014). In addition to determining the level of reading, teachers will be able to measure how much students achieve the objectives of basic reading skills during the year by performing this test periodically. In addition, teachers will be able to identify students with reading difficulties by using the developed test and applying different teaching methods and strategies with these students. Teachers will be able to take the necessary steps regarding students who they think might need special education.

Researchers from various countries may model the development process of SOBAT®-II and form their standardised tests. Moreover, national and international researchers may use the findings of this study for future research on Turkish and/or test development. Furthermore, by the development of objective assessment tools, such as SOBAT®-II, countries can constitute more robust assessment systems and thus devote their economic resources to students who really are in need thereof.

The developed test could be widely used in scientific studies to determine the effectiveness of reading programmes and teaching methods and strategies. In addition, researchers will be able to develop different assistive reading programmes or Turkish teaching methods and strategies and use the results of this test to scientifically demonstrate their effectiveness. Also, this developed test can be widely used by psychologists and RAMs to evaluate basic reading skills in the medical or educational diagnosis of children with SLD. Therefore, SOBAT®-II could be applied as a standardised form of assessing students' reading abilities/skills.

Special education teachers will be able to use this test during the education of students who are determined to be in need of special education and have reading-comprehension problems. The results of this test can be used to determine the reading levels of students with special needs in terms of basic reading skills and to select the assistive reading programme or teaching methods and strategies to be applied. Special education teachers will be able to measure the success of their education with this test.

Conclusion

As a result of this study, the Oral Reading Skills and Comprehension Test (SOBAT®), of which the preliminary study was conducted between 2002 and 2012 (Erden & Çelik, 2019; Melekoğlu et al., 2019), was expanded to include children between the ages of 7 and 14, and the parallel form of the test, A and B, was developed. Within this study, a standardised oral reading test was developed in which the basic reading skills of children between the ages of 7 and 14 can be easily determined in reading fluency and reading comprehension skills. This test can be widely used by both educators and relevant experts for different purposes. With SOBAT®-II, scanning and diagnostic dimensions of reading difficulties, and planning and monitoring of reading interventions can be performed systematically and with a standardised reading test.

The findings obtained during the development of SOBAT®-II indicate that most parents apply to child mental health or child neurology specialists as a result of attention deficits problems of their children. Although the majority of students have their own study environments, they mostly read one to 15 pages of books per day. Furthermore, students prefer spending time for TV or computer and less time for outside play or exercise, and this sedentary lifestyle could negatively influence students' reading performance even more.

The results of the test administrations show that the longer the students read in the test, the more errors they made, which indicates that the level of difficulty in the test gradually increases. In addition, Cronbach alpha and parallel form reliability results of SOBAT®-II show that the test has high reliability for administration.

Some limitations were encountered during this study. Firstly, the willingness to participate in the study was very low. Generally, school administrators and teachers questioned the contribution that this study could make and often did not want to participate. It was observed that administrators and teachers who had experience of previous research/projects and/or graduate

education were more willing to participate in the study.

Another limitation was the lack of a suitable environment in schools to administer the tests. There were problems in finding places in schools where one-on-one study could be performed by the research team for a certain period. In some schools, test administrations were carried out in principals'/assistant principals' rooms, guidance and counseling teacher rooms, libraries, laboratories, warehouses, and teacher rooms.

Another limitation in the research was that middle school students, especially 7th and 8th grade students were quite reluctant to participate in the project. By indicating the high school entrance exam and the preparation process for this exam, the students did not want to participate and some schools did not volunteer to participate in the study. For similar reasons, the parents also did not allow students to participate.

In future studies, expanding the number and diversity of the sample by including students from different provinces may be beneficial for standardisation of the test. In addition, adding motivation resources to increase the voluntary participation of school administrators, teachers and students in such studies may create positive results.

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Authors' Contributions

All authors contributed to the completion of the manuscript. MAM wrote the manuscript, completed the literature review, and did the data collection and analysis. HGE contributed to the method section and data analysis. OC contributed to the data collection and discussion. All authors reviewed the final manuscript.

Notes

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