MedCrave
Step into the World of Research

MOJ Addiction Medicine & Therapy

Mini Review

Open Access

CrossMark

Autism & digital tablets

Summary

Digital tablets are useful tools which enable people with autism to interact and communicate with others in a more appropriate way. We can also have benefits in learning, individuation/ empathy and autonomy. Besides the benefits of using new technologies in therapeutic and educational process, concerns have been raised regarding the awareness and the position of health professionals. Moreover, recommendations have been proposed towards a positive change in healthcare systems.

Keywords: touchpad, digital tablet, autism, digital applications

Volume 5 Issue 4 - 2018

Eleni Drakopoulou
Psychologist, France

Correspondence: Eleni Drakopoulou, Psychologist, France, Email eleni.drakopoulou5@gmail.com

Received: December 13, 2017 | **Published:** July 18, 2018

Introduction

Since the 1990s, interactive tablets have raised considerable interest in academic research. This tendency towards digital tablets was followed by the proposal of numerous digital applications designed for young children with autism. A touchpad is a portable micro-computer which executes software applications. The digital applications are launched by the touch of their icon on virtual desktops. Some applications exist on touchpads; however, the majority has to be downloaded through an internet connection. Digital tablets appear in the form of handy objects in order to be held with two hands by the child. We can find digital tablets in schools, specialised classes&centres, even in hospitals, for people with autism and other developmental disorders. Digital tablets benefit the person with autism, a person characterised with particularities in their social interaction and communication difficulties. In this article, we are going to discuss the coupling, between the autistic thought and the digital world.

Evaluation tools & individual projects

Children and adolescents with Autism Spectrum Disorder (ASD) process difficulties in communication and interaction with other people. The early disorders are usually sensory, perceptual, cognitive and motor. Learning disorders therefore encompass all areas of development to varying degrees. In order to propose an intervention with a digital tablet; firstly, a developmental assessment with the objective to evaluate the developmental age of the person is recommended.[1] For instance, a fourteen year old person may have a developmental age of a five year old child. That means that we should choose the "right" application for the specific needs of that person that correspond to the "right" developmental age. Another evaluative tool designed for people with ASD is PEP-3, Psycho-Educational Profile-3rd Edition.[2] This tool provides important information in different developmental domains, such as verbal/preverbal cognition, receptive/ expressive language, fine motor skills, gross motor skills and visual-motor imitation[3] as well as inappropriate behaviours. Finally, the WNV[4] is a psychometric tool designed to measure the general cognitive ability (attention, work memory, logical & abstract reasoning) of children with autism presenting linguistic constraints.

These psychometric assessment tools are intended to give us indications for children's Individualised Project (IP). Individualised Projects (IPs) are based on results of psychometric tools by stimulating the problematic zones of the person. Before proposing the applications, the professional should configure the digital tablet (to adapt it to the sensory characteristics of the young person). It is recommended also to give the child an adaptation time in order to be familiarised (take in hand and explore it) with the touchpad. The professionals should also notify the time that the child worked on this, with the scores obtained. This data allows different kinds of professionals (educators, psychologists, psychiatrists, and orthophonists) around the child, even the parents, to follow the evolution of the person in different domains and to participate in preschool and school support in different times of the day.

The essential functions of digital tablets for the person with autism

We distinguish four essential functions in the use of the digital applications presented on the digital tablets for people with ASD or other developmental disorders.

In learning process

People with autism usually present hypo or hyper-sensibility of hearing, seeing, touching, tasting and smelling. The processing of information is therefore complex and this, will allow us to reflect on specific educational and pedagogical adaptations (TEACCH, PECS & ABA methodologies). Those methods will allow professionals to decrease the expression of "behaviour-challenges" and to focus on learning objectives. The learning objectives depend on the developmental age of the person (pre-schooling, schooling curriculum or other educational programs). In a remediation perspective, it is also possible to use digital applications in order to transform executive functions (such as work memory, attention and planning of actions) which are usually severely impaired in people with ASD.

In communication

One of the major characteristics of people with autism is their communication difficulties, including mutism, echolalia and perseverative speech, usually accompanied with stereotyped gestures and absence of social interaction. Many digital applications have been designed in the market in order to facilitate and emerge communication for young people with ASD. They are developed on the principle of thematic images and pictograms, associated with files which permit the emission of the sound of the word in order to be chosen by the child, to facilitate communication. Those digital applications have a great interest and they are very useful for people with autism. Also, in terms of expression of their emotional situation (by facial expression pictograms focused on emotions: I feel sad, I feel happy, etc). In addition, we can meet several digital applications presenting the succession of actions (for instance: start the activity, go to the painting workshop, create a painting with the group, end the workshop and come back to the classroom).

In individuation & empathy

It is known that people with autism present egocentrism. Apparently, it is derived from the Greek word, (εαυτός= aut =autism) for expressing "self ". It is shown that by choosing some digital applications, the autistic person achieves an intentionality of actions. Then, this intentionality mobilises cognitively the executive functions of the person (action control, selective attention, planning, etc) and contributes to their harmonisation when it is shared with empathy by the professional who is next to the child, at the time of the activity. In addition, digital worlds are involved in the long process of transformation and appropriation by each of autistic personal representations, exactly like relationships in physical presence.[5] We can also recognise benefits in the use of digital applications in the domain of subjective construction for people with ASD in terms of mobilisation of subjectivity by enactment of a virtual "I".

In autonomy

Current research shows that digital applications emerge the autonomy for people with developmental disorders. Autonomy is an individual operational process that takes place before, during, and after the action. Psycho-educational support helps to develop action planning skills through a cognitive-behavioural approach, in different contexts. We can emerge autonomy in all situations, indirectly, by developing cognitive, motor, and sensory and communication skills; and directly through activities. (For instance by photos and videos taken by the child itself on the digital tablet and by applications which promote personal autonomy with sequences).

Concerns

Researchers have been investigating digital behavioural therapy interventions for nearly two decades now. Results have shown that these tools work in many cases. Although, we observe that still in many healthcare systems, digital applications have not been yet applied for people with ASD; the questions rising are the following: "Are health professionals ready to accept the contribution of artificial intelligence in therapeutic process? What are the challenges from the side of the professionals working on digital applications? "We recognise the resistance of some health professionals regarding those innovations. It is true that working on digital applications with a person with autism, automatically needs a cognitive-behaviourist approach. This approach is usually rejected by clinical psychologists, especially in France, where autism, only the last decade has been recognised as developmental disorder, by leaving away its ancient label as infantile psychosis. We understand, that the role of health professionals is due to change with the re-definition of autism and therefore, with the need to adopt a cognitive-behaviourist approach, in order to accompany young people and adults with developmental disorders. In this point, we would like to point out the importance of having complementarities of psychodynamic and cognitive approaches in the treatment and support for people with ASD.

Digital health technologies are a key enabler to deliver the much-needed transformational change in healthcare systems. "What recommendations and priorities can we provide in order to drive this change?" First of all, we need to offer formation and training on digital technologies to young professionals (psychologists, doctors, orthophonists, and educators) by integrating courses of artificial intelligence into their curriculum. Only if we change the representation of new technologies, we could imagine a more welcoming world for people who are different; and being different is also being a person who deserves to be happy and deserves to feel accepted by the school environment, by the society, by the healthcare systems. Secondly, we should develop a coherent funding framework for digital health in different settings for people with autism (school, specialised centres, and hospitals) in order to facilitate the use of digital applications. Also, creating a health platform for people with developmental disorders seems to be a key in order to built a better understanding; not only for understanding people with autism, but more broadly, for understanding the major anthropological mutation that we all experience with the development of cognitive technologies. Finally, there is a need of marketing and management of digital skills in order to empower the engagement of health professionals for people with autism and other developmental disorders.

Conclusion

Digital tablets are usually presented as "palliative systems" in order to give solutions to the communication difficulties for people with ASD. They also allow an easy use of texts, sounds, images, offering the possibility to the person with developmental disorders to circumvent his/her expressive and motor troubles. We can have benefits of the use of digital applications in different domains: in learning, in communication, in individuation & empathy and in autonomy. Besides the widespread use of digital tablets in different healthcare and educational settings, we recognise the need of training of health professionals on digital skills, the development of health literacy and the funding framework in digital health, in order to enable the development of high quality healthcare systems.

Acknowledgements

None.

Conflict of interest

Author declares there is no conflict of interest.

References

1. Laxer G, Ait Mokhta R. Interet du bilan developpemental dans les troubles du developpement. *Recherche Defi.* 13:2002.
2. Schopler E, Lansing, Reichler RJ, et al. PEP-3: Profil Psycho-Educatif: Evaluation psycho-educative individualisee de la Division TEACCH pour enfants présentant des troubles du spectre de l'autisme. *Bruxelles: De Boeck.* 2010.
3. Adrien JL, Gattegno MP. L'autisme de l'enfant: evaluations, interventions et suivis. *Belgique: Editions Mardaga*. 2011.
4. Wechsler D, Naglieri J. WNV Echelle Non Verbale d'intelligence de Wechsler. 2009.
5. Serge Tisseron, Benoit Virole, Philippe Givre, et al. Subjectivation et empathie dans les mondes numeriques. *Dunod.* 2013.