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Care4Autism

Erasmus+ Adult Education project
2021-1-BE01-KA210-ADU-000035051

Exchanging good practices for Adults
with Autism and their family caregivers



Partners



www.care4autism.eu



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The small scale Erasmus+ project "Care4Autism" aimed at:

- 1) Reducing stigma and discrimination towards adults living with autism and their family caregivers by sharing successful awareness campaigns in Belgium, Spain, Italy, Latvia, and Greece.
- 2) Highlighting effective practices in digital health care services for adults living with autism.
- 3) Easing caregivers' levels of depression, stress, insecurity, and anxiety about the future of adults with autism.
- 4) Bringing together high-functioning adults with autism from different countries in a training activity.

We chose the horizontal priority: "Addressing digital transformation through the development of digital readiness, resilience, and capacity" because it was constructive, especially during the COVID-19 pandemic, to use digital health care services such as virtual support groups, apps, and e-services offered by several EU member states. We promoted those digital services through two webinars and a Learning teaching training activity.

We aimed at improving the competencies of educators and other adult education staff. Partners from Belgium, Greece, Spain, Latvia, and Italy had the opportunity to enhance their skills on how to conduct successful awareness campaigns in their respective countries. We shared good practices on the website: www.care4autism.eu and a printed version. Additionally we used social media https://twitter.com/care4_autism and LinkedIn: <https://www.linkedin.com/company/care4autism>

We selected the adult education priority "inclusion and diversity in all fields of education" because we believed that enhancing social support for adults with autism in Europe within the framework of the principles of maximum personal autonomy could contribute to equal opportunities, non-discrimination, social integration, and adult education for such a vulnerable group. National/Local Awareness raising events promoted the need for equal opportunities.



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Introduction

Autism spectrum disorder (ASD) is a childhood-onset neurodevelopmental disorder that is characterized by difficulties in social interactions, skills and functions (American Psychological Association, n.d.). Researchers show that the most effective interventions on ASD are developmental and behavioral approaches but many people are unable to access these interventions due to financial costs and time consumption. One of the ways to apply good practises for adults with ASD is using digital health care services. Since people with autism who expose digital interventions can basically use digital devices such as computers or tablets, individuals with autism who is not comfortable with exposing in-person social interactions can prefer digital interventions more (Sandgreen et al., 2021).



Autism is a lifelong developmental disability that affects how people perceive the world and interact with others. Autistic adults see, hear and feel the world differently from other adults. Over the past four decades, there have been significant advances in our understanding of autism, yet services for autistic adults continue to lag far behind those for children, and prospects for employment and independent living remain poor. Adult outcomes also vary widely and while cognitive and language abilities are important prognostic indicators, the influence of social, emotional, familial and many other factors remains uncertain. Autism diagnoses in young children increased dramatically in the 1990s and now those children are young adults on the verge of a challenging transition to the real world. Professionals who work with young adults find it hard to get information on how specific social, behavioral, and cognitive characteristics of people with autism affect the transition to adulthood, exploring potential challenges and traits that can be powerful assets (American Psychiatric Association, 2000).

The Purpose of the Guide

The purpose of this guide is to collect good practices existing for adults with Autism Spectrum Disorder. The idea behind the guide is to find good practices implemented by the project partner organisations (Controvento SCS, Fundación Miradas, Epioni, Belgian Brain Council, Latvijas Autisma apvienība), including also good practices developed nationally (Italy, Spain, Greece, Belgium, Latvia). The search for and collection of good practices has been widened to the European framework as well. Finding approaches, methodologies, data on Autism Spectrum Disorder in adults is a major concern because there is a high prevalence in cases of autism in young children who will soon be reaching their adolescent years and then become adults. If it can be figured out the best way to serve adults with autism now the future transition into adulthood of a person with autism spectrum disorder will be better prepared and more effective.

Digital Interventions for Adults with ASD

In response to the COVID-19 pandemic, many mental health professionals transferred their services into the digital platforms such as Zoom, Skype. Although there are no best practice guidelines for delivering online therapeutic interventions, digital technologies may provide real-time clinical interventions for people with ASD (Nuske, & Mandell, 2021). Researchers show the role of social media as a source of informational, social, and emotional support for people with autism since the majority of adults with autism and their family caregivers use social networking sites, such as Facebook in order to build social connections, ask for advice or help from the group members so that they can share their experiences and raise awareness about autism. Educators and health care professionals can also create online campaigns on social media to reduce stigma and discrimination towards individuals with ASD (Zhao et al., 2019). Online group therapy has also been found successful in establishing a connection between people with autism who share similar ages and experiences (Open Doors Therapy, n.d.).

One of the digital interventions to help adults with ASD is augmented reality (AR). AR is an interactive technology that integrates digital information with the user's environment in real time. Users may interact with objects or experience educational and entertaining environment via AR and it may be beneficial for clinical interventions for adults with ASD (Sahin et al., 2018). For instance, Empowered Brain app is runned by smartglasses to enhance the social and cognitive skills' of children and adults with autism. In this app, users wear glasses and can better interact with their families and the world. They can choose the emoji that associated with their partner's expression by tilting their heads. They can also familiarise with new places before visiting them in real life so it reduces autistic individuals' stress and anxiety (Angelo Santabarbara, 2022). Another platform that provides opportunities to build social interactions for individuals with ASD is virtual reality (VR). This technology enables users to interact with an artificial three-dimensional (3-D) environment. Researchers showed that it enhances social skills, social cognition, and social functioning in young adults with ASD (Kandalaft et al, 2013).



Limitations of Digital Interventions and Potential Directions for Good Practices

There are also some drawbacks during the application of digital interventions such as technical problems, difficulties to create a rapport between therapists and patients via digital platforms, etc. so health care professionals should be competent first in face-to-face applications and then in digital interventions against all kinds of problems (Angelo Santabarbara, 2022). The interactions on social media, such as Facebook groups might not be representative of all autism-related support so understanding the motivations behind the group interactions and social media posts are also important (Zhao et al., 2019). Furthermore, there is a limited measure of rating individuals' personal emotions, facial expressions, speech and posture on digital platforms, such as VR technologies (Kandalaft et al., 2013). Technological devices may also cause side effects, including headache, fatigue, dizziness. People with ASD who use AR technologies may also experience some problems with sensory-motor functions, attentional and transition-related processes. Therefore, digital interventions can be divided into short sessions and applied intermittently (Sahin et al., 2018).



Conclusion

Researchers show the effectiveness of technology-based interventions in enhancing a wide range of skills and behaviors, such as social and emotional skills, communication ability, academic success, and competency at work but there are also some limitations of digital interventions so it is important to identify good digital practices for individuals with ASD and their family caregivers.



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Autism Europe

- Autism-Europe (AE) is an international association with a primary mission to champion the rights of autistic individuals and enhance their quality of life. AE actively engages with European decision-makers, advocating for more effective policies that address the specific needs of those on the autism spectrum. Additionally, AE endeavors to increase awareness and understanding of autism throughout society.
 - AE collaborates with its members to achieve the following objectives:
 - 1. Advocating for the rights of autistic individuals within the European institutions.
 - 2. Monitoring European laws and policies related to autism.
 - 3. Promoting appropriate care, education, training, employment opportunities, living support, adapted medical and social services, professional diagnosis, early intervention, protection from discrimination, and improved social inclusion, all contributing to the well-being of people on the autism spectrum.
 - 4. Facilitating the exchange of information, best practices, and experiences in the field of autism.
 - 5. Raising awareness about autism through various initiatives.
 - To further these goals, AE organizes a triannual international congress, providing a platform for sharing the latest research and best practices related to therapies, support, social inclusion, and service provision.
 - AE also disseminates valuable information through its LINK magazine, newsletters, research reports, position papers, and toolkits, all geared towards advocating for the rights of autistic individuals.
 - Annually, in collaboration with its members, AE conducts awareness campaigns on World Autism Awareness Day (April 2) to promote understanding and acceptance of autism worldwide.
-
- Autism-Europe functions as an umbrella organization, encompassing and representing an estimated 5 million individuals across Europe. It unites nearly 90 member associations, individual members, and self-advocates who work tirelessly to advocate for the rights of autistic individuals from not only 40 European countries but also from beyond Europe's borders.

Autism Europe



<https://www.autismeurope.org/>

<https://www.instagram.com/autismeurope/>

<https://www.linkedin.com/company/autism-europe/?originalSubdomain=be>



ACTE- Autism in Context Theory and Experiment

- The interfaculty research group ACTE (Autism in Context: Theory and Experiment) was established in 2015 at the Université libre de Bruxelles. Our primary objective is to enhance the understanding of language development and communication skills in individuals with Autism Spectrum Disorder (ASD). Our research is specifically focused on investigating the origins of language delays, social communication abilities in both children and adults, and the impact of social communication differences in everyday interactions.
 - To achieve our goals, we employ a comprehensive research approach that combines investigation techniques from cognitive psychology, social psychology, and linguistics. Our ecological research program incorporates experimental methods tailored to accommodate the unique sensitivities of children and adults with autism.
 - We recognize the vast diversity within the autism spectrum across all aspects of the ACTE project. Therefore, whenever possible, we aim to gain insights into individual progression and development in children by conducting longitudinal studies. This approach allows us to better comprehend the nuances and variations that exist within the autism spectrum.
-
- Starting from June 2017, ACTE has embarked on the establishment of a dedicated research center for Autism Spectrum Disorder at the Université libre de Bruxelles. This unique center is designed with a specific focus on autism and its sensory characteristics, making it unparalleled in Belgium. However, our vision extends beyond merely being a research laboratory for autism.
 - The center will encompass not only experimentation and observation rooms but also specially designed spaces where individuals with autism and their families can feel comfortable, grow, access valuable information, and participate in scientific conferences. In essence, this center aims to be an extraordinary platform for fostering interaction, mutual understanding, and collaboration between the realms of research and families.
 - By providing an inclusive environment that encourages open dialogue, the center aims to facilitate meaningful interactions and joint progress towards enhancing the lives of those affected by autism.



Professional awareness campaign organized by APEPA (co-partner) 28th April 2023

Inspired by the work of the Erasmus+ Care4Autism project and supported by the Belgian Brain Council, APEPA organized workshops as part of an awareness campaign for professionals in contact with autistic adults to reduce stigma and discrimination by them and their family carers.

🎯 Target audience in everyday life: mutual insurance companies (Esenca, Altéo, La Mutualité Neutre, Mutualité Libérale Hainaut-Namur) and their associations for people with disabilities, Le Forem and its guidance services, the Fédération Wallonne des Entreprises de Travail Adapté, the regional offices of AVIQ - Agence pour une Vie de Qualité, Handicontact in towns and provinces (UVCW) and others such as property managers. Parents and caregivers are always welcome.

🗺️ The definition of the autism spectrum, hypo- and hypersensibilities, how to make places and e-documents "autism friendly" and practical approaches in exchange with participants.

📅 These awareness-raising workshops held over half a day on April 28 2023 in Malonne, Belgium

✉️ Info on 0470 41 13 36 or by e-mail at coordination.apepa@gmail.com
<https://autisme-belgique.wixsite.com/apepa>

More Information Facebook APEPA or the APEPA website.



Property and personal administration: legislation and judicial practice

Two educational sessions were held in Namur, organized by the asbl DHEI (Droit Handicap Et Inclusion), in collaboration with APEPA. These sessions took place after the academic year began.

The focus of these sessions was twofold: firstly, on the management of assets and personal affairs, and secondly, on the principles of inclusive education.

They were conducted at the University of Namur, with the sessions scheduled for the Saturdays of September 23 and October 7, 2023.

For those interested in attending or learning more, a comprehensive program and all necessary information were provided on the asbl DHEI's website, accessible at

<https://dhei.be/prochaines-formations/>





Interuniversity Certificate in Autism Spectrum Disorder

In April 2016, Brussels, Wallonia, and the Federation Wallonia-Brussels adopted the first Transversal Plan for Autism, highlighting the need for professional training in the disability sector.

A key goal of this plan is to ensure and update training for families and professionals on the specifics of autism and its support, a long-standing demand from field workers and caregivers. This led to the realization that specific university-level training for professionals or anyone in contact with autism (as recommended in the Autism Plan of the French Community of Belgium) was lacking, with autism often only briefly covered in medical and psychology programs.

To address this gap, our Autism Research Center ACTE initiated the first interuniversity and interdisciplinary certificate in Autism Spectrum Disorders in French-speaking Belgium. The inaugural edition began in January 2018, in partnership with UCLouvain and UMONS. From the second edition onwards, the certificate program has involved major French-speaking universities in the country (ULB, UCLouvain, UMONS, ULiège, and UNamur). It's targeted at a diverse range of professionals including doctors, psychologists, speech therapists, linguists, nurses, social workers, educators, and anyone professionally involved in healthcare, education, or support for people with autism.

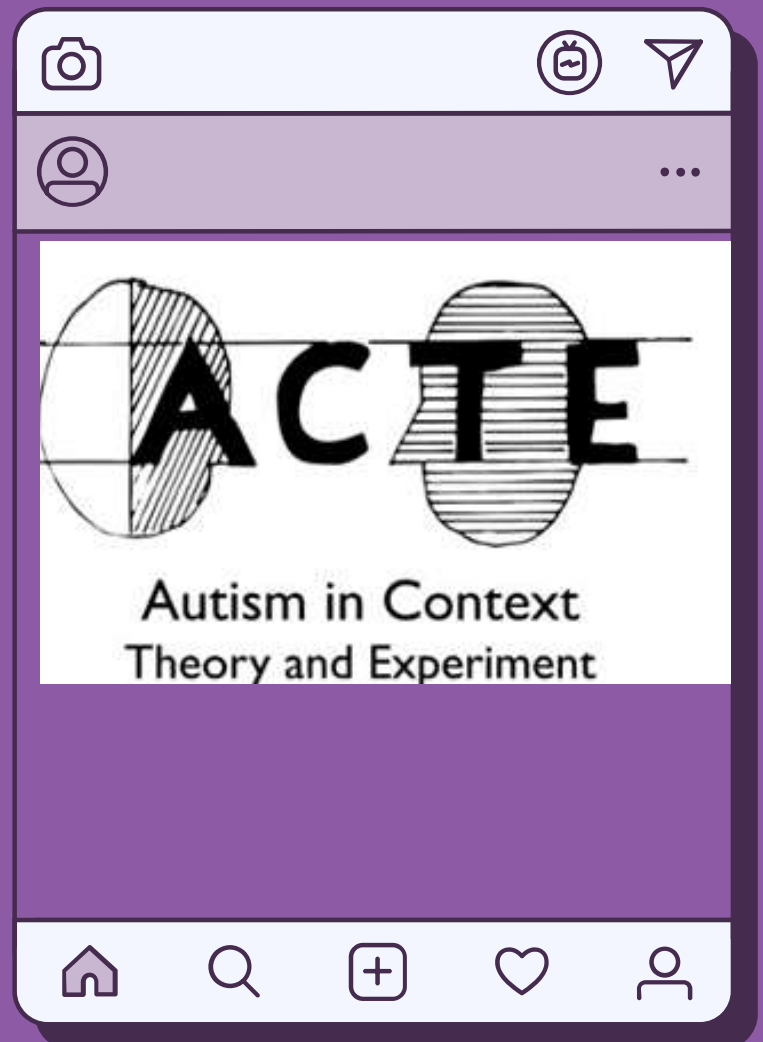
Practical Information:

Location: ACTE Interfaculty Research Center, Campus du Solbosch

Duration: 2 years

ACTE - Autism in Context Theory and Experiment

- The implementation took place in Université libre de Bruxelles.
- The participants included Universities, professors, doctors.



<https://twitter.com/ActeLab>

<https://www.facebook.com/ACTE.ULB>

<https://acte.ulb.be/index.php/en/contact-2/find-us-2>



AUTISM PCP - Project

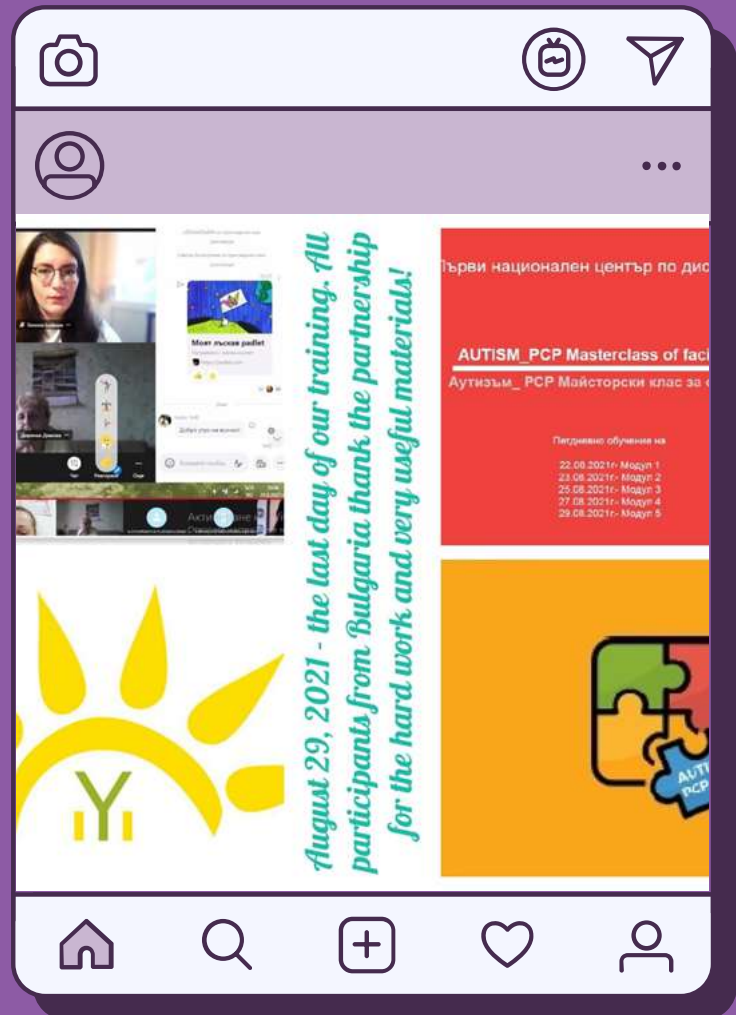
- AUTISM PCP is an innovative cross-sectoral partnership project. Its main objectives are the empowerment of ASC individuals at risk of social exclusion and the strengthening of the overall effort for social inclusion and integration of ASC individuals at mainstream education and society at large. The project seeks to enhance the competencies of professionals and all those individuals, such as family members & relatives, etc., involved in the lives of ASC individuals and to raise awareness to the general public regarding the social inclusion of pupils with Autism.

- The project “A holistic approach to person-centered planning for people with Autism” has produced educational content for the following areas:
 - Person-Centered Planning (PCP) system for people with Autism, which focuses on 2 distinct areas, the “Transitions” (changes in everyday life) and “Life Planning Tools” (major life domains that change with age).
 -
 - Person-Centered Planning (PCP) tools for facilitators of people with Autism, which targets all these people who are in direct or indirect support of persons with autism. Therefore, it offers a holistic approach in the overall aim of having independent/autonomous autistic persons. The development of this output incorporates the practical/hands-on experience and accumulated knowledge of all types of facilitators. It comprises methodologies and guidelines based on the type of relation and communication each type of role has with the person with autism.
- Masterclass course for facilitators, which includes a 5-module course, developed by all partners based on the work carried out in the previous phases, which offers more clarifications and issues that are not extensively covered in the two previous publications.

- The implementation took place in Greece, Cyprus, Bulgaria, Italy, North Macedonia, and Romania.
- The participants included educators specializing in special education, trainers in special educational needs (SEN) and autism, autism coaches/mentors, guardians, caregivers, support circles, staff/personnel, as well as relatives, immediate family members, and friends of individuals with autism.

AUTISM PCP - Project

“Acceptance and Love. Autism tests our reserves in providing emotional time for others. Let us use it to reflect on ourselves.”



http://www.autismholistic.eu/landing-page-2/home_gr/

<https://www.facebook.com/AutismPCPproject/>

The Innovative Vocational Education for Autism (IVEA) Project

- The Innovative Vocational Education for Autism (IVEA) project aims to foster social inclusion of autistic people through employment by developing a European holistic guide for the effective vocational training of autistic people in order to contribute to their successful employment. The project brings together universities, autism associations, professionals, and NGOs across Europe.

- The project will first identify the existing good practices in Europe and then develop training materials for both people with autism and employers. The European Guide produced in the project will result from the two different training courses: one for people on the autism spectrum and another one for representatives of potential employers (stakeholders, staff from NGOs, administrative departments, shops). In the framework of the project, people on the autism spectrum and employers will test the courses. Participants of these pieces of training will interweave in a final internship for autistic people in the above-mentioned entities. As a final result of the project, a digital version of the Guide and a mobile app will be freely available, as one of the project goals is to promote digital education and the use of digital tools.

- The implementation took place in Portugal, Spain, Hungary, Greece and Belgium.
- The participants included Universities, autism associations, professionals and NGOs.

The Innovative Vocational Education for Autism (IVEA) Project

“I am a full-time mother as I had to quit my job to support my daughter. This project is very important because it allows people with autism to integrate the labour market through a supported job and build a better future. I will be relieved because IVEA professionals will raise awareness and prepare employers who will work with my daughter. Besides that, my daughter will join a training where all the resources will be given in order that she could overcome barriers on employment. As a mother, I want my daughter to have a decent life and, to do so, she needs to be financially independent. Thanks to this project, I feel calm and supported.”



<https://ivea-project.eu/>

<https://www.facebook.com/IVEA-project-311993122864610>

https://twitter.com/IVEA_project

LAMP: Language Acquisition through Motor Planning

- Language Acquisition through Motor Planning (LAMP) is a therapeutic approach based on neurological and motor learning principles. The goal is to give individuals who are nonverbal or have limited verbal abilities a method of independently and spontaneously expressing themselves in any setting.

- LAMP is part of Augmentative and Alternative Communication (AAC).
- AAC means all of the ways that someone communicates besides talking. People of all ages can use AAC if they have trouble with speech or language skills. Augmentative means to add to someone's speech. Alternative means to be used instead of speech. Some people use AAC throughout their life.
- LAMP Words for Life is a robust language system that combines the power of PRC's Unity® language system and Language Acquisition through Motor Planning (LAMP™) approach. The app is appropriate for beginning communicators who are just learning that they can affect those around them to skilled communicators with advanced language skills. It includes developmentally progressive vocabulary files and features to scaffold language learning from each individual's current skill level with a clear path for unlimited language growth. The app is symbol based but the symbols are paired with text to support literacy development.
- The main feature of the LAMP Words for Life app is that every word is produced by one unique and consistent motor pattern. When using verbal speech, there is only one motor movement of the mouth for each spoken word no matter how that word is used. When using a consistent motor pattern to produce a consistent response, over time with practice, the movement becomes automatic and can be produced quickly. Verbal speakers usually put no thought into how they are moving their mouth or expressing air while talking. In LAMP, this strategy is duplicated on the AAC device. Access to single words allows the communicator to learn language following developmental progression, build their own phrases and sentences to independently express themselves.

- The implementation took place in Leesburg, USA.
- The participants included Special education teachers, children with autism.

LAMP: Language Acquisition through Motor Planning

Special Education teachers: We are beginning to see more and more spontaneously produced words and phrases. In addition, most of the students have become more verbal, which is wonderful! One student, who is severely autistic, has been with us for 4 years and has never verbalised words until this year. Another student whose only verbalizations 2 years ago were echolalic, is now verbalising with communicative intent.



<https://www.aacandautism.com/about>
<https://www.aacandautism.com/assets/uploads/Important-AAC-Device-Features.pdf>
<https://vcuautismcenter.org/>
<https://lampwflapp.com/>
<https://aacapps.com/>
<https://www.asha.org/public/speech/disorders/aac/>
<https://www.aacandautism.com/success/implementing-lamp-words-for-life-leesburg-ga>
<https://twitter.com/aacandautism?lang=en>
<https://www.facebook.com/groups/LAMPWordsForLife/about/>

Autism Xpress (APP)

- The 'Autism Xpress' has been created to help promote greater awareness about autism spectrum disorders. It is designed to encourage people with autism to recognize and express their emotions through its fun and easy to use interface. Autism Xpress is an app to assist parents, carers and teachers with a host of fun learning tools for their kids to engage and interact with.

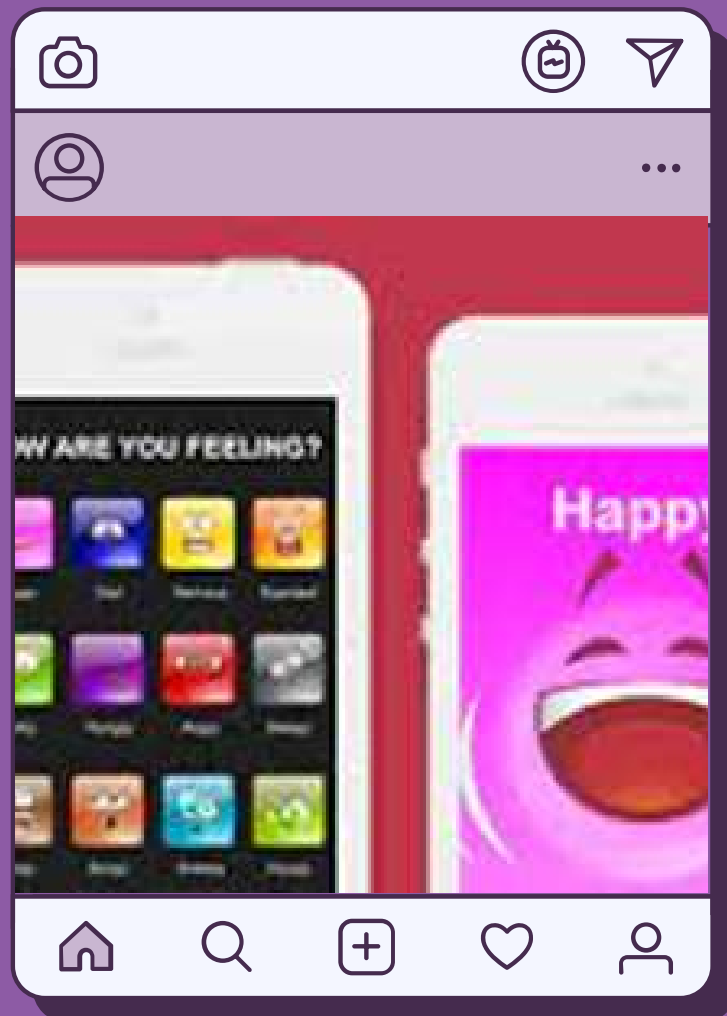
- The goal is to help increase social awareness and encourage appropriate behaviour. The app displays 12 buttons, each a cartoon caricature of a facial expression of how one feels: happy, sad, hungry, etc. Pressing a button creates a full-screen image of that emotion. It consists of three sensory mini games.
 - The first called Feeling Finder randomly places 12 emotions on the screen and allows the kids to click on the emoticons and watch the corresponding animations, some are serious and some are silly but they are all entertaining.
 - The second challenge is called Emotion Matching which is essentially a memory game to reveal and match identical pairs of emoticons.
 - The third game, titled Expression Questions is an activity that parents, carers and teachers can play with their kids, helping them to associate the corresponding emoticon to the random emotive word.

- The implementation took place Worldwide.
- The participants included Special Parents of individuals with autism, teachers and children with Autism

Autism Xpress (APP)

“My son has a new favourite game to play. Brings a smile to my kids every time. It’s great to see an app that addresses a growing issue. Is it just me or has there been an increase in Autism lately. Maybe something to do with formula milk or vaccine shots. Great app, looking forward to more levels.”

Steve



[Autism Xpress](#)

[Autism Express - Αρχική σελίδα \(facebook.com\)](#)

[Autism Express \(@AutismExpress\) / Twitter](#)



Empowerment and Support for Groups of Families of People with Autism

- The Association of Parents, Guardians & Friends of People with Autism offers “Empowerment and Support for Groups of Families of People with Autism”. These aim to inform, support, and empower families in order to ensure the smoother integration of people with autism in school settings, the reduction of school drop-outs, their future integration in protected employment, and the social integration of children and their families.
- The aim of the “Empowerment and Support” programme is for parents, caregivers, and friends of people with autism to be informed about the specific characteristics and levels of the disorder, to understand the autistic behaviours, to become more familiar and more accepting, to discover ways of communicating with the child, and to be able to explain to others the condition of the child, thus indirectly promoting community awareness. The more information parents have about their child’s problem, the easier it is for them to overcome the phase of depression or anger as they enter the process of acting in the right directions (searching for ways to help the child), the easier it is for them to accept the problem, the more effectively they finally help the child.
- Also, the programme strengthens intra-family ties to help the family cope with the situation of having a child with autism and to help them share experiences and reflections on how to handle behaviours, to talk about their children’s difficult behaviours, and get comfort from others in the same situation. In addition, parents get information on policies as they exist at community, state and EU level, learn about the services provided and their as well as their children’s rights.
- The implementation took place in Larissa prefecture, Greece.
- The participants included the family members of people with autism and the trainers.

Empowerment and Support for Groups of Families of People with Autism

“Some children with autism improve dramatically, some have limited capabilities, some have special abilities and we will always discover new successes, new difficulties, new joys and sorrows. Over the years we have met with many parents in friendly or group meetings. We’ve laughed, we’ve made fun of ourselves, we’ve cried, we’ve discussed, we’ve disagreed, we’ve agreed. Every time we discuss how we parents could be better helped, we always come to the same thought: we need information about our child’s problem, we need knowledge.”



<https://www.autismthessaly.gr/index.php/o-sullogos-2/ergo-epeaek/to-programma/>

https://www.facebook.com/AutismLarisa/?ref=page_internal

iCub

- It is the world's most widely used humanoid robot for the study of robotics, developed by the Italian Institute of Technology (IIT) and designed to support research in the field of artificial intelligence. It was created with the aim of being able to interact with humans and collaborate in different contexts, from domestic to industrial. And even in biomedical and rehabilitation ones. That is why it has been experimented in recent years as a tool for innovative therapies for children with neurodevelopmental diseases and autism.



- The collaborative project of IIT and Opera Don Orione took place within the framework of a multidisciplinary and individualised intervention. The experimentation involved interaction between iCub and a group of children already on the centre's therapeutic pathway. Each child, selected in the early childhood range, trained for about two months with the iCub robot that worked alongside the therapist.
- Specifically, the training involved a set-up consisting of a table, specially made by IIT technicians, equipped with tools to make interaction between the robot and the child easier and more effective, such as a mobile tray for exchanging objects, transparent partitions to ensure safe interaction, and foam rubber cubes with different figures and colours on each face. During the treatment, the iCub robot exchanges one of the foam cubes with the child and observes one of its faces. The therapist then asks the patient which picture or colour on the face of the cube he can see and which he thinks the robot is looking at.
- The specialists at the Centro Boggiano Pico, in order to facilitate the interaction between the children and the robot, launched a contest among the young patients to find a name for the iCub specimen used in the training, for now nicknamed Dr. Robot.

- The implementation was placed in Italy, specifically at Centro Boggiano Pico.
- The participants included the trial involved around 50 children already in treatment at the Centro Boggiano Pico facility.



<https://icub.iit.it/>

<https://www.boggianopico.it/>



ABCD Software

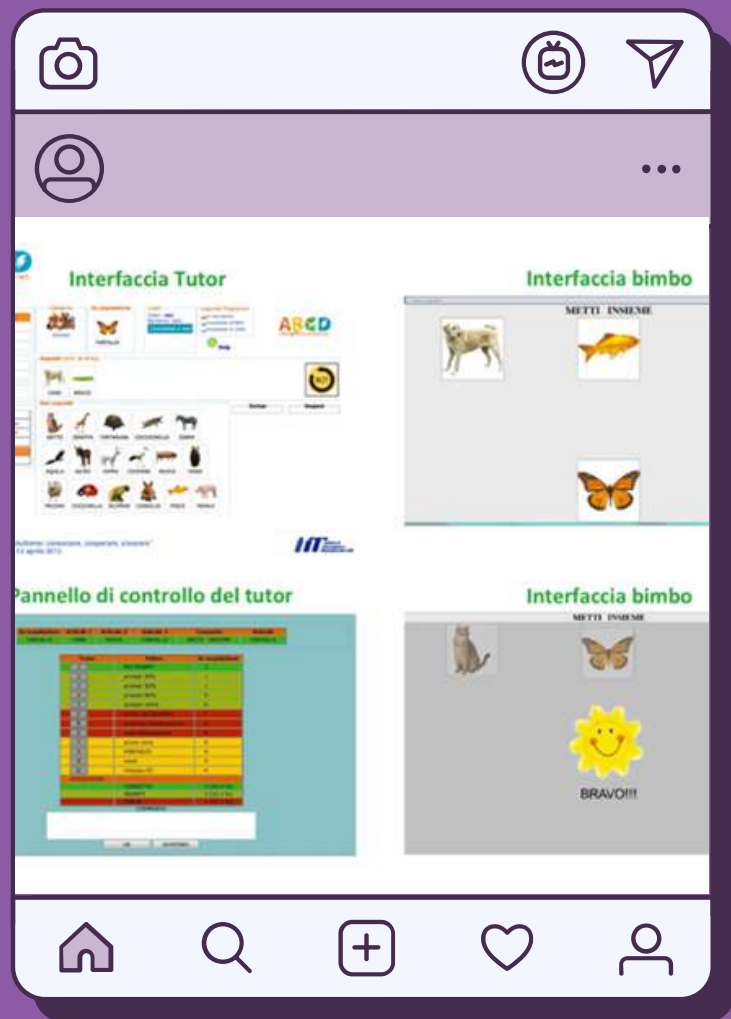


- ABCD SW is a free software to support one-to-one educational intervention with low-functioning autistic children of pre-school age (2-6 years). The software can also be used by older children with comparable abilities.
- The exercises are: matching ("put together"), object identification ("touch ...") and expressive communication ("what is that?").

- ABCD SW supports one-to-one educational intervention, so the child and tutor (or parent, teacher, etc.) have to work together: the tutor sets up the exercise with his interface (fig. 1), the child performs the exercise on a tablet/touch screen device (fig. 2 and fig. 3). The tutor evaluates the exercise by pressing a button (among those shown in fig. 4), to indicate whether the exercise was performed independently or with help or whether there were problems. Only after the evaluation does the new exercise appear on the child's device.
- All interactions with the software are recorded in order to verify learning progress over time.
- During Tutor registration, you will be asked to enter the essential data of the child (or children, if more than one children, if more than one) associated with it, including whether the child is Receptive and/or Verbal. The software adapts to the child's characteristics, e.g. for a receptive and verbal child the programme instructions will not be visible in text form. Conversely, in the case of a Non-receptive and verbal child, the receptive programme will include the written instruction e.g.: "Touch the bread".
- The levels proposed by the system vary depending on the type of programme, the child's characteristics and the number of items already acquired in a given category and programme.
- At all times the Tutor is free to choose the level, however he will be warned by a warning window (see Fig. 6) if his choice is not consistent with the correct sequence suggested by the ABA specifications. In fact, the order in which the level buttons are placed on the Tutor's work screen reflects the correct progression according to ABA programming. If you still wish to proceed in a different order, simply confirm by clicking the "ok" button in the warning window.

ABCD Software

- The ABCD SW project was financed by the Region of Tuscany in the framework of the public call FAS 2007 2013 Delibera CIPE 166/2007 PAR FAS Regione Toscana Line of Action 1.1.a.3. Support for research projects in the field of socio-economic and human sciences.
- It lasted 30 months, starting on 14 February 2011.
- The project's mission was the definition of an educational methodology in accordance with the ABA (Applied Behavioral Analysis) model, and the creation of Open Source software tools (SW) to support the learning of children with Autistic Spectrum Disorder (ASD).
- It is open source , therefore available to users.



<http://abcd.iit.cnr.it/wordpress/>



ToolsForAutism

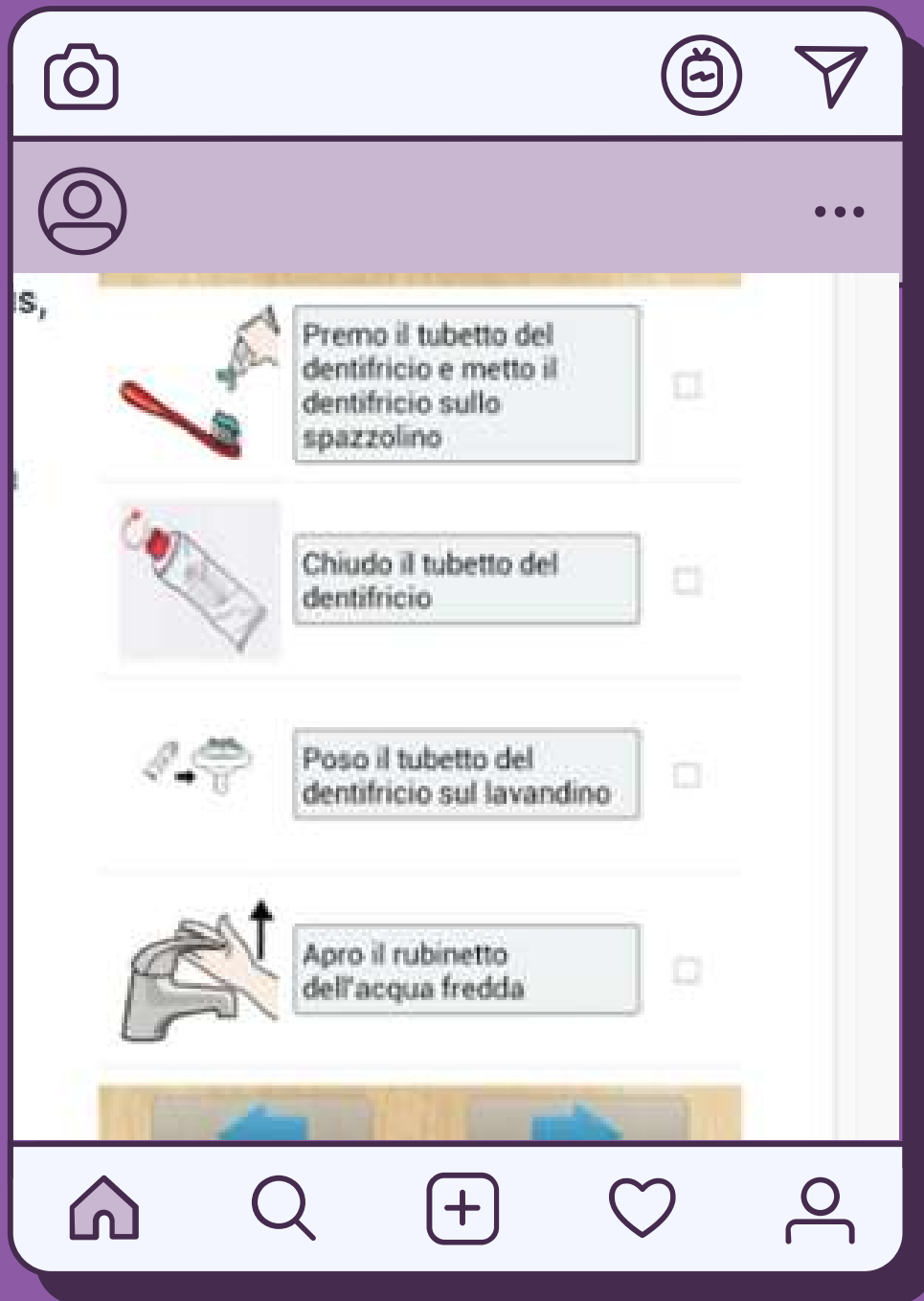


- Designed for tablets, the app is available free of charge on Google Play Store (Android), in Italian and English. Designed for therapeutic, educational and training purposes, it also helps and actively involves professionals, parents and teachers of people with autism.

- One can use ToolsForAutism to create social stories with which to teach appropriate behaviour in contexts such as a waiting room, the bus, the supermarket. These stories are also suitable for patients with behaviour regulation problems or hyperactivity. Another action possible through the app is task analysis, i.e. the division of a task into simpler units. The aim is to increase the person's autonomy. The interaction offered by the app is mainly based on images, thus overcoming the language problem, which is common in those with autism.
- The app provides two execution modes, for two different types of users:
 - 1) In viewer mode, the user/patient can only view the social stories and tasks, created especially for them by the operators.
 - 2) In operator mode (or editor mode), parents, doctors or social workers can create, edit, import (or export) social stories or tasks. You can use any image or photograph on your device, or you can download (directly from the app) and then use the pictogram library created by ARASAAC, pre-classified alphabetically or by semantic categories.
- The app also includes a kind of guide, not only technical: it helps the operator, teacher or parent to acquire skills on the proposed activities, indicating when it is appropriate to use social stories and when task analysis.

- C.A.S.A., the Centre for Autism and Asperger's Syndrome of the ASL CN1 in Mondovì, and the CSP, a research body on digital innovations participated by the Piedmont Region. Coordinating it all is Asphi, a foundation that has been promoting the integration of the disabled through the use of new technologies for over 30 years and is active in Italy with several offices, one of which is in Turin.

ToolsForAutism



<https://play.google.com/store/apps/details?id=it.csp.t4a.toolsforautism&hl=it>

LIAR

- LIAR is a communication tool for people with speech disabilities due to congenital disorders; acquired conditions; developmental neurological conditions; and is most effective in those developmental conditions where the absence of speech is accompanied by severe interpersonal communication disorders. It is a modern system for Augmentative and Alternative Communication (AAC) and is developed to improve communication in people with speech and Expressive Communication Disorders.

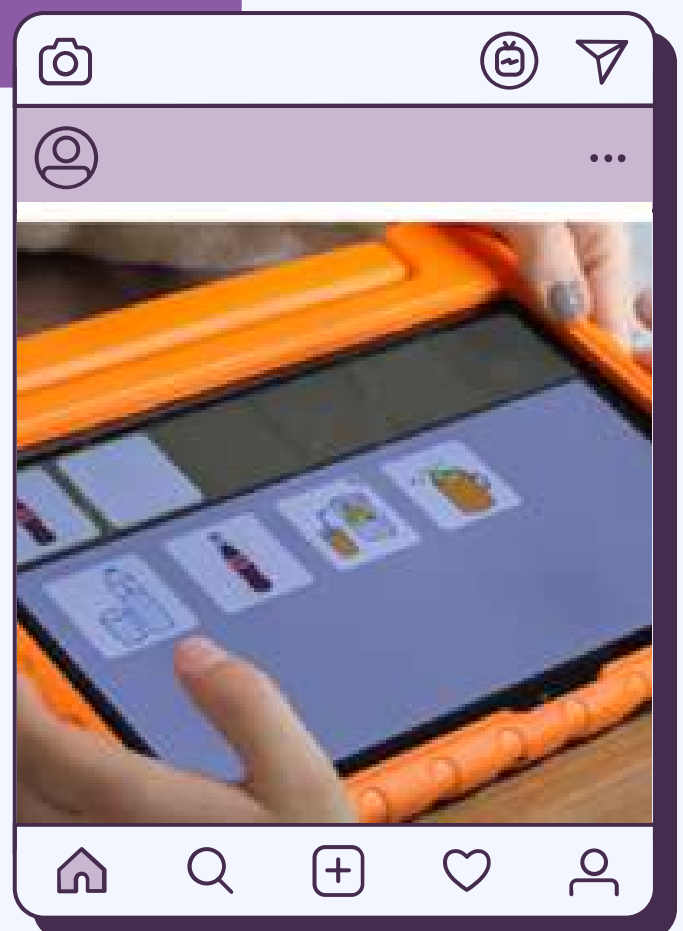


- The software is mainly used as a dynamic communicator and facilitates the exchange of messages through the selection of pictograms with voice synthesis in Italian. The device allows for an unlimited number of images that can be customised. The person's continuous interaction with the software creates a learning story that simplifies and speeds up the construction of a message. LIAR is aimed at families and educators who every day face the difficulty of communicating with individuals who have specific disorders such as autism.
- LIAR exploits the language teaching method based on Verbal Behaviour and Applied Behaviour Analysis and is based on years of experience in teaching effective communication in Language and Communication Disorders. It is an innovative device because it integrates and manages software and hardware elements (audio-video technology, NFC, Bluetooth, Wi-Fi, Augmented Reality, Virtual Reality) capable of increasing the amount and effectiveness of communication through interaction with the environment.
- LIAR is structured according to a training that contains all the necessary steps for teaching i-MAND Demand Communication. Each phase can be customised by the operator according to the principles and processes of Behaviour Analysis in order to quickly overcome even the most specific difficulties. Each parent, practitioner or teacher can customise it according to the needs of each user. Mand is a spontaneous, motivation-based communication request through assistive technology. Teaching Mand is the basis for the development of adaptive skills for people with a language delay or disorder and especially for people with autism.



LIAR

- Among the new features of LIAR 3.0 is the EASILY DRAGGING functionality designed for people with drag-and-drop difficulties, which makes it easier to select the pictogram without having to do a full drag-and-drop.
- Another important feature is IO PARLO CON TE, with this function it is possible to support educational needs such as expressing the emotions the person is feeling at that moment. LIAR in this way can be an inclusive resource for people to express their emotions through images.
- Data collection is a successful element of any teaching programme. LIAR is able to record all interactions with the application and, through an algorithm, provides a summary of the most important data to allow primary caregivers, therapists and teachers to monitor learning and direct teaching. The data is recorded on the cloud in a completely anonymous manner and, via a free, dedicated application, can be viewed and printed in real time.





Integrative Parents' Autism Training (IPAT)

- To increase awareness about the role and the importance of the parental training in the global management of the needs of autistic people and to increase accessibility to effective training, to motivate parents to use a valid self-training approach at different stages of life, in order to advocate for the rights and social inclusion of autistic individuals and eliminating stigma .

- There are several Intellectual Outputs that has been contributed to this aim: 1. A literature review was implemented, focused on the training needs of parents of autistic individuals. 2. The IPAT Module will be developed as a standard training package to be designed using. 3. An Integrative Parents' Autism self-Training digital tool-IPATT- will be developed based on the IPAT Modules. 4. The documentation of results is guided by the need to document the effectiveness of a new training Module, the usefulness & acceptance of a new self-training tool & the satisfaction of the users.

- The implementation took place in Greece, Turkey, Italy, Spain

- The participants included:
 - Greece, Child and Adolescent's Center
 - Greece, Greek Carers Network EPIONI
 - Turkey, Gaziantep University
 - Italy, Società cooperativa sociale Controvento ONLUS
 - Spain, Autism Burgos

Integrative Parents' Autism Training (IPAT)



L.A.: Positive aspects. I really appreciate the curricula and the interactive practices. I miss more presential training because the hybrid option was not as fluent as the sessions that we all do together.

<https://ipatproject.eu/partners/>



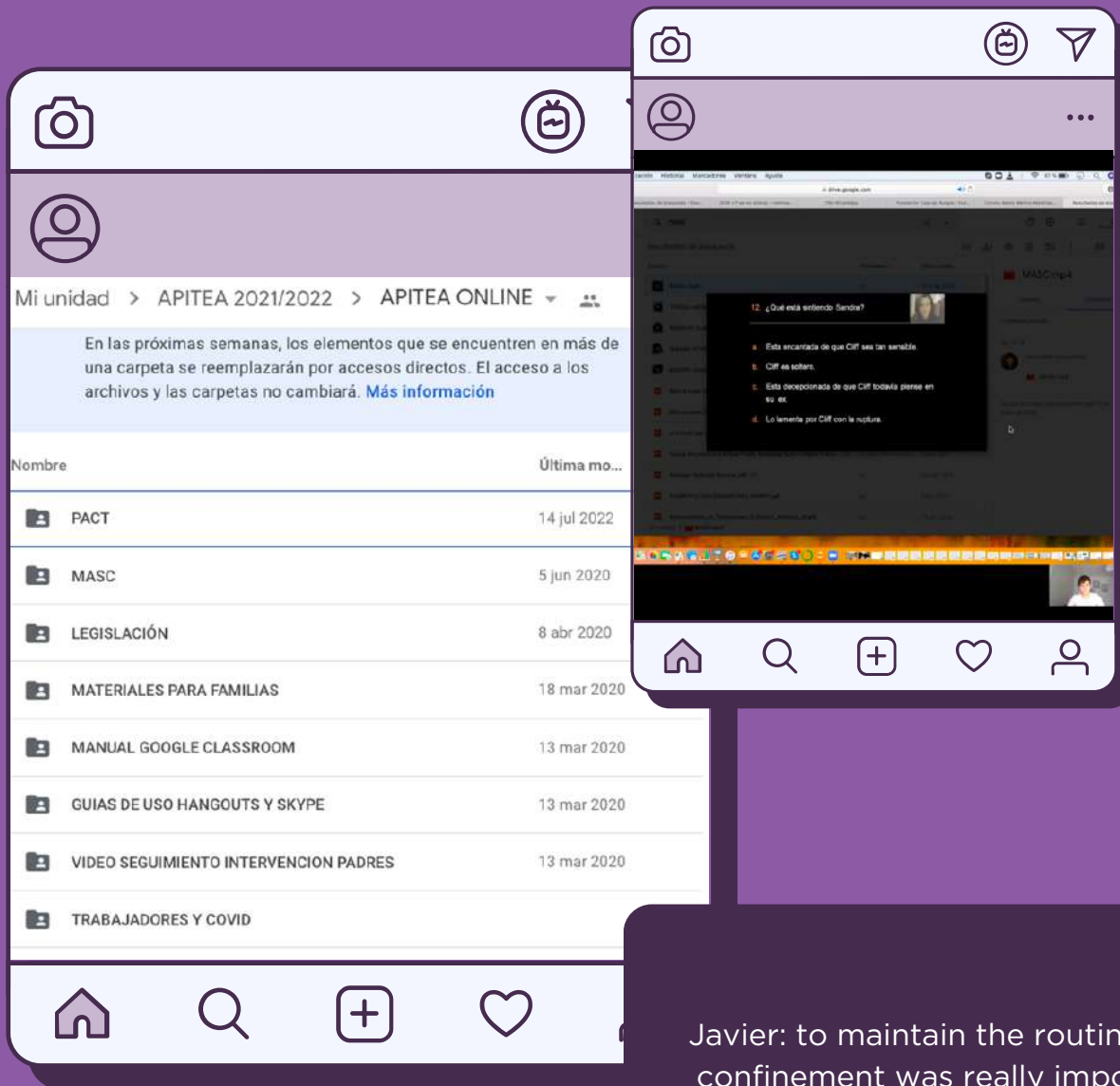
APITEA ONLINE. Online Comprehensive Psychosocial Support For People With Autism

- Taking into account the COVID 19 protection regulations, the activities involving direct personal contact in the APITEA programme were replaced by an online model.
- In order to cover support, telematic alternatives were provided for the follow-up of social skills, speech therapy, occupational therapy and academic support sessions.

- Video calls were made during the times allocated for intervention with the aim of providing coverage through the Hangouts platform (as a priority), and facilitating the use of other videoconferencing tools such as Skype to adjust to the autonomy of each user.
- The use of the sessions was carried out guaranteeing the protection of data by both parties in accordance with the LOPD and the exclusive use of the video call for intervention purposes.
- The Individual Personal Development Programmes were modified according to the needs generated by the pandemic, redefining more relevant or pertinent objectives.
- The timetable was kept in accordance with the timetable established for the course, trying to adjust any suggestions, information or queries from families within that timetable.
- Special importance was given to the involvement of families.

- The implementation took place during COVID pandemic till nowadays, just for families and people with ASD that prefers this type of intervention in order to personal circumstances (impossibility to travel, adjustment of timetables, maintenance of privacy...).
- The participants included all the professionals, families and participants from autismo Burgos (APITEA, early intervention program, and rural delegations)

APITEA ONLINE. Online Comprehensive Psychosocial Support For People With Autism



Javier: to maintain the routines during confinement was really important for me, I really appreciate the therapies.

[AUTISMO BURGOS WEB](#)



INTEGRA FOR FAMILIES

- Taking into account the COVID 19 protection regulations, the activities involving direct personal contact in the APITEA programme were replaced by an online model.
- In order to cover support, telematic alternatives were provided for the follow-up of social skills, speech therapy, occupational therapy and academic support sessions.

- The coordination and sharing of relevant medical, educational and family data is a good practice that requires technological support. Integra is a database that facilitates coordinated user management.
- The implementation took place in Autismo Burgos: [Intranet access for families](#) and [intranet access for professionals](#).
- The participants included all the professionals, families and participants from autismo Burgos (APITEA, early intervention program, and rural delegations).

ANTONIO: Sharing folders with professionals in real time is a great practice to know how is the progress of our son

<https://www.autismoburgos.es/>

Intranet access for families and intranet access for professionals

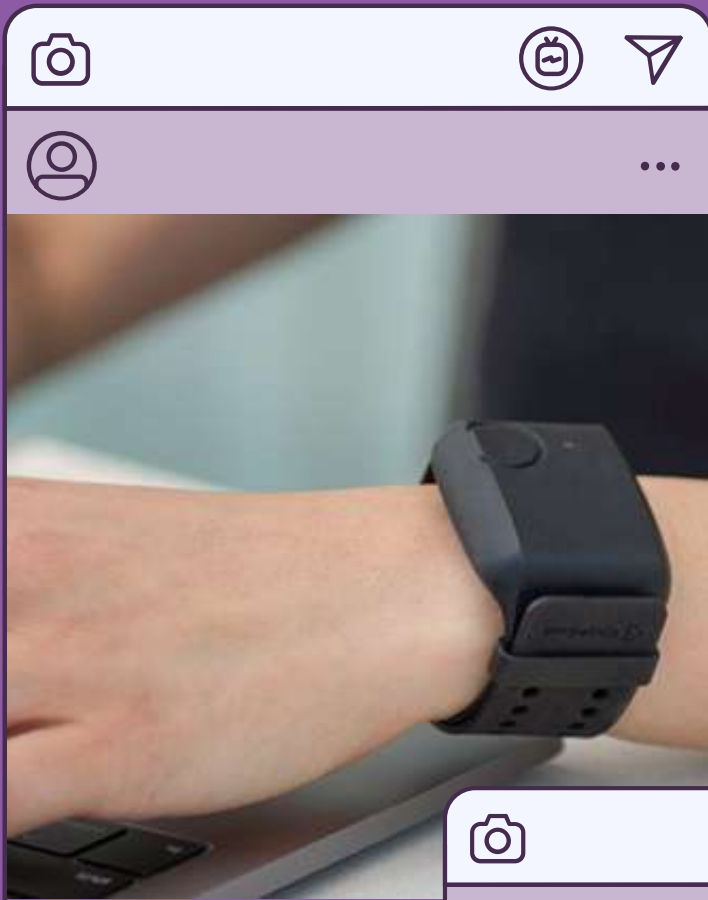




EDATEA: Biometric sensors project: Electrodermal activity (EDA) for behavioural assessment and treatment of autism

- Stress can be understood as any deviation from homeostasis, which occurs in response to a stimulus and involves a complex interaction between the Central Nervous System - CNS, the Peripheral Nervous System - PNS and the rest of the body. Stress is not necessarily pathological, it is believed, following the Inverted U Model, to have beneficial effects if it is mild or moderate and transient, and detrimental effects if it is severe and permanent (Sapolsky, 2015). The physiological changes that accompany stress likely underlie some dysfunctional behavioural manifestations in CAAs, such as stimming (self-stimulating movements such as rocking, spinning, jumping, etc.), self-aggression, heteroaggression, meltdown (the person seems to lose control), shutdown (the person seems to be absent) and others (Anderson et al., 2019).
- With biometric sensors in a wristband, stress can be monitored by measuring heart rate, electrodermal activity and other physiological variables associated with the activation of the sympathetic division of the Autonomic Nervous System (ANS) and the Hypothalamus-Pituitary-Adrenal axis. The advantage is that in this way the measurement can be performed in real time, non-invasively and over a prolonged period of time (Garbarino et al, 2014). Thus, through biometric sensors, it is possible to understand the autonomic function associated with stress (Picard, 2009), and it is possible, following the precision medicine approach, to raise and confirm hypotheses regarding the environmental stimuli that generate harmful stress for a particular person with ASD, in order to provide specific support or modify the environment for the well-being of the autistic person, especially those who have not developed verbal language.
- We propose the use of biometric sensors in people with autism to measure autonomic function at rest and under stress conditions. The advantage of these sensors is that they are medical grade, non-intrusive and can be worn for a long time. Specifically, the sensors are used to quantify cardiac measures (HR, HRV), electrodermal activity (EDA) and skin temperature (SKT). Several studies analyse EDA to estimate the level of physiological activation/excitation associated with stress; with respect to this signal, tonic and phasic components, threshold and right/left differences need to be considered within the framework of Multiple Excitation Theory. However, in order to accurately detect stress, it is desirable to analyse more signals together and to build a robust model with machine learning techniques. Therefore, in Autismo Burgos, the EDATEA programme was created to perform simultaneous recordings of the functional analysis of behaviours while physiological recordings were performed, in order to correlate the conditions and behaviours of the natural environment with the possible alterations in the levels of activation.

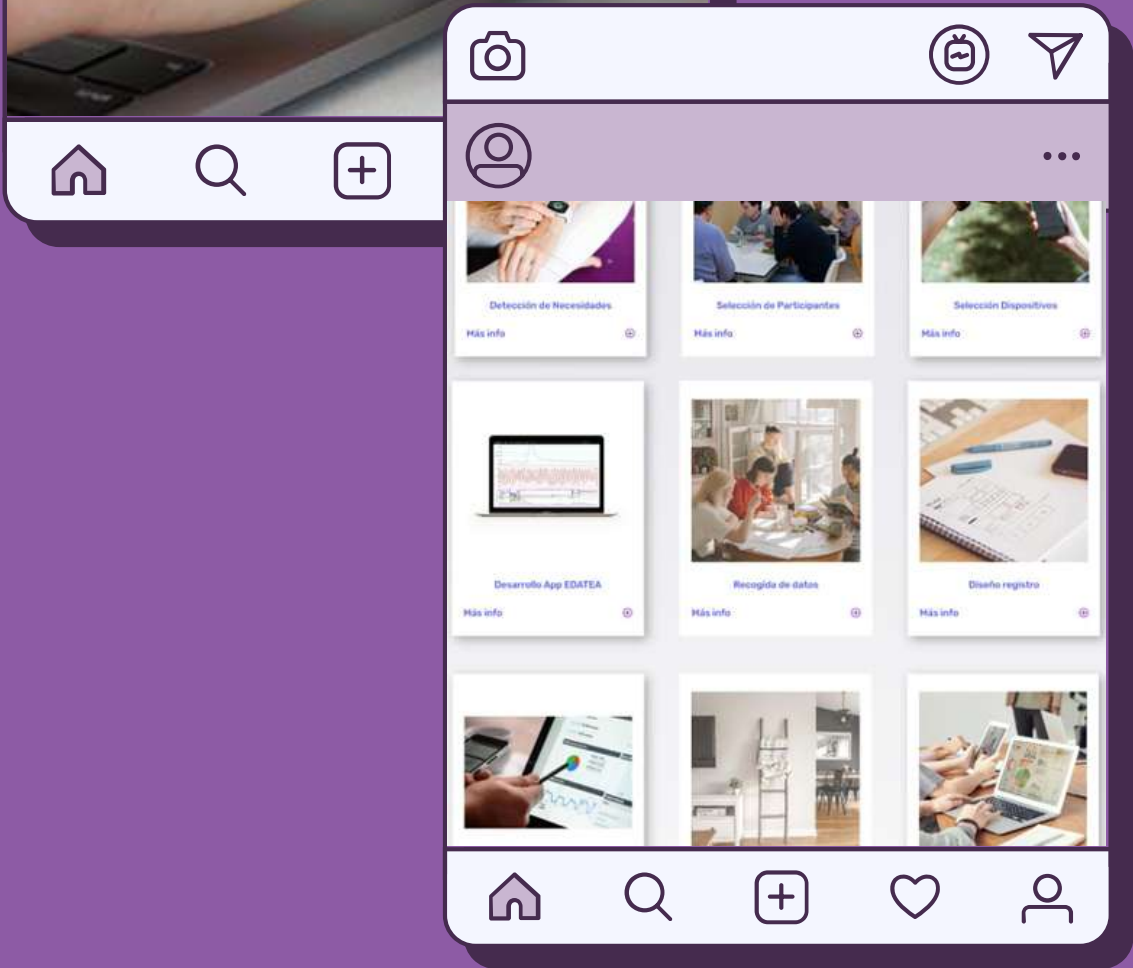
EDATEA: Biometric sensors project: Electrodermal activity (EDA) for behavioural assessment and treatment of autism



- The implementation took place in Autismo Burgos, Spain.
- The participants included University of Burgos, Autismo Burgos, Spain

Nos ha sorprendido como niveles altos de activación en el caso de una usuaria se relacionaban con una mejor conducta.

<https://www.autismoburgos.es/proyecto-sensores-biometricos/>





WELLSA

- To monitor the health of people with autism and predict the need for health supports, through a follow-up and monitoring of records, supporting also people with more difficult access and rural environment.
 - Collect health data from all users in house services
 - Application testing and error feedback
 - Resolving technical problems and bugs in the pilot phase
- The implementation took place in Autismo Burgos, Spain.
- The participants included ITCL Technological centre, Autismo Burgos, Spain



This is the first time that information about our children's health has been collected systematically, I have worked as a doctor and I think it is a step forward.

Martin

<https://www.autismoburgos.es/otros-proyectos/>

<https://itcl.es/blog/monitorizacion-en-tiempos-de-coronavirus/>

<https://itcl.es/proyectos-regionales/desarrollo-de-tecnologias-en-servicios-de-salud-en-cronicos-y-mayores/>



SIGNAMUS

- SIGNAMUS facilitates the learning of sign language and supplemented speech. It is not a method of communication but of reinforcement of learning. Firstly, users learn certain signs thanks to the work of the team of speech therapists to facilitate communication (complemented with pictograms, photographs and other graphic elements) and in a second phase, with the help of this application, they train through games to memorise and perfect the correct realisation of the sign.
 - Development of the app
 - Recording of the signs
 - Piloting the app
 - Introduction and updating of the signs
 - Updating operating systems
- The implementation took place in Autismo Burgos, Spain.
- The participants included Fundación DANE, Argentina, Papaya Group, Autismo Burgos.



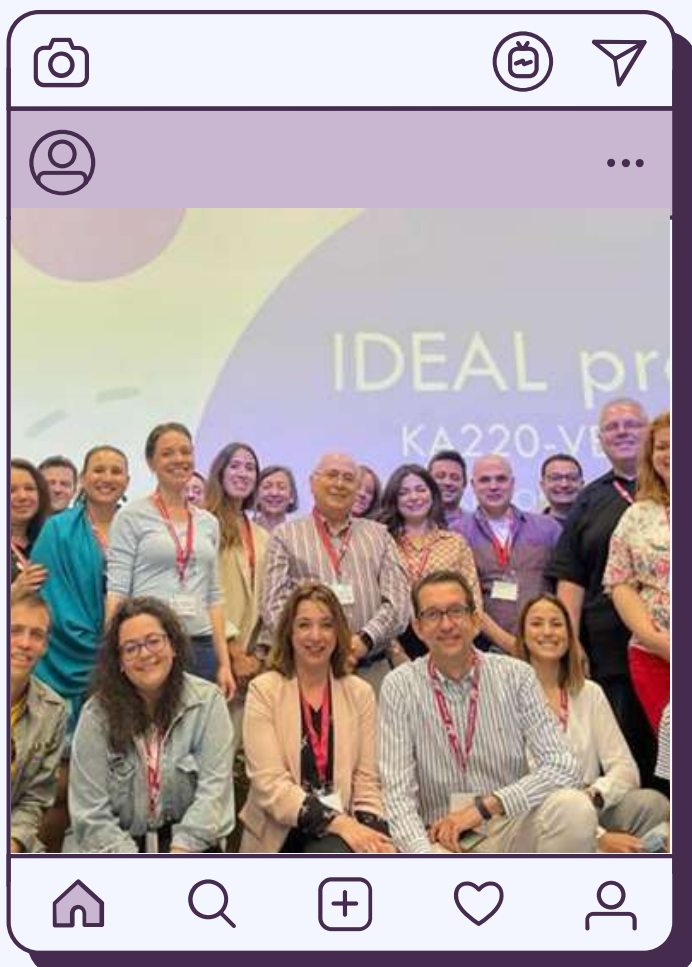
The project helped us to organise the symbols and to help professionals, families and people in the support circles of people with autism to communicate better. Beatriz, Speech therapist

<https://www.autismoburgos.es/accesibilidad-cognitiva-en-las-aplicaciones-moviles/>



IDEALLEARNING.EU

- This unequal distribution in the access and use of information and communication technologies has resulted in the fact that, while some users are able to receive training and support in their homes through digital resources and ICT tools, other users, with lower cognitive levels, have not been able to receive this support due to their difficulties in accessing digital technologies. This means that they have suffered additional isolation due to their total and absolute disconnection with their centres and professionals that work with them. As a result, the education and training of autistic people are negatively impacted, resulting in a lower quality of life and personal development for autistic people and their families, who have been left unsupported during this period.



<http://idealearning.eu/es/ivea-project-espanol/>



VReach



- A unique and insight-driven solution, developed for use in clinical therapy in hospitals, clinics and rehabilitation centers, is an immersive VR software that allows patients to focus on specific objects and go through simulated experiences. This, in turn, facilitates the patients' adaptations to everyday life and trains their communication skills.

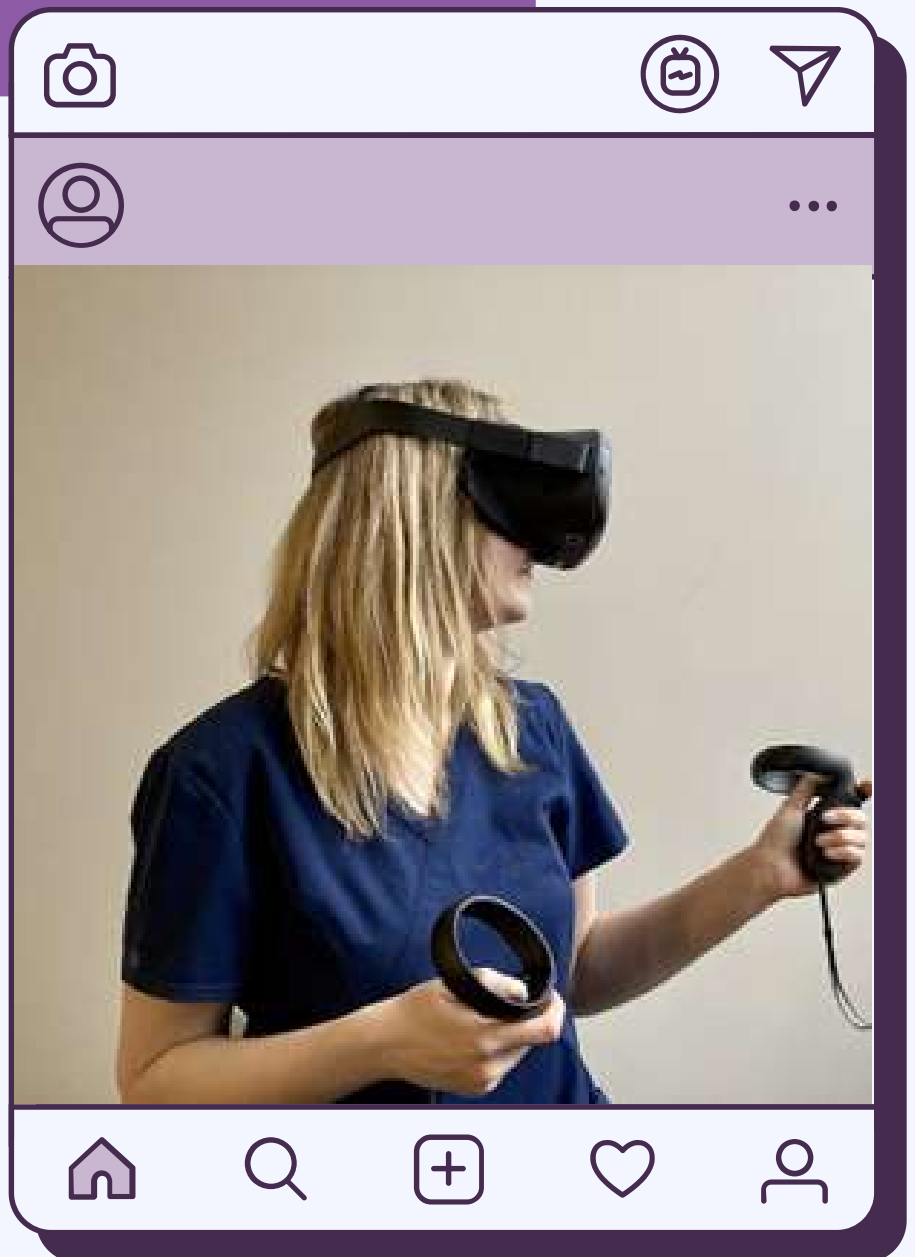
- The mission of VReach is to make the work of functional specialists efficient by using the opportunities provided by virtual reality, allowing to save both material and emotional resources. VReach wants to promote the public's understanding of the process of rehabilitation of cognitive abilities, making the lessons transparent for the patient's child's family as well. VReach sees rehabilitation as a modern process that serves faster patient progress, involves the patient's family in the rehabilitation process, and also helps facilitate the work of functional specialists.

- The implementation took place in Latvia, in private healthcare services, with the possibility of remote use.
- The participants included 200 children with 50 receiving long-term rehabilitation.

VReach

<https://www.facebook.com/vreachapp/>

<https://www.instagram.com/vreachapp/?hl=en>





Learning materials in Widgit using Piktogrammas.lv and SymWriter



- The Latvian version of SymWriter2 has been used to create learning materials that provide visual structure to lessons and tasks, several schoolbooks and children's books also have widgit language versions available both in print and for download. These materials are used widely throughout Latvian schools.

- Widgit uses symbols to support people who have communication, language or learning disabilities it is used to improve literacy and understand the text read. The symbols are special pictures with a certain structure that are used to explain the meaning of a word and provide visual information to people of all ages. Widgit symbols are easy to perceive and understand.
- Digital and print educational materials in Widgit are designed for learners of all ages to learn and improve reading skills, to be able to read a text and understand what is read, to participate in conversations and express one's opinion about what is read, to learn to create a narrative. about the read text, expand vocabulary, develop attention, thinking and memory.
- While testing the modules of various applications, several basic principles and game algorithms became clear. The tasks are based on the principles of juxtaposition and comparison, where images and versions of answers change. The arrival of new technologies in the school promotes new habits of thinking, which prove that significant adjustments are needed in the learning process - planning, lesson organization and management. In order to successfully integrate tablets into the learning process, a multi-step methodical material has been developed, which summarizes both technological and methodical solutions, which anyone interested can get acquainted with

- The implementation took place in Latvia.
- The materials are used in Latvian schools and are available for download for free
- The participants included 1st special boarding elementary school in Riga; Piktogrammas.lv;

Learning materials in Widgit using Piktogrammas.lv and SymWriter



Piktogrammas.lv
r1sips.edu.lv





Kails un Kaila

- Simple Steps is a multimedia tool designed for professionals, enhanced by feedback from parents, with the aim to provide aid and guidance to people working with children with an ASD diagnosis.
- In Latvia the project is adapted for training teachers and youth workers as well as parents for work with children with ASD, through the development of videos, training materials and guides about autism, ABA therapy and other relevant issues.



- The Project involves creating podcasts featuring professionals working with children with ASD, as well as parents of children with ASD, to create and exchange of experiences, which would facilitate learning to better work with children with ASD for both parents and pedagogical staff. Video materials have also been created for this project in the format of lectures about working with children with autism, these materials are intended more for teachers and youth workers working with children with autism.
- The materials are available for free for parents of children with autism and teachers must apply to receive access. The project licence limits how many people can have access to the materials at once, but since 2022, the reach of the program has steadily increased.
- The aim of these activities is to ensure better integration for children with ASD in schools and afterschool activities by providing teaching staff with the necessary knowledge to better work with children with ASD.

- The implementation was country-wide.
- The participants included:
 - CHILDREN'S HOSPITAL FOUNDATION
 - SIMPLE STEPS AUTISM
 - Riga City Council Center of residents of the neighborhoods of the city of Riga
 - Riga City Council Department of Community Integration and Participation
 -

<https://viegliemsoliem.lv/>

<https://www.bsflv.lv/jaunumi/2022/programma-viegliem-soliem-nak-talka-gimenem-kuras-aug-berni-ar-autismu>



Care4Autism

Conclusion: A Collective Journey Towards a Brighter Future for Adults with Autism in Europe



As we conclude this significant chapter of our collaborative European project on autism, we extend our profound gratitude to all our partners from Belgium, Italy, Greece, Spain and Latvia for their exceptional commitment and support.

Our efforts in hosting enriching awareness events and study visits across Latvia, Spain, and Belgium have been pivotal in advancing our shared goal of enhancing the wellbeing of adults with autism across Europe.

This project has underscored the importance of a unified European approach to addressing the complexities of autism. The diversity of experiences and perspectives from various parts of Europe has enriched our understanding and strategies, highlighting the necessity of a collaborative and inclusive approach.

We are immensely grateful to the European Union for its generous funding, which has been the cornerstone of our endeavors. Additionally, our heartfelt thanks go to the Belgian National Agency AEF - Europe for their unwavering support and valuable contributions. Their support has been instrumental in the success of this project.

As we move forward, let us carry the insights and relationships we have forged into future initiatives. The connections established among our network are not just professional links; they are bridges to continued collaboration and innovation in the field of autism care and support. Together, we have laid a solid foundation for ongoing efforts to promote the wellbeing of adults with autism in Europe. Let's continue to build on this momentum, ensuring that our collective actions create lasting, positive change.

Thank you all for being part of this transformative journey!

**Prof. Roland Pochet,
Belgian Brain Council**

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