Electronics and Employability Advancement for Adults with Down Syndrome

2023-1-LV01-KA220-ADU-000160601

WP3.1 NATIONAL DESK RESEARCH

This report lays the foundation for developing the training format and digital tools through conducting national-level research with 1) Key information about the educational needs of adults with Down Syndrome in technology-related learning; and 2) Best practice examples of existing methodologies, tools or materials already used to educate adults with intellectual disabilities (especially in electronics, coding, tinkering or general digital training).

Country: LITHUANIA

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Introduction

This report, conducted as part of the FEAT-DS project (Project Code: 2023-1-LV01-KA220-ADU-000160601, Dates: 01/09/2023 - 30/06/2026), aims to lay the foundation for developing training formats and digital tools for adults with Down Syndrome (DS) in Lithuania, focusing on technology-related learning, particularly in electronics, coding, and tinkering. The research is crucial for informing the co-design process in Work Package 3, ensuring accessible and relevant training materials across Europe. The findings are based on desk research using published sources, online platforms, and existing training tools, with a focus on educational needs and best practices.

Educational Needs Overview

Adults with Down Syndrome in Lithuania face several barriers in technology-related learning, which can be categorized into cognitive, social, and communication challenges. Research suggests cognitive barriers include limitations in verbal working memory, with strengths in visual-spatial skills, making visual aids and hands-on activities particularly effective. Social barriers highlight the need for inclusive settings to foster social skill development, as evidenced by international guidelines emphasizing mainstream class placement with minimal withdrawal. Communication barriers often involve speech and language impairments, with recommendations for using sign/gesture and therapy, supported by visual supports to enhance understanding.

Learning preferences for adults with DS lean toward visual aids, hands-on activities, and repetition, aligning with effective approaches identified in international guidelines, such as the "International Guidelines for the Education of Learners with Down Syndrome" by Down Syndrome International. These guidelines, applicable globally, suggest using active movement, occupational therapy for fine motor skills, and individualized education plans (IEPs) to support learning. For tech-related subjects, it seems likely that accessible technology and structured teaching methods, like breaking tasks into smaller steps, would be beneficial, though specific programs in Lithuania are less documented.
In Lithuania, the legal framework, including the Law on Social Integration of the Disabled (1991), guarantees access to education and vocational training for people with disabilities, with provisions for priority admission to colleges and higher education under favorable terms. However, challenges in implementation are noted, such as insufficient teacher training and lack of methodological materials, as highlighted in studies on inclusive education. The "From Care to Possibilities" project, co-financed by the European Social Fund and active from 2020 to 2023, involved 1,793 participants across 36 municipalities, offering social workshops that helped over 600 people develop work skills, with 50 transitioning to open market employment, suggesting potential for tech-related skills development.

The role of adult education providers and social care institutions is crucial, with the Association of People with Down's Syndrome in Lithuania (Žmonių su Dauno sindromu ir jų globėjų asociacija, established 2012) aiming to ensure equal rights to education, though specific tech-focused programs for adults are not detailed on their website (saulytes.lt). Policy gaps may exist, as evidenced by the need for more resources and teacher training, with ongoing efforts like the ESF project "In-Service Training for Teachers and Educational Assistance Specialists" (2018–2021) aiming to improve qualifications.

Best Practice Examples

The following table presents 3-5 best practice examples of training tools, platforms, or approaches used with adults with intellectual disabilities, particularly relevant to electronics, coding, or digital training, with potential applicability for adults with DS:

Name & Type	Target Audience	What It Does	Inclusive/Effective Design	Why Pertinent to FEAT-DS	Evidence/Impact	Link/Media
Tech Kids Unlimited - Workshops	Ages 10-24, neurodiverse students, including young adults with disabilities	Single-session workshops to build tech skills at own pace, led by trained staff, focusing on social-emotional learning and tech skills	In-person and virtual delivery, tailored to individual needs, emphasizes accessibility	Offers tech skill development for young adults, potentially adaptable for coding and digital skills, aligns with hands-on learning preferences	Not specified, but part of broader career ladder programs	No specific URL, general info from https://techkidsunlimited.org/

nonPareil Institute - Technical Training	Adults on the autism spectrum, potentially including DS, across U.S. locations	Provides technical training courses focusing on commercially viable skills like coding, with virtual and in-person options	Locations in Texas, Florida, and virtual (nP Online) across 70 cities, 27 states, tailored for spectrum needs	Focus on coding and digital skills, relevant for electronics and tinkering, supports lifelong learning goals	Featured on GuideStar for 12 years, Great NonProfits for 13 years, testimonials highlight skill development	https://www.npusa.org/
NXT GEN Coders Program - Grants	All ages with autism, including adults, U.S.-based organizations	Funds organizations to teach digital literacy and coding skills, with grants up to $25,000, focusing on employment readiness	Supports various organizations, evaluated by coding industry professionals and adults with autism, includes soft skills training	Enhances coding access for adults, potentially adaptable for DS, aligns with tech career preparation	14 recipients in first year, 38 proposals from 16 states, aims to reduce unemployment	https://www.autismspeaks.org/news/autism-speaks-and-gamestop-nxt-gen-coders-grant-recipients

These examples demonstrate inclusive design features like virtual delivery, block-based coding platforms, and tailored support, pertinent to FEAT-DS for their focus on tech skills and potential adaptation for adults with DS, though evidence of impact varies.

Insights for WP3 Co-Design

Based on the findings, the training format for FEAT-DS should include:

- **Content Structure**: Break tasks into small, manageable steps, using visual aids and hands-on activities, with repetition for reinforcement.
- **Learning Tools**: Incorporate assistive technologies like screen readers, block-based coding platforms (e.g., Scratch, Blockly Games), and virtual delivery options for accessibility.
- **Accessibility Features**: Ensure large icons, simple language, and step-by-step instructions, aligning with Easy-to-Read guidelines used in Lithuania for public information.
- **Necessary Support for Educators**: Provide professional development on inclusive practices, focusing on adapting tech training for cognitive and communication needs, and fostering collaboration with social care institutions.

To avoid or improve upon, ensure sufficient resources and teacher training to address implementation gaps, and avoid segregated settings, promoting mainstream integration as per UNCRPD recommendations. Engagement can be enhanced by involving adults with DS in co-design, ensuring relevance and motivation.

References and Links

- European Agency for Special Needs and Inclusive Education: https://www.european-agency.org/
- Down Syndrome International: https://ds-int.org/
- Lithuanian Association of People with Disabilities: https://www.negalia.lt/en/
- Tech Kids Unlimited: https://techkidsunlimited.org/
- nonPareil Institute: https://www.npusa.org/
- Autism Speaks NXT GEN Coders: https://www.autismspeaks.org/news/autism-speaks-and-gamestop-nxt-gen-coders-grant-recipients