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EDUCATIONAL TECHNOLOGY IN SPECIAL EDUCATION AND SPEECH-LANGUAGE PATHOLOGISTS

Abstract

One of the most important issues involved in special education kids is limited social interaction as well as speech and language problems which have a great impact on their lives. In order to overcome these problems, these kids are usually referred to SLPs (speech and language pathologists) along with special education teachers with the expectation that eventually they will learn how to speak. Consequently, SLPs have started to play an important role in SEN (special educational needs) kids' education. With regard to technology, it is seen that using educational technology is increasing day by day. This is especially true when educational technology is considered as using media. In this regard, it seems plausible to question the role of SLPs play in using technology in special education as effective use of technology may support SEN kids in their way to lead an independent life. In this respect, this study differs from many others in that it tries to explore the ideas of SLPs who are getting more involved in the lives of SEN kids each and every day. This is a qualitative study which used phenomenological design. In collecting data, the study benefited from semi-structured interviews and in data analyses descriptive analysis technique was used. At the end of the study, it is explored that speech and language therapists' opinions show a great variety from

requiring support for their own professional development to their students' tax reductions when purchasing educational technology items.

Keywords: Educational technology, Special education, Speech-language pathologists, SEN kids

INTRODUCTION

It is true that individuals are different from each other due to their various characteristics and their learning speeds and forms vary accordingly. Some individuals may need more intensive and specially prepared programs in the learning process due to their special needs. For this reason, their special needs and differences should be taken into account while creating their education and training programs (Diken & Batu, 2015: 2-3). With the belief that education is the right of every individual, individuals with special needs should also benefit from this right and receive education through the programs prepared according to their specific needs (Fernandez-Lopez, Rodriguez-Fortiz, Rodriguez-Almendros, & Martinez-Segura, 2013: 80-81). In this context, since deficiencies in language and speech may arise from the special needs of individuals, these individuals should be directed to speech and language therapists in line with their needs, and current practices should be arranged with respect to their needs (Florian, 2004: 7-21).

Speech and language is not considered to be “now and here” phenomenon as it has a vital role in understanding others and also expressing oneself. It also exists as an obstacle in special needs individuals' gaining independence which lead to their requiring more speech and language therapy. Consequently, enabling children with special needs to communicate and thus socialize by improving their language skills may contribute to their independent living and increase their quality of life. In doing this, speech and language therapists have a very important role in helping individuals with special needs kids who have problems in communication by using their language and speech skills. Therefore, different approaches and teaching methods have been developed to improve the language and speaking skills of individuals with special needs using technology is one of them.

When educational technologies are seen as ‘media’, they involve any tool, resource or application that make learning easier, increase learning gains. Again, this includes anything from a smartboard to LMS (learning management system) and tablets (Parkman, Litz ve Gromik, 2018: 1254). Educational technologies are used with many terms such as instructional technologies and assistive technologies. There are also many definitions that there is not one common definition that is agreed upon. In one of the most commonly accepted definition of educational technology it is suggested that educational technology is a process that unites human power that is educated in a systematic and planned way according to scientific norms with other resources. The definition also involves the evaluation of the outcomes as well as suggesting that these resources are brought together based on specific methods and techniques (Demirel, 2001, s. 44-45). In this context, educational technology should be seen as a process that is not only media but that includes media. However, in this study the term “educational technology” is taken as the top concept that includes all the other terms such as assistive technologies and instructional technologies.

Making use of technology so that these individuals can be more involved in life and benefit from their education has been the subject of many studies dealing with education (Çay,

Yıkımsı, & Özgüç, 2020; Whitby, Leininger, & Grillo, 2012; Murugaiyan & Arulsamy, 2013). Thanks to the developing technological and pedagogical applications, speech and language therapists can now more easily reach more diverse and useful technological tools and applications (Akpan & Beard, 2014: 220). Although benefiting from educational technology has increased gradually, it is possible to claim that more research is needed to investigate the views of speech-language pathologists who are taking more and more active roles in special education (Siyam, 2019). Consequently, in this study, it is aimed to examine the opinions and evaluations of speech and language therapists, who are seen to be more involved in special education, regarding using technology in special education. In this study, qualitative research method was chosen in order to examine the views in depth. Phenomenology, which is one of the qualitative research methods, was chosen as a design and the data obtained by using the semi-structured interview technique were analyzed through descriptive analysis.

Purpose of the Research

As aforementioned, this study uses the term “educational technology” as the the top concept including all the other definitions especially the ones which consider educational technology as “media”. The general purpose of this study is to determine the opinions and evaluations of speech and language therapists working with special needs (SEN) kids in Istanbul on using technology in education. In this sense, this study first aims to get a general idea of how speech-language pathologists carry out their sessions and presents a related question. Then moving from a broader context to detail, the study aims to investigate speech-language pathologists’ views on educational technology in special education. In line with the purpose, this study will be carried out within the scope of the questions given below.

- a) What are the opinions of speech and language therapists about using different methods and techniques together during the sessions?
- b) What are the opinions of speech and language therapists on using technology in special education?
- c) What are speech-language pathologists’ expectations regarding using technology in their sessions when working with SEN kids?

Importance of the Research

With the right arrangements made according to the individual differences of SEN kids, more positive results may be gained in terms of their development in the way to leading an independent life. Yet, the daily lives of these kids may also be facilitated by integrating technology in their education programs. Therefore, the correct use of technology and access to resources play an important role in the education of children with special needs. In this context, exploring the opinions of speech and language therapists on the use of technology in the education of SEN kids plays a critical role in making necessary adaptations regarding how technology is used and the competence of the people who use it.

By exploring the level of technology use of speech and language therapists working in special education, in which areas these kids need support, and what problems they experience, more in-depth information about what they actually think about the use of technology in the education of SEN kids can be obtained with valuable perspective. Thus, this research is considered to be important since it may also lead to the use of correct, effective and efficient use of technology.

METHOD

In this section, the research model, universe and sample, the research group, data collection, data collection tools and development processes, the materials used in the research and the application process and data analysis techniques are explained.

The Model of the Research

In this study, phenomenology research design, which is one of the qualitative research methods, was used. Phenomenology is reducing personal experiences to facts in order to describe the nature of universal reality, events or entities (Creswell and Clark 2007). In the study, in which semi-structured interview questions were used, it was aimed to describe the views of speech and language therapists on the use of technology in special education. Qualitative research is the study in which qualitative processes are followed to reveal perceptions and events in a realistic and holistic way in the natural environment. Qualitative research has an understanding based on theory and gives priority to examining social phenomena in their environment. (Yıldırım and Şimşek, 2013).

Descriptive Analysis

According to DeMarris (2004), the interview is defined as the process of speaking together, focusing on the questions prepared about the research area, in which the interviewer and the participant take part together. The most frequently preferred type of interview in descriptive research is one-on-one interviews, where one person receives information from another person (Merriam, 2013).

The purpose of descriptive analysis is to organize the data obtained as a result of interview and observation and to present the findings to the reader by interpreting them. Before the results are written, the data obtained are classified and interpreted according to predetermined themes. A cause-effect relationship is established between the findings and comparisons are made (Yıldırım & Şimşek, 2013).

Reliability and Validity of Descriptive Analysis

Ensuring validity and reliability in qualitative research methods is one of the most important elements. In order to ensure the validity of the findings reached during the research process, direct quotations were made from the answers given by the volunteers participating in the study to the interview questions while the findings were being interpreted. In qualitative studies in which descriptive analysis is used, quoting directly from the answers given by the interviewees and explaining the results based on these quotations significantly strengthens the validity (Yıldırım & Şimşek, 2013). It is expected to provide two types of validity, internal and external. In this study, different people and different opinions were investigated to ensure internal validity. The generalizability of the results obtained for external validity to similar groups or environments was emphasized.

For the internal reliability of our study, the recordings made in the pilot interview were evaluated by two different experts. Yıldırım and Şimşek (2013) stated that providing external reliability can be achieved by clearly defining the interviewed participants, explaining the data collection and analysis processes in detail within the research.

Data Collection Tools

In this study, interview questions prepared with semi-structured interview technique were used to collect data. Interview is a technique frequently used in qualitative research. An interview can be defined as a purposeful conversation between two or more people to obtain information from the person or people participating in the interview with the guidance of one person (Bogdan, & Biklen, 2007, p. 103). Semi-structured interview questions are more general and allow the interviewer to ask more questions if necessary (Bryman, 2008). In this study, in-depth interviews were conducted with the participants using semi-structured interview forms. After the questions were created by the researcher, they were checked several times and made ready for the pilot interview after receiving the opinions of 2 experts working in the field of special education and/or speech and language therapists and having at least a master's degree.

In order to test the questions determined to be used in the research, a pilot interview was conducted with a speech and language therapist, and the questions were finalized. The therapist with whom the pilot interview was conducted was excluded from the research. Below is the final form of the interview questions:

Interview Questions

1. Do you use different methods and techniques together in your sessions? What kind of approach are you using? Why?
2. As a speech and language therapist, what are your views on using technology in special education? How would you elaborate on this?
3. Do you think that speech and language therapists need support in using technology when working with SEN kids? How would you elaborate on this?

Universe and Sample/Study Group/Participants

Criterion sampling, which is one of the purposive sampling types, was used to determine the participants. Criterion sampling is the determination of individuals who meet various criteria determined before the research starts (Yıldırım & Şimşek, 2013, p. 140). Since there are many audiologists working as speech and language therapists, it was taken as a criterion for the speech and language therapists to have experience of working with SEN kids and to meet the legal criteria required to work as speech and language therapists. The sample of the study consists of 10 speech and language therapists working with SEN kids in Istanbul and who are experts in their fields. Speech and language therapists participating in the study and working in different institutions signed the voluntary consent form before the interview.

In the study, pseudonyms such as P1, P2, P3 (shortened form of 'participant') were given to the participants in accordance with the order of the interview. Their professional seniority ranged from 3 to 21 years. 3 of the speech and language therapists, whose age range is between 25 and 55, received graduate education and 7 received undergraduate education. While 6 of the speech and language therapists work in a private education institution, 4 of them work in their own institutions.

Data Collection

The data regarding the research were collected by interviewing the participants between 27.02.2021 and 08.03.2021. Before the interview, the language and speech therapists to be

interviewed and the managers of the institutions they work with were informed about the purpose and content of the study in accordance with the research ethics and their consent was obtained. All face-to-face interviews were conducted at the speech and language services of the institutions they work in, on the days and hours determined by the speech and language therapists. Due to the pandemic, the interviews were obtained not only face-to-face, but also online interviews using Zoom and Google Meeting programs. The number of face-to-face interviews is 6, and the number of remote interviews is 4.

Analysis of Data

In descriptive analysis, the aim is to clearly explain the views of the individuals interviewed with direct quotations. Thus, through descriptive analysis, it is tried to reveal the facts that may be hidden in the data. There are 4 stages to be followed for this purpose; creating a framework for descriptive analysis, processing data according to the thematic framework, defining and interpreting the findings (Yıldırım & Şimşek, 2013). Thus, the data obtained are first described clearly, after being described, they are explained, interpreted and results are found within the scope of cause-effect relationships. Interpretations also include associating themes, making sense of them and making predictions for the future. In descriptive analysis, "... data is summarized and interpreted according to predetermined themes." (Yıldırım and Şimşek, 2013, p. 256). In this study, within the scope of descriptive analysis, the questions in the data collection tool were considered as themes and examined accordingly.

Processing of Data According to the Thematic Framework

After checking the written transcript of all interviews, codes for the themes were obtained according to the answers given by the therapists to the interview questions. These codes are listed under the related questions. Then, the reliability of the interview coding key was determined. For this purpose, copies of the notes taken during the interviews and the coding key were given to two experts with a doctorate degree from speech and language therapy and special education and also had experience in qualitative research methods. The interview notes and coding keys were evaluated by the experts and the interview coding key was filled. This evaluation was made by marking the options found in accordance with the opinions of the interviewed therapists in the interview coding key section by the experts. When the results obtained as a result of these markings are compared, the same marked options are defined as "Agreement" and different options as "Disagreement". Reliability was calculated by dividing the codings with consensus in the reliability calculation of the answers given to the research by the sum of all codings and multiplying by one hundred. In Table 1, the reliability percentages of the questions in the interview coding key are given.

Table 1 Reliability Percentage of the Questions in the Interview Coding Key

Questions	Reliability Percentage
Question 1	%72
Question 2	%79
Question 3	%82
Average	%77,66

In the reliability study of the interview coding key, the lowest reliability was calculated as 72% in the 1st question and the highest was 82% in the 3rd question. The average reliability of all questions was calculated as 77.66%.

FINDINGS AND COMMENTS

In this study, it was stated that within the scope of descriptive analysis, the questions in the data collection tool were considered as themes and examined. In this context, the titles that make up the findings of the research are as follow:

- Different methods and techniques used together in the sessions
- Areas to be considered when working with SEN kids
- Support expectations of speech and language therapists for using technology in their work with SEN kids

Before presenting the findings of these titles, the frequencies found were calculated. According to these findings, examples of codes with high frequency are given under the relevant headings. However, although the frequency of the calculations is low, some codes are included in the categories under some themes, considering that they can enrich the findings of the research.

Different Methods and Techniques Used Together in the Sessions

To determine whether speech and language therapists use different methods and techniques together in their sessions, they are asked “Do you use different methods and techniques together in your sessions? What kind of approach are you using? Why?” The codes and frequency distributions of the answers given to this question by the speech and language therapists interviewed are shown in Table 2.

Table 2 Different Methods and Techniques Used Together in the Sessions

Different Methods and Techniques	f
I use	9
I do not use	1
Total	10

As can be seen in Table 2, 9 therapists reported that they used different methods together in their sessions, while 1 therapist expressed a different opinion on this issue (P8). The opinions of therapists with the pseudonyms P1, P5, P8 and P9 are given below.

P1: As I said before, I can use different methods and techniques together. I see the benefit of this. Every child is different. When we cannot change the child, we change the method. But this does not happen with very sharp turns. I mean we can't jump one from to the other, we can't say “Let's move on to the next one.” After understanding the problem, methods and techniques that can be applied during the planning phase are determined. In fact, the mixed method is like 2 methods used together. The techniques used for that method are different anyway.

P5: I use different methods together in my sessions. In particular, I use different techniques together. Children are different, their distress is different. Why shouldn't

the method be different? There are already a number of commonly used methods for normally developing children. I said while giving my personal information. I have a master's degree in special education. The methods and techniques used in education are different from the ones we use in therapy. In some of my sessions, I also use those methods.

P8: At first yes, but now, no, because what you call a method is already determined by the institutions. I do not choose any other method. It can be used, but I don't use it to be consistent. Some methods are called mixed methods. Actually the name of the method is mixed method, so by using it we are already using different methods together. However to avoid confusions we should not use different methods together.

P9: Since I am new to the institution, I follow in the footsteps of my experienced colleagues. During the phase of getting to know children, I get support from them and try to choose the most appropriate method for them. In these selections, I can sometimes use different techniques together. Actually, there are different techniques in a method. When we use the techniques of different methods together, we also use different methods. As an institution, we are open to innovations.

In Table 2, it is seen that speech and language therapists used different methods and techniques together and adopted them.

Opinions of Speech and Language Therapists on Using Technology in Special Education

In order to determine the opinions of speech and language therapists on the use of technology in special education, they are sked "As a speech and language therapist, what are your views on using technology in special education? How would you elaborate on this?" The codes and frequency distributions obtained from the answers given to this question by the speech and language therapists are shown in Table 3.

Table 3 Opinions of Speech and Language Therapists on Using Technology in Special Education

Opinions of Speech and Language Therapists on Using Technology in Special Education	f
Beneficial	10
Distance Learning	10
Information sharing	10
Always available	8
Ease of Use	8
Ease of feedback	8
Repetition	7
Progress record	7
Sound development	6
Difficulty	6
May be harmful if misused	1
Total	81

As seen in Table 3, all therapists stated that using technology is beneficial, they use it for distance education and it helps to share information. 8 therapists stated that it can always be used. They also mentioned that it is easy to use and provides feedback. 7 therapists stated that it is useful for repetition and it is easy to keep a progress record. 6 therapists reported that they support voice development and that it is a necessity. And 1 therapist reported that misuse can be harmful. The opinions of the therapists with the pseudonyms P3 and P9 are given below.

P3: It is the therapists who do the main job, but the use of technology as in every field, is of great benefit to us, for special educational needs students. First of all, the ease of use and the fact that it can be used anywhere, increases the importance of technology. We have become very comfortable with messaging, which is a method we use very often for information sharing. In this way, we can give feedback more easily. There are tablet apps similar to many of the work we do here. Thus, homework and review work become more fun for children. A child, who has fun, learns faster. And of course, it provides great opportunities for keeping track of progress.

P9: I believe that technology is beneficial for all children. While working, it benefits us during the session as well as after the session. It is especially effective in repetitions. Most of the children come to us for only 1 session per week. This is absolutely insufficient. At this point, technological devices help us. It is very useful for children with touch and eye contact problems. The child who does not look into my eyes can look at my eyes on the screen of the tablet

As can be seen from Table 3, all therapists participating in the study think positive about the use of technologies in the field of special education and use them regularly. One of the points that attracted attention during the interviews was that the therapists mostly used technology for distance education and information sharing. Although all therapists stated that using technology was beneficial, 1 therapist stated that misuse could be harmful, but did not explain what this misuse was.

Support Expectations of Speech and Language Therapists in Using Technology When Working with SEN kids

In order to determine the support expectations of language and speech therapists in the use of technology in their work with SEN kids, they are asked “Do you think that speech and language therapists need support in using technology when working with SEN kids? How would you elaborate on this?” The codes and frequency distributions obtained from the answers given to this question by the speech and language therapists interviewed are shown in Table 4.

Table 4 Support Expectations in Using Technology in for SEN kids

Support Expectations in Using Technology When Working with SEN kids	f
Free internet for students with reports	8
Tax support	8
Tax deduction in technology for students with reports	7
Must have practical training	6
Apps should be free for language therapists	5
Total	34

As seen in Table 4, 8 therapists stated that tax support should be provided for 8 therapy centers and free internet should be provided for students with the medical report. The opinions of the therapists with the pseudonyms P2 and P10 are given below.

P2: We are open to any kind of support. As far as I understand..This support can be of two types. It can be for therapists and educational institutions, and for SEN kids and their families. For example, the tax support could be applied to the institution and we can get higher wages. This help us to reach the technological tools and applications that we will use in trainings with more reasonable fees. There may also be state-sponsored practice trainings. In fact, special education apps sold in app stores can be offered to therapists free of charge.

P10: In order to use technological developments, we must first reach technology. Our income is limited. Investing in our own education is challenging us. However, I would like to have all kinds of technological equipment that can be used for children. I am not saying that it should be given free of charge, but we can provide discounted access. These discounts are not just for us. I think families of children with special needs should also be supported. After all, this can be easily detected. These kids get medical reports and these reports can give them tax breaks. Look, I bought a phone today and almost half of what I paid was tax. The same is true for tablets and computers. If there is a tax deduction for children with a medical report, they can benefit from this technology much cheaper.

The answers given by the therapists to the third research question can be grouped into 2 groups. The first of these groups is financial support for the therapists themselves. Particular attention is paid to tax reductions and educational support. In the second group, there is the expectation of support provided by the government for children. It has been included in the opinions of speech and language therapists that exempting children with medical records from tax can facilitate their access to technology.

DISCUSSION, CONCLUSION AND SUGGESTIONS

The opinions of speech and language therapists working in special education institutions and private speech and language therapy centers on the use of technology in the education of special educational needs kids were examined. In this section, the data obtained from the findings are discussed.

All but one of the therapists reported that they used different methods together in their sessions, but they did not give clear information about what these methods were. They expressed the differences in the learning types of children as the reason for using different methods and techniques. They also talked about the advantages of having the freedom to use different methods and techniques. In this context, pre-interviews and evaluations with the child and his family will be effective in determining the method or methods to be used, apart from the preliminary information from the CRC, in determining the differences. After the evaluation, it is necessary to decide on the appropriate therapy method for the child (ASHA, 2007).

When researches on educational technologies are examined, technologies used in education, including special education, are seen as assistive technologies. The definitions made for assistive technologies are generally defined as all kinds of tools and equipment prepared by taking into account individual characteristics in order to help individuals with special needs

acquire the target skills, acquire the skills necessary for their survival, and ensure that these gains are permanent (Borg, Lindstrom, & Larsson, 2009; Seal, Polgar, Shaw, and Jutai, 2011; Pettersson and Fahlstrom, 2010; Reed and Bowser, 2005). In addition, there are various studies in the literature that include the opinions and thoughts of special education teachers and speech and language therapists on the use of assistive technologies (Alammary, Al-Haiki, & Al-Muqahwi, 2017; Chmiliar, 2007; Copley & Ziviani, 2004; Derer, Polsgrove and Rieth 1996; Sydeski, 2013). As a result of the findings obtained from these studies, it has been determined that therapists working with students with special needs need information and training on assistive technologies, and they cannot benefit from assistive technologies sufficiently due to the high cost of assistive technology tools and equipment. Supporting this in our study, all therapists gave information that they use technology in the question asked to determine the opinions of speech and language therapists on the use of technology in special education. All therapists said that they use technology for distance education and information sharing. When the researches are examined, it has been determined that special education teachers have positive attitudes towards assistive technologies, just like speech and language therapists. Although all therapists stated that using technology was beneficial, 1 therapist stated that misuse could be harmful, but did not explain what this misuse was. However, the therapists participating in the study emphasized that these technologies are not economical. It is seen that the therapists perceive tool use as a technology in their answers to this question. Only 1 therapist made a definition on educational technology, but again focused on technology in general for most of his talk. However, it is seen that these views are generally perceived in a similar way in studies conducted in this field. Programs loaded into devices such as computers, phones, and tablets aim to help children produce words, phrases, and sentences (ASHA, 2007; Morgan et al., 2018).

When language and speech therapists were asked about their expectations of support in using technology in their work with SEN kids, the therapists gave different answers for themselves and the children. However, the common support expectation in their answers for both themselves and their children is in the direction of tax reduction or regulation. It was emphasized that with this tax regulation, the therapists could have technological devices and educational applications at much more affordable prices, and this would ultimately reflect on the students. Likewise, it was stated by therapists that exempting children with medical reports from tax would not only facilitate their access to technology, but also reduce the cost of education. In the research findings examining the opinions of special education teachers and speech and language therapists on the use of technology in the literature, it has been determined that the users need training on the use of assistive technologies and that they cannot benefit from these technologies sufficiently due to the high costs of the assistive technologies they need (Alammary, Al-Haiki, and Al-Muqahwi). , 2017; Chmiliar, 2007; Copley and Ziviani, 2004; Sydeski, 2013). These findings are in line with the information obtained from the research.

Suggestions

Some suggestions are made according to the findings and results obtained in the study.

Speech and language therapists and the institutions they work for should be encouraged to use different methods and techniques together during their education, and regular in-service training on these methods and techniques should be given.

Tax regulation can be provided for trainers and therapists working in the field of education, in public and private institutions. So they may have more economical access to technological equipment, educational software and internet access.

Tax regulation can be provided about educational technologies so that all individuals who need special education (with legal documents) can access technological hardware, educational software and internet.

Individuals in need of special education can be supported about educational technologies via CRCs.

Since the research was conducted during the Covid 19 epidemic, face-to-face interviews were conducted with a limited number of speech and language therapists due to certain restrictions, so when the epidemic conditions improve, it can be done face-to-face with more participants.

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