Development of an AIoT-Based Online Platform for Education and Care Support to Address Challenging Behaviors of Individuals with Developmental Disabilities

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Abstract:

This study aims to develop an AIoT(Artificial Intelligence of Things)-based education and care support system using AIoT technology and the metaverse to address challenging behaviors in individuals with developmental disabilities. Conducted from September 2022 to May 2025, the research was divided into three phases.

Firstly, an AI-based system was created to automatically record and analyze seven types of aggressive behaviors, enabling more precise interventions. Secondly, customized metaverse and VR educational content were developed to enhance social skills in students with developmental disabilities, followed by usability evaluations. Thirdly, an online platform, DU All Care (DACARE), was established to support collaboration among schools, families, and community organizations. This platform facilitates information sharing and provides real-time behavioral intervention consulting through virtual counseling rooms, aiming to prevent issues related to challenging behaviors and ensure consistent support.

This study proposes a paradigm shift in education and care systems for individuals with developmental disabilities and offers foundational data for building effective support systems for behavioral interventions. Future research will focus on verifying the system's efficacy and exploring broader applications through multi-institutional dissemination.

Keywords:

Developmental Disabilities, Challenging Behavior, AIoT, Metaverse, Education and Care Support System