

Development of the Oral Reading Skills and Comprehension Test-II (SOBAT®-II) for Assessment of Turkish Children with Specific Learning Disabilities: Pilot Study Results

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Abstract

In the process of screening and evaluating children with reading difficulties, and planning, monitoring, and evaluating reading improvement interventions for those children, standard reading tests are usually not used in Turkey. The first version of the Oral Reading Skills and Comprehension Test (SOBAT®) was developed by Prof. Dr. H. Gülsen ERDEN, and the

validity and reliability studies of SOBAT[®] were conducted between 2002 and 2012. To expand to include children between the ages of 7 and 14, and form the parallel form of the test, A and B, a research project supported by the Scientific and Technological Research Council of Turkey (TUBİTAK) completed between 2013 and 2015. The purpose of this paper is to share the pilot study findings of the project. A total of 232 tests were conducted within the scope of the pilot study.

Keywords: Special education, Specific learning disabilities, Reading, Fluency, Comprehension, Test development, SOBAT[®]-II

1. Introduction

Provision of special education, which is defined as an intervention formed intentionally to hinder, extinguish and/or cope with barriers that negatively impact active and full participation of individuals with disabilities into schools and social life (Heward, 2006), has been widespread in many school systems in the world. In the United States of America (USA), the percentage of individuals ages 6 through 21 served under the Individuals with Disabilities Education Act (IDEA) is 9% (US Department of Education, 2018). On the other hand, as a developing country, Turkey has been strongly investing in the special education system in the last 15 years, and the number of students with special educational needs has been steadily increasing (Melekoğlu, 2014). According to the National Education Statistics-Formal Education report of the Ministry of National Education (MEB) of Turkey, the number of students with special educational needs was 10,052 in the 2005-2006 school year, the percentage of those students was 1% among all pupils in the Turkish education system (MEB, 2006a). As of the 2018-2019 school year, the number of students with special educational needs has increased by approximately 40 times and reached to 398,815, and the percentage of those students has become 2.2% (MEB, 2019). Although the percentage of students with special educational needs is low compared to the USA, the number of students with special educational needs has been steadily increasing and among those students, pupils with specific learning disabilities (SLD) attract attention in the Turkish education system in recent years (Melekoğlu, 2018).

SLD has been defined in the Special Education Services Regulation as 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, 2006b). Although a rapid numerical increase has been observed in SLD field, due to the lack regarding the identification of students with SLD in Turkey, in fact, this number could be a lot more and students officially not diagnosed but having SLD are thought to continue their education in many schools (Çakıroğlu & Melekoğlu, 2014). In the USA, while the ratio of students with SLD among students with special educational needs is around 40%, this rate is around 3% in Turkey (Melekoğlu, 2018). More than 5% of all students in the USA have SLD (Hallahan, Lloyd, Kauffman, Weiss, & Matinez, 2005). In terms of the diagnosis process of SLD in Turkey, problems exist in the system. In studies in Turkey, especially on reading evaluations, the first versions of SOBAT[®] texts have been created and these texts were used according to

the grade levels in several studies. Following these pioneering studies, SOBAT® texts were created and when SOBAT®-II studies started, appropriate texts were included in SOBAT®-II (Çelik, Erden, Özmen, & Tural Hesapçioğlu, 2017; Erden & Çelik, 2019; Erden, Kurdoğlu, & Uslu, 2002; Özkök & Erden, 2011; Sarıpinar & Erden, 2010; Turan, Bakar, Erden, & Karakaş, 2016).

Güzel Özmen (2008) states that although SLD is officially one of the special education categories in Turkey, there are problems in the diagnosis process and the necessary special education services cannot be provided to these students. Additionally, the necessary arrangements are not provided for students in normal educational settings and that the relevant teachers cannot receive guidance on the education of these children. In addition, Özyürek (2005, 2009) states that although the diagnosis of SLD is frequently made in Turkey, there are problems in the differential diagnosis and identification of children with SLD. The main areas where students with SLD experience failure and difficulty are reading, writing and mathematics (American Psychiatric Association, 2013). The degree and type of difficulties in these areas may be different for each individual.

The most commonly observed areas of difficulty in the definition are reading difficulties. Among the SLD subgroups, the most frequently observed and studied 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 seen in 5-17.5% of the population in the society (S. E. Shaywitz & B. A. Shaywitz, 2005). In other words, four out of five children diagnosed with SLD have difficulty in reading. Although reading skill has many different dimensions such as word recognition, reading rate, vocabulary and comprehension, the majority of reading problems are seen in reading at a certain speed and accuracy, which are expressed as reading fluency, and these problems may negatively affect the comprehension dimension which is the main purpose of reading (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003; Kim, Park, & Wagner, 2014; Kim, Wagner, & Lopez, 2012; S. E. Shaywitz & B. A. Shaywitz, 2005). Especially in the primary and secondary school age group, reading problems are often observed among students with or without SLD. However, in screening and diagnosis of children with reading difficulties living in Turkey, and in planning reading development interventions for these children and monitoring and evaluation of the effectiveness of the process, the standard reading tests usually are not used (Bingöl, 2003; Duman & Çiftçi-Tekinarslan, 2007; Yılmaz & Köksal, 2008).

Given that the majority of children with SLD have difficulty in reading and reading comprehension, the lack of a standardized reading test in the medical and educational diagnosis of reading skills may lead to an incomplete and inadequate diagnostic process. It is also deemed necessary to diagnose reading difficulties with or without SLD and to determine reading levels, to plan and start an appropriate reading support program. The lack of standardized reading tests that measure reading and reading comprehension skills is also an important problem in the development and evaluation of a research-based assistive reading program for children with reading problems.

To develop a standardized oral reading test for problems in the assessment of reading skills, a

research project supported by TUBITAK completed between 2013 and 2015. The aim of this project was to develop and evaluate the usability of a standardized reading test, which is abbreviated as SOBAT[®], in the assessment of reading and reading comprehension skills development of children between 7-14 years of age with SLD. The purpose of this paper is to share the pilot study findings of the project.

2. Method

2.1 Study Design

This study was designed based on quantitative research designs, and the survey research method was used. Since the purpose of this study was to develop a reading test, the survey research method was selected. Survey research allows a quantitative description of a population by working with a sample of that population (Creswell, 2014).

2.2 Test Development Procedure

The aim of this study was to develop and evaluate the usability of a standardized reading test, SOBAT[®]-II, in the assessment of reading fluency and comprehension skills development of children between 7-14 years of age with SLD. For this purpose, firstly, the preparation of reading texts and reading comprehension questions was carried out. The development of reading texts was carried out by the researchers and all reading texts were prepared originally. Some SOBAT[®] original texts were also included in SOBAT[®]-II.

In addition, the structural draft was determined by examining the tests similar to the targeted reading test in international literature. In the process of forming and developing reading texts, after the structural and content evaluations of the reading texts of Gray Oral Reading Test, which was developed especially in the USA, the narrative and informative style of the original Turkish texts were adopted. As a result of all these investigations, both informative and narrative texts were created. First of all, as many texts as possible were created and the researchers examined the prepared texts and eliminated inappropriate texts.

Besides, the computer program developed by Bezirci and Yılmaz (2010) within the scope of their “Proposal for a New Readability Criteria for Turkish Language” was used to determine the readability of the texts. A total of 50 original texts were prepared for expert opinions.

Simultaneously, while reading texts were being developed, the structures and contents of the reading comprehension questions of the texts were examined and the research team decided to prepare five multiple-choice reading comprehension questions for each text. Each question consists of four options, and the questions are designed to remember the information in the text and to make inferences only from the text read. At least 10 multiple-choice questions were prepared for each text, and the researchers selected five of these questions and decided on reading comprehension questions for each text. Comprehension questions for all developed texts have also been prepared ready for expert opinions.

Second, expert opinions were received on prepared texts and the reading comprehension questions of those texts. The texts were delivered to five faculty members working at universities and four teachers working at the Turkish Ministry of National Education to

obtain expert opinions. Each text was rated by experts and opinions were reviewed by researchers. The texts with the highest scores for each level were selected for inclusion in the test. Also, the changes proposed by the experts on the texts were evaluated by the researchers and the changes deemed appropriate were realized.

Two texts with the most points were determined for each level and a total of 24 texts were selected. The selected texts were assigned to form A and B of the test by a random selection method. The texts were prepared by using the font used in the Ministry of National Education books and made ready for the pilot research.

2.3 Participants

The pilot study was conducted in primary and middle schools in Istanbul in the spring term of the 2013-2014 academic year. The study permission was obtained from the Istanbul Provincial Directorate of National Education for the application of all forms. In addition, a signed consent form was obtained from the parents of the students who will participate in the study.

Primary and middle schools from different socio-economic levels were interviewed. During the interviews with the schools, the details of the project were explained to the school principals/deputy principals and it was determined whether the school would like to participate in the project and whether they had a suitable environment for implementation. In total, interviews were conducted in 20 different schools and seven schools were eager to participate in the project and provided an environment for implementation.

In schools, a branch from each grade level was determined by a random selection method. For this purpose, all branches in the school were written on small sheets and the branches were determined by the school principals/deputy principals and/or project team members for each grade level. The classroom teachers of the selected branches were interviewed and asked if they would like to participate in the project after being informed about the project. If the classroom teacher did not want to participate in the project, a new branch was selected for that class level.

The purpose of the project was explained to the students in the classes that volunteered to participate in the project and the procedures were explained. The names of the students who want to participate in the project are determined. The names of the volunteer students were taken into the raffle boxes in a way that the boys and girls were separated and 16 students were randomly selected in each class with five girls, five boys and as backup three girls and three boys. The selected students were given parental consent forms and demographic information forms in an envelope to be delivered to the parents. The envelopes were distributed to a total of 458 parents.

The reading test was administered only to students whose parents gave consent. One-to-one work was done with the students and administrations were made in places such as civil servants' rooms, school-family union rooms, empty classrooms, and laboratory. For each grade level, the A and B forms of the test were applied equally to the students. Also, 20% of students received both A and B forms. The students tried to read all the texts in the test, but

when the students made 10 or more reading errors in two consecutive texts, the reading test was terminated.

A total of 232 tests were performed. 124 A forms and 108 B forms were read. Besides, 35 students read both A and B forms. The total number of participating students was 197. Furthermore, 55.2% of the students were female and 44.8% were male. Table 1 shows the distribution of the participants according to the grades.

Table 1. Pilot study participants by grade levels

Grade	<i>n</i>	%
1. Grade	30	15.2
2. Grade	32	16.2
3. Grade	41	20.8
4. Grade	31	15.7
5. Grade	21	10.7
6. Grade	16	8.1
7. Grade	10	5.1
8. Grade	16	8.1

In addition, 95.3% of the participants were native speakers of Turkish and 43.8% of students have been studying at the same school for one year, while 24.5% for two years, 12.0% for three years and 10.9% for four years. Furthermore, 97.4% of the students did not have any Guidance and Research Center (RAM) diagnoses, while 2.6% of them have RAM diagnoses.

2.4 Data Collection

SOBAT[®] tests were administered individually and took approximately 30 minutes for each student. Students started to read from the first text and continue reading until 10 or more reading errors in two texts consecutively or until the end of the test. During reading stop-watches used for determining the reading rate. Reading errors were recorded on the test. Students answered questions after each reading. The entire text period was recorded with a digital voice recorder. A total of 11 test administrators worked with a different number of students. All test administrators received training for test administration and reached over %80 interrater reliability for administration.

2.5 Data Analysis

All data collected in the pilot study were entered into a statistical program. Descriptive analyses were conducted to obtain information about the participants' characteristics and reading performances on the test. Demographic information forms consisted of questions such as study environment, daily reading activities of students, time spent on television and

computer, and library at home. In addition, reading performances of students from SOBAT[®] were collected in terms of reading rate, reading errors, and reading comprehension. All the reading performances were recorded with a digital voice recorder and all reading performances were checked for accuracy of data by listening to those records.

3. Results

3.1 Demographic Information

With the parental consent forms, filled demographic information forms were also provided by the parents. According to the forms, most of the forms were filled by mothers (74.1%), and while the average age of mothers of participants was 37, the average age of fathers of participants was 41. Most of the mothers of participants were primary school graduates (36.0%) while most of the fathers of participants were high school graduates (31.0%). Besides, there was an average of two kids in each family, and only 2.0% of the participants were living with an individual with disabilities at home. The majority of participants (82.2%) had their study environment, and 62.9% had a library at home. Moreover, only 14.7% of families had library membership or use, and most of the families (59.9%) sometimes bought a newspaper. In terms of reading performance at home, participants read an average of 25 pages per day (excluding textbooks), and they spent an average of 54 minutes for reading at home. Furthermore, participants devoted an average of 115 minutes for television per day, while 75 minutes for computers (see Table 2 and Table 3 for more details).

Table 2. Demographic information about participants

Questions	<i>n</i>	%
<i>Relation to the child who completed the form</i>		
Mother	146	74.1
Father	40	20.3
Other	11	5.6
<i>Is there any person with disabilities living at home?</i>		
Yes	4	2.0
No	193	98.0
<i>Mother education status</i>		
Illiterate	7	3.6
Literate	2	1.0
Primary school graduate	71	36.0
Middle school graduate	37	18.8
High school graduate	49	24.9
Bachelor degree	21	10.7
Graduate degree	1	0.5

<i>Father education status</i>		
Illiterate	3	1.5
Literate	2	1.0
Primary school graduate	54	27.4
Middle school graduate	37	18.8
High school graduate	61	31.0
Bachelor degree	29	14.7
Graduate degree	1	0.5
<i>Does the child have his/her study environment (room, table, area, etc.)?</i>		
Yes	162	82.2
No	35	17.8
<i>Is there a library at home?</i>		
Yes	124	62.9
No	73	37.1
<i>Do you take the newspaper home?</i>		
Everyday	38	19.3
Sometimes	118	59.9
Never	41	20.8
<i>Does your child and/or you have library membership/use?</i>		
Yes	29	14.7
No	168	85.3
<i>Do you have a magazine subscription?</i>		
Yes	22	11.2
No	175	88.8

Table 3. Additional demographic information about participants

Questions	Min	Max	Mean	SD
Age of the child's mother	25	49	37.17	5.23
Age of the child's father	29	62	41.41	5.99
Total number of children in the family	1	7	2.42	0.99
How many pages does the child read on average per day (excluding textbooks)?	0	168	25.09	27.27
What is the average daily time (minutes) the child devotes to reading (except textbooks)?	0	240	54.29	40.33
What is the average daily time (minutes) a child devotes to watching television?	0	480	115.31	81.15
What is the average daily time (minutes) a child spends on a computer?	0	300	74.68	67.55

3.2 Reading Performance

When the results for Form A and B are examined, reading rate, number of errors and reading comprehension scores for each text are shown in Tables 4, 5, 6, 7, 8 and 9.

Table 4. Pilot study form A reading rate

Texts	N	Min (seconds)	Max (seconds)	Mean (seconds)	SD (seconds)
A1	124	4	62	9.56	7.43
A2	124	13	191	26.60	19.91
A3	124	26	339	58.94	39.66
A4	122	24	310	48.90	32.33
A5	121	18	138	38.45	21.24
A6	120	45	311	89.28	45.40
A7	119	38	323	82.29	47.44
A8	112	32	165	60.56	30.61
A9	112	37	264	86.58	50.45
A10	109	38	236	83.04	44.21
A11	101	30	370	136.79	64.84
A12	89	76	687	184.90	97.25

Table 5. Pilot study form B reading rate

Texts	N	Min (seconds)	Max (seconds)	Mean (seconds)	SD (seconds)
B1	108	4	35	8.89	6.29
B2	108	8	102	23.14	15.39
B3	108	14	153	35.98	27.30
B4	106	20	222	50.59	36.18
B5	104	17	195	44.72	26.19
B6	104	17	187	42.20	27.21
B7	102	32	535	82.48	59.85
B8	99	35	276	82.52	45.09
B9	93	35	310	81.00	47.84
B10	90	40	344	85.88	46.64
B11	80	62	398	126.54	57.61
B12	70	102	607	228.81	88.73

Table 6. Pilot study form A reading errors

Texts	Mean (Number of errors)
A1	1.00
A2	2.65
A3	5.48
A4	4.76
A5	4.53
A6	8.53
A7	8.56
A8	5.27
A9	11.11
A10	10.37
A11	16.52
A12	21.45

Table 7. Pilot study form B reading errors

Texts	Mean (Number of errors)
B1	0.80
B2	2.17
B3	3.12
B4	4.31
B5	3.91
B6	4.11
B7	8.85
B8	8.28
B9	9.20
B10	9.92
B11	11.90
B12	28.47

Table 8. Pilot study form A reading comprehension scores

Texts	Mean (Comprehension score)	SD (Comprehension score)
A1	4.23	0.89
A2	4.77	0.57
A3	4.83	0.44
A4	4.56	0.68
A5	4.23	0.99
A6	4.84	0.39
A7	4.60	0.60
A8	3.96	1.08
A9	2.78	1.32
A10	3.94	0.91
A11	2.25	1.20
A12	2.73	0.95

Table 9. Pilot study form B reading comprehension scores

Texts	Mean (Comprehension score)	SD (Comprehension score)
B1	4.32	0.98
B2	4.69	0.62
B3	4.48	0.85
B4	4.78	0.60
B5	4.51	0.80
B6	4.12	0.86
B7	4.28	0.95
B8	4.30	1.05
B9	3.82	1.10
B10	3.53	1.37
B11	3.91	0.94
B12	3.51	1.29

4. Discussion

There is not a standard reading test in Turkey and this project aims at developing one. The standardized reading test, SOBAT[®]-II, consists of as two parallel forms that are the same in terms of the difficulty and can be used interchangeably (Form A & Form B) to assess reading fluency and comprehension skills of children between 7-14 years of age with SLD. In each set, there are original reading texts developed at various levels and related comprehension questions. Pilot study results showed that SOBAT[®]-II can be easily administered to students in primary and middle school. However, it was decided that the first-grade students should not participate in the main study due to their challenges with the texts, and new texts with high levels of difficulty need to be added to the test because of being able to assess the high level of performance, especially in middle school.

Both teachers and researchers will be able to use this test. Teachers will be able to identify the individual needs of students studying in their classrooms using SOBAT[®]-II to improve their basic reading skills. By using SOBAT[®]-II, teachers will be able to obtain students' oral reading rate, reading accuracy and reading comprehension scores. These scores will indicate students' grade levels and ages in terms of fundamental reading skills. In addition to determining the level of reading, teachers will be able to measure how much students can achieve their basic reading skills during the year by applying SOBAT[®]-II at regular intervals.

Experts can use the test as one of the assessment tools for the diagnosis of SLD. Researchers will be able to use SOBAT[®]-II in scientific studies to determine the effectiveness of teaching methods and strategies through reading programs. In addition, relevant experts will be able to develop different assistive reading programs or Turkish teaching methods and strategies and

use SOBAT®-II results to scientifically demonstrate their effectiveness. There is a strong need for assessment tools in the field of special education, and in the future various standard reading tests need to be developed for better assessment of reading skills.

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