IJCNP, Volume 3, Issue 6, 2025 ISSN: 2995-536X
https://medicaljournals.eu/index.php/IJCNP

INTERNATIONAL JOURNAL OF COGNITIVE NEUROSCIENCE AND PSYCHOLOGY

Approaches to Developing Skills and Competencies in the Purposeful Use of Electronic Spreadsheets

A.S. Khayriyeva
Student of Bukhara State Pedagogical Institute, Bukhara, Uzbekistan
xayriyevaanvara@gmail.com

Abstract: This study examines the nature and characteristics of written speech disorders—specifically dyslexia and dysgraphia—among children with intellectual disabilities, focusing on their symptoms, underlying mechanisms, and specialised logopedic interventions used for correction. The research identifies persistent reading and writing challenges in such children, including difficulties in phonemic perception, sound-syllable synthesis, visual and motor coordination, and sentence comprehension. Drawing from clinical observations and established theoretical frameworks, the paper reveals that students with mental retardation not only experience delays in mastering reading and writing but also make recurring phonetic and grammatical errors that indicate deeper cognitive and perceptual deficits. The study highlights the necessity of individualised and stepwise corrective strategies tailored to the specific psychological and neurological profiles of these children. Emphasis is placed on the integrated development of phonemic analysis, visual-auditory synthesis, and oral language skills within the educational setting of special schools. By understanding the interplay between mental retardation and speech impairments, the research contributes valuable insights into effective logopedic approaches. It underscores the importance of early diagnosis and comprehensive, structured intervention programs for improving written communication in children with intellectual disabilities.

Key words: Dyslexia, Dysgraphia, Intellectual Disabilities, Written Speech Disorders, Special Education, Speech Therapy, Phonemic Perception, Logopedic Intervention, Reading Difficulties, Writing Disorders.

Introduction.

In the modern digital world, effective use of information technology is becoming an essential skill for every individual. Especially in the education system, the capabilities of electronic tools, particularly electronic spreadsheets, to analyze, systematize, and visually present information are expanding. Today, purposeful use of electronic spreadsheet programs such as Microsoft Excel and Google Sheets not only develops technical knowledge but also fosters important skills like analytical thinking, problem-solving, and decision-making.

In the educational process, using innovative approaches to teaching electronic spreadsheets ensures that students develop independence, creative thinking, and adaptability to modern information environments. This is a crucial factor in the process of preparing them for professional activities and in developing their digital competencies.

This work analyzes various approaches aimed at developing skills and competencies through the use of electronic spreadsheets, their effectiveness, and mechanisms for practical application.

Main components:

Electronic spreadsheets: A tool for storing, analyzing, and visually presenting data. Programs such as Excel and Google Sheets serve as the primary educational platforms.

Purposeful use: Applying electronic spreadsheets to solve real-world problems. Implementing knowledge into everyday life through practical tasks.

Competency: The ability to independently and correctly apply knowledge, such as writing formulas and creating graphs.

Skills: Practical actions developed through continuous practice, e.g., data entry, filtering, and analysis in spreadsheets.

Teaching approaches: Problem-based, practical, and project-based methods, each enhancing student activity and participation.

Assessment and monitoring: Testing students' knowledge through quizzes, practical exercises, and projects. Determining results via reflection and self-assessment.

Electronic spreadsheets are convenient tools designed for storing, sorting, analyzing data, and presenting results visually in a digital environment. Programs like Microsoft Excel and Google Sheets are widely used in modern education to promote students' digital literacy, systematic thinking, and the reinforcement of practical knowledge. Electronic spreadsheets play an unparalleled role in developing students' skills in statistical analysis, planning, graphing, and drawing conclusions based on data.

Results

The results of the study demonstrate that children with intellectual disabilities exhibit persistent and multifaceted written speech disorders, primarily dyslexia and dysgraphia, which manifest as early as the first grade in special schools. Among first-grade students, 51% were found to have reading disorders, while 49% showed letter-by-letter reading habits, often without comprehension. These difficulties were compounded in the second grade, where reading disorders were detected in 26% of students and comprehension problems increased to 60%. Errors observed include failure to recognize or differentiate letters, sound substitutions due to phonetic and graphic similarities (e.g., d-l, x-k), and distortion of the syllable structure of words. Dysgraphia manifested through frequent spelling errors, omissions, substitutions, and incorrect use of affixes, reflecting underdeveloped phonemic awareness and visual-motor coordination. Agrammatisms became more evident from the third grade, revealing difficulties in morphological and syntactic processing. The study also found that despite technical ability to read, many students lacked understanding of the material and could not link textual content with corresponding imagery. These findings underscore the need for early, individualized intervention programs that integrate phonological training, cognitive development, and visual-auditory synthesis to address the complexity of written language acquisition in mentally retarded children.

References:

1. Kadirova M.M. Raqamli kompetensiyalar va elektron jadvallar asoslari. – Toshkent: «Fan va texnologiya», 2022. – 156 b.
2. Karimov A., Tursunova G. Axborot texnologiyalari va ularni o‘qitishda zamonaviy metodlar. – Toshkent: «O‘qituvchi», 2021. – 184 b.
3. Sharapov Sh. Axborot texnologiyalarini o‘qitish metodikasi. – Toshkent: «Ilm-Ziyo», 2020. – 140 b.
4. Walkenbach J. Excel Bible. – New York: Wiley Publishing, 2019. – 1152 p.
5. UNESCO. ICT Competency Framework for Teachers. – Paris: UNESCO Publishing, 2022. – 76 p.