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The Impact of Educational Technology on the Emotional Development of Children with Autism Spectrum Disorder: Views of Special Education Teachers

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ABSTRACT

Objective: This study aimed to collect research data on the views of special educators regarding the use of technology in teaching emotions to children with Autism Spectrum Disorder (ASD), as well as its role in emotional development, communication skills, and social inclusion.

Methods: A quantitative research approach was adopted. Data were collected through questionnaires administered to a sample of 140 special educators. Demographic and professional characteristics of the participants were also examined as influencing factors.

Results: The findings revealed that special educators hold a positive attitude toward the use of technology in teaching emotions to children with ASD. The results indicate that technology supports the development and generalization of emotional understanding in these children. Moreover, educational technology was found to be particularly effective in enhancing general communication skills and promoting social inclusion. However, certain barriers were identified, including inadequate technological equipment and limited educator knowledge of technological tools, which hinder effective implementation.

Conclusion: The study concludes that educational technology is a valuable tool for supporting the emotional and communicative development of children with ASD and fostering their social inclusion. Despite educators' positive perceptions, addressing obstacles such as insufficient infrastructure and lack of training is essential to fully integrate technological tools into special education practices.

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Introduction

In recent years, the application of computers in the field of education of people with autism spectrum disorder has generated intense interest in both scientists and teachers as well and parents. Informatics can be a good tool to significantly help in the education and employment of people with autism spectrum disorder. People with autism spectrum disorder experience difficulties in social understanding, transaction, and emotional reciprocity. They also have communication difficulties, have a reduced, stereotypical, and repetitive range of activities and interests, as well as uneven development of cognitive functions. The characteristics of the diagnosis of this disorder are related to the cognitive and emotional functions of the person and the development of their behavior. A person with autism spectrum disorder does not respond easily to other people, while at the same time, he turns towards himself (hence the term "autism") (Tsiopela & Atsoglou, 2009). Children with autism spectrum disorder have difficulty understanding, perceiving, and expressing their emotions to those around them, unlike children of typical development (Misailides & Papoudi, 2009). According to research by Eliçin & Kaya (2015), people with autism spectrum disorder learn better when information is based on visual stimuli than on headphones. In addition, the computer with the audiovisual material it has, although it functions as a means of entertainment, also creates positive emotions in students with autism spectrum disorder.

New Technologies and, more specifically, Information and Communication Technologies (ICT) are now inextricably linked to a person's daily life, shaping a more modern reality. This reality has, of course, also affected the educational field, as the school context is a miniature of the society in which we live and reflects a large part of its developments. Therefore, the integration, integration, and utilization of Information and Communication Technologies (ICT) in the school environment is important a 127Nowadays, a school must cope with the modern requirements of education and training. Information and Communication Technologies (ICT) are gradually being introduced into education and have modified the way teaching-learning methods, but also the roles of teachers and students (Papageorgiou, 2016). According to Makris & Markou (2015), the Information and Communication Technologies (ICT) program in school units promotes a multisensory, pluralistic, and accessible educational environment for all. For pupils, especially those with special educational needs due to some form of disability, information technology and the wider supporting technological means can be considered important educational aids in the learning process.

Autism is considered a topic of intense research interest not only in the scientific discipline but also in society as a whole. The purpose of this research proposal is to examine the views of Special Education Teachers of Secondary Education on the use of technology in the teaching of emotions to children with Autism Spectrum Disorder. More specifically, the general views of teachers on the teaching of emotions will be studied. Technology, as well as its utilization for the teaching of students with Autism Spectrum Disorders. The data collected aims to search for new methods in the educational process. In short, the data that emerged from the conduct of the educational process aims to improve it. It is also important to emphasize that the choice of a topic is influenced by certain factors such as the increased interest of the public about a topic, its rapid dissemination, or even the personal interest of the researcher (Charitaki, 2015).

Also, drawing the conclusions can help secondary school teachers in order to approach a burning issue in the educational field, the introduction of new technologies in the classroom. At the same time, through the present research, new knowledge was added to the already existing knowledge in this research field. This fact has a dual role, since on the one hand, teachers can acquire more knowledge, therefore a more integrated view of the topic being researched, and on the other hand, it triggers new research (Charitaki et al, 2021, 2022). Teachers can benefit from this research, as the impact of technology on the school environment can change the traditional way of teaching. Thus, teachers will be able to exploit the possibilities that educational technology gives to the all-round development of children with Autism Spectrum Disorders.

Below are the individual research questions that will be answered through this research study:

1) What knowledge do Special Educators have, and what educational training do they have for the specialized use of technology in teaching the emotions of children with Autism Spectrum Disorder?
2) What are teachers' views on the effectiveness of educational technology in promoting the generalization of the ability to recognize emotions?
3) What are the teachers' views on the effectiveness of educational technology in developing the general communication skills of students with ASD?
4) What are the teachers' views on the effectiveness of educational technology in promoting the social inclusion of students with ASD?
5) Does the factor analysis (EFA) confirm the two-factor model in the case of the effectiveness of educational technology to support the emotional development of students with ASD?
6) Is there an influence of the demographic characteristics of Special Education Teachers on their views of the relative effectiveness of educational support technology on the emotional development of students with ASD?

Autistic Spectrum Disorder (ASD)

According to Leo Kanner and Hans Asperger, the term "autism" derives from the Greek word "autism" (Nikolaou, 2012). The term "Autism Spectrum Disorder" (ASD) describes a group of neurodevelopmental disorders with similar characteristics, disrupted social interaction, inadequate verbal and non-verbal communication, limited interests, and repetitive patterns of behavior (Galanis, 2017). Long-term research on autism has shown that it is a complex and heterogeneous disorder, which is more scientifically described with the concepts of "autistic spectrum" or "spectrum of autistic disorders" and includes all those cases of children with behaviors that fall under the three aforementioned developmental areas, regardless of their mental capacity (Mavropoulou, 2011).

The term Autism Spectrum Disorder is broader and replaces the term "Pervasive Developmental Disorders (ADHD)", which includes other related disorders, such as Autistic Disorder, Rett Syndrome, Childhood Disorganizing Disorder, Asperger's Syndrome, and Pervasive Developmental Disorder Not Otherwise Defined (Informal Autism) (Galanis, 2015). The term "diffuse" suggests that the disorder affects a person's development globally, the term "developmental" describes how the disorder occurs during the person's developmental course, and the term "disorder" expresses the concept of deviation from everything normal (Gena, 2002).

The newest version of the American Psychiatric Association's DSM-5 taxonomy (2013), which has been revised, eliminates Asperger's Syndrome and Pervasive Developmental Disorder Not Otherwise Specified, while also transferring Rett Syndrome and Childhood Disorder to other diagnostic categories. However, it divides Autism Spectrum Disorder into three subcategories depending on the degree of severity and the degree of support that each person needs (Galanis, 2015). It is described as a spectrum of autism disorders that differ depending on whether it comorbidizes with other disorders, the frequency of symptoms, and the age at which it begins (Humphrey & Symes, 2013). According to Genna (2002), due to the heterogeneity of autism, people diagnosed with this disorder may develop from milder to more severe forms.

Emotion Recognition - Theory of Mind

The Theory of Mind is the ability of a person to attribute mental states both to himself and to the people around him (beliefs, intentions, desires, and emotions) to perceive and predict behaviors, which supports that the problem occurs in the cognitive mechanism of mind-reading (Vogiatzi et al., 2021, 2022). More specifically, this theory claims that children with autism spectrum disorder cannot understand opinions, the feelings, desires, and ideas of other people, to distinguish them from one's own and to perceive the social institutions that determine social relationships, i.e., according to Baron Cohen (1995), people with autism present "mental blindness". These individuals seem to live in a world where mental states do not exist, and what other people think, believe, or want does not matter much to them. "Mental blindness" leads to deviations in children's development and consequently to the presence of particular behaviors. This developmental delay in social knowledge deprives children with autism of the ability to understand the behavior of others (Varthalami & Karagiannis, 2016).

The ability to recognize faces is essential for creating interpersonal relationships. Children of typical development, when born, can recognize their mother's face from their earliest days. However, some research that has been carried out on toddlers, adolescents, and adults with autism has shown that they present difficulties in the social field. In addition, it has been observed that people with autism spectrum disorder, when interacting with other people, concentrate more on the mouth area rather than the eyes, as people with typical development do. According to research data, this deficiency has mainly to do with the recognition of persons and not with verbal and non-verbal communication, object recognition, and the person's mnemonic abilities. Typically developing children understand around the age of 4 that all individuals have perceptions, desires, are in different mental states, and that these mental states determine their behavior. People with autism, not understanding how someone else feels, often become self-centered, indifferent, or eccentric. Babies of typical development in the first 2-4 months can distinguish their emotions, while at 7 months, they match emotional sounds with emotional images. At the age of 12 months, they show a "social reference", i.e., they react differently to a new toy according to the mother's facial expression (fear or laughter). Many studies have concluded that children with autism show emotional deficits even at the age of 5.

Interventions for training in the recognition of emotions should initially focus on the most distinct emotions along with facial expressions of "joy", "sadness", "surprise", and "anger" (Chatzipantazis, 2010; Koukoyi et al., 2024). Video snapshots can be used, in order for the child with autism to pay attention to his or her own and others' facial expressions and postures, as well as to the situations that created this emotional expression. When the child begins to pay attention to the aforementioned expressions, then he or she can proceed to learn the social and emotional meaning. However, the decisive understanding will come from recognizing real emotions within oneself and others (Luiselli, Russo, Christian, & Wilczynski, 2008).

Technology in Teaching Children with Autism Spectrum Disorder (ASD)

For some years now, research on innovative technologies for the education of people with special educational needs, such as people with Autism Spectrum Disorder, has shown increased interest and progress (Papazoglou, 2017). The integration of Information and Communication Technologies in Special Education aims to enhance independence, socialization, and equal opportunities for students with special educational needs, in order for them to integrate smoothly into society and to be productive and equal members. To make this possible, there must be properly designed educational environments that support individualized learning and enhance student participation. Modern assistive technologies also play an important role, providing help to students to overcome the difficulties they face in the motor, communication, emotional, and mental areas, and hinder their effective education. According to research, the use of ICT by people with Autism Spectrum Disorders seems to serve communication and educational purposes.

ICT has many benefits and advantages in teaching children with Autism Spectrum Disorders, as it provides limited and demarcated conditions, limited sensory stimuli, absolute predictability and control even in the event of error, personalization and improvement, possibilities for non-verbal or verbal expression, independence from the

context and syntropic interaction, i.e. the ability of the medium to invade the "tunnel of attention" of the individual (Tsiopela & Tzimogiannis, 2017). In addition, it is easy to use, offers repetition and consolidation of the material taught, a multimedia environment, and personalized teaching (Kourbetis, 2015). The use of ICT for the education and support of people with ASD has aroused interest among teachers and researchers in the potential of digital technologies to help these people due to the growing need for effective interventions and the finding that computers and software applications in general have a great influence on people with autism. In addition, the reduction in the cost of computers and digital technologies, thanks to which these people have more opportunities to practice at home, and the possibilities offered to parents to support and monitor their children's progress (Markodimitraki et al., 2022). Recent literature reviews show the encouraging results of ICT and ascertain its potential to contribute to mobilization, reduce problematic behaviors, and improve communication and social skills.

According to Ramdoss et al. (2012), as reported in Tsiopela & Tzimogianni (2017), interventions with ICT tools in children and adults with autism have improved their adaptive function, as well as language expression and understanding, communication and social skills, recognition of emotions, everyday skills, and those skills related to the workplace. The use of computers has a positive effect on the behavioral problems of children with ASD, such as avoidance of eye contact and echolalia, as well as an improvement in spontaneous communication and cognitive development. Also, as Economopoulos (2019) reports, the use of ICT reduces stereotypical behaviors, aggression, and hyperactivity of children with ASD. Teachers began to use animation-enriched multimedia applications, animated digital trainers, embedded videos, and emotionally expressive avatars in educational interventions for students with ASD. Research examined the potential of Virtual Reality applications in diagnosing ASD, changing problematic behaviors, recognizing emotions, communicating, collaborating, and restoring social skills (Tsiopela & Tzimogiannis, 2017). Interactive and virtual learning environments, games, educational platforms, and internet tools develop emotional and cognitive skills of children with ASD (Economopoulos, 2019). It is important to mention that the use of ICT to support these students is also included in their Curriculum (Georgaki, 2019).

One method, which exists because of ICT, is video modeling that provides the possibility of learning behaviors and generalizing them. It attracts attention, contributes to the learning of social skills, and helps to develop communication skills. The reduced interaction with the teacher and the preference for ICT have consequences for students with special needs. In particular, the student does not have the opportunity to communicate verbally and practice social skills, resulting in a decrease in communication skills, attention, and eye contact. This decrease can lead to regression and social isolation (Georgaki, 2019).

Factors influencing the application of ICT in the education of pupils with special educational needs

School infrastructures function as a prerequisite for the implementation of ICT, as they must ensure the necessary material resources, which are divided into two categories: the logistical infrastructure and the material means. The material means are the means of teaching and the logistical infrastructure concerns building infrastructure, furniture, machinery, the provision of classrooms and laboratories equipped with technological means and tools (Suárez-Rodríguez et al., 2018). According to research by Pelgrum (2001), the lack of logistical infrastructure is the most important obstacle to the integration of ICT in the learning process. Teachers have limited opportunities to integrate ICT into their teaching when there is insufficient technological equipment. Furthermore, the existence of technical support at school, cooperation between teachers, and support from the Ministry of Education or the University to keep them informed about new trends in education are also considered to be key factors. The teaching practices that already exist in the school context will be changed and replaced with newer ones.

According to Suárez-Rodríguez et al. (2018), knowledge, training, contact, and familiarity with the use of ICT by teachers play an important role in teaching practice. Teachers with little knowledge, who are not familiar with ICT and do not have relevant training, do not use ICT or use ICT very little. A study by Suárez-Rodríguez et al. (2018) shows that future teachers have a positive attitude towards the use of ICT in education. In addition, teachers who consider computers to be useful in the learning process make more use of them in their teaching. Many teachers with positive views on the inclusion of ICT in education, at the same time, are skeptical and aware of the problems in the use of ICT in the classroom, which underlines the importance not only of their attitudes but also of their self-efficacy to teach with ICT. This self-efficacy is related to both technical skills and pedagogical content knowledge about ICT, i.e., the ability to use ICT in education. Surveys that have been carried out and related to this issue have observed that teachers who have been trained in the use of ICT are insecure in situations of integration of the computer into the daily educational process. ICT user experience, chronological age, and gender are key factors related to ICT educational inclusion.

Mainly, chronological age is negatively associated with the application of ICT, because younger teachers have become familiar with technology. Regarding gender, studies have shown that female teachers tend to be stressed and less confident when using the computer, as well as making more limited use of it in teaching. Factors that seem to influence teachers' decision to include ICT in education are their perceptions of the effectiveness of this inclusion in the teaching work, the ability to avoid problems and control that they may have over them. On the contrary, a lot of work and the management of educational time can be considered as obstacles to the integration of ICT (Giavrimis, Papanis, Neofotistos & Balkanis, 2010). Equally important is the result of the research of Suárez-Rodríguez et al. (2018), which showed that teachers consider their incomplete training as an obstacle to the use of ICT in teaching practice and pointed out the need for continuous training and information on the use of ICT in education.

Teachers' views

According to Dexter, Anderson, & Becker (1999), Stetson & Bagwell (1999), Pelgrum (2001), as cited in Karipidis (2013), several teachers agree that computers are a key tool for education and want to develop relevant skills. Equally significant are attitudes toward inclusion of people with disabilities (Bania et al., 2019, 2020; Tasiopoulou, 2025; Yekinni & Ogbuanya, 2024). On the contrary, they are less positive about the widespread use of ICT in the classroom and even less confident about their potential to improve teaching. This is confirmed by other research, such as Giavrimi, Papanis, Neofotistou, and Balkanos (2010), the results of which also emphasize that teachers' reticence is related to their opinion that ICT reduces social contacts and marginalizes individuals. Based on the use of technologies in their lessons, teachers are divided into three groups: those who avoid them, those who incorporate them into their teaching, and those who are experts in their use. However, in schools, there is a type of teacher who avoids them. These teachers make little or no use of ICT, especially to practice some skills. Research shows that the majority of teachers understand the positive contribution of ICT to the learning process and try to integrate it into practice. Teachers who deal with students with special needs can integrate into teaching, through technological means and software, and create educational materials for use.

According to Brodin & Lindstrand (2003), as mentioned in Georgaki (2019), teachers are not willing to participate in training programs on the use of technologies. However, those who use them are already using them in their teaching. Their desire for success and development plays a key role. Teachers who do not use ICT in their teaching have stereotypes towards technology and prejudices regarding its application. Moreover, they do not know how to use them educationally, and this ignorance of theirs leads them to maintain their traditional methods. Time is a very important factor in school and causes particular stress to teachers. In the survey by Brodin & Lindstrand (2003) as reported in Georgaki (2019), half of the teachers who participated stated that they do not use ICT due to a lack of time. They recognize their effectiveness, but they don't have the time to find the right software and equipment. In addition, some time is required for children with disabilities to become familiar with all these changes.

This process requires the restructuring of the school curriculum for ICT entry into it. Therefore, one understands that this is a time-consuming process in which the teacher probably does not want to be involved.

Method

The research approach used is that of the survey. The survey produces quantitative information for a large population under study, and based on the sample, the characteristics of all members are described, and possible correlations between the characteristics are investigated. Research reviews are large-scale and measure variables and multiple indicators. According to the probabilistic process, a fairly large number of people are selected, who answer (Charitaki et al., 2025).

Sample Survey-Participants

For the conduct of this survey, the initial target was for the sample to include 200 specialist educators, which was not achieved due to limited availability. Thus, the sample consisted of 140 special educators of primary and secondary education, who work in Special Schools, Integration Department, or as Parallel Support. Most special educators deal with people with Autism Spectrum Disorder, and according to the analysis of the data, women special educators predominate. All were asked to express their views by replying to the questionnaires. The stages that were followed were, on the one hand, the communication with them, the booking of an appointment, and then the completion of the questionnaires in person by the participants in their personal space and time.

Research Tool-Questionnaire

For the implementation of this research and in line with the above, the Riala questionnaire (2019) was used on "The views of special educators on cultivating the emotions of children with autism through technology" (see Annex 3). More specifically, in the first part of the questionnaire, participants will have to answer 10 demographic questions such as gender, age, work experience, etc. In parts B and C, there are closed-ended questions, in which the subject's freedom is limited to a minimum as he is asked to answer graded 5-point Likert questions (1 = I strongly disagree, 5 = I strongly agree). For reverse-coded items, the scoring was formed from 5 = I strongly disagree to 1 = I strongly agree. More specifically, in Part B, the questions concern teachers and technology (14 questions), while in Part C, the 11 questions are related to technology and the teaching of children with Autism Spectrum Disorder.

The statistical analysis of the results was carried out with the help of the SPSS program software (Cohen et. al, 2008). The reliability of the tool was ensured through the high value α=856 of the alpha coefficient of Cronbach. At this point, it should be emphasized that the content of some statements of parts B and C of the questionnaire forced the inversion of the coding in them, i.e., 1=Strongly agree, 2=Agree, 3=I have no opinion, 4= Disagree, 5= Strongly disagree, so that the principles of reliability of measurements are satisfied. In particular, statements 2, 6, 8, and 14 of Part B underline the positivity of special educators towards the use of technology, while the other statements emphasize their reservations and reservations. In statements 3, 7, 8, and 11 of Part C, the use of verb forms and aggressive definitions highlights the negative effects that the use of technology has on the teaching of students with ASD, as opposed to the other statements of this group. For example, the number 5 (on the rating scale means "I strongly agree") in the 3rd part of the statement, after being reversed, means "I strongly disagree", and based on this, it is concluded that the learning outcomes of the use of technology are encouraging.

Thus, in all the statements of this group, the number 5 refers to the positive assessment of technology in the teaching of students with ASD. The reversal of the codification of the specific questions of Part B indicates that the number 5 indicates the reservations and concerns that special educators have towards technology. For example, sentences 2 and 3 of Part C (The use of technology in the classroom helps students with ASD to understand emotions, the learning outcomes of the use of technology in the teaching of emotions are disappointing, respectively) contradict each other, and therefore, the coding was reversed to have a similar effect.

In order to improve the model, which the scale represents, the exploratory factor analysis (EFA) was performed. It is the process of reducing and simultaneously grouping variables into a smaller number of factors than the original. This is how the analysis is made: those factors that influence the teachers' opinions are determined, and their correlation is checked (Charitaki et al., 2025).

Data analysis

This chapter presents the results of the questionnaires (140 in total) resulting from the descriptive statistical analysis of the data using the SPSS statistical program.

Results

Descriptive statistical results – demographic data

The analysis of the aggregated data of the questionnaires begins by mentioning the demographics that accompany this survey. These figures are then shown in a summary table (Table 1).

Of the 140 Special Educators who took part in this survey, the majority were women with a percentage of 87.1% (n=122), while 12.9% of the participants were men (n=18). As can be seen from the table below, 41.4% of the participants (n=58) are under 30 years old and constitute the largest age group. This is followed by Special Educators aged 30-40, who make up 37.1% (n=52). In addition, 15% belong to the age of 41-50 years (n=21), while the smallest percentage of the total number of participants are Special Educators, who are older than 51 years old, 6.4% (n=9). A percentage of 16.4% of the respondents of the sample (n=23) answered that they have 6-10 years of work experience, as well as a similar percentage of 15.7% (n=22) have 11-15 years. There is also a small percentage, 7.9% (n=11) of the sample who stated that they have more than 20 years of work experience. Subsequently, as far as the additional education of the participants is concerned, a representative number of 61.4% (n=86) hold a Master's Degree. On the contrary, 7.1% (n=10), 4.3% (n=6), and 2.1% (n=3) of the sample stated that they have a Bachelor's Degree from another Higher Education Institution or Technological Educational Institute, have attended PEK seminars, and have a Doctoral Degree, respectively. Finally, 25% of Special Educators answered that they have basic knowledge of computers.

As regards the educational unit, in which the Special Educators who participated in this survey teach, it was found that most of them worked in special schools, at a percentage of 48.6% (n=68), followed by those who worked as parallel support in schools with a percentage of 44.3% (n=62). Those who taught in integration classes amounted to a smaller percentage of 7.1% (n=10). Regarding the years of their work experience with children with Autism Spectrum Disorder (ASD), half and a little more of the respondents, to be precise, 62.1% (n=87) had less than 5 years. 16.4% (n=23) of the sample have 6-10 years of work experience, while there was also a smaller number of participants in the survey, 20 Special Educators (14.3% of the total) who stated that they are between 11 and 15 years old. However, it should be mentioned that the remaining 7.1% (n=10) have more than 16 years of work experience with these children. The next question concerned whether the participants had specialized knowledge in Autism Spectrum Disorder (ASD), and only 64.3% (n=90) gave a positive answer, in contrast to the remaining 36.7% of the sample (n=50) who answered negatively. Regarding the training of Special Educators in ICT, 32.9% (n=46) answered that they have not been trained in this subject. However, only 29.3% of the total sample (n=41) have quarterly/semi-annual training, while 19.3% have attended short-term seminars. A percentage equal to 18.6% has received annual specialization in ICT. Finally, out of a total of 140 participants, the vast majority are substitutes, with a percentage of 61.4% (n=86), the remaining 28 Special Educators are hourly paid (20% of the total), while 18.6% (n=26) are permanent.

Table 1. Aggregated demographics

Demographics	N	Relative Frequency (f%)
1. Gender:		
Male	18	12,9%
Female	12	87,1%
2. Age:		
<30	41	58%
30-40	37	52%
41-50	15	21%
>51	6	9%
3. Work experience (years):		
<5	50	70%
6-10	16	23%
11-15	15	22%
16-20	10	14%
>20	7	11%
4. Additional Training:		
Master's Degree	61	86%
Doctoral Degree	2	3%
Degree from another HEI or TEI (Foreign or Domestic)	7	10%
PEK Seminars	4	6%
Basic knowledge of computers	25	35%
5. Training Unit:		
Special school	48	68%
Integration Department	7	10%
Parallel Support	44	62%
6. Work experience with children with ASD (years):		
<5	62	87%
6-10	16	23%
11-15	14	20%
>16	7	10%
7. Specialized Knowledge in IFRS:		
Yes	64	90%
No	36	50%
8. Training in ICT:		
No	32	46%
Short Seminars	19	27%
Quarterly/ Semi-Annual Duration	29	41%
Annual Specialization	18	26%
9. Service Position:		
Permanent	18	26%
Deputy	61	86%
Hourly wage	20	28%

Research Question 1

The majority of special educators (59.3%) stated that they disagree on the question whether "it is difficult for the special educator to use technology when teaching students with ASD", with an average value of 2.24 (t. α = 0.959). Subsequently, 17.1% completely disagreed with this view. They take the same stance as regards "whether they are quickly informed about the new research data", as 35.7% answered I agree, which means I disagree, because the values of the scale in this question were reversed (m. 3.08, s.d=1.067). Also, 62.9% of special educators disagreed with the fact that "technology does not need to include investigative activities", with an average value of 2.06 (s.d. = 0.789), while a percentage of 19.3% disagreed completely. In addition, the largest percentage of participants, namely 55%, answered that they disagree with the "avoidance of the use of technology in the teaching of students with ASD due to the difficulties they encounter", with an average value of 2.17 (s.d. = 0.989), as well as a percentage of 22.9% answered that they completely disagree with this question.

Continuing, the majority of participants, 50.7%, tended to agree with the question whether "technology can be used in all subjects without exception", with an average value of 1.97 (s.d. = 0.974), as the values on this scale were reversed. Regarding whether "the lack of support disappoints the Special Educator who wants to use technology in teaching emotions to students with ASD", 58.6% of the participants agreed with this question, with an average value of 3.83 (s.d. = 0.905), while a small percentage of 8.6% disagreed. Furthermore, 54.3% of special educators seem to have a negative attitude regarding the "avoidance of the use of technology in the teaching of emotions because I do not have the necessary knowledge", with an average value of 2.34 (s.d.=0.994). However, 19.3% agreed on this question. With the average value tending towards 4, to be precise 3.76 (s.d.=0.951), 52.1% of respondents express positive views regarding the "incomplete coordination of educational work by the available sources of support, information and counseling". This view is also reinforced by the question whether "the access and participation of special educators to the relevant technological training is limited", as 55.7% agreed with an average value of 3.44 (s.d.=0.991), while 18.6% of respondents said they disagreed.

Research Question 2

With the average value tending to 2.34 (s.d.=0.870), 56.4% of respondents disagreed on the question "whether the use of technology in teaching emotions is time-consuming" and 17.1% said they had no opinion on this. Still, there is none of no participant who fully agrees with this view. In addition, 49.3% of the participants disagreed on whether "it is easy for the special educator to use technology in the teaching of emotions to students with ASD", with an average value of 2.66 (the values of the scale were reversed) (s.d.=0.935). On the question of whether they "fear that a lot of unforeseen events will arise when they use technology in the teaching of emotions", 55.7% disagreed, while 17.1% had no opinion, as the average value is 2.32 and the standard deviation is 0.908. However, a large percentage of 60% agreed on the question that "the use of technology functions as an auxiliary means of teaching emotions", with an average value of 4.06 (s.d.=0.779). It is understood that when asked whether "the specifications and usability of the classrooms are adequate", 55% of the sample agreed on this (m. 3.87, s.d.=1.038). Therefore, they appear to be insufficient after the inversion of the scale values.

However, based on the results of the survey, 51.4% of special educators seem to agree with the view that "the use of technology in the classroom meets the needs and interests of today's students with ASD", with an average value of 3.49 (s.d. = 1.056), while 17.9% disagreed with it. 70% of respondent's express positive opinions on whether "the use of technology in the classroom aims to generalize the ability of students with ASD to understand emotions", with an average value of 3.83 (s.d.=0.667). However, none of the respondents responded that they completely disagreed with this statement, but 15% of the sample responded that they had no opinion. Finally, regarding the statement whether "technology makes it difficult for students with ASD to understand emotions", 57.1% of special educators answered that they disagree (m=3.91, s.d. = 0.864), given that the values of this scale were reversed.

Research Question 3

The views of the special educators on the question whether "the use of technology in the teaching of emotions can enhance the communication skills of students with ASD" were very positive, as 70% of the participants agreed, with the average value being 3.98 (s.d.=0.694), while 10% had no opinion regarding this statement.

Research Question 4

According to the statement, if "the use of technology in the teaching of emotions helps in the social integration of students with IFD", 68.6% of respondents tend to have positive opinions and agree, and 10.7% to agree completely, with the average value being 3.80 (s.d.=0.788).

Internal Consistency Reliability Analysis with Cronbach's alpha Index

Regarding the reliability of the survey, it ascertains the degree to which the results of the measurements represent the quantity of measurement more correctly, characterizes the coherence of the questions, and the correlation they have. The validity of a survey (Validity) refers to the degree of adaptation of the measured concept (Charitaki et al., 2025). However, it should be mentioned that the Reliability check does not measure validity, but only reliability. When a measurement tool satisfies the criterion of validity, then it automatically satisfies the criterion of reliability. On the contrary, the criterion of reliability does not satisfy the criterion of validity (Nova-Kaltsounis, 2006).

To measure the reliability of the suggestions of each scale of the questionnaire, the Cronbach's Alpha index (a) is used, which estimates the reliability of the internal consistency of a scale. Therefore, it calculates the internal coherence of the responses to grading scale questions (Riala, 2019). For a value of Cronbach's Alpha to be acceptable, it must be>0.7. The higher the value of the Cronbach's Alpha coefficient, the more reliable the internal coherence index is considered (Ouzouni & Nakakis, 2011). However, the internal consistency index, which has a value of a>0.6, is contractually satisfactory (Riala, 2019).

In the present survey for the verification of the reliability of the statements of parts B and C of the questionnaire, the internal consistency index Cronbach's Alpha (a) was evaluated separately. The Cronbach's Alpha Reliability Index (a). for the dimension "Technology and Teachers" it was evaluated as equal to 0.614 and is considered acceptable, while for the dimension "Technology and Teaching of students with IFD" it was evaluated with 0.765 and is considered very good, as can be seen from the tables below (Table 2 and 3 respectively). In both cases, the scale demonstrated reliable results.

Table 2. Descriptive measures and Cronbach's Alpha Reliability Index for the Technology and Educators dimension (Part B of the Questionnaire).

"Technology and Educators"	I totally disagree	Disagree	I don't have an opinion	I agree	Agree	Skweness	Kurtosis	Average Price (m)	Standard Deviation (s.d)	Cronbach Alpha Coefficient (a)
										0.641
Q. B1	17.1%	59.3%	7.1%	15.0%	1.4%	.935	.284	2.24	0.959	0.596
Q. B2	5.7%	29.3%	22.9%	35.7%	6.4%	-.122	-.956	3.08	1.067	0.646
Q. B3	19.3%	62.9%	10.7%	6.4%	0.7%	1.047	1.730	2.06	0.789	0.631
Q. B4	22.9%	55.0%	5.0%	16.4%	0.7%	.871	-.042	2.17	0.989	0.594
Q. B5	12.1%	56.4%	17.1%	14.3%		.618	-.271	2.34	0.870	0.629
Q. B6	32.9%	50.7%	5.0%	9.3%	2.1%	1.242	1.284	1.97	0.974	0.646
Q. B7	2.1%	8.6%	12.1%	58.6%	18.6%	-1.070	1.223	3.83	0.905	0.634
Q. B8	5.0%	49.3%	22.9%	20.7%	2.1%	.524	-.602	2.66	0.935	0.593
Q. B9	16.4%	54.3%	9.3%	19.3%	0.7%	.666	-.490	2.34	0.994	0.604
Q. B10	13.6%	55.7%	17.1%	12.1%	1.4%	.780	.273	2.32	0.908	0.598
Q. B11	0.7%	5.0%	7.9%	60.0%	26.4%	-1.131	2.183	4.06	0.779	0.673
Q. B12	1.4%	12.1%	15.0%	52.1%	19.3%	-.767	.140	3.76	0.951	0.621
Q. B13	3.6%	18.6%	15.0%	55.7%	7.1%	-.761	-.280	3.44	0.991	0.606
Q. B14	5.0%	7.9%	7.1%	55.0%	25.0%	-1.267	1.296	3.87	1.038	0.640

Table 2. Descriptive measures and Cronbach's Alpha Reliability Index for the Technology and Teaching Students with IFD (Part C of the Questionnaire).

"Technology and Teaching of Students with ASD"	I totally disagree	Disagree	I don't have an opinion	I agree	Agree	Skweness	Kurtosis	Average Price (m)	Standard Deviation (s.d)	Cronbach Alpha Coefficient (a)
										0.765
Q. C1	4.3%	17.9%	14.3%	51.4%	12.1%	-.688	-.350	3.49	1.056	0.772
Q. C2	1.4%	2.1%	12.1%	72.1%	12.1%	-1.477	4.988	3.91	0.673	0.732
Q. C3	0.7%	5.7%	26.4%	54.3%	12.9%	-.564	.586	3.73	0.785	0.732
Q. C4		5.7%	15.0%	70.0%	9.3%	-.970	1.629	3.83	0.667	0.744
Q. C5	2.1%	5.7%	12.9%	68.6%	10.7%	-1.415	2.903	3.80	0.788	0.755
Q. C6		0.7%	2.9%	51.4%	45.0%	-.609	.684	4.41	0.586	0.753
Q. C7	0.7%	3.6%	3.6%	58.6%	33.6%	-1.342	3.484	4.21	0.735	0.748
Q. C8	2.1%	5.0%	14.3%	57.1%	21.4%	-1.108	1.828	3.91	0.864	0.751
Q. C9	1.4%	1.4%	8.6%	70.7%	17.9%	-1.462	5.584	4.02	0.694	0.735
Q. C10	1.4%	2.1%	10.0%	70.0%	16.4%	-1.413	4.750	3.98	0.694	0.740
Q. C11	2.9%	12.9%	16.4%	59.3%	8.6%	-.961	.499	3.58	0.922	0.757

EFA (Explanatory Factor Analysis)

Exploratory Factor Analysis (EFA), as a process, involves minimizing and simultaneously grouping existing variables into a statistically identifiable number of factors that are purely smaller than the original (Beavers, Lounsbury, Richards, & Huck, 2013).

The Keiser–Meyer–Olkin indicator is used, which evaluates the sample with an acceptable value of CMO>0.6 and values between 0 and 1 ($0 \leq KO \leq 1$). The values of the CMO are quite good, which are large, around 0.8; otherwise it cannot give satisfactory results.

In factor analysis, there must be at least three variables per factor. In addition, Bartlett's test of sphericity checks the homogeneity of the sample, checks whether the correlations have a significant difference from zero. It is essential to reject the hypothesis of sphericity (p-value of the Bartlett test of sphericity<0.05). If the statistical significance (Sig.) of the index is less than 0.05, the hypothesis of the absence of significant correlations at the level of significance of 5% is rejected. By being statistically significant, in combination with the NGO index and the determinant of the correlation table, sufficient relevance and therefore the appropriateness of the sample data is inferred (Table 4).

In the present case, it is found that the statistical criterion Kaiser-Meyer-Olkin is quite good (0.738) and therefore the correlations between the survey data are quite good. The Bartlett's sphericity test rejects the null assumption that the correlation table is unitary (959.610, df=300, p-value=0.000, therefore $p<0.05$) and that there are no significant correlations. All these elements confirm the suitability of the data for EFA (Exploratory Factor Analysis) factor analysis.

Table 4. KMO and Bartlett's Test

KMO and Bartlett'sTest		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.738
Bartlett'sTest of Sphericity	Approx. Chi-Square	959.610
	df	300
	Sig.	.000

Table 5 Communalities contains the values that express the fluctuations of the factors and give data on the percentage of variation of each variable, which is interpreted by the factors that have been extracted. When relevance values lower than ±0.3 or ±0.8 are encountered, then the queries are either unrelated or overlapping (Field, 2009). Values greater than 0.4 are considered satisfactory.
In this particular case, there are smaller values, but they are not removed as they agree with the scale structure and do not affect the continuity of the analysis.

Table 5. Communalities

Communalities		
	Initial	**Extraction**
Q. B1	.407	.436
Q. B2	.172	.161
Q. B3	.384	.538
Q. B4	.379	.411
Q. B5	.361	.325
Q. B6	.257	.348
Q. B7	.218	.251
Q. B8	.373	.388
Q. B9	.475	.448
Q. B10	.448	.447
Q. B11	.451	.529
Q. B12	.447	.592
Q. B13	.438	.532
Q. B14	.311	.574
Q. C1	.385	.659

Communalities		
	Initial	**Extraction**
Q. C2	.513	.608
Q. C3	.410	.377
Q. C4.	.356	.344
Q. C5	.384	.329
Q. C6	.328	.315
Q. C7	.375	.672
Q. C8	.417	.554
Q. C9	.540	.637
Q. C10	.525	.585
Q. C11	.462	.530

The following graph (Scree Plot) does not confirm the two-factor model, which must be used for the sample of the survey. Thus, it is estimated that eight factors can be created.

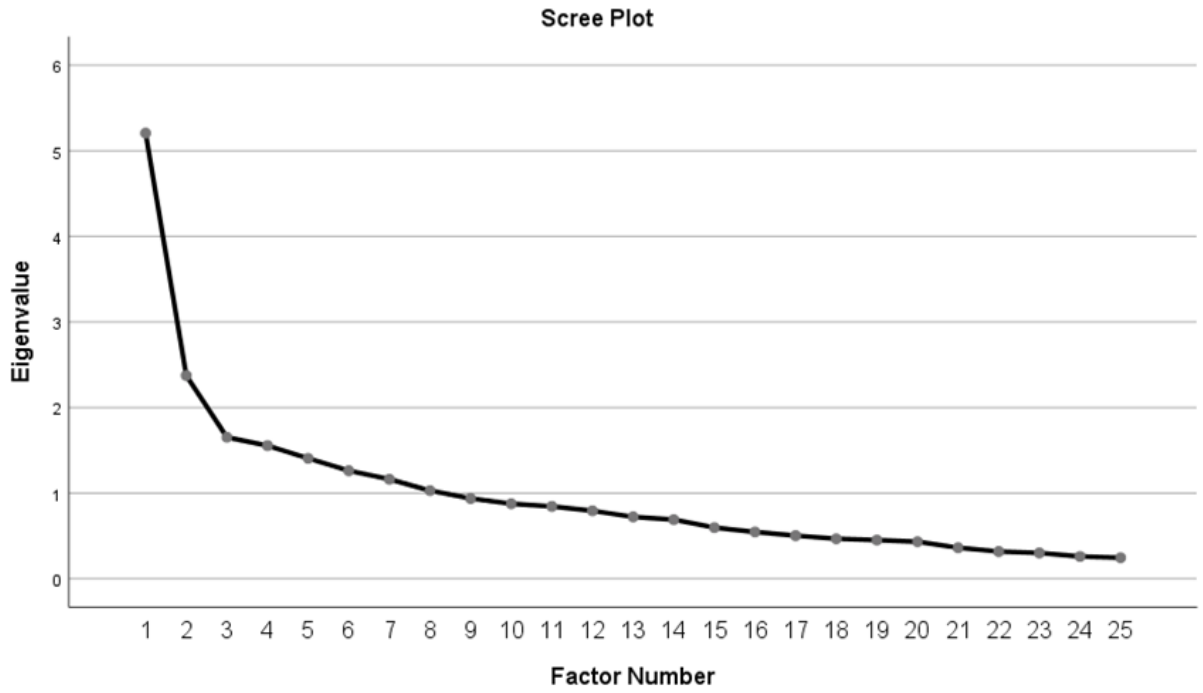

Figure 1. Number of factors

According to the above table and what has been mentioned above, it is concluded that eight factors are extracted. This is followed by the rotation of those that are necessary for their easier interpretation. Based on the theory, it is assumed that the resulting factors are independent of each other; for this reason, the Varimax rectangular rotation is chosen. The following table gives the rotation of the factors. The first factor expresses 20.824% (of the total variance) and includes the data corresponding to "Technology and Teaching of students with IFD", but also an item corresponding to "Technology and Teachers" (questions C9, C10, B11, C2, C6, C5, C3), then the second factor (30.322% of the total variance) summarizes six variables (questions B10, B6, B5, B9, C11, B8) related to "Technology and Teachers", but also an element that also corresponds to "Technology and Teaching of students with IFD". The third factor (36.932% of the total variance) incorporates three variables (questions B3, B1, B4), which correspond to "Technology and Teachers"; the next factor (43.153% of the total variance) includes three variables (questions B12, B13, B7) related to "Technology and Teachers". This is followed by the fifth factor, which expresses only 48.779% of the total variance and contains the data corresponding to "Technology and Teaching of students with IFD" (proposals C8, C4). Similarly, the sixth factor (53.828% of the total variance) is identified with a variable (question C1), which corresponds to the same scale. The seventh factor interprets 58.478% of the total variance and includes the data (sentences B14, B2) corresponding to "Technology and Teachers". Finally, the eighth factor incorporates a variable (Question B7).

According to the above table (Table 6), the first factor refers to "Technology and Teaching of students with IFD", but also to a variable from "Technology and Teachers" with loads ranging from 0.302 to 0.725. The second factor describes "Technology and Teachers" and a variable of "Technology and Teaching of students with ASD" with loads ranging from 0.354 to 0.572. The third and fourth factors contain sentences that explain "Technology and Teachers" and have loads ranging from 0.451 to 0.708. The fifth and sixth factors contain sentences that explain the "Technology and Teaching of students with IFD" and have loads with values ranging from 0.438 to 0.745. The seventh factor and the eighth, as the most important, refer to "Technology and Teachers" with the loads taking values from 0.382 to 0.747. All values are greater than the 0.4 set for social studies, so they are well distributed.

Correlations between demographic characteristics and subscales

It is essential to study the various variables concerning the demographic characteristics of the sample, thereby complementing the 6th research question of the survey. Note that the significance level is a=0.05.

To investigate the existence of differences in gender scales, the nonparametric Mann-Whitney U test was performed. According to the results which no statistically significant difference was found between the two sexes in terms of these scales.

In order to check the degree of correlation between the two scales, "Technology and Teachers" and "Technology and Teaching of students with ASD," and the age of the participants, a Spearman correlation analysis (rho) was performed. According to the results, there is no significant correlation between age and the "Technology and Teachers" scale, nor between age and the scale "Technology and Teaching of students with ASD". In contrast, the "Technology and Educators" scale correlates moderately and negatively (Rho = -0.349, strong correlation).

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Work Experience

To assess the degree of correlation between the two scales, "Technology and Teachers" and "Technology and Teaching of students with ASD," and the work experience of the participants, a Spearman correlation analysis (rho) was conducted. According to the results of this study, there is no significant correlation between work experience and the "Technology and Teachers" scale, nor between work experience and the scale "Technology and Teaching of students with ASD". In contrast, the "Technology and Teachers" scale correlates moderately and negatively (Rho=0.349, strong correlation).

Through the ANOVA analysis, the existence of differences between the additional education of the respondents, regarding the two scales, was investigated. In both cases, there was no statistically significant difference at the level of significance of 5%. Through the ANOVA analysis, the existence of differences between the educational units of the respondents, regarding the two scales, was investigated. In both cases, there was no statistically significant difference at the level of significance of 5%.

In order to test the degree of correlation between the two scales, "Technology and Teachers" and "Technology and Teaching of students with ASD," and the years of experience with ASD of the participants, a Spearman correlation analysis (rho) was performed. According to the results of this study, there is no significant correlation between the years of experience with ASD and the scale "Technology and Teachers", nor the years of experience with ASD and the scale "Technology and Teaching of students with ASD".

Regarding the relationship between the two scales, "Technology and Teaching of students with ASD" and Specialized knowledge of ASD, it is observed that there is no difference between teachers with specialized knowledge and those without. As for the scale "Technology and Teachers", there is a statistically significant difference in the scale "Technology and Teaching of students with IFD" (p.Value=0.027). As can be seen from the boxplot, teachers with specialized knowledge rate higher on the scale "Technology and Teaching of students with ASD" compared to teachers with specialized knowledge.

With regard to the two scales and ICT training, significant differences were observed regarding the scale "Technology and Teachers" (F=3.054, p.Value= 0.031). The Post Hoc analysis showed that the rating on this scale differs between those who answered None and those who answered Quarterly/Semi-Annually, as well as Annual Duration. Those who have no training rate this scale higher. A significant difference is observed in the scale "Technology and Teaching of students with IFD" with F=3.392, p. Value= 0.020, as shown by the following Mean spot. The evaluations of the scale "Technology and Teachers" (F=0.074, P-Value= 0.929) and the scale "Technology and Teaching of students with IFD" (F=0.146, p. Value= 0.864) do not differ in terms of the service position taught by the participants.

Table 6. Distribution of questions to factors-rotation of factors

Rotated Factor Matrix								
	Factor							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Q. C9	.725							
Q. C10	.670							
Q. B11	.669							
Q. C2	.486							
Q. C6	.397							
Q. C5	.378							
Q. C3	.302							
Q. B10		.572						
Q. B6		.464						
Q. B5		.463						
Q. B9		.425						
Q. C11		-.424						
Q. B8		.354						
Q. B3			.685					
Q. B1			.547					
Q. B4			.491					
Q. B12				.708				
Q. B13				.638				
Q. B7				.451				
Q. C8					.661			
Q. C4					.438			
Q. C1						.745		
Q. B14							.708	
Q. B2							.382	
Q. B7								.747

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Discussion

1) What knowledge do Special Educators have, and what educational training do they have for the specialized use of technology in teaching the emotions of children with Autism Spectrum Disorder?

Special educators seem to agree with the use of technology in teaching the emotions of children with Autism Spectrum Disorder, as they find it relatively easy to use technology to teach these children. However, several have shown that they are not quickly informed about the new research data", as well as the reason they do not use technology is not based on the difficulties they encounter in their daily practice, but on other reasons. They argue that technology needs to include exploratory activities, as well as can be used in all courses without exception. The expert educators cited as important factors for the specialized use of technology in the teaching of the emotions of children with Autism Spectrum Disorder, the absence of support, and the incomplete coordination of the educational work from the available sources of support, information, and counseling. In addition, with regard to their educational training, their access to and participation in the relevant technological training seems to be limited. The reasons mentioned above make them feel frustrated and hinder them in their practical application.

These findings are also consistent with the research of Pelgrum (2001) as reported in Riga (2017), according to which the lack of logistical infrastructure is the most important barrier to the integration of ICT in the learning process. Teachers have limited possibilities to integrate ICT into their teaching when there is a lack of technological equipment. Furthermore, in the same survey, it is mentioned that the existence of technical support at school and the support from the Ministry of Education or the University, to be informed about new trends in education, by changing existing teaching practices and replacing them with newer ones, are considered important factors.

Also, according to Barakos, as mentioned in Riga (2017), knowledge, training, contact, and familiarity with the use of ICT by teachers play an important role in teaching practice. Teachers who have little knowledge, lack relevant training, and are not so familiar with ICT tend to use ICT little or little use of ICT. In a study by Cózar-Gutiérrez and Sáez-López (2016), as cited in Riga (2017), it is observed that future teachers have a positive attitude towards the use of ICT in education. However, many teachers who are positive about the inclusion of ICT in education, at the same time state that they are skeptical, because they are aware of the difficulties they were going to face with the use of ICT in the classroom. This is important because it highlights their attitudes and their self-efficacy in teaching with ICT. This self-efficacy is related to both technical skills and the ability to use ICT in education.

2) What are teachers' views on the effectiveness of educational technology in promoting the generalization of the ability to recognize emotions?

The results of this research show that special educators agree that the use of technology functions as an auxiliary means of teaching emotions and that technological means respond to the needs and interests of today's students with ASD. This is in line with the research of Tsiopelas & Tzimogiannis (2017), who argue that ICT provides limited and demarcated conditions, limited sensory stimuli, and absolute predictability for people with Autism Spectrum Disorders. In addition, the research of Kourbetis (2015) confirms the fact that the use of technology can respond to all students when personalized instruction is offered. The participants agreed that technology does not make it difficult to understand emotions, as they also argued that students with ASD can generalize the ability to understand emotions. These views come to confirm the words of Ramdoss et al. (2012), as reported in Tsiopela & Tzimogianni (2017), that interventions with ICT tools in children and adults with autism have improved their adaptive function, as well as social skills and recognition of emotions.

However, the specifications and usability of classrooms are inadequate nowadays, and this is in line with the research of Riga (2017), which argues that a basic prerequisite for the application of ICT in the school context is the provision of the necessary material teaching aids. Furthermore, it seems that special educators are not afraid of the unforeseen events that may arise when they use technology in the teaching of emotions. Contrasts with the research by Yavrimis, Papanis, Neofotistou, and Balkanos (2010), in which teachers are skeptical about the use of ICT, as they consider it to reduce social contact. They also argued that the use of technology in teaching emotions is not a time-consuming process, a view that contradicts the research of Brodin & Lindstrand (2003) as reported in Georgaki (2019), in which half of the teachers who participated stated that they do not use ICT due to a lack of time. They know their effectiveness, but they don't have time to find the right software and equipment. Also, the familiarity with all these changes by children with special needs is emphasized.

Furthermore, in the research of Yavrimis, Papanis, Neofotistos & Balkanis (2010), the workload and the management of educational time are noted as an important factor that hinders the integration of ICT. Finally, in the present research, special educators seem to consider that the use of technology is relatively difficult, this is probably in line with the results of the research of Georgaki (2019), who argued that teachers who do not use ICT in their teaching have stereotypes regarding its application and do not know how to use it educationally. As a result, they resort to the traditional way of teaching.

3) What are the teachers' views on the effectiveness of educational technology in the development of the general communication skills of students with ASD?

In the present study, special educators had very positive views and agreed that educational technology is particularly effective in developing the general communication skills of students with ASD. These results coincide quite well with the data of the research of Tsiopelas & Tzimogiannis (2017), who argued that the use of ICT by people with Autism Spectrum Disorders seems to serve communication purposes. ICT has many benefits and advantages in teaching children with Autism Spectrum Disorders, as it provides opportunities for non-verbal or verbal expression. Another study by Georgaki (2019) states that technology helps develop communication skills.

4) What are the teachers' views on the effectiveness of educational technology in promoting the social inclusion of students with ASD?

Participants' views on the effectiveness of educational technology in promoting the social inclusion of students with ASD were very positive. However, in Georgaki's research (2019), it is mentioned that the preference for ICT causes consequences for students with special needs, because they do not have the opportunity to communicate verbally and practice social skills, resulting in social isolation.

5) Does the factor analysis (EFA) confirm the two-factor model in the case of the effectiveness of educational technology to support the emotional development of students with ASD?

The factor analysis (EFA) does not confirm the two-factor model in the case of the effectiveness of educational technology to support the emotional development of students with ASD, and it has been estimated that eight factors can be generated.

6) Is there an influence of the demographic characteristics of Special Education Teachers on their views on the relative effectiveness of educational support technology on the emotional development of students with ASD?

There is no statistically significant difference between men and women in terms of the two scales (Technology and Teachers and Technology and Teaching of students with ASD). However, in the research of Yavrimis, Papanis, Neofotistos & Balkanis (2010), it is reported that female teachers have a lot of anxiety and less self-confidence about the use of computers, and also that they make more limited use of ICT in teaching. Furthermore, there is no statistically significant correlation between additional education and scales, as well as between work experience and the variable "Technology and Teachers" and the variable "Technology and Teaching of Students" with IFA. Also, there is no statistically significant differentiation of the educational unit and the years of experience with ASD concerning these scales. However, there is a statistically significant difference in the scale "Technology and Teaching of students with ASD" and specialized knowledge in ASD. As far as ICT training is concerned, and through the tables studied, a significant correlation between it and the variables was found.

This is in line with research. According to Barakos, as reported in Riga (2017), teachers with little knowledge, no substantial familiarity with ICT, and basic relevant training tend to use no or minimal use of ICT. Surveys that have been carried out and related to this issue have shown that teachers who have successfully trained in the use of ICT declare themselves insecure in situations of integration of the computer into daily educational practice (Giavrimis, Papanis, Neofotistos & Balkanis, 2010). Finally, there appears to be no statistically significant differentiation in the service position and the scales assessed.

Conclusion

The views of special educators are particularly important on whether the use of technology is an effective teaching tool for the emotional development of children with ASD. In order to serve this purpose, it was sought to provide answers regarding the knowledge available to Special Educators and the educational training they have for the specialized use of technology in the teaching of the emotions of children with Autism Spectrum Disorder. Attitude towards the entry of technology into the educational field, as they are aware of the benefits of ICT, but the theory differs from the application, as it is found that there are some deterrent factors. These factors mainly have to do with the shortcomings observed in school infrastructure, as well as with their inadequate technological training.

Also, with regard to the second research question, it is concluded that the use of educational technology helps to promote the generalization of the ability to recognize emotions, as it attracts the interest of students with ASD with the visual material available. Technology does not make it difficult to understand emotions; on the contrary, children with ASD learn more effectively. However, it should be stressed that the standards and usability of classrooms are inadequate nowadays, which is a concern for special educators. It is understood that teachers' views on the effectiveness of educational technology in developing the general communication skills of students with ASD were very positive, as the use of technology motivates students to participate more actively in the educational process. According to the literature, the recognition of emotions significantly helps communication between people with ASD, so the positive learning outcomes offered by the use of technology can enhance communication skills.

As regards the views of special educators on the effectiveness of educational technology in promoting the social inclusion of students with ASD, they were very positive. Regarding the fifth research question, the factor analysis (EFA) was carried out, which did not confirm the two-factor model (two-factor model) in the case of the effectiveness of educational technology to support the emotional development of students with ASD, but eight factors were created. Regarding whether there is an influence of the demographic characteristics of Special Education Teachers on their views of the relative effectiveness of educational support technology on the emotional development of students with ASD, it was found that there is a statistically significant difference between the scale "Technology and Teaching of students with ASD" and specialized knowledge in ASD. As far as ICT training is concerned, and through the tables studied, a significant correlation between it and the variables was found.

In the present research, an effort was made to investigate and answer the research questions through the appropriate selection of a research questionnaire, the collection of data from special educators, and the appropriate statistical analyses. However, there have been some limitations in the present investigation, the most important of which is the sample size. The special educators who were initially appointed were 200, but due to the circumstances, 140 eventually participated. This fact, apart from the limited number of responses received from the questionnaires, resulted in the results not being able to be generalized to the wider population, i.e., to all special educators working in Greece. For this reason, it is proposed that a larger sample of participants be used in a future study, in order to yield more valid results.

This research studied the views of special educators on the use of technology in teaching emotions to children with Autism Spectrum Disorder. It would be interesting in the future to modify this research by "triangulation" and combining the quantitative and qualitative approaches. In addition, a comparative study between children with Functioning Autism and children on the autism spectrum could also be the subject of future research to examine whether and to what extent the use of technology effectively helps children with autism, regardless of severity. In addition, because the use of technology regarding the development of the emotions of children with Autism Spectrum Disorders is an innovation for Greece, it would be good in the future to conduct a similar survey among general education teachers, in order to study further data. Perhaps a study in the Special Education and Training universities in Greece would be useful, in order to study whether there are courses on ICT, which inform and prepare future special educators for their use in the context of teaching the emotions of children with ASD.

Declarations

Acknowledgement

I would like to thank all the teachers who participated in the study,

Authors Contributions

AS was responsible for the entire process.

Conflict of Interest

I report no conflict of interest.

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