

The Role of Digital Technologies in Learning Disabilities Intervention

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Abstract: The function of ICTs in the inclusion of kids with autism, ADHD, and dyslexia is briefly described in the current work. As a result, many academics point out that ICTs are crucial to inclusive education and aid in closing the digital divide. As a result, the study team behind this report provides particular instances of how ICTs might help kids who have learning challenges. By encouraging equal engagement from all students in the educational process, ICTs help kids get ready for life after school. The inclusion of students with learning disabilities and their ability to retain newly learned information as well as grow as individuals will benefit from the usage of ICTs and assistive technologies in the educational process.

Keywords: ICTs; Inclusion; learning disabilities; autism; ADHD; dyslexia.

1. Introduction

Assistive technology is used by students with learning disabilities to access common resources, complete assignments, and engage equally with their peers in the learning environment. A variety of learning difficulties can be managed with the use of assistive technology. For instance, a child who has trouble writing can create a text by dictating it and using specific software to turn it into a written report. When playing a game with a friend, a child who struggles with math can keep score using a handheld calculator. A language synthesizer, for example, may be necessary for a youngster who cannot talk in order for them to participate in the session. Information and communication technologies (ICTs) can support the development of reading, writing, math, organization, memory, and hearing in learners. (Adebisi, Liman & Longpoe, 2015).

ICTs contributed to the emergence of the "digital divide" as a result of technological advancement. Some people are unable to respond to this development on an individual basis, but with the right ICT use, they can overcome this obstacle, participate in the digital society more equally, and have greater job chances. Additionally, developing and implementing support programs for those with disabilities has economic benefits. The cost of long-term care exceeds that of supported independence (Benda, Havlíček, Lohr & Havránek, 2011).

The ultimate goal of social inclusion, according to Njoki and Wabwoba (2015), is to give people the ability to change their lives by grabbing opportunities. By enabling students and professors to participate in a course while even being on separate continents, ICTs have closed the distance education gap. Those who cannot physically attend school can nevertheless receive an education thanks to e-education. To make learning easier, electronic libraries, virtual labs, and computer games have also been developed. (Njoki & Wabwoba, 2015).

By fostering abilities like imagination, attention, and self-control, electronic games have been shown to assist kids with learning disabilities in adopting healthy behaviors. Children with learning disabilities can be motivated and engaged in an environment created by virtual and augmented reality, which also helps them improve their motor and perceptual abilities. Additionally, mobile applications support children with learning challenges in becoming independent and carrying out their daily activities. (Papanastasiou, Drigas, Skianis, Lytras & Papanastasiou, 2018).

It is necessary to create a supportive school environment, which will promote the development of each student. The teacher of the class has nowadays an ally in the learning process, the ICTs, (Obradović, Bjekić & Zlatić, 2015). ICTs help to create an individualized teaching program for children with learning difficulties and an environment where the student comes into contact with the educational material and can interact with it. Additionally, ICTs help students to communicate with each other, but also with the class teacher through special devices. It is also pointed out that ICTs can be used as an evaluation tool, as they save time and money (Williams, Jamali & Nicholas, 2006).

According to Della Volpe (2016), the incorporation of technology into the classroom results in a flexible curriculum that improves both the involvement and readiness of children with learning disabilities for life outside of the classroom. Without exception, every child has the right to receive education, which is crucial for everyone's personal growth. Examples of ICTs' contributions to the inclusion of students who have autism, ADHD, and dyslexia are included below.

2. ICTs and Autism

More and more people are being affected by the illness known as autism. It is a developmental disease that lasts a person their entire life and keeps them from fully comprehending what they see, hear, and generally experience. As a result, they struggle greatly on a social, intellectual, professional, and personal level. According to Block, Block, and Halliday (2006), autism spectrum disorder is characterized by challenges with communication and social interaction as well as a number of compulsive activities. The use of ICTs by students with autism benefits them since it teaches them how to handle the pressure of societal integration, helps them improve their reading and social skills, and aids in communication.

Technology of various kinds has been applied to autism intervention. Mobile learning and the use of social robots are both quite popular. A lot of study has also been done on serious games, virtual reality, and augmented reality. It's also important to note that research have shown that artificial intelligence improves the ability to diagnose autism. According to Anagnostopoulou, Alexandropoulou, Lorentzou, Lykothanasi, Ntaountaki & Drigas (2020), mobile applications, fuzzy logic methods, natural language processing, neural networks, and machine learning applications have a lot to offer in the field of autism evaluation.

The Facial Expression Wonderland (FEW) application was designed to improve the ability of students with autism to recognize expressions. FEW is a daily training tool consisting of different levels. It requires students with autism to use the application daily to improve their skills in recognizing facial expressions and developing the "Theory of Mind" (the ability to understand the mental state of other people). The real impact of the FEW application has not yet been assessed and must be assessed in the future (Drigas & Ioannidou, 2013). Tang et al. (as mentioned in Conde & Fonseca, 2017) investigated the usefulness of applications for children with autism based on gestures that aim at involving the children in the activity.

The research of Jaliawala and Khan (2018) presents some Computer Vision Assisted Technologies (CVAT), which help the people who belong to the autism spectrum recognize and produce facial expressions. One CVAT technology that helps people with autism improve their nonverbal skills is FaceFlower, which uses a flower that grows with the user's expressions. The purpose was to help individuals pronounce their feeling and exercise their facial muscles with a specific expression so that they could see the plant grow (Jaliawala & Khan, 2018).

Also, virtual reality programs (VR) actively help people with autism. Virtual Interactive Training Agent (VITA) aims to improve people's interviewing skills to find work more easily. The research of Burke et al. (2018), states that the VITA program was designed to give users with autism the opportunity to practice a professional interview by answering the questions of a VH interviewer.

The serious game SEMA-TIC aims to teach literacy skills to children with poor functional language skills and autism. The game includes feedback and reinforcements that align with the children's interests, such as bright and moving objects. Each game is considered to train specific literacy skills, such as word recognition, alphabet, syntax, and so on. Grossard et al. (2018) developed an innovative electronic learning and communication game called JEMImE. The game aims to educate the facial expressions of children with autism in social settings.

The Queball robot, which is spherical like a ball, helps children with autism develop their social skills. Its software is simple but at the same time provides a variety of kinetic, visual, and audio features that integrate the child more easily into the game. According to the results, the device can be

easily used at school and the child's interaction with the robot was characterized as calm, entertaining, and interesting (Ntaountaki, Lorentzou, Lykothanasi, Anagnostopoulou, Alexandropoulou & Drigas, 2019).

At the same time, robots can help children with autism improve their emotional recognition skills (Ntaountaki, Lorentzou, Lykothanasi, Anagnostopoulou, Alexandropoulou & Drigas, 2019). For example, the Probo robot was used to test whether children with autism can recognize emotions in specific situations. According to the results, the performance of the participants improved significantly. Therefore, it is demonstrated the important role that robots can play in autism intervention. Some robots used to develop skills in children with autism were: Nao, Kaspar, Charlie, QT Robot, IrobQ, CARO, and KiliRo (Grossard, Palestra, Xavier, Chetouani, Grynszpan & Cohen, 2018).

David Lima and Thais Castro (2012) introduced Music Spectrum, a virtual music environment for children with autism, based on the theory that music therapy can promote positive change. The aim was to awaken the person with autism to a more dynamic interaction from exploring an organ to participating in a social group.

A mobile application which is called PARLE (Portable Affect Reference Learning Environment) can be used to translate transfers into simpler forms (Vlachou & Drigas, 2017). Another application, which is called "MOSOCO", uses augmented reality and helps children practice their social skills in real situations. This application provides children with autism with interactive features to encourage them to have eye contact, maintain appropriate boundaries in space, and share their interests (Escobedo, Nguyen, Boyd, Hirano, Rangel, Garcia-Rosas, Tentori & G. Hayes, 2012). The iPad application "Go Talk Now Free", has a similar format to the communication system PECS (Picture Exchange Communication System), as it makes all the options visible on the touch screen and the child can choose a picture freely (Muharib, Correa, Wood & Haughney, 2018).

Dáz-Escudero et al. (2018) conducted research on the Taimun-Watch system, which uses a smartwatch and a smartphone to help autistic individuals regulate their own behavior. The smartwatch is worn by people with autism, and it tracks heart rate. The watch screen displays emotional self-regulation techniques when the signal reaches a certain threshold. Therefore, asynchronous interventions can help people with autism deal with circumstances that typically cause them to feel frustrated, angry, or anxious. These interventions can be guided by family, teachers, and caregivers for people with autism. Even non-experts can construct emotional self-regulation techniques thanks to the interface's thoughtful design. According to Daz-Escudero, Torrado, Gomez, and Montoro (2018), strategies are composed of steps or cards with multimedia information, such as pictograms, photographs, text, or animation.

Augmented reality glasses, which primarily support the acquisition of socioemotional abilities, are another kind of intervention for people on the autism spectrum. While virtual objects and audio assistance are provided through a visual overlay and speakers, respectively, augmented reality (AR) enables the user to interact with the environment (Sahin, Abdus-Sabur, Keshav, Liu, Salisbury & Vahabzadeh, 2018).

3. ICTs and ADHD

According to Gkeka, Gougoudi, Mertsioti, and Drigas (2018), Attention Deficit Hyperactivity condition (ADHD) is a significant condition of psychological development marked by persistent symptoms of inattention, hyperactivity, and impulsivity that present in two or more situations for longer than six months.

Applications for people with attention deficit hyperactivity disorder (ADHD) have been developed. Plan-It Commander is a serious game created by Bul et al. (2015). Its design was intended to foster behavioral learning and practical life skills that children with ADHD frequently struggle with, like time management, organization, and other social skills.

Social robots, such as Topobo and RUBI, can help educate children with social and cognitive disorders and other disabilities. A research involving children with ADHD found that children with limited attention skills worked with the robot throughout the intervention without the need for a break. These results show the potential of robots as an educational tool in special education and their positive effects on children with ADHD (Alexopoulou, Batsou & Drigas, 2019).

Also, as reported by Gkeka et al. (2018), the tangible user interface (TUI) was also found to be important in the learning experience. The immediate operation makes the touch screen attractive to users and significantly influences learning processes by stimulating motivation and increasing their engagement. So TUI can be one of the primary factors that contribute to the enhanced involvement of students with ADHD.

At the same time, the virtual reality video game industry (Microsoft Kinect, Nintendo Wii) allows the person to monitor himself during the interaction and possibly reduce his excessive movement. Also, computers in the classroom can present material in different ways. Computer programs help in the design and mapping of the mind which improves the organization and flow of writing that are necessary for students with ADHD (Gkeka, Gougoudi, Mertsioti & Drigas, 2018).

According to research, the use of a laptop by students with ADHD helps in the organization of their daily program. The device compensates for their organizational and memory difficulties as students emphasize their work and their notes (Drigas, Ioannidou, Kokkalia & Lytras, 2014). It has also been shown that the movement and use of gestures improve the learning skills of people with

ADHD. Therefore a system that promotes movement by allowing gestures, as well as hand-eye coordination using a natural user interface (Natural User Interface), seems to be a very good solution for improving attention (Garcia-Zapirain, Torre Díez & López-Coronado, 2017).

Another system that works on mobile phones and helps children with ADHD and their families in establishing a healthy breakfast and bedtime routine by providing specific structures, as well as rewards, is MOBERO. According to the results of the research of Sonne et al. (2016), the use of MOBERO was associated with lower levels of parental confusion during breakfast and sleep and increased independence of children.

In contrast, the Chillfish operating system does not provide help for specific routines but is a relaxing biofeedback game. By breathing on a simple Lego fish the child controls a virtual fish in a virtual underwater world. Chillfish's goal is to collect as many starfish as possible by performing a relaxing breathing exercise. Another application is TimeTimer, which is a commercial product available in a wristband and mobile application and helps people stay focused by visualizing the time left for a job. CogoLand, on the other hand, is a game based on an avatar in the 3D world who must complete a race as fast as possible. The speed of the avatar is controlled by the child's level of concentration, which is measured using electroencephalography (EEG). Finally, the Cogmed computer application trains the child's working memory (Sonne, Marshall, & Obel, 2016).

BlurtLine is designed to help the child avoid impulsive speech. He achieves this by using an interactive chest strap that serves both as a sensor and as an intervention tool that provides the child with tactile feedback. CASTT focuses on helping children regain and retain their attention during lessons. CASTT is based on accelerometers that detect when a child loses attention and a mobile application helps him to regain it (Smit & Bakker, 2015).

Sonne et al. (2016) introduced the ParentGuardian application, which provides behavioral strategies for parents of children with ADHD to support them in managing stressful situations. The ParentGuardian system uses changes in skin conductivity, measured by an electro-dermal activity bracelet, to calculate a parent's stress level. When a high level is detected, the application sends a reminder of the use of control strategies to the parent's mobile.

Also, another supportive technology for children with ADHD is SmartPen, which is designed to detect the loss of concentration of children during reading and to help them regain it. Through a built-in accelerometer and a machine learning algorithm, Smart Pen can recognize reading patterns. Smart Pen discreetly reminds children to resume reading either by turning on a small light or with a small vibration (Sonne, Marshall, Müller, Obel & Grønbaek, 2016).

Ahmad, Parhizkar, and Pillay (2019) developed a mobile phone game that includes functions used to maintain the attention of the child with ADHD. They performed an experiment in which

children with ADHD played the game voluntarily and their actions were recorded. Based on his results, the children showed a high percentage of interest in the game. This suggests that mobile games can help enhance the level of attention and concentration of students with ADHD.

Attention Exercise provides attention and memory enhancement exercises. Another application is EpicWin, which turns daily tasks into games, while Home Routines gives rewards for each task completed within a specific time. The Koi Pond application provides people with ADHD with relaxation exercises when they feel confused (Lewandowski, Wood & Miller, 2016). Some computer games that aim to improve attention, memory, cognitive skills, and general executive functions are BrainTrain, Luminosity, and Play Attention (Lewandowski, Wood & Miller, 2016).

Avila-Pesantez et al. (2018) studied the effectiveness of an Augmented Reality Serious Game (ARSG) called ATHYNOS. Users could play two games. The first was a Drag and Drop game and the second was a shapes game. In the Drag and Drop activity, the children improved the coordination of the eyes and hands.

Learning and communication electronic games (serious games) are considered a powerful mechanism that can be used to prevent mental disorders in children with ADHD. They can be described as "digital games and equipment with educational design beyond entertainment" (Grossard, Palestra, Xavier, Chetouani, Grynszpan & Cohen, 2018). The research findings of Avila-Pesantez et al. (2018) showed that children after using ATHYNOS improved their attention. Voluntary participation and ongoing interest in problem-solving contribute to academic success and learning.

Tavakoulia et al. (2019) designed a study aimed at understanding the contribution of applications and mobile devices in enhancing the executive functions of children with ADHD. A smartwatch was used by 24 students aged 10 to 13 years. The device enables the recording of the child's emotions and mood through the application "Keep Your Balance" so that the parent or caregiver monitors his progress and provides the user with help to control and guide his behavior through reminders with "The Coaching App". The smartwatch has proven to be an easy-to-use, useful, and safe device for children with ADHD (Tavakoulia, Guzman, Cibrian, Lakes, Hayes & Schuck, 2019).

Also, as mentioned above, ICTs help children with ADHD control themselves and their behavior. Specifically, as reported by Bashiri, Ghazisaedi, and Shahmoradi (2017), virtual environments provide motivation, reduce the stimuli that disorganize children with ADHD, and thus maintain their attention and concentration. Interventions based on virtual environments help to improve the perceptual skills of children with ADHD, such as attention, working memory, and executive functions. It seems that children with ADHD prefer interventions that contain technology to traditional techniques, as they feel more secure in such an environment (Bashiri, Ghazisaedi &

Shahmoradi, 2017).

The "iSelfControl" application was created to support the control of children with ADHD in the classroom, and Schuck et al. (2016) published a pilot study that attempts to investigate its effectiveness. In order to receive points, students had to assess their behavior every 30 minutes and report the results in the application. The focus was on compliance, adhering to policies and procedures, and fostering social connections. The children's behavior was also watched by the class teacher, who assigned the relevant points. The software might provide feedback to the kids. According to Schuck, Emmerson, Ziv, Collins, Arastoo, Warschauer, Crinella & Lakes (2016), the application "iSelfControl" is a crucial tool for the construction of tailored instruction that will address the requirements and skills of the student with ADHD.

4. ICTs and Dyslexia

Four key categories of technology are utilized to support dyslexic children's learning. These include games, virtual learning environments, text-to-speech, and eye tracking (Jing & Chen, 2017). Readers can record their voices while reading interactive e-books. In order to enhance phonological awareness, word recognition, and memory skills, they also give readers the chance to listen to and practice word segments.

Children with dyslexia can improve their reading habits by using Read-Aid, a supportive reading aid. This tool's intervention improves reading comprehension, reading speed, and error reduction. Sprint is yet another program that helps reading. Sprint gives a computer speech so that the program can read the text that is being presented on the screen. As it can read texts written by children, the software mentioned above is very helpful in identifying errors (Jing & Chen, 2017).

Al-Edaily et al. (2013) designed a system for dyslexia using the "Dyslexia Explorer" eye-tracking system. Initially, Dyslexia Explorer captures eye movement when a student reads texts. An algorithm is then used to filter where the gaze "sticks". Finally, the system analyzes the duration of these "glues" and their spatial distribution. As a result, eye-tracking technology allows specialists to detect reading problems and phonological difficulties in order to design effective programs for students with dyslexia.

The DysEggsia game was designed to improve the spelling skills of children with dyslexia. It includes 5000 exercises with different levels of difficulty. MathLexic is an interactive application that aims to improve the math skills of children with dyslexia. Specifically, it provides exercises for recognizing numbers, sequences, mathematical symbols, and mathematical functions (Ahmad, Jinon & Rosmani, 2013).

A kindergarten child cannot be diagnosed with dyslexia. If, however, he presents some

language difficulties that could potentially lead to dyslexia then early intervention is needed. For example, e-books can be used to encourage children's language skills through fun activities. The GraphoGame game was also designed to help kindergarten children with early signs of dyslexia recognize and distinguish vocal sounds. The game is simple, accessible and gives instant feedback, and rewards (Richardson & Lyytinen, 2014).

Cidrim & Madeiro (2017) introduced the EasyLexia mobile phone software, which consists of spelling, memory, and math problems activities for children with dyslexia. Abracadabra (ABRA) and e-Pearl software also benefit from letter-sound recognition, phonological awareness, and reading comprehension. Children who used these programs, showed learning benefits in the written language and had a better performance in their metacognitive reading skills.

Adebisi, Liman, and Longpoe (2015) mentioned assistive technologies for improving the written language, reading, and math. Speech recognition systems allow the child to speak to the computer through the microphone and the spoken words are displayed as texts on the computer screen. The Optical Character Recognition (OCR) allows the child to type text on the computer, while the speech composer reads the text back and forth loudly for the child to hear and see the text at the same time. Also, electronic math worksheets help children with arithmetic problems to organize basic math sets using a computer.

SEVERI is an e-learning environment for students with reading, writing, and comprehension difficulties. It includes tools such as instruction messages, a learning diary, a library, and discussion material. Also, "The Number Race" was developed as a computer game to intervene in dyscalculia. This software aims to educate children in a fun way, introducing problems tailored to the level of performance of each individual (Drigas & Ioannidou, 2013).

Ebner et al. (2017) presented an educational platform for German-speaking users aged 8 to 12 with special educational needs. The aim was to provide elementary school students with a tool to improve their writing and spelling skills. With this tool, students can write and publish texts that are automatically evaluated. The system provides students with feedback on their mistakes, which helps to improve their writing and spelling skills. Besides, the exercises are presented according to the errors and the level of the user (Conde & Fonseca, 2017).

Also, lately, it is very common to use games in education (Gamification in Education). One of the main opportunities for using gamification is the field of educational technology. Motivation is an important part of education, strongly influencing the extent to which students use effective learning strategies. Gooch, Vasalou, Benton and Khaled (2016) used classDojo (<https://www.classdojo.com>) as a gamification platform. This platform is quite popular as it has 2.4 million registered teachers and 53 million students in 180 countries.

5. Conclusion

We came to the conclusion that using ICTs has a lot of benefits. As they facilitate access to information and knowledge, the learning process, and the interaction between students and teachers, ICTs can develop into a substitute and dependable tool for inclusive education.

The engagement of children with learning disabilities with ICTs is beneficial. Initially, the intervention process's duration has been cut down, and processing and classifying huge amounts of data is now feasible. Additionally, ICTs provide children who feel more secure and engaged in the intervention process with a more predictable and appealing environment. Additionally, ICTs help students develop learning strategies and activate their various senses with the aid of images, graphs, and videos. As a result, the research's findings demonstrate increased success rates and accuracy, and the therapist gains a better understanding of the child's skills and requirements.

However, it is important that the intervention is individualized and emphasis is placed on the needs and abilities of each child. Assistive technologies must be user-friendly, environmentally friendly, low cost, and easy to find and use. In conclusion, based on the literature, ICTs help in better understanding, assimilating, and consolidating the cognitive materials such as mathematics and language by all students. Regarding students with special needs, in many cases, ICTs are the only solution for their access to knowledge, information, and learning.

In conclusion, ICTs contribute to the equal involvement of persons with learning disabilities in social activities and provide them with greater employment prospects, bridging the digital divide and promoting digital inclusion. Future studies should concentrate on how ICTs might help youngsters with learning difficulties with their vocational rehabilitation. Additionally, finding ways to lower application costs so that families can access them is a very intriguing area for future research. The ultimate objective is to integrate children with learning disabilities into society so that they can feel equal and valuable contributors.

Concluding, we emphasize the significance of all digital technologies in the field of education and in learning disabilities domain, which is highly effective and productive and facilitates and improves assessment, intervention, and educational procedures via mobile devices that bring educational activities everywhere [47-56], various ICTs applications that are the main supporters of education [57-93], and AI, STEM, and ROBOTICS that raise educational procedures to new performance levers [94-114] and friendly Games environments [115-118]. Additionally, the development and integration of ICTs with theories and models of metacognition, mindfulness, meditation, and the cultivation of emotional intelligence [119-165], as well as with environmental factors and nutrition [43-46], accelerates and improves more than educational practices and results, especially in learning disabilities domain.

6. References

- [1] Adebisi, R.O., Liman, N.A. & Longpoe, P.K. (2015). Using Assistive Technology in Teaching Children with Learning Disabilities in the 21st Century. *Journal of Education and Practice*, 6 (24), 14-20.
- [2] Ahmad, I.,S., Parhizkar, B. & Pillay, S.,O. (2019). Engaging Children with ADHD using Mobile Based Games. *International Journal of Communication and Networking System*, 6 (1), 11-15.
- [3] Ahmad, S., Z., Jinon, N., I. & Rosmani, A., F. (2013). MathLexic: An assistive multimedia mathematical learning aid for dyslexia children. *Business Engineering and Industrial Applications Colloquium (BEIAC)*, 2013 IEEE.
- [4] Al-Edaily, A., Al-Wabil, A. & Al-Ohali, Y. (2013). Dyslexia Explorer: A Screening System for Learning Difficulties in the Arabic Language Using Eye Tracking. *First International Conference for Human Factors in Computing and Informatics, SouthCHI 2013, Lecture Notes in Computer Science*, 7946, 831-834.
- [5] Alexopoulou, A., Batsou, A. & Drigas, A.S. (2019). Effectiveness of Assessment, Diagnostic and Intervention ICT Tools for Children and Adolescents with ADHD, *International Journal of Recent Contributions from Engineering, Science & IT (IJES)*, 7 (3), 51-63.
- [6] Anagnostopoulou, P., Alexandropoulou, V., Lorentzou, G., Lykothanasi, A., Ntaountaki, P. & Drigas, A (2020). Artificial Intelligence in Autism Assessment. *International Journal of Emerging Technologies in Learning (IJET)*, 15 (6), 95-107.
- [7] Avila-Pesantez, D., Rivera, L., A., Vaca-Cardenas, L., Aguayo, S. & Zuniga, L. (2018). Towards the improvement of ADHD children through augmented reality serious games: Preliminary results. *IEEE Global Engineering Education Conference, EDUCON*, 843-848, April 2018.
- [8] Bashiri, A., Ghazisaedi, M. & Shahmoradi, L. (2017). The opportunities of virtual reality in the rehabilitation of children with attention deficit hyperactivity disorder: A literature review. *Korean Journal of Pediatrics*, 60 (11), 337-343.
- [9] Benda, P., Havlíček, Z., Lohr, V. & Havránek, M. (2011). ICT helps to overcome disabilities. *Agris On-Line Papers in Economics and Informatics*, 3 (4), 63-69.
- [10] Block, M.E., Block, V.E. & Halliday, P. (2006). What is autism? *Teaching Elementary Physical Education*, 16 (6), 7-11.
- [11] Bul, K., Franken, I., Van der Oord, S., Kato, P., Danckaerts, M., Vreeke, L., Willems, A., van Oers, H.,J.,J., van den Heuvel, R., van Slagmaat, R. & Maras, A. (2015). Development and User Satisfaction of "Plan-It Commander," a Serious Game for Children with ADHD," *Games for Health Journal*, 4 (6), 1-11.
- [12] Burke, S., Bresnahan, T., Li, T., Epnere, K., Rizzo, A., Partin, M., Ahlness, R.M. & Trimmer, M. (2018). Using Virtual Interactive Training Agents (ViTA) with Adults with Autism and Other Developmental Disabilities. *Journal of autism and developmental disorders*, 83 (3), 905-912.
- [13] Cidrim, L. & Madeiro, F. (2017). Tecnologias da Informação e da Comunicação (TIC) aplicadas à dislexia: revisão de literature, *Revista CEFAC* , 19 (1), 99-108.
- [14] Conde, M. & Fonseca, D. (2017). Information Society Skills: Is Knowledge Accessible for All? Part I. *Universal Access in the Information Society*, 17, 223-227.
- [15] Della Volpe, V. (2016). Examination on ICT integration into Italian Education. *Education and E-learning*, 1 (1), 1-7.
- [16] Díaz-Escudero, A., Torrado, J.,C., Gomez, J & Montoro, G. (2018). Technology-aided authoring tools for ASD coaching support. *Interacción 2018: Proceedings of the XIX International Conference on Human Computer Interaction*, 18, 1-6, September 2018.
- [17] Drigas, A.,S., Ioannidou, R.,E., Kokkalia. G. & Lytras, M.,D (2014). ICTs, mobile learning and social media to enhance learning for attention difficulties. *Journal of Universal Computer Science*, 20 (10), 1499-1510.

- [18] Drigas, A.S. & Ioannidou R.E. (2013). Special education and ICTs. *International Journal of Emerging Technologies in Learning*, 8 (2), 41-47.
- [19] Escobedo, L., Nguyen, D.,H., Boyd, L.,E., Hirano, S., Rangel, A., Garcia-Rosas, D., Tentori, M. & Hayes, G. (2012). MOSOCO: A Mobile Assistive Tool to Support Children with Autism Practicing Social Skills in Real-Life Situations. CHI 2012 Session: Health and children, Austin, Texas, USA, May 5-10..
- [20] Garcia-Zapirain, B., de la Torre Díez, I. & López-Coronado, M. (2017). Dual System for Enhancing Cognitive Abilities of Children with ADHD Using Leap Motion and eye-Tracking Technologies. *Journal of Medical Systems*, 41 (7).
- [21] Gkeka, E.,G., Gougoudi, A., Mertsioti, L. & Drigas, A.,S. (2018). Intervention for ADHD Child using the Montessori Method and ICTs. *International Journal of Recent Contributions from Engineering, Science & IT (IJES)*, 6 (2), 4-13.
- [22] Gooch, D., Vasalou, A., Benton, L. & Khaled, R. (2016). Using gamification to motivate students with dyslexia. *Conference on Human Factors in Computing Systems – Proceedings*, 969-980.
- [23] Grossard, C., Palestra, G., Xavier, J., Chetouani, M., Grynszpan, G. & Cohen, D. (2018). ICT and autism care: State of the art. *Current Opinion in Psychiatry*, 31 (6), 474-483.
- [24] Igwenagu, C. (2016). *Fundamentals of research methodology and data collection*. LAP Lambert Academic Publishing (2016-04-19). ISBN: 978-3-659-86884-9.
- [25] Jaliawala, M.S. & Khan, R.A. (2018). Can Autism be Catered with Artificial Intelligence Assisted Intervention Technology? A Literature Review, CoRR.
- [26] Jing, C., T. & Chen, C., J. (2017). A Research Review: How Technology Helps to Improve the Learning Process of Learners with Dyslexia. *Journal of Cognitive Sciences and Human Development*, 2 (2), 26-43.
- [27] Lewandowski, L., Wood, W., & Miller L., A.(2016). Technological Applications for Individuals with Learning Disabilities and ADHD. *Computer-Assisted and Web-Based Innovations in Psychology, Special Education, and Health*, 61-93.
- [28] Lima, D. & Castro, T. (2012). Music spectrum: A Music Immersion Virtual Environment for children with Autism,” *Procedia Computer Science*, 14, 111-118.
- [29] Muharib, R., Correa, V.,I., Wood, C., L., & Haughney, K.,L. (2018). Effects of Functional Communication Training using Go Talk Now iPad Application on challenging Behavior of Children with Autism Spectrum Disorder. *Journal of Special Education Technology*, 34 (2), 1-9.
- [30] Njoki, M., & Wabwoba, F. (2015). The Role of ICT in Social Inclusion: A Review of Literature,” *International Journal of Science and Research (IJSR)*, 4 (12), 380-387.
- [31] Ntaountaki, P., Lorentzou, G., Lykothanasi, A., Anagnostopoulou, P., Alexandropoulou, V. & Drigas, A. (2019). Robotics in Autism Intervention. *International Journal of Recent Contributions from Engineering, Science & IT (IJES)*, 7 (4), 4-17.
- [32] Obradović, S., Bjekić, D., & Zlatić, L. (2015). Creative Teaching with ICT Support for students with Specific Learning Disabilities, *Procedia - Social and Behavioral Sciences*, 203, 291-296.
- [33] Papanastasiou, G., Drigas, A., Skianis, C., Lytras, M. & Papanastasiou, E. (2018). Patient-centric ICTs based healthcare for students with learning, physical and/or sensory disabilities. *Telematics and Informatics*, 35 (4), 654-664.
- [34] Richardson, U. & Lyytinen, H. (2014). The GraphoGame Method: The Theoretical and Methodological Background of the Technology-Enhanced Learning Environment for Learning to Read. *Human Technology*, 10 (1), 39-60.
- [35] Sahin, N., T., Abdus-Sabur, R., Keshav, N., Liu, R., Salisbury, J.P. & Vahabzadeh, A. (2018). Case Study of a Digital Augmented Reality Intervention for Autism in School Classrooms: Associated With Improved Social Communication, Cognition, and Motivation via Educator and Parent Assessment. *Frontiers in Education*, 3 (57), 1-13.

- [36] Schuck, S., Emmerson, N., Ziv, H., Collins, P., Arastoo, S., Warschauer, M., Crinella, F. & Lakes, K. (2016). Designing an iPad app to monitor and improve classroom behavior for children with ADHD: ISelfControl feasibility and pilot studies. *PLoS ONE*, 11 (10), 1-13.
- [37] Smit, D. & Bakker, S. (2015). BlurtLine: A Design Exploration to Support Children with ADHD in Classrooms. *Human-Computer Interaction – INTERACT 2015*, 9299, Bamberg, Germany, August 2015.
- [38] Sonne, T., Marshall, P., Müller, J., Obel, C. & Grønbaek, K. (2016). A follow-up study of a successful assistive technology for children with ADHD and their families. *15th International Conference on Interaction Design and Children*, 400-407.
- [39] Sonne, T., Marshall, P., Obel, C., Thomsen, P.,H. & Gronbaek, K. (2016). An assistive technology design framework for ADHD. *Proceedings of the 28th Australian Computer-Human Interaction Conference, OzCHI 2016*, 60-71.
- [40] Tavakoulnia, A., Guzman, K., Cibrian, F., L., Lakes, K., D., Hayes, G. & Schuck, S., E., B. (2019). Designing a wearable technology application for enhancing executive functioning skills in children with ADHD. *UbiComp/ISWC 2019- - Adjunct Proceedings of the 2019 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2019 ACM International Symposium on Wearable Computers*, 222-225.
- [41] Vlachou, J.A. & Drigas, A.S. (2017). Mobile technology for students & adults with Autistic Spectrum Disorders (ASD),” *International Journal of Interactive Mobile Technologies*, 11 (1), 4-17.
- [42] Williams, P., Jamali, H. & Nicholas, D. (2006). Using ICT with people with special education needs: what the literature tells us. *Aslib Proceedings: New Information Perspectives*, 58 (4), 330-345.
- [43] Stavridou Th., Driga, A.M., Drigas, A.S., 2021. Blood Markers in Detection of Autism, *International Journal of Recent Contributions from Engineering Science & IT (iJES)* 9(2):79-86.
- [44] Zavitsanou, A., & Drigas, A. (2021). Nutrition in mental and physical health. *Technium Soc. Sci. J.*, 23, 67.
- [45] Driga, A.M., Drigas, A.S. 2019 “Climate Change 101: How Everyday Activities Contribute to the Ever-Growing Issue”, *International Journal of Recent Contributions from Engineering, Science & IT*, vol. 7(1), pp. 22-31. <https://doi.org/10.3991/ijes.v7i1.10031>
- [46] Driga, A.M., and Drigas, A.S. 2019 “ADHD in the Early Years: Pre-Natal and Early Causes and Alternative Ways of Dealing.” *International Journal of Online and Biomedical Engineering (IJOE)*, vol. 15, no. 13, p. 95., doi:10.3991/ijoe.v15i13.11203
- [47] Stathopoulou A., Loukeris D., Karabatzaki Z., Politi E., Salapata Y., and Drigas, A. S., 2020 “Evaluation of Mobile Apps Effectiveness in Children with Autism Social Training via Digital Social Stories,” *Int. J. Interact. Mob. Technol. (iJIM)*; Vol 14, No 03,
- [48] Drigas AS, Pappas MA, 2015 A review of mobile learning applications for mathematics. *International Journal of Interactive Mobile Technologies* 9 (3)
- [49] Drigas, A. S., and Angelidakis P., 'Mobile Applications within Education: An Overview of Application Paradigms in Specific Categories', *International Journal of Interactive Mobile Technologies(iJIM)*, vol. 11, no. 4, p. 17, May 2017. <https://doi.org/10.3991/ijim.v11i4.6589>
- [50] Stathopoulou, et all 2018, Mobile assessment procedures for mental health and literacy skills in education. *International Journal of Interactive Mobile Technologies*, 12(3), 21-37,
- [51] Drigas, A., Kokkalia, G. & Lytras, M. D. (2015). Mobile and Multimedia Learning in Preschool Education. *J. Mobile Multimedia*, 11(1-2), 119–133.
- [52] Kokkalia G, AS Drigas, A Economou 2016 Mobile learning for preschool education. *International Journal of Interactive Mobile Technologies* 10 (4)
- [53] Stathopoulou A, Karabatzaki Z, Tsiros D, Katsantoni S, Drigas A, 2019 Mobile apps the educational solution for autistic students in secondary education *Journal of Interactive Mobile Technologies* 13 (2), 89-101

- [54] Drigas A, DE Dede, S Dedes 2020 Mobile and other applications for mental imagery to improve learning disabilities and mental health *International Journal of Computer Science Issues (IJCSI)* 17 (4), 18-23
- [55] Drigas, A.S., Ioannidou, R.E., Kokkalia, G. and Lytras, M. (2014), “ICTs, mobile learning and social media to enhance learning for attention difficulties”, *Journal of Universal Computer Science*, Vol. 20 No. 10, pp. 1499-1510.
- [56] Alexopoulou A, Batsou A, Drigas A, 2020 Mobiles and cognition: The associations between mobile technology and cognitive flexibility *iJIM* 14(3) 146-156
- [57] Drigas, A. S., & Ioannidou, R. E. (2011, September). ICTs in special education: A review. In *World Summit on Knowledge Society* (pp. 357-364). Springer, Berlin, Heidelberg.
- [58] Drigas, A. S., J.Vrettaros, L.Stavrou, D.Kouremenos, 2004. E-learning Environment for Deaf people in the E-Commerce and New Technologies Sector, *WSEAS Transactions on Information Science and Applications*, Issue 5, Volume 1, November
- [59] Drigas, A.S., Vrettaros, J. and Kouremenos, D. (2004) ‘Teleeducation and e-learning services for teaching English as a second language to deaf people, whose first language is the sign language’, *WSEAS Transactions on Information Science and Applications*, Vol. 1, No. 3, pp.834–842.
- [60] Drigas, A., Koukianakis, L., Papagerasimou, Y., 2011, Towards an ICT-based psychology: *Epsychology, Computers in Human Behavior*, 27:1416–1423. <https://doi.org/10.1016/j.chb.2010.07.045>
- [61] Drigas A., Pappas M, and Lytras M., 2016. “Emerging technologies for ict based education for dyscalculia: Implications for computer engineering education,” *International Journal of Engineering Education*, vol. 32, no. 4, pp. 1604–1610,
- [62] Drigas, A., Kokkalia, G., & Lytras, M. D. (2015). ICT and collaborative co-learning in preschool children who face memory difficulties. *Computers in Human Behavior*, 51, 645–651.
- [63] Drigas, A. & Kokkalia, G. 2017. ICTs and Special Education in Kindergarten. *International Journal of Emerging Technologies in Learning* 9 (4), 35–42.
- [64] Drigas, A. S., Stavridis, G., & Koukianakis, L. (2004). A Modular Environment for E-learning and E-psychology Applications. *WSEAS Transactions on Computers*, 3(6), 2062-2067.
- [65] A Drigas, L Koukianakis, Y Papagerasimou 2011 Towards an ICT-based psychology: E-psychology *Computers in Human Behavior* 27 (4), 1416-1423
- [66] Drigas, A., Leliopoulos, P.: Business to consumer (B2C) e-commerce decade evolution. *Int. J. Knowl. Soc. Res. (IJKSR)* 4(4), 1–10 (2013)
- [67] Pappas M, Drigas A, Papagerasimou Y, Dimitriou H, Katsanou N, Papakonstantinou S, et al. 2018; Female Entrepreneurship and Employability in the Digital Era: The Case of Greece. *Journal of Open Innovation: Technology, Market, and Complexity*. 4(2): 15.
- [68] Papanastasiou G., Drigas, A. S., Skianis Ch., M. Lytras & E. Papanastasiou, 2018. “Patient-Centric ICTs based Healthcare for students with learning, physical and/or sensory disabilities,” *Telemat Inform*, vol. 35, no. 4, pp. 654–664, 2018. <https://doi.org/10.1016/j.tele.2017.09.002>
- [69] Drigas, A., & Kontopoulou, M. T. L. (2016). ICTs based Physics Learning. *International Journal of Engineering Pedagogy (iJEP)*, 6(3), 53-59. <https://doi.org/10.3991/ijep.v6i3.53-59>
- [70] Papanastasiou, G., Drigas, A., Skianis, C., and Lytras, M. (2020). Brain computer interface based applications for training and rehabilitation of students with neurodevelopmental disorders. A literature review. *Heliyon* 6:e04250. doi: 10.1016/j.heliyon.2020.e04250
- [71] Drigas, A. S., John Vrettaros, and Dimitris Kouremenos, 2005. “An e-learning management system for the deaf people,” *AIKED '05: Proceedings of the Fourth WSEAS International Conference on Artificial Intelligence, Knowledge Engineering Data Bases*, article number 28.
- [72] Pappas, M., Demertzi, E., Papagerasimou, Y., Koukianakis, L., Kouremenos, D., Loukidis, I. and Drigas, A. 2018. E-Learning for deaf adults from a user-centered perspective. *Education Sciences* 8(4)206:

- [73] Pappas, M., Eleftheria Demertzi, Yannis Papagerasimou, Lefteris Koukianakis, Nikitas Voukelatos, and Drigas, A. S., 2019. Cognitive Based E-Learning Design for Older Adults. *Social Sciences* 8, 1 (Jan. 2019), 6. <https://doi.org/10.3390/socsci801000>
- [74] Drigas, A. S., Lefteris Koukianakis 2009: Government online: An e-government platform to improve public administration operations and services delivery to the citizen. *WSKS* (1), volume 5736 de *Lecture Notes in Computer Science*, 523–532. Springer,
- [75] Theodorou, P.; Drigas, A. 2017, ICTs and Music in Generic Learning Disabilities. *Int. J. Emerg. Technol. Learn.* 12(4), 101–110
- [76] Pappas, M.A., & Drigas, A.S. (2015). ICT based screening tools and etiology of dyscalculia. *International Journal of Engineering Pedagogy*, (5)3, 61-66.
- [77] Drigas, A., & Kostas, I. (2014). On Line and other ICTs Applications for teaching math in Special Education. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 2(4), pp-46. <http://dx.doi.org/10.3991/ijes.v2i4.4204>
- [78] Alexopoulou, A, Batsou, A, Drigas, A. (2019). Resilience and academic underachievement in gifted students: causes, consequences and strategic methods of prevention and intervention. *International Journal of Online and Biomedical Engineering (iJOE)*, vol. 15, no. 14, pp. 78.
- [79] Drigas, A. & Ioannidou, R. E. (2013). Special education and ICT's. *International Journal of Emerging Technologies in Learning* 8(2), 41– 47.
- [80] Drigas, A., & Papanastasiou, G. (2014). Interactive White Boards in Preschool and Primary Education. *International Journal of Online and Biomedical Engineering (iJOE)*, 10(4), 46–51. <https://doi.org/10.3991/ijoe.v10i4.3754>
- [81] Drigas, A. S. and Politi-Georgousi, S. (2019). Icts as a distinct detection approach for dyslexia screening: A contemporary view. *International Journal of Online and Biomedical Engineering (iJOE)*, 15(13):46–60.
- [82] Lizeta N. Bakola, Nikolaos D. Rizos, Drigas, A. S., 2019 “ICTs for Emotional and Social Skills Development for Children with ADHD and ASD Co-existence” *International Int. J. Emerg. Technol. Learn.*, 14(5), 122-131.
- [83] Kontostavlou, E.Z., & Drigas, A.S. (2019). The Use of Information and Communications Technology (ICT) in Gifted Students. *International Journal of Recent Contributions from Engineering, Science and IT*, 7(2), 60-67. doi:10.3991/ijes.v7i2.10815
- [84] Drigas, A. S., and Vlachou J. A., 2016. “Information and communication technologies (ICTs) and autistic spectrum disorders (ASD),” *Int. J. Recent Contrib. Eng. Sci. IT (iJES)*, vol. 4, no. 1, p. 4, <https://doi.org/10.3991/ijes.v4i1.5352>
- [85] Drigas, A. S., Koukianakis, L, Papagerasimou, Y. (2006) “An elearning environment for nontraditional students with sight disabilities.”, *Frontiers in Education Conference*, 36th Annual. IEEE, p. 23-27.
- [86] Drigas A., and Koukianakis L. 2006 An open distance learning e-system to support SMEs e-enterprising. In proceeding of 5th WSEAS Internationalconference on Artificial intelligence, knowledge engineering, data bases (AIKED 2006). Spain
- [87] Drigas A, Petrova A 2014 ICTs in speech and language therapy *International Journal of Engineering Pedagogy (iJEP)* 4 (1), 49-54
- [88] Bravou V, Oikonomidou D, Drigas A, 2022 Applications of Virtual Reality for Autism Inclusion. *A review Retos* 45, 779-785
- [89] Chaidi I, Drigas A, 2022 "Parents' views Questionnaire for the education of emotions in Autism Spectrum Disorder" in a Greek context and the role of ICTs *Technium Social Sciences Journal* 33, 73-91
- [90] Bravou V, Drigas A, 2019 A contemporary view on online and web tools for students with sensory & learning disabilities *iJOE* 15(12) 97
- [91] Drigas A, Vrettaros J, Tagoulis A, Kouremenos D, 2010 Teaching a foreign language to deaf people via vodcasting & web 2.0 tools *World Summit on Knowledge Society*, 514-521

- [92] Chaidi I, Drigas A, C Karagiannidis 2021 ICT in special education Technium Soc. Sci. J. 23, 187
- [93] Xanthopoulou M, Kokalia G, Drigas A, 2019, Applications for Children with Autism in Preschool and Primary Education. *Int. J. Recent Contributions Eng. Sci. IT* 7 (2), 4-16
- [94] Drigas, A., Vrettaros, J. (2004): An Intelligent Tool for Building e-Learning Content-Material Using Natural Language in Digital Libraries. *WSEAS Transactions on Information Science and Applications* 5(1) 1197–1205
- [95] Drigas A, et all 2004 An expert system for job matching of the unemployed *Expert Systems with Applications* 26 (2), 217-224
- [96] Kefalis C and Drigas A. (2019) Web Based and Online Applications in STEM Education. *International Journal of Engineering Pedagogy (iJEP)* 9, 4 (2019), 76– 85.
- [97] Chaidi E, Kefalis C, Papagerasimou Y, Drigas, 2021, Educational robotics in Primary Education. A case in Greece, *Research, Society and Development* 10 (9), e17110916371-e17110916371
- [98] Drigas, A.S., Vrettaros, J., Koukianakis, L.G. and Glentzes, J.G. (2005). A Virtual Lab and e-learning system for renewable energy sources. *Int. Conf. on Educational Tech.*
- [99] Drigas AS, Argyri K, Vrettaros J (2009) Decade review (1999-2009): artificial intelligence techniques in student modeling. In: *World Summit on Knowledge Society*. Springer, pp 552–564
- [100] Vrettaros, J., Tagoulis, A., Giannopoulou, N., & Drigas, A. (2009). An empirical study on the use of Web 2.0 by Greek adult instructors in educational procedures. *World Summit on Knowledge System (WSKS)*, 49, 164-170. http://dx.doi.org/10.1007/978-3-642-04757-2_18
- [101] Drigas, A., Dourou, A. (2013). A Review on ICTs, E-Learning and Artificial Intelligence for Dyslexic's Assistance. *iJet*, 8(4), 63-67.
- [102] Anagnostopoulou, P., Alexandropoulou, V., Lorentzou, G., Lykothanasi, A., Ntaountaki, P., & Drigas, A. (2020). Artificial intelligence in autism assessment. *International Journal of Emerging Technologies in Learning*, 15(6), 95-107. <https://doi.org/10.3991/ijet.v15i06.11231>
- [103] Pappas, M., & Drigas, A. (2016). Incorporation of artificial intelligence tutoring techniques in mathematics. *International Journal of Engineering Pedagogy*, 6(4), 12–16. <https://doi.org/10.3991/ijep.v6i4.6063>
- [104] Lytra N, Drigas A 2021 STEAM education-metacognition–Specific Learning Disabilities *Scientific Electronic Archives* 14 (10)
- [105] Mitsea E, Lytra N, A Akrivopoulou, A Drigas 2020 Metacognition, Mindfulness and Robots for Autism Inclusion. *Int. J. Recent Contributions Eng. Sci. IT* 8 (2), 4-20
- [106] Stavridis S, D Papageorgiou, Z Doulgeri 2017 Dynamical system based robotic motion generation with obstacle avoidance, *IEEE Robotics and Automation Letters* 2 (2), 712-718
- [107] Kastritsi T, D Papageorgiou, I Sarantopoulos, S Stavridis, Z Doulgeri, 2019 Guaranteed active constraints enforcement on point cloud-approximated regions for surgical applications 2019 *International Conference on Robotics and Automation (ICRA)*, 8346-8352
- [108] Stavridis S, Z Doulgeri 2018 Bimanual assembly of two parts with relative motion generation and task related optimization 2018 *IEEE/RSJ International Conference on Intelligent Robots and Systems ...*
- [109] Stavridis S, P Falco, Z Doulgeri 2020 Pick-and-place in dynamic environments with a mobile dual-arm robot equipped with distributed distance sensors *IEEE-RAS 20th International Conference on Humanoid Robots (Humanoids)*
- [110] Papageorgiou D, S Stavridis, C Papakonstantinou, Z Doulgeri 2021 Task geometry aware assistance for kinesthetic teaching of redundant robots *IEEE/RSJ International Conference on Intelligent Robots and Systems ...*
- [111] Kastritsi T, I Sarantopoulos, S Stavridis, D Papageorgiou, Z Doulgeri Manipulation of a Whole Surgical Tool Within Safe Regions Utilizing Barrier Artificial Potentials *Mediterranean Conference on Medical and Biological Engineering and Computing ...*

- [112] Stavridis S, D Papageorgiou, L Droukas, Z Doulgeri 2022 Bimanual crop manipulation for human-inspired robotic harvesting arXiv preprint arXiv:2209.06074
- [113] Ntaountaki P, et all 2019 Robotics in Autism Intervention. *Int. J. Recent Contributions Eng. Sci. IT* 7 (4), 4-17
- [114] Demertzi E, Voukelatos N, Papagerasimou Y, Drigas A, 2018 Online learning facilities to support coding and robotics courses for youth *International Journal of Engineering Pedagogy (iJEP)* 8 (3), 69-80
- [115] Chaidi I, Drigas A 2022 Digital games & special education *Technium Social Sciences Journal* 34, 214-236
- [116] Doulou A, Drigas A 2022 Electronic, VR & Augmented Reality Games for Intervention in ADHD *Technium Social Sciences Journal*, 28, 159.
- [117] Kokkalia, G., Drigas, A., & Economou, A. (2016). The role of games in special preschool education. *International Journal of Emerging Technologies in Learning (iJET)*, 11(12), 30-35.
- [118] Kefalis C, Kontostavlou EZ, Drigas A, 2020 The Effects of Video Games in Memory and Attention. *Int. J. Eng. Pedagog.* 10 (1), 51-61
- [119] Drigas, A., & Mitsea, E. (2020). The 8 Pillars of Metacognition. *International Journal of Emerging Technologies in Learning (iJET)*, 15(21), 162-178. <https://doi.org/10.3991/ijet.v15i21.14907>
- [120] Drigas, A. S., and M. Pappas, 2017. "The Consciousness-Intelligence-Knowledge Pyramid: An 8x8 Layer Model," *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, vol. 5, no.3, pp 14-25, <https://doi.org/10.3991/ijes.v5i3.7680>
- [121] Drigas A, Karyotaki M (2017) Attentional control and other executive functions. *Int J Emerg Technol Learn iJET* 12(03):219–233
- [122] Drigas A, Karyotaki M 2014. Learning Tools and Application for Cognitive Improvement. *International Journal of Engineering Pedagogy*, 4(3): 71-77. From (Retrieved on 13 May 2016)
- [123] Drigas, A., & Mitsea, E. (2021). 8 Pillars X 8 Layers Model of Metacognition: Educational Strategies, Exercises & Trainings. *International Journal of Online & Biomedical Engineering*, 17(8). <https://doi.org/10.3991/ijoe.v17i08.23563>
- [124] Drigas A., Papoutsi C. (2020). The Need for Emotional Intelligence Training Education in Critical and Stressful Situations: The Case of COVID-19. *Int. J. Recent Contrib. Eng. Sci. IT* 8(3), 20–35. [10.3991/ijes.v8i3.17235](https://doi.org/10.3991/ijes.v8i3.17235)
- [125] Drigas, A., & Mitsea, E. (2020). The Triangle of Spiritual Intelligence, Metacognition and Consciousness. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 8(1), 4-23. <https://doi.org/10.3991/ijes.v8i1.12503>
- [126] Kokkalia, G., Drigas, A. Economou, A., & Roussos, P. (2019). School readiness from kindergarten to primary school. *International Journal of Emerging Technologies in Learning*, 14(11), 4-18.
- [127] Drigas, A., & Mitsea, E. (2021). Metacognition, stress-relaxation balance & related hormones. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 9(1), 4–16. <https://doi.org/10.3991/ijes.v9i1.19623>
- [128] Pappas M, Drigas A. 2019; Computerized Training for Neuroplasticity and Cognitive Improvement. *International Journal of Engineering Pedagogy*.9(4):50-62
- [129] Papoutsi, C. and Drigas, A. (2017) Empathy and Mobile Applications. *International Journal of Interactive Mobile Technologies* 11(3). 57. <https://doi.org/10.3991/ijim.v11i3.6385>
- [130] Papoutsi, C. & Drigas, A. (2016). Games for Empathy for Social Impact. *International Journal of Engineering Pedagogy* 6(4), 36-40.
- [131] Karyotaki, M., & Drigas, A. (2015). Online and other ICT Applications for Cognitive Training and Assessment. *International Journal of Online and Biomedical Engineering*. 11(2), 36-42.
- [132] Papoutsi, C., Drigas, A., & Skianis, C. (2019). Emotional intelligence as an important asset for HR in organizations: Attitudes and working variables. *International Journal of Advanced Corporate Learning*, 12(2), 21–35. <https://doi.org/10.3991/ijac.v12i2.9620>

- [133] Chaidi I. Drigas, A. S., 2020. “Autism, Expression, and Understanding of Emotions: Literature Review,” *Int. J. Online Biomed. Eng.*, vol. 16, no. 02, pp. 94–111, <https://doi.org/10.3991/ijoe.v16i02.11991>
- [134] Drigas, A. S., & Karyotaki, M. (2019). A Layered Model of Human Consciousness. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 7(3), 41- 50. <https://doi.org/10.3991/ijes.v7i3.11117>
- [135] Drigas, A. S., Karyotaki, M., & Skianis, C. (2018). An Integrated Approach to Neuro-development, Neuroplasticity and Cognitive Improvement. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 6(3), 4-18.
- [136] Karyotaki M. and Drigas, A. S., 2016. “Latest trends in problem solving assessment,” *International Journal of Recent contributions from Engineering, Science & IT (iJES)*, vol. 4, no. 2, 4-10.
- [137] Mitsea E., Drigas, A. S., and Mantas P., 2021. Soft Skills & Metacognition as Inclusion Amplifiers in the 21st Century,” *Int. J. Online Biomed. Eng. IJOE*, vol. 17, no. 04, Art. no. 04, <https://doi.org/10.3991/ijoe.v17i04.20567>
- [138] Angelopoulou, E. Drigas, A. (2021). Working Memory, Attention and their Relationship: A theoretical Overview. *Research. Society and Development*, 10(5), 1-8. <https://doi.org/10.33448/rsd-v10i5.15288>
- [139] Tourimpampa, A., Drigas, A., Economou, A., & Roussos, P. (2018). Perception and text comprehension. It’s a matter of perception! *International Journal of Emerging Technologies in Learning (iJET)*. 13(7)
- [140] Drigas A, Mitsea E 2020 A metacognition based 8 pillars mindfulness model and training strategies. *International Journal of Recent Contributions from Engineering, Science & IT* 8(4), 4-17.
- [141] Papoutsis C, Drigas A, C Skianis 2021 Virtual and augmented reality for developing emotional intelligence skills *Int. J. Recent Contrib. Eng. Sci. IT (IJES)* 9 (3), 35-53
- [142] Kapsi S, Katsantoni S, Drigas A 2020 The Role of Sleep and Impact on Brain and Learning. *Int. J. Recent Contributions Eng. Sci. IT* 8 (3), 59-68
- [143] Drigas A, Mitsea E, Skianis C 2021 The Role of Clinical Hypnosis and VR in Special Education *International Journal of Recent Contributions from Engineering Science & IT (iJES)* 9(4), 4-17.
- [144] V Galitskaya, A Drigas 2021 The importance of working memory in children with Dyscalculia and Ageometria *Scientific Electronic Archives* 14 (10)
- [145] Chaidi I, Drigas A 2020 Parents' Involvement in the Education of their Children with Autism: Related Research and its Results *International Journal Of Emerging Technologies In Learning (Ijet)* 15 (14), 194-203.
- [146] Drigas A, Mitsea E 2021 Neuro-Linguistic Programming & VR via the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences *Technium Soc. Sci. J.* 26, 159
- [147] Drigas A, Mitsea E 2022 Conscious Breathing: a Powerful Tool for Physical & Neuropsychological Regulation. The role of Mobile Apps *Technium Social Sciences Journal* 28, 135-158
- [148] Drigas A, Mitsea E, C Skianis 2022 Clinical Hypnosis & VR, Subconscious Restructuring-Brain Rewiring & the Entanglement with the 8 Pillars of Metacognition X 8 Layers of Consciousness X 8 Intelligences. *International Journal of Online & Biomedical Engineering (IJOE)* 18 (1)
- [149] Drigas A, Karyotaki M 2019 Attention and its Role: Theories and Models. *International Journal of Emerging Technologies in Learning* 14 (12), 169-182
- [150] Drigas A, Karyotaki M 2019 Executive Functioning and Problem Solving: A Bidirectional Relation. *International Journal of Engineering Pedagogy (iJEP)* 9 (3)
- [151] Bamicha V, Drigas A 2022 ToM & ASD: The interconnection of Theory of Mind with the social-emotional, cognitive development of children with Autism Spectrum Disorder. The use of ICTs as an alternative form of intervention in ASD *Technium Social Sciences Journal* 33, 42-72

- [152] Drigas A, Mitsea E, C Skianis 2022 Neuro-Linguistic Programming, Positive Psychology & VR in Special Education. *Scientific Electronic Archives* 15 (1)
- [153] Drigas A, Mitsea E, Skianis C. 2022 Virtual Reality and Metacognition Training Techniques for Learning Disabilities *SUSTAINABILITY* 14(16), 10170
- [154] Drigas A., Sideraki A. 2021 Emotional Intelligence in Autism *Technium Soc. Sci. J.* 26, 80
- [155] Drigas A, Mitsea E, Skianis C.. 2022 Subliminal Training Techniques for Cognitive, Emotional and Behavioural Balance. The role of Emerging Technologies *Technium Social Sciences Journal* 33, 164-186
- [156] Bakola L, Drigas A, 2020 Technological development process of emotional Intelligence as a therapeutic recovery implement in children with ADHD and ASD comorbidity. . *International Journal of Online & Biomedical Engineering*, 16(3), 75-85
- [157] Bamicha V, Drigas A, 2022 The Evolutionary Course of Theory of Mind - Factors that facilitate or inhibit its operation & the role of ICTs *Technium Social Sciences Journal* 30, 138-158
- [158] Karyotaki M, Bakola L, Drigas A, Skianis C, 2022 Women's Leadership via Digital Technology and Entrepreneurship in business and society *Technium Social Sciences Journal.* 28(1), 246–252.
- [159] Drigas A, Bakola L, 2021The 8x8 Layer Model Consciousness-Intelligence-Knowledge Pyramid, and the Platonic Perspectives *International Journal of Recent Contributions from Engineering, Science & IT (iJES)* 9(2) 57-72
- [160] Karyotaki M, Drigas A, 2016 Online and Other ICT-based Training Tools for Problem-solving Skills. *International Journal of Emerging Technologies in Learning* 11 (6)
- [161] Mitsea E, Drigas A., Skianis C, 2022 Breathing, Attention & Consciousness in Sync: The role of Breathing Training, Metacognition & Virtual Reality *Technium Social Sciences Journal* 29, 79-97
- [162] Mitsea E, Drigas A, Skianis C, 2022 ICTs and Speed Learning in Special Education: High-Consciousness Training Strategies for High-Capacity Learners through Metacognition Lens *Technium Soc. Sci. J.* 27, 230
- [163] Drigas A, Karyotaki M, Skianis C, 2017 Success: A 9 layered-based model of giftedness *International Journal of Recent Contributions from Engineering, Science & IT* 5(4) 4-18
- [164] Drigas A, Papoutsi C, 2021,Nine Layer Pyramid Model Questionnaire for Emotional Intelligence, *International Journal of Online & Biomedical Engineering* 17 (7)
- [165] Drigas A, Papoutsi C, Skianis, 2021, Metacognitive and Metaemotional Training Strategies through the Nine-layer Pyramid Model of Emotional Intelligence, *International Journal of Recent Contributions from Engineering, Science & IT (iJES)* 9.4 58-76