



Enhancing Digital Tools for an Inclusive Dyslexia Adult Education

2022-1-IT02-KA220-ADU-000087842

Common Dyslexia Signs and Remediation Strategies Handbook

Work compiled by: Konstantina Kostami, European Knowledge Spot

Contributors: Education in Progress,

Latvijas Universitate,

Eurospeak Limited

Asociacia Dyslexia -Bulgaria"

Danmar Computers Sp Zoo

Table of Contents

Introduction	3
Ideal interventions and suggestions-Insights from focus groups	4
Ideal Interventions and Techniques based on focus groups findings	6
Suggestions from focus group findings.....	7
Evidenced based Indicators of Dyslexia in Adult learners	8
General Indicators.....	8
Reading, Writing and Spelling Indicators.....	8
Math, Time Management, Directions Indicators.....	9
Behavior, Health, and Personality Indicators	9
Memory and Cognition Indicators.....	9
Behavior, Health, Development & Personality Indicators.....	10
Career Indicators.....	10
Screening Tests	12
Best pedagogical and tech approaches for adults with dyslexia	14
Conclusion	21

Introduction

This compilation report summarises the results of previous work activities conducted by the Consortium partner countries, as part of Work Package n°2 - Development of the Common Dyslexia Signs and Remediation Strategies Handbook: *Report with evidenced based Indicators of Adult Dyslexia, Inventory of innovative pedagogical and tech approaches for adults with dyslexia, findings from the focus groups* included as well in the national reports on current dyslexia specific training programmes and existing gaps in the system.

It aims to develop a Handbook on Common Dyslexia Signs and Remediation Strategies addressed to adult educators, that will provide a general understanding of the signs and symptoms of dyslexia as well as the most effective dyslexia strategies for remediation. It establishes the base for reaching the DYGI4ADU vision for strengthening the supporting role of adult educators in guiding and advising learners with dyslexia and create an inclusive adult education through the elaboration of extensive needs assessment, analysis of the phenomenon of adult dyslexia and in-depth exploration of effective methodologies for remediation.

The target group of the document consists of adult educators, Adult Education providers, researchers, and policymakers

Ideal interventions and suggestions-Insights from focus groups

It has been observed that the gaps and challenges identified in the adult dyslexia settings are common in Bulgaria, Latvia, Poland, Greece and Italy. The focus groups have been conducted by the following partner-organisations of the project:

- Education in Progress (Italy)
- Latvijas Universitate (Latvia)
- Eurospeak Limited (Ireland)
- Asociacia Dyslexia (Bulgaria)
- European Knowledge Spot (Greece)
- Danmar Computers Sp Zoo (Poland)

A total of 6 focus groups with a total participation of 49 participants took place during May and June 2023. The experience and expertise of participants in adult education was broad: adult educators and trainers with long experience of teaching, university professors and lecturers, school principals, vocational trainers, foreign-language teachers, psychologists, dyslexia experts, teachers at second chance schools, support teachers, representatives from the Ministry of Education, speech therapists.

This selection allowed to understand the position of all parties in the training process and to point out the challenges of the educational system in relation to the education of adults with dyslexia.

The principal points are summarized below:

- Significant gap in the availability of specialised training programmes, tailored to adult dyslexia in many educational systems
- Lack of standardized screening and assessment tools specifically designed for adults, resulting in underdiagnosis or delayed diagnosis of dyslexia
- Shortage of specialised dyslexia support services in many regions.

- Training and professional development opportunities for adult educators and support staff in dyslexia are often limited
- Educators have limited or no knowledge and/or strategies to effectively identify and support dyslexic adults in various educational settings
- Smooth transitions from education to employment or further education can be challenging for dyslexic adults
- Need for increased awareness and elimination of the stigma of dyslexia among adult education providers, employers, and the general public.

Ideal Interventions and Techniques based on focus groups findings

- *dyslexia-friendly materials* such as books with practical adaptations
- *use of colour, meta-language, and text formatting* helpful
- *using specific fonts, colour images, white space, and providing a guide for conversations with students and parents*
- *highlighting keywords, reading slowly, and employing mnemonic devices*
- *importance of individualised accommodations like extra time and breaking up large blocks of text.*
- *IT tools that are based on the use of fonts useful to dyslexics, which help them to read better and better identify words.*
- *meta-cognitive teaching, with graphics*
- *visual digital tools, with little written text and audio support*
- *Tilde - reads the text*
- *Bruno, Bruno Master - can help in a very interesting way*
- *we can use Voice reader in a lesson, but you can't use it in an exam - it's a contradiction.*
- *free online tool Immersive Reader to support reading and writing*
- *Good Write which is a smart text corrector available for students*
- *use of MindMap that contributes a great deal to the learning of students with dyslexia. It is a tool that can be adapted to the learning process of all students and make the learning a more fun process*
- *by dealing with topics with examples related to the social sphere and everyday life, a dyslexic can use other personal skills to deal with a theoretical topic, such as creativity, memory, intuition and personal reasoning*
- *students expressing themselves through more creative means such as art*
- *collaboration among students and teachers, promoting open dialogue, and adjusting techniques based on individual needs would show empathy towards the learner.*
- *flexibility should be included in the methods of testing the knowledge and skills of dyslexic students, e.g., providing the possibility to adapt the format of the examination*
- *Dysgraphic students should be allowed to write notes and credit papers on laptops*

Suggestions from focus group findings

- *develop teaching materials designed for adults with dyslexia*
- *strengthen technological support*
- *advisers in all educational establishments*
- *educators will like to have access to training on how to help adult learners with dyslexia.*
- *raising awareness of neurodiversity, and reducing stigma*
- *awareness of rights and laws, particularly in the workplace, and the need for reasonable adjustments*
- *increased awareness among employers and recruiters, reframing dyslexia as a positive attribute, and utilising dyslexic individuals' unique problem-solving abilities*
- *promotion of famous dyslexics as role models and entrepreneurs, reframing dyslexia in a positive light, and increasing public awareness*
- *importance of policies and infrastructure that legally require adjustments to support dyslexic learners*
- *sensitization of the community concerning the psychosocial effects of adults who have undiagnosed dyslexia and have difficulties in their studies or work environment*
- *change attitudes to dyslexia at a legislative level*
- *local authorities should be able to support special needs, to be available for support (not only development centres, but directly local authorities), so - support centres.*
- *it is good that schools have career advisers who help pupils to know their strengths and weaknesses and then they can assess their options for themselves.*
- *work with society. Society still needs to grow up so that we understand what to do, how to do it, so that it helps the employer*
- *raising of awareness among students and teachers about supporting dyslexic learners*
- *assessment and diagnosing of dyslexia in adulthood*

Evidenced based Indicators of Dyslexia in Adult learners

General Indicators

Highly intuitive, May be able to sense emotions and energy of others, Remembers struggling in school, Frequently have dyslexic children, Easily distracted/annoyed by noises and other things in environment, May appear to “zone out” and be unaware that it is happening, Enjoys video games, Misspeaks, misuses, or mispronounces words without realizing it, May have poor balance or is/was very athletic, May have excellent recall of events that were experienced or not remember at all, May confuse past conversations or be accused of “not listening.”, Difficulty remembering names of people without tricks, but remembers faces, Difficulty remembering verbal instructions or directions, Poor recall of conversations or sequence of events

Reading, Writing and Spelling Indicators

Difficulty reading unfamiliar fonts, Avoids reading out loud. May dislike public speaking, Will commonly perceive that they “read better silently.”, Has adopted compensatory tricks to remember spelling and homonyms (their, there, they're), or misuses homonyms and has poor or inconsistent/phonetic spelling, Reading fluency and comprehension fluctuates depending upon subject matter, Frequently has to re-read sentences in order to comprehend, Fatigues or becomes bored quickly while reading, Reliance on others (assistants, spouses, significant others) for written correspondence, Uncertainty with words, punctuation, and spelling when writing. Reliance on spell-check and grammar-check, Uncertainty with words, punctuation, and spelling when writing. Reliance on spell-check and grammar-check, Words out of context look "wrong.", Poor handwriting - masks spelling mistakes, Writes with all capital letters, or mixes capital letters within words. Abbreviates words frequently.

Math, Time Management, Directions Indicators

May understand higher math, but can't show it on paper, May excel at math, or may still rely on tricks for remembering math facts, Relies on calculators or finger counting. May have difficulty with making change, Difficulty with left/right and/or North, South, East, West, Gets lost easily or never forgets a place they've been, Difficulty reading maps, May have anxiety or stress when driving in unfamiliar places. Relies on others to drive when possible, May lose track of time and is frequently late - or is highly aware of it and is very rarely late, Finds it difficult to estimate how long a task will take to complete

Behavior, Health, and Personality Indicators

May have a short fuse or is easily frustrated, angered, or annoyed, Easily stressed and overwhelmed in certain situations, Low self-esteem Self-conscious when speaking in a group. May have difficulty getting thoughts out - pause frequently, speak in halting phrases, or leave sentences incomplete. This may worsen with stress or distraction, Self-conscious when speaking in a group. May have difficulty getting thoughts out - pause frequently, speak in halting phrases, or leave sentences incomplete. This may worsen with stress or distraction, Sticks to what they know - fear of new tasks or any situation where they are out of comfort zone, Extremely disorderly or compulsively orderly, Confusion, stress, physical health issues, time pressure, and fatigue will significantly increase symptoms.

Memory and Cognition Indicators

Excellent long-term memory for experiences, locations, and faces, Excellent long-term memory for experiences, locations, and faces, Poor memory for sequences, facts and information that has not been experienced, Thinks primarily with images and feeling, not sounds or words (little internal dialogue).

Behavior, Health, Development & Personality Indicators

Extremely disorderly or compulsively orderly, Can be class clown, trouble-maker, or too quiet, Had unusually early or late developmental stages (talking, crawling, walking, tying shoes), Prone to ear infections; sensitive to foods, additives, and chemical products, Can be an extra deep or light sleeper; bedwetting beyond appropriate age, Unusually high or low tolerance for pain, Strong sense of justice; emotionally sensitive; strives for perfection, Mistakes and symptoms increase dramatically with confusion, time pressure, emotional stress, or poor health.

Career Indicators

Employed in job/position that will hide difficulties or not require dealing with problematic areas, Hides difficulties from co-workers, friends and even family, Becomes frustrated at "planning meetings" and sequential tasks - already has the answer and how to do it, Becomes frustrated or overwhelmed with long forms or sequential processes, Thrives in careers where visual-spatial/kinesthetic talents can be realized, May pass up promotions or advancement opportunities that would require more administrative work, Has difficulty focusing and staying on task - may feel more comfortable managing many different tasks simultaneously, Difficulty with tests - passing standardized tests can be a barrier to career advancement, Highly successful/over achiever, or considered "not working up to potential." Either way, displays extreme work ethic, May be a perfectionist and overreact when they make a mistake, Out-of-the-box thinker or operates with very strict rules for themselves, Learns best through hands-on experience, demonstrations, experimentation, observation, and visual aids, Difficulties taking notes

Based on the collection of all common signs for adult dyslexia, it is observed that there is a misconception that dyslexia just affects the ability to read and write. If this were true, it would be much easier to identify. In fact, dyslexia can have an effect on areas such as coordination, organisation



and memory. Each person with dyslexia will experience the condition in a way that is unique to them and as such, each will have their own set of abilities and difficulties. Common signs can help adult providers and educators to identify whether the difficulties being experienced could be indicative of dyslexia and would suggest that referral to a specialist should be recommended for an official diagnosis. If a checklist and/or screener indicates a likelihood to be dyslexic, a formal Diagnostic Assessment is the only way to confirm whether or not the difficulties a student/employee encounters are due to dyslexia.



Screening Tests

Different tests for dyslexia look at different skills. Below there is a compilation of tests used to diagnose dyslexia in adulthood. Screening tests can give an indication of possible dyslexic difficulties. They are often free or available online for a small charge but they cannot provide a diagnosis and are not 100% accurate.

TEST	LINK
Take the test-Am I dyslexic? By Ronald D. Davis & Davis Dyslexia Association International	https://www.testdyslexia.com/cgi-bin/assessor.cgi?action=begin
Dyslexia Test - Screening for Signs of Dyslexia Learning Ally	https://learningally.org/Dyslexia/Dyslexia-Test
Self-Assessment Tool Fran Levin Bowman, Ed.D. & Vincent Culotta, Ph.D	https://dyslexiaida.org/dyslexia-test/
Online Dyslexia Test By Beatingdyslexia	https://www.beatingdyslexia.com/online-dyslexia-test.html
Adult Reading History Questionnaire Lefly & Pennington, 2000	https://dyslexiaida.org/screening-for-dyslexia/dyslexia-screener-for-adults/
Adult Dyslexia Checklist Dyslexia Association of Singapore	https://www.das.org.sg/about-dyslexia/what-is-dyslexia/adult-dyslexia-checklist.html
Dyslexia Test For Adults ADDitude Medical Advisory Panel	https://www.additudemag.com/dyslexia-symptoms-test-adults/
Dyslexia Test Online	https://exceptionalindividuals.com/candidates/neurodiversity-resources/neurodiversity-quizzes/dyslexia-quiz-test/

EiP Checklist in Italian

<https://www.odipa.it/dislessia-adulti/>

Adult dyslexia test in Polish

<https://www.diagnostryka-umyslu.pl/blog/dysleksja/dysleksja-u-doroslych-test-online/>

Best pedagogical and tech approaches for adults with dyslexia

Assistive technologies

Immersive Reader is designed to make reading easier and more accessible for users with reading difficulties. The tool has several features that can be customised to suit the user's needs. For Example, Text – to – speech, line focus (highlighting lines as the reader reads), picture dictionary, parts of speech highlight, syllable breakdown, and translator.

Dyslexie font was created by a graphic designer with dyslexia. With wider spacing and unique letter shapes it is easier for the user to distinguish between individual letters, For Example, b & d. The baseline alignment is heavier than the top, which helps prevent ‘flipping’ or ‘rotating’ Punctuation marks are more distinct, making them easier to identify.

Dragon Professional Individual is a speech recognition software developed by nuance communications. It allows users to dictate text and perform various computer tasks hands-free, using their voice. It is highly accurate and adapts to the user's speech patterns over time, improving recognition accuracy. It supports dictation in a variety of languages and allows users to create custom commands for specific tasks, such as opening applications or navigating to specific files.

Coloured overlays are transparent sheets of plastic that are placed over written text to reduce visual stress and improve reading speed and accuracy for some people with dyslexia. The overlays help alleviate symptoms such as, eye strain, headaches and difficulty concentrating. The

colour of the overlay that works best varies for each person. Common colours include, yellow, pink, blue & green.

EasyReading was created by the Italian designer, Federico Alfonsetti is a hybrid font – with an essential design – it has both serif and sans-serif letters.

The specific design of the letters with dedicated serif, are essential in avoiding mistaking letters with similar form.

Mindview is an assistive technology that aids users in creating ‘mind maps’

Mindview helps turn monotonous information into colourful, memorable, and highly organised diagrams that work in line with the brain's natural way of thinking and working. MindView allows for visual graphics, colour coordination, reorganisation of ideas, and interactive elements such as text documents, website links, videos files and sound files to be included into Mind Maps.

Balabolka is a free text-to-speech software which can be customised in terms of pitch, speed and volume. It allows users to listen to text instead of reading it. It can also highlight the sections of the text as it reads. It includes a spellchecker, customisable hotkeys and the ability to save audio files.

Ghotit is an assistive technology that helps people with reading and writing. It includes spelling and grammar assistance, word prediction, text-to-speech, a personal dictionary and a dyslexia friendly user interface with customisable fonts, colours and layouts.

Read&Write is an assistive technology with features such as text-to-speech, word prediction and translate.

ADYS is a font designed for people with dyslexia. The font reduces letter swapping, helps the reader keep track of sentences and gives clearer shapes. The blackness of punctuation marks and capital letters are enhanced to help distinguish between the beginning and end of sentences.

Voiceclip is a Bulgarian mobile application for audiobooks. The audio-library contains a large selection of children's books, educational literature and much more. All the texts are read by professional actors. The idea of the mobile app is to show how technology can be used to support the learning process and to encourage and motivate people (especially children and young ones) to read more

RoboBraille is a web-based service that provides automated conversion of text documents into various accessible formats for individuals with visual impairments or reading difficulties. It allows users to upload documents in different formats, such as PDF, Word, or plain text, and converts them into accessible formats like Braille, large print, or audio. The service employs advanced algorithms and linguistic tools to generate accurate and high-quality accessible versions of the documents. RoboBraille helps to enhance accessibility and improve the reading experience for people with print disabilities

BrunoMaster is an assistive technology software and reading machine. It can be used for adults and school children. BrunoMaster – is an educational platform, with text-to-speech. It allows the user to view scanned or imported text in different font sizes and follow the audio file being read aloud. Text navigation.

Livescribe Smartpen records lectures / meetings while the user takes notes. It has transcription capabilities in 27 different languages. The pens are equipped with an IR camera and cannot be used with normal paper. Notes and audio can be transferred wirelessly to a mobile or computer.

Digital highlighters allow users to scan notes instantly to a computer, smartphone or tablet: The handheld scanning pens slide across a line of printed text and then instantly appear on the screen. It scans and translates over 40 languages and is highly accurate and fast multilingual OCR text scanner.

Voice Dream Reader is a versatile reading tool for iOS Apple devices – iPhone, iPad and Apple Watch. Featuring Dyslexia friendly font, text and audio synchronization, customizable font size and colour combinations, as well as full VoiceOver support

Pedagogical Approaches

UDL is a framework for learning. UDL means that curriculums are both inclusive and more accessible for those with learning difficulties and Dyslexia. The 3 principles of UDL are 1. Multiple means of representation, including text, video, and audio. 2. Multiple means of expression, learners can choose to write an essay or create a multimedia presentation. 3. Multiple means of engagement, teachers provide learners with different types of activities to explore different topics.

Coaching and mentoring are two strategies that can be used to support adults with dyslexia in the workplace. Coaching involves working with a trained professional who helps the individual with dyslexia develop strategies to overcome challenges related to dyslexia in the workplace. Mentoring, on the other hand, involves pairing the individual with dyslexia with a more experienced colleague who can provide guidance, support, and advice based on their own experiences in the workplace.

Libera Mente Imparo or ‘Freely I learn’ is a programme that focuses on supporting individuals with Dyslexia on their learning journey. The programme offers support and training to teachers, educators, and parents to enhance their understanding of learning with Dyslexia. The aim of the initiative is to create an inclusive education system, whilst working with educators, psychologists, speech therapists, and other professionals to provide comprehensive support to students with dyslexia.

The **3DLEXIA** for English method was created by Mrs. Aggeliki Pappa. It is a multi-sensory approach to teaching English to people with dyslexia. It uses a combination of different teaching techniques, original handmade tools, as well as specialised tools, augmented reality, interactive whiteboards & iPads. By using such a range of resources, it works by empowering learners into discovering for themselves the full potential.

The **Davis Programme** was developed by Ron Davis who is himself Dyslexic. The programme uses trained facilitators who provide one-to-one intervention to individuals with dyslexia. Rather than being seen as an impairment, it is seen as a different way of thinking and processing information. It incorporates multisensory techniques and utilises different learning styles.

10Clouds is a Polish software company which promotes a culture of fair feedback and adapted employee processes. A high level of knowledge and awareness among managers about neurodiversity and, in particular, the dyslexia spectrum also plays a key role.

DXC is a global leader in IT services. The Dandelion programme connects neurodiverse people to meaningful work and help workplaces to fill IT skills gaps. Neurodiverse people, such as those on the autism spectrum, dyslexic or ADHD, often have an extraordinary capacity for visual thinking, accuracy and attention to detail. These are invaluable skills in the IT industry, particularly in areas such as cybersecurity or data analytics.

Supporting dyslexic trainee teachers course is the result of a collaboration between the School of Education and the University of Southampton. The aim of the course is to provide support for teachers with dyslexia. As well as introducing dyslexia, the course includes a range of strategies that teachers with dyslexia can use in the classroom.

The **Workplace Needs Assessment (WNA)** is a programme developed by the British Dyslexia Association to support people with dyslexia in the working environment. The assessor evaluates the working environment and the organisation of the work process and makes recommendations for reasonable improvements.

University of Latvia Questionnaire: Every study year, the University of Latvia carries out a questionnaire for first-year students to find any needs they may have because of dyslexia. The university provides solutions such as larger fonts, extra time and additional support from teaching staff.

Erasmus+ Project: Learning games for Dyslexic Young Adults: This project was developed by six partners from the following countries: Bulgaria, Lithuania, Czech Republic, Germany, Austria and Latvia. It includes a range of mobile learning games focusing on skills that are important for young adult dyslexic people. They cover seven areas: Visual discrimination, Visual memory, Visual sequence, Auditory discrimination, Auditory memory, Auditory sequence, Spatial position.

Mario Engel: “Dyslexia is just a different way of seeing the world, a different way of processing information, a different way of learning and a different way of coming up with great ideas. As an individual with dyslexia, I personally find value in my unique perspective and way of processing information. Dyslexia can be a source of strength and creativity, and I am proud of the way my brain functions.”

Mario Engel is currently building Software as a service solutions (SaaS) and e-media solutions. Planning, designing and assembling dyslexia software, games and media. Working as Chairman of the German Dyslexia Association.

DYS is a non-profit organisation offering a support system for people with dyslexia. The centre conducts extensive research into dyslexia and solutions, including research into prisoners with dyslexia, adults who failed school because of dyslexia and university students with dyslexia.

DysTEFL is a project that promotes different pedagogical approaches, including: Use of technology, clarity and simplification of written instructions, only presenting short workloads which are easily managed, Blocking out extraneous stimuli, Highlight essential information, using explicit teaching procedures, Simultaneously combining verbal and visual information, providing copies of lecture notes, using key words / bullet points, peer-mediated learning, flexible worktimes and assignment substitutions.

Developing inclusive learning environments, supporting learners with dyslexia: A guide for teachers, Cambridge: It is important to create a supportive and collaborative classroom culture by getting to know all of your learners as individuals and encouraging them to get to know each other. This will help learners feel comfortable reflecting on task approaches and asking for support:



- Work in different groupings and encourage peer assessment so that learners get used to supporting each other
- Have L-shaped cards available for learners to frame sections of overcrowded textbook pages and help focus their attention. Encourage learners to use a plain piece of paper to cover reading texts and reveal one line at a time as they read.
- Offer learners choices in how they engage with tasks to make learning more meaningful and inclusive. For example, learners might 'draw' rather than write notes during a listening task or while preparing for a speaking task.
- Encourage learners to give feedback on their learning processes and discuss how they approached a task or reached a particular answer.
- Dedicate time to explain teach exam strategies, such as how to approach particular tasks in the exam, and break these down into a series of simple steps.
- Give any printed handouts to learners on pastel-coloured paper to support learners with visual processing difficulties



Conclusion

The findings put forward the urgency of integrating dyslexia awareness and intervention strategies into initial and professional development programs for teachers and adult educators. They also highlight the importance of individualized interventions and accommodations, and the barriers faced by dyslexic students in accessing timely and effective support. Recommendations include improving awareness, reducing stigma, developing dyslexia-friendly materials, fostering collaboration, and advocating for policy changes to create a more inclusive educational environment. Furthermore, an early screening and relevant early intervention programs will prove useful for their academic and employment future prospects.

The adult education sector as a whole is still a long way from providing a fully satisfactory service to dyslexic students. That provision for dyslexic students is complex, and raises many issues with regard to equality of access, understanding of dyslexia, identification and availability of resources and expertise. Numerous factors may influence the institutional decisions that are made about supporting students with dyslexia. In addition, each country responds to the educational needs of dyslexic students in the light of its current financial and human resources.

Adult educators have to be prepared pedagogically, psychologically and technologically to work with diverse groups. Getting familiar with indicators of dyslexia, online screening tests and apply best pedagogical approaches can be a first step into diving in the dyslexia world.