ASSIMILATING IPADS IN SPECIAL EDUCATION SCHOOLS
Rivka Hillel Lavian, Orly Alshech
Levinsky College of Education, Tel Aviv, Israel

Abstract
To the use of mobile technology in teaching and learning in general and for students with special needs in particular, provides varied options for learning and communication. It is evident that students who use iPads for learning and communication improve in these areas; however the process of implementing the use of iPad in class is still new and raises many questions.

This work was written in the framework of a special education school for medium-functioning ASD (Autism Spectrum Disorders) students in central Israel. The aim of this qualitative research was to describe the process of implementing iPads in a special education school and to examine the perceptions of staff with regard to the iPad as a communication and learning support tool for medium-functioning ASD students.

Key words: special education, autism, assistive technology, i-Pad

INTRODUCTION
A relatively new technological tool that has become part of our lives is the i-Pad (tablet manufactured by Apple). The i-Pad has many significant advantages for working with children with special needs. The research deals with the integration of i-Pads as a means of learning and communication for pupils defined as being on the autistic spectrum. The wide range of applications together with its accessibility and ease of use, results in a wide use of tablets in the education field. That having been stated, only a few studies have examined the process of their integration to advance specific skills in pupils and there is a lack of sufficient knowledge and information with regard to their application in special education schools. Therefore, the aim of this research is to describe the process of integration of i-Pads in a special education school and examine the perceptions of educational personnel working in the school with regard to i-Pads as supporting communication and learning tool for autistic pupils on the low-medium performing scale.

Despite the fact that i-Pads look easy to understand and use and the technology is intuitive and user friendly, some teachers still find it difficult to accept them as a teaching tool for pupils who need them. Therefore the following research question emerges: what are the issues that arise as a result of implementing i-Pads in special education schools for pupils aged 6-12 diagnosed on the autistic spectrum? This research is likely to have a practical contribution to help professions such as special education teachers, clinical communication therapists who treat autistic pupils in special education schools for autistic children who are helped by i-Pads in their work.

We hope that this type of research will provide suitable tools and assist professionals to advance children on the autistic spectrum. Education personnel can be helped by the results of this research to implement i-Pads in special education schools.

1. LITERATURE REVIEW
In the literary review presented below we will commence by presenting issued pertaining to the subject of integrating i-Pads in special education schools and will related to a number of key concepts: autism, assistive technology, portable computers and their contribution to teaching and learning, the role of teachers in a technological environment.
1.1. Assistive technology

Assistive technology is "any item, piece of equipment or product system, whether acquired commercially off the shelf, modified or customized, that is used to increase, maintain or improve functional capabilities of individuals with disabilities” (Technology-Related Assistance for Individuals with Disabilities Act, P.L. 100 - 104).

Hezroni (2007) wrote that assistive tools have existed since the establishment of the education system, however they have developed a great deal over the year until reaching a high level of use of advanced technology (portable computers and word processors).

1.2. Autism

Many researchers are interested in Computer Based Learning (CBL) for people on the autistic spectrum. This derives principally from the belief that education improves the lives of people with autism and thus the advantages of learning using computers for them. Studies carried out recently have shown the people with autism, mainly children, are likely to enjoy interacting with computers, particularly when they operate them freely (Konstandinidis et al., 2009). Many people on the autistic spectrum have been found to have a natural affinity with computers and the technological environment. Moreover, computerized learning enables these people to learn and practice in a supervised environment.

1.3. Contribution of Portable Devices to Teaching and Learning

The most significant step in the field of computer based learning is no doubt, the invention of portable devices and their applications that enable pupils with special needs and particularly those on the autistic spectrum to be partners in different and discrete teaching and learning. Intelligent portable devices (tablets, miniature music players, smartphones) help them with thinking and communication. Their advantage for this population is the simplicity of their operation, using a touchscreen with one's fingers, which gives them a feeling that they are "grown up" and independent (Devries-Valentine, 2010). Employing advance technologies in working with autistic children is very significant for them, the therapy staff and parents. The applications involve many senses and advance pupils through simple and intuitive operations.

I-pads, the tablet manufactured by the Apple company, has been adapted for working with pupils with varied learning characteristics and has opened a whole new world of learning, communication and entertainment for people with disabilities, such as: touchscreen, learning basic skills and communication, helping people with language disabilities speak, read or write (Hager, 2010).

This is also true in learning language in a social context, through natural scenarios such as games, i-Pads have a significant role in helping and making dialogue easier between parents and children. Many institutions have adopted i-Pads for reasons such as: ease of use, frequency of use, cost effectiveness, learning uses, possibility to choose applications, interactive abilities, including advancing communication and managing personal information (Schrape & Kelly, 2010)

1.4. I-Pad Applications for Augmentative and Alternative Communication (AAC)

The advantages of using i-Pads for augmentative and alternative communication include easy access to application updates individually adjusted to children with different levels of physical or mental disabilities as well, as a more economical service for pupils (Dundon, McLaughlin, Neyman & Clark, 2013). In articles by Schuster & Schuster, in which they followed their son's use of an i-Pad over a year, they reported that this use and applications for AAC opened a whole world from the son and they noticed improvements in the following areas: language, communication, emotions, paying attention and concentration (Schuster & Schuster, 2012).

1.5. Adapting i-Pads to Assist Learning for Pupils Diagnosed with ASD

As to whether i-Pads are an assistive communication tool for ASD in Israel, frameworks exist for teaching diagnosed pupils. I-Pads represent new technology, which requires adaptation of unique teaching methods for pupils with special needs. At the same time, this technology enables, both
teachers and pupils, to be exposed to innovative learning methods that create possibilities to improve the self-image and significant learning and provide important challenges for special education pupils (Hager, 2010).

1.6. Role of Teachers in a Technology Rich Learning Environment

The role of teachers in a technological environment becomes secondary and pupils are the principal players situated at the center of the learning process. Teachers in this environment guide learning and are often helped by pupils who are more skilled in technology than they are (Kosakowski, 2000). Many teachers consider the challenge of integrating computers with assistive technology into teaching as irritating, annoying and superfluous.

1.7. Implementing Educational Technologies into Educational Frameworks

Since the 1990's, we are witness to widespread implementation of educational technologies into educational institutions. The penetration of online communications into schools has put great pressure on teachers who have been required to integrate computers and the Internet into lessons and as such revise and improve teaching and learning processes. But these demands have caused difficulties and created an environment with a high level of uncertainty as a result of some of the key characteristics of online communication technology. Firstly, online communications allow crossing border of time and place, which greatly alters the traditional perception that learning can and must take place in a certain place and given time (Aviram, 1997).

To sum up: The review presented above teaches that most researchers are of the opinion that i-Pads have significant potential in working with autistic pupils, but there is little reference to the subject of integrating i-Pads into special education frameworks. Studies conducted in recent years in Israel and the world, have not focused on an integration process for portable devices with regard to study and communication in special education schools. The current research has been undertaken in order to answer questions connected to these issues.

2. METHODOLOGY

2.1. Research Aim

The aim of this research is to describe a process for the integration of i-Pads into special education schools and examine the perceptions of educational personnel working in these schools with regard to i-Pads as assistive learning and communication devices for low-medium functioning autistic pupils. In order to examine and describe an integration process and answer questions that arise among professionals in their work with children on the autistic spectrum. Additionally, to investigate teachers' attitudes and perceptions of the subject and coping with innovation in order to learn whether use of advanced technologies with pupils is significant for them. This type of research will provide appropriate tools and assist professionals to advance children on the autistic spectrum. The results of this research could help education personnel with a process to integrate i-Pads into special education schools.

2.2. Research Question

What are the issues that arise following the integration of i-Pads into special education school for children diagnosed as low-medium functioning on the autistic spectrum.

2.3. Research Method

The research was carried out using the qualitative approach. Its aim is to describe in rich detail the research field. The qualitative approach will make it possible to describe and explain the phenomenon and to discuss approaches and opinions, as well as presenting my personal interpretation based on the findings that emerged, referencing literature relevant to the research (McDuffie & Scruggs, 2008). 12 special education school staff members participated in the research.
2.4. Research Field

The research took place in a special education school in central Israel where pupils, aged 6-12 are defined as being on the autistic spectrum (ASD). Professional educational and paramedical staff working at the school participated in the research. In the current school year, the school began the process of integrating i-Pads for learning and communication purposes. As part of the process ten i-Pads were purchased (one per class), and a school workshop on the subject took place. The school uses i-Pads as assistive learning and communication devices.

2.5. Research Participants

12 staff members, made up as follows, participated in the research: 8 home room teachers in special education classes for pupils on the autistic spectrum from years 1 to 6, of which one was male and seven were female; one teacher of computers, two speech therapists, and one therapist from the same school. All took part in the school workshop that dealt with the integration of i-Pads into the school that we (researchers and authors of this work) taught this year. Participants took an active part in the integration process for using i-Pads for learning and communication purposes at the school. All participants are experts in working with pupils on the autistic spectrum.

2.6. Research tools

In order to collect data, we used the following three tools: open-ended questionnaire, semi-structured interview and observation. We must point out that the three means of data collection were mixed in order to get a rich and comprehensive description of the integration process, in order to investigate as many teachers' attitudes as possible and to see for ourselves what happens in the field.

2.7. Data Collection and Analysis Process

The data collection process for this research began at the beginning of October 2013 and ended nine months later at the end of the school year. Triangulation of the data was carried out using a variety of data collection tools. This was done in order to expand, interpret and crosscheck the findings. At the first stage, in order to collect information, teachers who had participated in the workshop were chosen at random to be interviewed.

At the second stage, staff members were asked to answer an open-ended questionnaire and write their opinions about the issue. We used computerized questionnaires to be completed by participants themselves, which were distributed via the Internet. The questionnaire was introduced as a module at the workshop and sent to participants during the months of October and November. In addition, we observed lessons in which teachers used i-pads in learning and for communication, and also observed a teacher teaching in a special education school for ASD children.

2.8. Ethics

This research relies on a qualitative paradigm and ethical issues arose, which will be presented later according to Dushnik & Tzabar Ben-Yehoshua (2001).

3. FINDINGS

The finding present insights into the integration process and testify to the fact the integrating i-Pads into education is still a relatively new phenomenon and within special education still raises many questions. But it is possible to see that use of high technology devices is increasing and provides many varied possibilities. In the Findings chapter, we will refer to two principal categories, taken from the collected data. One category refers to teachers' attitudes toward i-Pads as a teaching tool; the second category will present teachers' attitudes with regard to the use of i-Pads in their work with pupils diagnosed with ASD.

3.1. Teachers' Attitudes towards i-Pads as a Teaching Tool

The research participants expressed a positive attitude towards the integration of i-Pads into special education schools. It transpires from what they said that a technological environment that is visually
tangible suits the attributes of the autistic population at school. Teachers who participated in the research presented a range of emotions with regard to an implementation program for i-Pads and refer to it as an important, excellent and successful process.

Despite the fact that all the teachers, from whom data was collected, teach at the same school, it is possible to see differences in many areas among them, such as years of service, years of work with pupils on the autistic spectrum, age, management of technology. Teachers were interested in learning skills in using i-Pads and are of the opinion that the new technology has many advantages and that introducing it into schools is a positive process for them and pupils.

3.2. Skills in Using i-Pads

Without a doubt, in order to develop a major change in a school's culture with regard to technology, teachers must have good control of new devices. When participants were asked: "What skills must teachers in school learn in order that implementing i-Pads into the school will be successful?" Most of them pointed to good control of the device. The rate at which the technology is acquired is not homogenous for all staff and is dependent upon personal attributes of individual staff members. An integration process is realized mainly by teaching staff members who are required to acquire new skills and adapt teaching styles to a new learning environment. For this to happen, teachers need guidance. Guidance is a key factor to progress the issue and lack of it delays this progress.

3.3. Need for support/guidance

The significant aspects with regard to support are emotional support and intensive guidance for teachers in new technologies and their use in teaching. Teachers at the school enjoy emotional support, learning support and up-to-date technology resources, but this is not enough and they take the initiative in order to enrich their knowledge in order to use it in teaching. This initiative is expressed in their acquiring knowledge in training courses, getting additional guidance hours and applying the knowledge they have acquired.

Independent learning contributes much, but many participants indicated that guidance has an important role in a learning process and teachers should be provided with it at school.

The required changes also include changes in teachers' educational perceptions and new ways of teaching.

3.4. Teachers Attitudes towards the Use of i-Pads in Their Work with Pupils Diagnosed with ASD

3.5. Learning

The advantages of i-Pads for the pupil population of the school is reinforced by previous studies in which it has been found that learning programs supported by assistive technology contribute to pupils. In the light of the fact that studies show that teachers' attitudes influence the way use of technology is realized in classrooms, the most important thing for me, is that all teachers pointed to the great importance of i-Pads for autistic children. One teacher reported that following the introduction of i-Pads into the classroom, she was able to identify abilities in the functioning of a pupil whom she had known for many years, but only because of the i-Pad was it possible to see his abilities. The research participants see i-Pads as a suitable tool for pupils. From the findings that emerged from data analysis, it is possible to say that teachers identified the many advantages of i-Pads for learning among pupils with autism. Teachers presented the essentiality of using them as a teaching tool in preference to any other teaching aide. Class coordinators for all classes think that using i-Pads is likely to be very beneficial for pupils on the autistic spectrum as a result of greater motivation and improvements in their learning abilities in different areas.

These answers teach us that teachers believe that i-Pads are like to contribute to children on the autistic spectrum's learning in specific skills that they want to progress, but that i-Pads are also likely to help in a variety of additional skills, sometimes no less important.
3.6. Communication

As is well known, one of the principal characteristics of low-medium performing autistic children is the deficiency in their verbal communication ability that constitutes a significant factor in the socio-communication functioning of pupils. During classroom observation, the deficiency was most noticeable in the absence of any reaction by these students that is usually shown by reacting appropriately to hints transmitted from one person to another.

Also prominent in the observations in the classroom and during lessons, the children did not have enough tools to express themselves. Non-speaking pupils need an attached communication device. Attempts at discourse of this type without Augmentative and Alternative Communication (AAC) result in great frustration in teachers, and without doubt, in pupils as well.

4. DISCUSSION

The aim of the current research is to describe the process of integrating i-Pads into special education schools and examine perceptions of educational personnel working in these schools with regard to i-Pads as an assistive communication and learning device for low-medium functioning autistic pupils.

As previously mentioned, this research is based on staff members at a special education school in different roles, combined with qualitative research methodology.

Integrating new technology into schools is a long and complex change process. With regard to time, it is a multi-stage process. The rate of adoption of new technology is not uniform for all staff members and depends on their attributes. The burden of realizing an implementation process falls mainly on the shoulders of teaching staff. They have to acquire new skills and adapt their teaching style to a new teaching environment.

Results of data analysis show that teachers identify the many advantages of i-Pads for learning for children with autism. Homeroom teachers for every class pointed to the essentiality of using i-Pads as a teaching tool. At the participating school, teachers' attitudes to the process were positive; they saw using i-Pads as a more advanced and appropriate teaching implement for pupils with autism.

The research found that teachers' attitudes with regard to integrating i-Pads into special education schools were positive regardless of the role they fulfilled at school or the number of training hours they had received from the school. They see great value in using i-Pads for the purpose of advancing pupils learning and communication and show a great desire to expand their knowledge in the area.

Support for staff members during an integration process, is seen as mandatory by those who participated in the research. Support has many aspects: training in use of technological devices and their constant use in learning. Teacher training at schools takes place in two ways. The one is formal training within school hours and organized by the school, led by the regional i-Pad trainer appointed by the Ministry of Education and supervised by the school principal. A further method of teacher training is informal. Sharing pedagogical technology exists between staff members continuously, daily at their own initiative: asking questions, asking for and getting help, updating, intensive learning, practice and realization.

Staff members shared their views that for them training was a significant factor in their progress in the field of technology and without it, progress is delayed. Another factor affecting an implementation program is sound, accessible and sufficient technological resources. This means enough i-Pads, permanent connection to the Internet, knowledge of suitable applications for working with an autistic pupil population and technical support. One element that moves an implementation of i-Pads program forward, as perceived by teachers, is their motivation. The school's teaching staff members enjoy learning support and up to date technological resources, but they are not satisfied with this and take initiatives themselves in order to enrich their knowledge of the subject in order to apply it in their teaching.
Technical applications are easy to use, spectacular and have a variety of contents. Teaching and caring of professionals integrate more and more technological tools that in the past. Despite this, the guiding principle of teachers’ work remains the same - considering the needs of pupils, defining the goals of their work and adapting materials and technologies to their needs. I-pads, as stated before, are a means and not the principal. The issue of adapting content to the needs of pupils on the autistic spectrum was addressed in open answers. Teachers are of the opinion that i-Pads are suitable means of communication and learning for autistic pupils because of their many advantages.

The important question that emerged from this research is: to what extent could professionals and therapists make use of i-Pads in their work, with regard to the special needs of pupils and working with them? From the research findings it is possible to see that it is an experimental process and one must continue to examine it by undertaking similar research with a greater number of participants - many professionals and therapists throughout the country who work with children on the autistic spectrum in many areas of practice, so that a larger number of people can be examined with regard to implementation processes.

This research presents the story of one school in the special education system, as described in the research population. In order to get a broader picture with regard to the implementation of i-Pads into special education, the research should be expanded into other schools with similar characteristics and to schools that serve populations with other special needs in order to develop additional tools to examine implementation processes in general and in special education schools in particular.

REFERENCES


Price, A. (2011). Making a difference with smart tablets are iPads really beneficial for students with autism? Teacher librarian, 39, 1