



**NAME**

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# Abstract

- A software application designed to help dyslexia patients and young children improve reading and learning skills.
- Uses large, clear text and audio playback to make reading easier.
- Highlights each letter and word while reading aloud for better focus.
- Allows children to practice speaking through a built-in “Talk” feature.
- Uses speech recognition to check pronunciation and give gentle corrections.
- Provides positive feedback with sounds, animations, and encouraging messages when the user succeeds.
- Blurs unnecessary screen areas to reduce distractions.
- Suitable for both educational learning and reading therapy.
- Aims to make learning fun, build confidence, and support those with reading challenges.



# LITERATURE REVIEW

## 1. Screening Dyslexia Using Visual Auditory Computer Games and Machine Learning

- **Author**

Maria Rauschenberger, Ricardo Baeza-Yates, Luz Rello

- **Methodology**

- Created a short computer game with visual and sound-based tasks.
- Tested on 137 children (51 with dyslexia) aged 7–12, in German, Spanish, and English.
- Visual part: finding shapes with symmetry and attention tasks.
- Sound part: remembering and matching sounds.
- Added game elements like points, quick feedback, and time limits.
- Used machine learning to predict dyslexia risk from game data.

- **Advantages**

- Works for many languages.
- Can be used before a child learns to read.
- Fun and engaging for kids.
- Low cost and easy to access online.
- Uses both visual and sound clues.

- **Disadvantages**

- Small, unbalanced group of participants.
- Spanish group mostly had dyslexia, which may affect results.
- Less control than in a lab setting.
- Results can change depending on the device used.
- Not a medical test.

- **Future Scope**

- Test on younger children for earlier detection.
- Gather more balanced data from different languages.
- Make it work better on phones and tablets.
- Add more clues like eye-tracking or behavior analysis.
- Create a universal tool for schools.

## 2. Artificial Intelligence in Dyslexia Research and Education: A Scoping Review(2023)

- **Authors**

Basma Hamed, Afaf Taha, Abubakar Sadiq Bappah, Ahmed T. Sadiq, and Essam H. Houssein

- **Methodology**

- Reviewed 92 research articles published between 2009–2022 on using AI for dyslexia research and education.
- Classified studies based on AI techniques used, research aims, datasets, and evaluation metrics.

- Covered AI methods such as machine learning, deep learning, and natural language processing.
- Identified key areas: diagnosis/screening, personalized learning, and educational tools.
- Highlighted gaps in datasets, language coverage, and model explainability.
- **Advantages**
  - Gives a complete overview of AI's role in dyslexia research.
  - Shows the most common AI tools and methods used.
  - Highlights areas needing more research, guiding future work.
  - Encourages the use of AI for faster, more accurate screening and learning support.
- **Disadvantages**
  - Limited to studies available in English.
  - Relies on past research; does not include new experiments.
  - Many reviewed studies use small datasets, limiting reliability.
  - Lack of standard evaluation methods across studies.

- **Future Scope**
  - Create large, diverse, and publicly available dyslexia datasets.
  - Develop AI tools that work across multiple languages.
  - Improve AI transparency and explainability for educators and parents.
  - Focus on real-world testing of AI tools in schools.
  - Integrate multimodal data (speech, eye-tracking, handwriting) for better screening

### **3.Tracking E-Learning for Arabic Dyslexia Through Published Papers: A Systematic Review.(2024)**

- **Authors:**
  - Khouloud Hadhri, Fathia BenhajKhalifa, Amel Mahfoudhi
- **Methodology**
  - Collected and reviewed published research on e-learning solutions for Arabic dyslexia.
  - Analyzed trends, tools, and methods used to support Arabic-speaking dyslexic learners.
  - Classified research by type (screening, intervention, learning support).

- Identified common technologies: serious games, mobile apps, multimedia content, and AI-assisted tools.
- Highlighted the role of cultural and linguistic factors in Arabic dyslexia research.
- **Advantages**
  - First comprehensive review focusing on Arabic dyslexia in e-learning.
  - Summarizes the available digital solutions for Arabic-speaking learners.
  - Helps researchers understand cultural and linguistic challenges in Arabic dyslexia.
  - Identifies successful teaching methods and tech tools used in practice.
- **Disadvantages**
  - Limited number of studies available for Arabic dyslexia.
  - Many studies are small-scale and not tested widely.
  - Lack of standard datasets for Arabic dyslexia research.
  - Few tools are tested in real classroom environments.



## • **Future Scope**

- Develop larger and more varied datasets for Arabic dyslexia.
- Test existing tools on a bigger and more diverse group of students.
- Create AI-based solutions tailored to Arabic language challenges.
- Promote multilingual tools that include Arabic along with other languages.
- Encourage collaboration between researchers, teachers, and developers.





# THANK YOU

