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IDEAL- INCLUSIVE DIGITAL EDUCATION FOR AUTISTIC PEOPLE LEARNING

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IDEAL PROJECT: ASSESSMENT TOOL FOR DIGITAL APPLICATIONS IN AUTISM SUPPORT

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1. Introduction

Digital technologies have become an integral part of education and therapeutic support for individuals with autism. However, the vast number of available applications presents a challenge in selecting the most effective and accessible tools. To address this, the IDEAL project has developed a **standardized assessment tool** for evaluating digital applications designed to support autistic individuals, their caregivers, educators, and professionals.

This document outlines a methodology for assessing **the pertinence, accessibility, usability, and effectiveness** of digital resources targeted at autism intervention. It aims to provide a **systematic framework** for determining whether applications align with the needs of autistic users and the professionals who support them.

Objectives of the Assessment Tool

- To provide **a clear and replicable methodology** for evaluating digital tools.
- To ensure that digital applications meet the **specific learning and accessibility needs** of autistic individuals.
- To support **educators, therapists, caregivers, and policymakers** in making informed decisions about the integration of digital tools into educational and therapeutic practices.
- To promote **best practices in digital development** for autism support, encouraging innovation and continuous improvement.

The assessment tool includes a set of **criteria-based evaluations**, covering content quality, technical usability, pedagogical effectiveness, and overall user experience. Additionally, this document includes **guidelines for educators and professionals**, along with a **training model** that can be replicated across different settings to ensure proper utilization of digital applications.

2. Digital Application Profile

This section provides a structured overview of the key characteristics of digital applications being assessed.

Basic Information

- **Program Name**
- **Developer and Version**
- **Release Date**
- **Distribution Platform** (Online Store, Physical Device, Free Software, etc.)
- **Language Availability** (English, Spanish, French, etc.)

Accessibility & Cost

- **Free or Paid Model** (Cost-free, Free trial, Paid with tiers, Subscription-based, etc.)
- **Hidden Costs** (In-app purchases, Premium features, etc.)

Technical Requirements

- **Device Compatibility** (PC, Tablet, Smartphone, etc.)
- **Operating System Support** (Android, iOS, Windows, etc.)
- **Internet Requirement** (Fully online, Partial offline functionality, Fully offline available)

Target User Profile

- **Autistic Individual (Independent Use vs. With Support)**
- **Caregivers and Families**
- **Educators and Professionals**
- **Policymakers and Developers**

Application Category

- **Educational**
- **Speech and Communication**
- **Social Stories and Social Skills**
- **Functional Skills and Health Promotion**

- **Entertainment and Leisure**
- **Social Networks and General Use**

3. Standardized Evaluation Criteria

A structured assessment framework has been developed to evaluate digital applications based on key usability and pedagogical principles.

Content Quality & Relevance

- Relevance of content for autism intervention
- Educational value for skill development
- Customization and personalization options
- Regular content updates and accuracy
- Reinforcement mechanisms within the app

Technical Usability & Accessibility

- Response time during startup and usage
- Simplicity and accessibility of the interface
- Availability of customization (text size, button resizing, subtitles, contrast adjustment)
- Integration of assistive technology features (text-to-speech, external device support, etc.)

Pedagogical & Functional Aspects

- Clear pedagogical objectives
- Enhancement of cognitive, social, and communication skills
- Task progress tracking and feedback mechanisms
- Intuitiveness and ease of use

User Experience & Engagement

- Multi-user profile options
- Engagement and enjoyment for autistic users

- Adaptation for different motor skills
- Intuitive navigation and autonomy support

4. Guidelines for Educators and Professionals

The **Assessment Tool** is designed as a structured questionnaire where users evaluate various aspects of a digital application based on a **Likert scale (1 to 5)**, with **higher scores indicating greater suitability** for autistic individuals.

How to Use the Assessment Tool

1. **Fill in General and Technical Information**
    - This step provides an overview of the application's accessibility, affordability, and technical requirements, encouraging reflection on whether the app is viable for individuals with **fewer resources**.
2. **Evaluate Each Criterion Using the Likert Scale**
    - Each category—content quality, usability, pedagogy, and user experience—is rated from **1 (Very Poor) to 5 (Very Adequate)**.
3. **Interpret the Results**
    - The assessment generates an **average score from 1 to 5**, providing a **quantitative measure** of the application's overall quality and suitability.
    - **Guidelines for interpretation:**
        - **1.0 - 2.4:** The app is likely **unsuitable** for autistic individuals.
        - **2.5 - 3.4:** The app has **moderate suitability** but may need significant improvements.
        - **3.5 - 4.4:** The app is **adequate** and can be useful with some adjustments.
        - **4.5 - 5.0:** The app is **highly suitable** and meets most accessibility and usability criteria.
4. **Access the Virtual Assessment Tool**
    - A **digital version** of this tool is available on **IDEAL Connect**, allowing users to complete assessments online: https://tools.idealearning.eu/.

5. Recommended Training Model for Educators, Caregivers, and Policymakers

Purpose of the Training Model

The training model is designed to help educators, caregivers, therapists, and policymakers effectively **implement and evaluate** digital applications for autistic individuals. The model provides a structured approach to understanding accessibility, usability, and the pedagogical impact of digital tools.

Training Framework for Different Stakeholders

- **Educators:** Learn how to integrate digital applications into structured lesson plans, monitor student progress, and adapt tools based on individual needs.
- **Therapists:** Understand how digital applications can be used as interventions for social, communication, and cognitive skill development.
- **Caregivers:** Gain skills to support at-home learning and ensure that digital tools are used effectively and safely.
- **Policymakers:** Learn about accessibility and inclusion requirements to promote policy recommendations that enhance digital access for autistic individuals.

Recommended Module-Based Training Structure

The training program should address **three core modules**:

Module 1: Understanding Digital Accessibility and Usability

- What makes an application accessible for autistic individuals?
- Principles of **universal design for learning (UDL)**.
- How to assess customization and usability features in digital tools.

Module 2: Practical Implementation in Education and Therapy

- Step-by-step guide to integrating digital tools into learning environments.
- Case studies on how applications improve engagement and skill development.
- Strategies to **track and analyse user progress**.

Module 3: Evaluation and Decision-Making

- Using the **Assessment Tool** to evaluate different applications.
- How to interpret assessment scores and make data-driven decisions.
- Best practices for providing **feedback to developers** to improve accessibility.

Certification & Ongoing Support

- Participants completing the training will receive a **certification** in digital accessibility and application evaluation.
- A **community-driven support network** will be established to foster ongoing learning and resource sharing.
- Access to an **online repository of evaluated applications**, allowing educators and professionals to share best practices and recommendations.

6. Future Perspectives and Continuous Improvement

The IDEAL assessment tool is a **living methodology** that should evolve alongside technological advancements and user needs. The following aspects will shape its continuous improvement:

Innovations in AI and Autism-Supportive Technologies

- Implementing **machine learning and AI** for personalized digital learning experiences.
- Enhancing **speech recognition and predictive analytics** to better tailor interventions.
- Integrating **virtual and augmented reality (VR/AR)** to support autism-friendly environments.

Strengthening User Participation in Digital Tool Development

- Encouraging **co-design approaches** where autistic individuals and caregivers contribute directly to application development.
- Conducting **regular feedback sessions** to improve accessibility and usability based on real-world experiences.
- Establishing a **user panel** to guide continuous refinement of the assessment tool.

Policy Recommendations for Digital Accessibility

- Advocating for **open-access digital resources** for neurodiverse individuals.
- Encouraging **government and educational policies** that promote technology inclusion.

- Strengthening **EU-wide regulations on digital accessibility and usability** to set universal standards for assistive technologies.

7. Conclusion

This document provides a **structured and practical methodology** for assessing digital applications aimed at autism support. By applying the **standardized evaluation framework**, educators, caregivers, and professionals can make **informed decisions** about digital tools, ensuring accessibility, usability, and effectiveness.

The **continuous evolution** of digital applications and accessibility features highlights the need for **ongoing assessment, adaptation, and collaboration** between developers, educators, therapists, and autistic individuals themselves. The IDEAL Assessment Tool serves as a foundational resource, helping professionals navigate the complex digital landscape and select tools that truly enhance the learning and everyday experiences of autistic individuals.

To further facilitate assessment and decision-making, a **virtual version of this tool is available on IDEAL Connect**, allowing users to complete evaluations and access comparative insights online:

Access IDEAL Connect: https://tools.idealearning.eu/

8. Appendix: Standardized Assessment Tool for Evaluating Digital Applications

Prior information

Program name:

Price: Cost-free / free trial (less.than.1€. - 1 76€. - More.than.76€. - Subscription) / less than 5€ / 5-10€ / More than 10€ / Subscription / Some functions require payment

Type of device required: Phone/mobile / Computer / Laptop / Tablet / Other

Operating system: Android / Apple / Windows / Other

Distribution platform: Online store / Physical device (CD) / Free software / Other

Language: Czech / English / French / Portuguese / Serbian / Spanish / Other

Participant profile: Autistic person / Autistic person with external support / Professional / Family/relatives

Area: Educational / Speech and communication / Social stories and social skills / Functional skills and health promotion / Entertainment and leisure time / Social network and general use

Technical mode: Free / Not free

Registration required: Yes / No

Internet connection is required to be used: Yes / No / Just for some functions

Assessment tool

Very poor (1); Poor (2); Acceptable (3); Adequate (4); Very adequate (5), Not applicable (N).

Perspective	Item	1	2	3	4	5	N
Content	1.- The content is relevant						
	2.- It has educational value to support intervention						
	3.- Improves the skills to relevant areas						
	4.- It can be personalized						
	5.- Content regularly updated						
	6.- The user gets positive reinforcement from the APP						
Technical specifications	7.- Good response time during the start						
	8.- Good response time during usage						
	9.- The information when used is adequate and not overloaded						
	10.- There are different options for the user to choose from when starting the APP						
	11.- There are instructions/guidelines for the APP which are easily accessible						
	12.- Allows you to modify the size of the buttons and the text						
	13.- Provides transcription/subtitles option/s						
	14.- The opacity – transparency can be modified (adjusted) (the color scheme can be modified, changed, adjusted…)						
	15.- The APP/platform has a simple (accessible) interface						
Pedagogical criteria	16.- The pedagogical objectives are clear						
	17.- Develops social/communicative/cognitive skills						
	18.- The APP provides an “undo” function for different actions						
	19.- The APP provides information about the time to reach the end of the task						
	20.- The APP allows the user to follow up the progress						
	21.- The language used is accessible to the user						
	22.- Allows you to connect external devices						
	23.- The application provides help support						
	24.- The user can autonomously use the APP without the support of a person with technical knowledge						
	25.- The functions of the application are intuitive						
	26.- The APP allows parental control						
User experience	27.- Allows the creation of different user profiles within the APP						
	28.- Progress control/overview						
	29.- The APP is enjoyable/fun for the user						
	30.- The APP is adapted to different motor skills						