

ADAPTIVE AI ASSISTANT FOR FUNCTIONAL AND EDUCATIONAL SUPPORT IN DIVERSE ATTENTION PROFILES

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RESUMEN

Researchers at the University of Alicante have developed a **set of artificial intelligence (AI) assistants** that offer **functional and educational support to people with diverse attention profiles and their environment** (families, teachers, institutions). The aim is to improve organisation, self-regulation and access to useful resources in educational and training contexts.

The assistants combine natural language processing (NLP), personalisation based on machine learning, and practical guidance modules for teachers, families, and users. Their design is neutral from a clinical point of view (neither diagnostic nor therapeutic) and focuses on technical adaptation and accessibility.

The initial prototype of the AI assistant was aimed at supporting people with ADHD. However, other similar assistant prototypes have also been created, adapted for different profiles of students with SEN, related to ASD, dyslexia, dysgraphia, dyscalculia, high abilities, intellectual disability, eating disorders, suicidal ideation, technological addictions, stress, anxiety, depression, burnout, bullying (and cyberbullying) and gender violence.

The researchers are looking for companies and other entities interested in validating the prototypes, conducting pilot studies in educational centres or institutions, or commercially exploiting the assistants.

**INTRODUCCIÓN**

People with specific educational support needs (SEN) related to sustained attention, planning or self-regulation encounter barriers to organising themselves, concentrating and managing their time.

Currently, resources are partial and fragmented, with little personalisation and little ongoing support. This technology provides a **comprehensive, accessible and adaptive solution** for students, families and teaching staff.

DESCRIPCIÓN TÉCNICA

The **assistant** (see Figure 1), based on a conversational AI model, implements a technical procedure for dynamic personalisation: 1) natural language input; 2) functional classification of the profile; 3) activation of modules; 4) generation of tailored recommendations; 5) evolutionary monitoring and feedback; 6) data security and traceability with anonymisation.

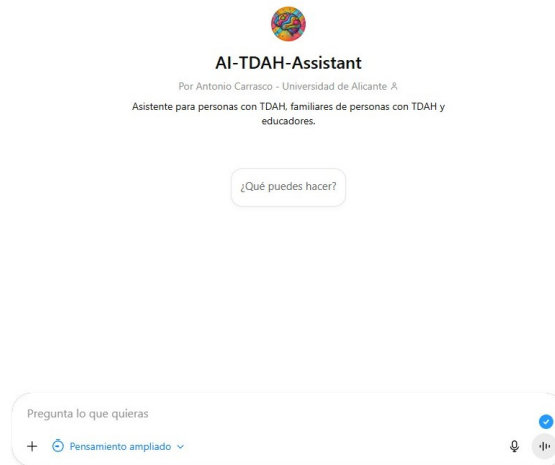


Figure 1: View of the GPT

This system consists of the following parts:

- **Adaptable interface:** text/voice interaction, complexity and format settings.
- **Adaptive AI engine:** semantic analysis, heuristic rules and machine learning to personalise content.
- **Usage tracking system:** records interaction patterns (anonymised) to improve the experience.
- **Practical guidance:** guides for personal organisation, study support, teaching guidelines, and family-school collaboration.
- Optional: **motivational elements** (e.g., positive reinforcement). No virtual reality or physical sensors required.

VENTAJAS Y ASPECTOS INNOVADORES

MAIN ADVANTAGES OF THE TECHNOLOGY

The main advantages of this technology are as follows:

- **Centralised access to practical and reliable resources**, filtered by profile and context.
- **Technical customisation:** recommendations tailored to profile and usage trends.
- **Applicable guides:** clear steps, contextualised examples and downloadable materials.
- **Immediate support:** real-time interaction, multi-platform, no specific hardware required.
- **Scalability and integration:** cloud or local deployment, integration with educational platforms.

INNOVATIVE ASPECTS

The assistant combines artificial intelligence technology with a highly specialised approach to students with SEN, enabling **dynamic personalisation and multi-profile, modular coverage, with a technologically neutral architecture and integrated security and traceability.**

- **Dynamic personalisation** based on PLN and machine learning (no static rules).
- **Multi-profile and modular coverage** (users, families, teachers, institutions).
- **Technologically neutral** (no added devices) and accessible architecture.
- **Integrated security and traceability:** encryption, access control, anonymisation and portability.

ESTADO ACTUAL

It is currently in the **development phase**, with demonstrable functional prototypes.

APLICACIONES DE LA OFERTA

The invention can be applied in various sectors due to its ability to provide comprehensive, personalised, real-time support. Some key sectors are highlighted below:

- **Education sector:** At schools, universities and training centres, the assistant can be used to support students with various SEN through personalised learning strategies, tools to improve attention and organisation, and guides for teachers on inclusion and curriculum adaptations. This improves academic performance, reduces the risk of school dropout and promotes educational inclusion.
- **Family and community:** The assistant offers resources for organisation and to facilitate coexistence. It also takes into account family-school collaboration.
- **Technology sector:** Software development companies can incorporate the invention as an AI-based solution to improve existing applications or as a standalone product aimed at people with SEN.
- **Human Resources and Productivity Sector:** Organisations and companies can use the assistant to support various employee profiles, offering them strategies to improve time management, organisation, and stress management in the workplace. This would lead to increased productivity in a more inclusive work environment.
- **Content Development and Training Sector:** Content creators and online training platforms can use the technology to develop interactive courses on SLD, tailored for both education professionals and families.
- **Social and community sector:** Associations, NGOs, and foundations focused on education and SEN can use the assistant to provide direct support to their communities, develop awareness campaigns, and create support networks.

COLABORACIÓN BUSCADA

We are seeking companies and other entities interested in validating prototypes, conducting pilot programmes in educational centres or institutions, or commercially exploiting the assistants.

DERECHOS DE PROPIEDAD INTELECTUAL

This technology is protected by **patent application**:

- *Patent title: "Método adaptativo implementado en ordenador para la personalización dinámica de un sistema interactivo multiperfil".*
- *Application number: P202530866*
- *Application date: 23/09/2025*

SECTORES DE APLICACIÓN (3)

Education
Computer Science, Language and Communication
Medicine and Health