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Determination of Teachers' Views on the Use of Assistive Technology in Special Education Classrooms[1]

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Abstract

The use of assistive technologies in the education of individuals with special needs is rapidly increasing with advancements in technology, creating a greater demand for such tools in special education processes. At this juncture, the implementation of assistive technology, along with the experiences and competencies of teachers working in special education, is of paramount importance.This study aims to determine the opinions of teachers working in special education classes, special education work and practice centers, and special education vocational training centers in primary and secondary schools affiliated with the Ministry of National Education in Ankara and Eskişehir provinces. Four hundred fourteen special education teachers participated in the study. The descriptive survey model, which is appropriate for the study, was used. The data collection tool was the Assistive Technology Use Questionnaire developed by the researcher. The data were statistically analyzed, and frequency and percentage distributions were calculated. In analyzing the research data, the Chi-Square test, one of the non-parametric tests, was used in line with the objectives. The study's findings indicate that teachers' opinions on certain subtopics of assistive technology use varied significantly based on factors such as gender, educational status, teaching environment, prior assistive technology education during undergraduate studies, interest in internet and computer technologies, participation in assistive technology training, and personal use of assistive technologies. A majority of teachers reported feeling incompetent in using assistive technologies. The most commonly used and valued devices were smartphones, tablets, smart boards, and laptops. Based on these findings, integrating structured assistive technology training into teacher education programs and providing ongoing professional development opportunities could enhance teachers' competence and confidence in utilizing these technologies effectively.Keywords: Assistive technologies, individuals with special needs, teachers' opinions.

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Introduction

In recent years, the rapid advancement of technology has driven a significant expansion in the range of tools and equipment utilized across various fields, underscoring the increasing reliance on digital innovations. In addition to the diversity of the areas of use of technology, the need to classify the technological equipment used in special education has arisen due to the differentiation of the needs of individuals with special needs (Edyburn, 2005). In this context, Blackhurst (2005) categorized the technologies used in special education into six categories: "medical technology, assistive technology, instructional technology, production technology, information technology, and teaching technology."

Assistive technology refers to the adaptation of technology to address the specific needs arising from a student's disability, enabling accessibility and support. In contrast, instructional technology encompasses the use of technology without modifications to enhance the knowledge and skills of students with special needs in a given subject (Pedrotty-Bryant & Bryant, 2012). Assistive technologies are tools or systems adapted to improve the quality of life by improving the competencies of individuals with special needs (Lancioni et al.,2013). In other words, assistive technologies are tools and equipment used to reduce the difficulties that individuals with special needs may encounter and to facilitate their participation in activities (Hersh & Johnson, 2008; Pettersson & Fahlstrom, 2010). Assistive technologies have benefits such as increasing motivation, supporting learning strategies and skills, providing more effective study and learning strategies, increasing individuals' socialization skills, supporting effective and independent practice, and providing independent and rapid feedback (Green, 2011).

Technology plays a crucial role in the education of individuals with special needs, who differ from their typically developing peers in learning characteristics, by facilitating the concretization of abstract concepts to enhance comprehension and accessibility. The technology used in special education contributes to equality of opportunity by supporting individuals' disabilities and improving their quality of life. In the education of individuals with typical development, technology primarily functions as instructional technology, serving as a tool to support the achievement of predefined instructional objectives (Edyburn, 2005; Sola-Özgüç, 2015). However, in the education of students with special needs, technology encompasses assistive technologies, which are specifically designed to bridge gaps in the individual's interaction with their environment, thereby mitigating functional limitations (Pedrotty-Bryant & Bryant, 2012; Sola-Özgüç, 2015).Assistive technology is one of the important elements in the individualized education program prepared for the student. In order to be used effectively and efficiently, assistive technologies should be clearly stated in the following definitions in the individualized education program: (1) in the definition of specially planned instruction, (2) in the definition of additional supports to be provided to the student, (3) in the definition of related services. Within the framework of specially planned instruction, assistive technology should be regarded as a means to facilitate learning rather than an end in itself, ensuring that its integration serves pedagogical objectives rather than merely fulfilling technological inclusion. Assistive technology should be used to help the student achieve the goal. Assistive technology should be utilized at all teaching stages (instruction, method, etc.) and include the provision, development, placement, adaptation for teaching, and training of practitioners through related services (Dell, Newton, & Petroff, 2012). Within the scope of this study, the use of technology by teachers working in special education or working with children with special needs was examined, and teachers' opinions were included.

A review of the literature reveals that the number of international studies significantly surpasses that of national studies. However, recent research has demonstrated increased diversification and momentum, reflecting a growing academic interest in the field.Ofiesh et al. (2002) examined assistive technology services provided to students with special needs. Alobiedat (2005) compared technology skills and technology standards of special education teachers. Sigafoss (2011) examined the use of technology in the educational process of students with severe disabilities. Fichten, Asuncion, and Scapin (2014) examined the relationship between digital technology and the learning of individuals with special needs. Narayan and Surabian (2014) planned research to determine the necessary activities to prepare teachers for using assistive technology. Wong and Cohen (2015) examined teachers' difficulties using assistive technology when working with visually impaired students in Singapore. In addition to these studies, there is a body of research that specifically explores the perspectives and recommendations of special

education teachers regarding the use of assistive technology (Alhossein & Aldawood, 2017; Alammary, Al-Haiki, & Al-Muqahwi, 2017; Alper & Raharinirina, 2006; Chimiliar, 2007; Sydeski, 2013), contributing to the discourse on educator perceptions and practical implementation."When the studies conducted in Türkiye are examined, it becomes evident that research on the opinions and attitudes of special education teachers toward the use of assistive technology remains limited, highlighting a gap in the national literature (Alammary, Al-Haiki, & Al-Muqahwi, 2017; Aslan, 2018; Bahçeci, 2019; Chmiliar, 2007; Çay, Yıkmış, & Özgüç, 2020; Deniz & Demirkıran, 2006; Doğan & Akdemir, 2015; Kışla, 2008, 2011; Kutlu et al., 2019; Schreglmann & Cinisli, 2018; Sola-Özgüç & Cavkaytar, 2013; Sola-Özgüç & Cavkaytar, 2014; Sydeski, 2013; Tekinarslan & Yıkmış, 2005). While some of the studies draw a general framework about universal designs and the use of assistive technology in education, some studies are on the processes of students' and teachers' use of assistive technology. When the research findings were analyzed, it was revealed that assistive technology effectively affects students' learning levels. On the other hand, teachers had budgetary problems accessing assistive technology, needed technical support, had problems with information and equipment, and perceived themselves as inadequate in using assistive technology.

Ensuring that education is individualized according to learners' needs is just as crucial as the methods used to deliver it. Given that individuals with special needs require greater support than their typically developing peers in terms of accessibility, access to services, and personalized instruction, assistive technologies play a critical role in the field of special education (Green, 2011; Pedrotty-Bryant & Bryant, 2012; Lancioni et al., 2013).Teachers are expected to be equipped with technology literacy and integration in education to use technology in special education in a qualified way. The fact that the new generation of teachers has mastered technology in many aspects of teaching shows its impact in many areas, such as teaching, preparing materials, meeting the vital needs of students, and counseling families. As a legal justification for this effect, it is stated that one of the performance indicators in the sub-competency area of “Monitoring and Contributing to Professional Developments” in the Teacher Qualifications Book of the Ministry of National Education in our country is the utilization of information and communication technologies (MoNE, 2008). The teacher training standards of the Council for Exceptional Children (CEC) state that teachers should use instructional and assistive technologies to develop content and deliver instruction (CEC, 2012). As seen in the teacher competencies stated in both national and international literature, it is revealed that teachers' use of technology is important in improving the educational process and self-development and that assistive technology is professional competence. In this direction, the research emphasizes teacher and staff training on technology use (Dexter & Riedel, 2003; Kelly, 2009; Van Laarhoven & Conderman, 2011).

On the other hand, the literature indicates that teachers need support in technology integration in special education and that support should be provided (Acungil, 2014; Fichten et al., 2001; Naraian & Surabian, 2014; Van Laarhoven & Conderman, 2011; Sola-Özgüç, 2015), it emphasizes that before providing this support, teachers' technology usage status and what they need should be determined (Dexter & Riedel, 2003; Kahraman et al., 2005; Narayan & Surabian, 2014; Usluel et al., 2007; Van Laarhoven & Conderman, 2011; Staples & Edmister, 2014). It is thought that the current research will help to meet the needs in the applied field in terms of affecting the teaching and learning processes in the classroom environment. There is a need for information in the literature about technology use in schools in Turkey, how it is realized, what is needed, what the problems are, and solution suggestions. Since there is no study in Turkey in which the opinions of special education classroom teachers about technology are directly determined, it can be said that there is a need for such studies since determining the opinions of special education classroom teachers about assistive technology in the theoretical framework will contribute to the literature.

Purpose of the Study

1. The overarching aim of this study is to explore the opinions and recommendations of special education teachers working in special education classrooms, special education work and practice centers, and special education vocational training centers within primary and secondary schools affiliated with the Ministry of National Education in Ankara and Eskişehir. In alignment with this primary objective, the study seeks to address the following sub-objectivWhat are

special education teachers' opinions about using assistive technology in special education schools and special education classrooms?

2. What assistive technologies are used by special education teachers in special education schools and classrooms?
3. According to the demographic information of special education teachers, do their views on the use of assistive technology differ significantly according to (a) age, (b) gender, (c) duration of teaching, (d) educational status, (e) graduated program, (f) educational environment served, (g) level of education, (h) assistive technology training, (i) interest in internet and computer technology, (j) additional training, (k) use of technology while working with children with special needs?

Method

Research Model

This study employs a descriptive survey design, a widely used quantitative research method for gathering data on individuals' opinions, attitudes, and experiences. Given the study's objective of exploring the perspectives and recommendations of special education teachers regarding the use of assistive technology, a survey model was deemed appropriate. This design allows for the systematic collection of data from a large sample, facilitating the identification of trends, patterns, and differences based on demographic variables. Accordingly, the study was conducted in special education classrooms, work and practice centers, and vocational training centers within primary and secondary schools affiliated with the Ministry of National Education in Ankara and Eskişehir.Population and Sample

The study group consisted of teachers working in primary, secondary, and special education practice centers, special education work practice centers, and vocational education centers in Turkey. In the 2015-2016 academic year, a total of 414 teachers working in primary schools, secondary schools, special education practice centers, special education job application centers, and vocational education centers affiliated with the Ministry of National Education in Eskişehir (26 schools) and Ankara (16 schools) participated in the study. These teachers had mainstreaming students in their general education classrooms.The participants in this study were selected using criterion sampling, a type of purposeful sampling, ensuring that individuals met specific predefined criteria relevant to the research objectives.. Purposive sampling is a type of sampling in which the researcher selects participants with specific characteristics according to the purpose of the research and can provide more support to the research problem (Patton, 2002). Criterion sampling, on the other hand, is a type of sampling in which the characteristics that are predetermined for the research and important for the research are determined as prerequisites, and the participants who meet all of these characteristics are selected (Yıldırım & Şimşek, 2013).

Ethical approval for the research was obtained from the Eskişehir Anadolu University Scientific Research and Publication Ethics Committees. In addition, consent was obtained from the participants, indicating that they voluntarily participated in the research before participating, that they could leave it whenever they wanted, and that all data would be kept confidential during and after the research.

According to the research findings, 414 people participated in the study; 315 (76.1%) were female, and 99 (23.9%) were male. When the age ranges of the participants are analyzed, it can be said that there are 48 (11.6%) in the 20-24 age range, 99 (23.9%) in the 25-29 age range, 103 (24.8%) in the 30-34 age range, and 165 (39.8%) in the 35 and over age range. When the programs that the participants graduated from are examined, it is seen that 251 (60.9%) of the participants graduated from other non-field teaching programs. Regarding the training on assistive technologies during undergraduate education, 270 (65.2%) did not receive any training, while 308 (74.4%) teachers did not receive any training on using assistive technologies.

Data Collection

The study gathered data to identify participants' characteristics and examine the use of assistive technology in lessons by special education classroom teachers. To achieve this objective, data were collected using the "Assistive Technology Use Questionnaire," developed by the researcher and

administered to teachers working in primary schools, secondary schools, special education practice centers, special education work practice centers, and vocational education centers.Data Collection Tool and Development
In the research process "Assistive Technology Use Questionnaire" was developed by the researcher following the questionnaire development process of Büyüköztürk et al. (2013) to determine the opinions of teachers working in special education classes, special education work, practice schools, and special education vocational training schools in primary and secondary schools affiliated to the Ministry of National Education in Eskişehir and Ankara in the 2015-2016 academic year.

In this study, the questionnaire development process involved reviewing the literature on special education and teachers' use of assistive technology, followed by structuring and planning the questionnaire design to ensure its alignment with the research objectives. First, the questionnaire items and questions based on the literature were written. Then, these items' and questions' content and face validity were evaluated. The questionnaire items created by the researcher were sent to 10 experts in the field, and their opinions were obtained. The questionnaire, which was revised in line with these opinions, was applied as a pre-application to five research assistants who had previously worked as special education teachers in special education schools affiliated with the Ministry of National Education at Anadolu University Faculty of Education, Department of Special Education. The results of this application were analyzed, and it was decided that the items worked and were appropriate. Content validity, one of the validity types, was examined for all items of our questionnaire. For this purpose, the questionnaire items created by the researcher in the current study were sent to 10 field experts for their opinions. The questionnaire was self-administered and distributed to schools within the scope of the study during the 2015-2016 academic year. The researcher personally delivered the questionnaires, provided the necessary explanations, and requested participants to complete them independent.

Data Analysis
Before data analysis, the dataset was first examined for missing values. The responses of 12 participants who left a significant portion of the items unanswered in any of the data collection tools and three participants who provided incorrect coding were excluded from the analysis.Thus, the number of participants decreased from 431 to 414. Since the study group was large and the missing values were less than 5% (Tabachnick & Fidell, 2007), the other items with missing data were assigned values using the average assignment method.

Secondly, one-way extreme value analysis was performed for all variables in the study to evaluate whether participants had extreme values. For this purpose, all scores in the distribution were converted into standard z scores (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). The data of 2 participants with z values more significant than +3.29 and less than -3.29 (Tabachnick & Fidell, 2007) were excluded from the analysis, and the procedures were carried out on 414 participants.

The data collected through the questionnaires were first analyzed descriptively by calculating frequencies (f) and percentages (%) for variables such as age, gender, duration of teaching in special education, educational status, graduated program, educational environment and level served, as well as teachers' opinions on the use of assistive technology and the types of assistive technologies they utilized.Then, whether there is a significant difference between the utilization of assistive technologies according to these variables was analyzed with the Chi-Square test (Chi-Square) through SPSS. The significance level was taken as 0.5.

Findings

The frequency and percentage distributions of the data obtained from the data collection tool used in the study and the findings obtained as a result of statistical analysis of the data are presented in Table 1. As seen in Table 1, the study participants comprised 414 people, 315 (76.1%) of whom were female and 99 (23.9%) male. When the age variables of the participants are examined, it is seen that there are 48 (11.6%) people between the ages of 20-24, 99 (23.9%) between the ages of 25-29, 103 (24.8%) between the ages of 30-34, and 165 (39.8%) between the ages of 35 and above. Looking at the undergraduate programs that the participants graduated from, 161 (39.1%) participants graduated from special education teaching programs, and 251 (60.9%) participants graduated from other non-field teaching programs. When we look at the status of receiving training on assistive technologies during

undergraduate education, it is seen that 270 (65.2%) did not receive any training. In comparison, 308 (74.4%) teachers did not receive any training on using assistive technology.

Table 1.
Findings Related to Personal Information

		N	Percentage (%)
Age	20-24	48	11,6
	25-29	99	23,9
	30-34	103	24,8
	35 and above	165	39,8
Gender	Woman	315	76,1
	Male	99	23,9
Special education teaching time	0-5	239	57,9
	6 and above	174	42,1
Education Status	Associate degree	13	3,1
	License	370	89,2
	Master's degree	31	7,5
	PhD	1	0,2
Graduated program	Teaching the mentally handicapped	161	39,1
	Other teaching positions	251	60,9
Educational environment served	Special education class	134	32,3
	Vocational training center	37	8,8
	Application center	243	58,6
Education level served	Tier I	126	30,5
	Tier II	152	36,8
	Tier III	135	32,7
Receiving training on assistive technologies during undergraduate education	Yes	140	33,8
	No.	270	65,2
Being interested in Internet and computer technologies	I am interested	224	54,1
	Partially interested	181	43,7
	No interest	8	1,9
Participation in training on the use of assistive technology	Yes	99	23,9
	No.	308	74,4
Utilization of assistive technologies when working with individuals with special needs	Yes	296	71,5
	No.	112	27,1

As seen in Table 2, 42.8% of the participants use smart boards, 31.2% use tablet computers, 65.7% use smartphones, 47.6% use laptops, 10.1% use voice recorders, and 21.0% use other devices. It is seen that the first three devices that teachers use the most are smartphones, laptops, and smart boards, respectively. When we look at which problems teachers experience during the use of assistive technology, it is seen that 49.5% of the participants chose the option "I have trouble accessing," and 32.4% chose the option "I cannot get technical support." It is seen that the first three problems

experienced by teachers during the use of assistive technology are having difficulties in accessing, not getting technical support, and not having enough information, respectively.

According to Table 2, when teachers' purposes of using assistive technologies are evaluated, 85.3% of the participants marked the option of providing motivation, and 89.2% marked the option of performing the skill or behavior more quickly and fun. The first three purposes of teachers' use of assistive technology are to perform the skill or behavior more quickly and fun, to provide motivation, and to provide more effective learning strategies.

Table 2.
Findings Related to Assistive Technologies Used by Teachers

	Assistive Technologies	*f*	*%*
Assistive technologies used by teachers in their classrooms	Smartboard	177	42.8
	Tablet computer	129	31.2
	Smartphone	272	65.7
	Laptop computer	197	47.6
	Voice recorder	42	10.1
	Other	87	21.0
Assistive technologies that teachers find useful	Smartboard	330	79.7
	Tablet computer	253	61.1
	Smartphone	159	38.4
	Laptop computer	210	50.7
	Voice recorder	50	12.1
	Other	33	8.0
Teachers' purposes of using assistive technology	Saving time	223	53.9
	Providing motivation	353	85.3
	Performing the skill or behavior more easily and enjoyably	365	89.2
	Enabling easy control of the skill or behavior	126	30.4
	Facilitate the collection of data and information about the student's learning level	166	40.1
	Providing more effective learning strategies	280	67.6
	Providing opportunities to increase interaction between students in the classroom	130	31.4
	Encouraging students to practice independently	174	42.0
	Enabling students to do activities independently and providing immediate feedback	168	40.6
	Other	10	2.4
Sources that teachers use to obtain information about assistive technologies	I do not receive the information	14	3.4
	Textbooks	71	17.1
	Scientific journals	62	15.0
	From their website	351	84.8
	Television	50	12.1
	From my social circle	223	53.9
	Social media	154	37.2
	Other	19	4.6

Table 2 continuing

Which problems do teachers experience	I do not have enough information	107	25.8
	I do not know how to use it	37	8.9
	I have problems with transportation	205	49.5
	I need the support of experts for its use in the classroom	96	23.2
	I cannot get technical support	134	32.4
	Other	36	8.7

According to Table 3, the gender variable of the teachers participating in the study shows a significant difference in knowledge about assistive technologies and their use. Male teachers in the study have higher averages than female teachers.

There is no statistically significant difference between the opinions of the teachers participating in the study regarding the use of assistive technology according to the variable of special education teaching time.

When the opinions of the teachers about knowing the use of assistive technology were analyzed according to the teaching time variable, 8.5% of those who have been teaching in the field of special education for 0-5 years strongly agree, 52.5% agree, 9.2% of those who have been teaching in the field of special education for 6 years or more strongly agree, 43.4% agree. It was concluded that the level of agreement or disagreement of teachers on the topic of knowing the use of assistive technology did not show a significant difference according to the duration of teaching special education.

Table 3.

Comparison of Teachers' Views on the Use of Assistive Technology According to Gender

		Gender								
		Woman		Male		Total		x^2	Sd	p
		N	%	n	%	N	%			
Knowing assistive technologies	Agree	23	7.3	20	20.2	43	10.4			
	I agree.	153	48.6	46	46.5	199	48.1			
	Undecided	82	26.0	22	22.2	104	25.1	15.69	4	.003*
	Disagree	49	15.6	8	8.1	57	13.8			
	Strongly disagree	8	2.5	3	3.0	11	2.7			
Assistive technology on the use of having knowledge	Agree	18	5.8	19	19.2	37	9.0			
	I agree.	153	49.0	47	47.5	200	48.7			
	Undecided	65	20.8	18	18.2	83	20.2	19.76	4	.001*
	Disagree	70	22.4	12	12.1	82	20.0			
	Strongly disagree	6	1.9	3	3.0	9	2.2			

According to Table 4, the teachers participating in the study's variable related to the internet and computer technologies show a significant difference in their knowledge about assistive technologies, their use, ability to choose appropriate assistive technologies for students, and accessibility to assistive technologies.

Table 4.
Comparison of Teachers' Opinions on the Use of Assistive Technology According to Being Interested in Internet and Computer Technologies

		Relevance to Internet and Computer Technologies								
		I am interested		*Other		Total		x^2	Sd	p
		n	%	n	%	N	%			
Knowing assistive technologies	Agree	39	17.4	4	2.1	43	10.4	59.75	4	.000*
	I agree.	125	55.8	73	38.6	198	47.9			
	Undecided	43	19.2	61	32.3	104	25.2			
	Disagree	14	6.2	43	22.8	57	13.8			
	Strongly disagree	3	1.3	8	4.2	11	2.7			
Assistive technology on the use of having knowledge	Agree	32	14.4	5	2.7	37	9.0	34.19	4	.000*
	I agree.	120	54.1	79	42.0	199	48.5			
	Undecided	37	16.7	46	24.5	83	20.2			
	Disagree	31	14.0	51	27.1	82	20.0			
	Strongly disagree	2	0.9	7	3.7	9	2.2			
Suitable for the student assistive technologies be able to choose	Agree	30	13.5	8	4.3	38	9.2	21.83	4	.000*
	I agree.	125	56.1	93	49.5	218	53.0			
	Undecided	42	18.8	52	27.7	94	22.9			
	Disagree	26	11.7	29	15.4	55	13.4			
	Strongly disagree	0	0.0	6	3.2	6	1.5			
Assistive technologies accessibility	Agree	17	7.6	11	5.9	28	6.8	15.53	4	.004*
	I agree.	101	45.3	55	29.3	156	38.0			
	Undecided	34	15.2	43	22.9	77	18.7			
	Disagree	58	26.0	71	37.8	129	31.4			
	Strongly disagree	13	5.8	8	4.3	21	5.1			

Discussion, Conclusion, and Recommendations

The findings derived from special education teachers' perspectives on the use of assistive technology in special education schools and classrooms indicate that the most frequently selected response across all topics was ‘agree.’ This suggests that teachers generally perceive themselves as competent in understanding assistive technologies, utilizing them effectively, selecting appropriate tools for students, and accessing them.They think that assistive technologies increase the speed and motivation of students. This finding supports the research findings in the literature (Alkahtani, 2013; Çağıltay & Çakıroğlu, 2001; Kahraman, Köse, & Kara, 2005; Smith & Kelley, 2007; Tınmaz, 2004). However, there are different results in some studies in the literature. According to the results of these studies, it has been revealed that special education teachers are not confident in using assistive technology and need information and training in this field (Alkahtani, 2013; Ashton et al, 2005; Kutlu, Schreglmann, & Cinisli, 2018; Sakallı Demirok, Haksız, & Nuri, 2019; Smith & Kelley, 2007; Wilcox et al, 2006). The reason for such a difference may be because our study classified assistive technologies separately as

low-level, medium-level, and high-level technology tools and asked about the tools in each class separately.

An analysis of the findings regarding the assistive technologies used by special education teachers in special education schools and classrooms reveals that the three most frequently used devices are smartphones, laptops, and smart boards, respectively. Similarly, the three devices perceived as most useful by teachers are smart boards, tablet computers, and laptops. However, in contrast to these findings, Kutlu, Schreglmann, and Cinisli (2018) reported that teachers either do not use high-level assistive technologies or only use them a few times per week. Additionally, the primary purposes of using assistive technology were identified as enhancing skill or behavior performance in a more efficient and engaging manner, increasing motivation, and facilitating more effective learning strategies (Alper & Raharinirina, 2006; Edyburn, 2001). Teachers' first three sources to get information about assistive technologies are the website, social environment, and social media. The first three situations that affect teachers' decision-making processes when using assistive technology are, respectively, student needs, the subject to be taught, and the assistive technologies available in the school, and the first three problems teachers experience during the use of assistive technology are; access, lack of technical support, and lack of sufficient knowledge, and these findings are broadly consistent with the literature (Alammary, Al-Haiki, & Al-Muqahwi, 2017; Alkahtani, 2013; Alper & raharinirina, 2006; Ok & Bryant, 2012; Sydeski, 2013). Kutlu, Schreglmann, and Cinisli (2018) identified the most significant barriers faced by teachers in using assistive technology as the high cost of tools and equipment, software complexity, the lack of assistive technology in classrooms, and insufficient technical support. The findings of this study align with previous research in the literature, which similarly highlights these challenges as key obstacles to the effective use of assistive technology in education (Haiki & Al-Muqahwi, 2017; Alkahtani, 2013; Bryant, Seok, Ok, & Bryant, 2012; Sydeski, 2013)This study examined the perspectives of special education classroom teachers on the use of assistive technology. However, it did not investigate the use of assistive technology across different disability groups. A review of the literature reveals that previous studies have focused on various disability groups, including individuals with intellectual disabilities (Mechling & O'Brien, 2010; Acungil, 2014; Sola-Özgüç, 2015), individuals with diverse disabilities (Scott, McGuire, & Foley, 2003), individuals with severe developmental disabilities (Lancioni, Hof, Boelens, Rocha, & Seedhouse, 1998; Sigafoss, 2011), and individuals with visual impairments (Kelly, 2009; Wong & Cohen, 20It is also stated that assistive technology is mainly utilized in teaching individuals with visual and hearing impairments (Ofiesh et al., 2002). In the study conducted by Ofiesh et al. (2002), it is stated that the group in which assistive technologies are least utilized in teaching is individuals with psychiatric and other health problems.

The analysis revealed no statistically significant difference in teachers' opinions on the use of assistive technology based on the variable of teaching duration in special educationAccordingly, it was concluded that the duration of special education teaching does not affect teachers' views on using assistive technology. Other studies indicate no relationship between professional experience and the use of assistive technology (Coleman et al., 2015). However, when the literature is examined, it is seen that there is a relationship between professional teaching time and internet use in Akkoyunlu's (2002) study examining teachers' internet use. As a result of the research, it was found that while the rate of internet use of teachers with 1 - 15 years of experience was higher, the rate of internet use of teachers with 16 and 20 years of experience was relatively low (5%) and teachers with more than 20 years of experience did not use the internet. This difference may be because the research in which Akkoyunlu reported his findings was conducted in 2002. With the increasing prevalence of technology, attitudes toward its use may have evolved over time, becoming less dependent on professional experience and age. Another possible explanation for the relationship between age, professional experience, and technology use is the variation in technology literacy levels across different age groups, as observed in Akkoyunlu’s studThe study findings indicate that teachers identified the most significant challenges in technology use as limited access to assistive technology, lack of technical support, and insufficient knowledge about assistive technologies, respectively.These study findings are similar to those of other studies in the literature (Alkahtani, 2013; Kutlu, Schreglmann, & Cinisli, 2018; Smith & Kelley, 2007). In order for teachers to be able to use assistive technologies effectively in the education and training of students with special needs in order to reveal their existing performance in the best way possible by minimizing the disadvantages of the individual in the education and training of students with special needs, qualified

in-service training support can be provided to teachers, technology support staff can be provided in the school to support the teacher in the areas that the teacher will need, and online support can be provided by involving the teacher in technology.

The study findings reveal a significant difference in teachers' perspectives on the role of assistive technologies in enhancing student motivation and accessibility, based on whether they received training on assistive technologies during their undergraduate educationIn their study, Dexter and Riedel (2003) examined the competencies of preservice teachers who took the "Technology for Teaching and Learning" course. The study's findings revealed that the students' competencies who took technology courses in their undergraduate education were high. In similar studies, it has been found that in programs that train teachers in the field of special education, presenting the teaching content with technology support increases preservice teachers' tendency to use assistive technology in their classrooms (Alkahtani, 2013; Chmiliar, 2007; Cole et al., 2002; Russel et al., 2003). Based on these findings, teachers must receive training on assistive technologies during their undergraduate education. Of the sources from which preservice teachers acquire technology use skills, 34% are faculty members at the university, 22% are academic advisors, 21% are faculty members with whom they are in contact, and 16% are different and multiple sources (Dexter & Riedel, 2003). These findings underscore the importance of special education teachers acquiring functional proficiency in the use of assistive technologies during their undergraduate education.The findings of this study highlight key challenges in the use of assistive technology in special education settings. The most significant issues identified in Türkiye are limited access to assistive technology and insufficient technical support, whereas in the international literature, particularly in developed countries, the primary concern is the lack of technical support. Despite these challenges, increasing the integration of assistive technologies in schools is essential to enable individuals with disabilities to maximize their potential and to enhance teachers' knowledge and skills in this area.

To improve the effective use of assistive technology in special education, support services should be developed to address teachers' needs related to the purposes, application, and accessibility of these technologies. Additionally, teachers’ use of assistive technology should be monitored, and technical support personnel should be employed in schools to assist educators in overcoming practical difficulties.

A national literature review reveals the lack of a standardized scale for measuring teachers' use of assistive technology. Future studies could focus on developing such a scale by incorporating insights from international research and refining the questionnaire used in this study. Furthermore, an experimental study with a pre-test and post-test design could be conducted to assess the effectiveness of a training program on assistive technologies, covering their purposes, benefits, and available resources for preservice teachers. Additionally, while this study examined teachers' perspectives on existing assistive technologies, further research could explore technical challenges and difficulties in greater depth through a qualitative approach.

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Ethical Statement: We hereby declare that the rules specified in the "Directive on Scientific Research and Publication Ethics of Higher Education Institutions" have been followed in this study and that we have not done any of the "Actions Contrary to Scientific Research and Publication Ethics." We also declare that there is no conflict of interest between the authors, that all authors have contributed to the study, and that all responsibility for any ethical violations belongs to the authors of the article.

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