DIGITAL TECHNOLOGIES IN HEARING-IMPAIRED EDUCATION AND THEIR IMPACT ON TEACHERS' PROFESSIONAL WELL-BEING

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Abstract The development of digital technologies has significantly changed the education of children with hearing impairments. Modern tools such as hearing aids, cochlear implant support systems, speech-to-text software, subtitles, sign language applications, interactive whiteboards, and online educational platforms have created new opportunities for more effective learning. These technologies help teachers provide better communication, visual support, and personalized educational approaches for students with hearing impairments. At the same time, the increasing use of digital technologies has influenced teachers' professional well-being. Teachers are expected to master new technologies, adapt teaching methods, and continuously improve their professional skills. These demands may create both positive and negative effects on teachers' emotional state, motivation, workload, and job satisfaction. This article examines the role of digital technologies in hearing-impaired education and their impact on teachers' professional well-being. The study identifies the main factors influencing teachers' emotional, psychological, and professional state in the process of digital transformation.

Keywords: digital technologies, hearing-impaired education, teacher well-being, assistive technologies, surdopedagogy, professional development, special education.

Introduction

Digital transformation has become one of the most important processes in modern education. It has changed teaching methods, communication systems, educational resources, and assessment tools. In special education, especially in the education of children with hearing impairments, digital technologies play an essential role.

Students with hearing impairments often require visual support, subtitles, sign language interpretation, hearing devices, and interactive educational materials. Traditional teaching methods alone are not always sufficient to meet their educational needs. Therefore, teachers increasingly use digital technologies to improve students' learning experiences and communication abilities.

Digital technologies in hearing-impaired education include hearing aids, cochlear implant support systems, speech recognition software, visual learning applications, sign language videos, online communication tools, subtitles, and virtual classrooms. These technologies can make education more accessible, engaging, and individualized.

However, the use of digital technologies also creates new responsibilities for teachers. They must learn how to use new devices, prepare digital learning materials, solve technical

problems, and continuously update their knowledge. As a result, teachers may experience stress, fatigue, and emotional burnout.

Teacher well-being is a multidimensional concept that includes emotional, psychological, social, and professional satisfaction. Teachers with high levels of well-being are more motivated, productive, and effective in supporting children with hearing impairments.

The purpose of this article is to analyze the impact of digital technologies in hearing-impaired education on teachers' professional well-being.

Methods

This article is based on qualitative research methods. Various scientific articles, educational reports, books, and theoretical studies related to digital technologies, hearing-impaired education, teacher well-being, and surdopedagogy were analyzed.

The following methods were used:

1. Literature review;
2. Comparative analysis;
3. Theoretical analysis;
4. Observation-based generalization.

The study focused on identifying the positive and negative effects of digital technologies on teachers' professional well-being in hearing-impaired education.

Results

The study found that digital technologies have both beneficial and challenging effects on teachers' professional well-being.

1. Increased Teaching Effectiveness

Digital technologies help teachers explain information more clearly and visually. Students with hearing impairments often understand information better when it is supported by subtitles, images, animations, and sign language videos.

Teachers can use:

Interactive whiteboards;

Speech-to-text software;

Online visual materials;

Subtitles and captioning tools;

Sign language applications;

Video conferencing platforms.

These technologies improve communication and make lessons more interesting and understandable.

2. Improved Teacher Confidence

Teachers who can effectively use digital technologies often feel more confident in their professional activities. They can adapt teaching materials to students' needs, create more inclusive learning environments, and communicate more effectively.

Professional confidence positively affects teachers' motivation and job satisfaction.

3. Increased Workload

Despite the benefits, digital technologies can increase teachers' workload. Teachers often spend additional time preparing digital materials, learning new programs, creating subtitles, and solving technical problems.

Some teachers may also feel pressure to constantly update their knowledge about new technologies. This can lead to fatigue and emotional stress.

4. Stress and Emotional Burnout

Teachers working with children with hearing impairments already face unique professional challenges. When digital demands are added, stress levels may increase.

Common sources of stress include:

Lack of technical knowledge;

Poor internet connection;

Limited access to equipment;

Difficulty using new software;

Increased communication demands.

Without proper support, these challenges may contribute to emotional burnout.

5. Importance of Professional Development

Professional development is one of the most important factors supporting teachers' well-being.

Teachers need training on:

Assistive technologies for hearing-impaired students;

Speech recognition software;

Subtitles and captioning tools;

Sign language resources;

Online teaching methods;

Digital assessment tools.

Regular training helps teachers feel more prepared and less stressed.

6. Organizational and Technical Support

Teachers need support from school administration and educational institutions. Schools should provide:

Reliable internet connection;

Modern digital devices;

Technical assistance;

Opportunities for professional development;

Emotional support and counseling.

Teachers who receive sufficient support are more likely to maintain positive emotional health and professional satisfaction.

Discussion

The findings show that digital technologies can significantly improve the quality of hearing-impaired education. They make lessons more accessible, visual, and interactive. At the same time, they influence teachers' emotional and professional well-being.

One of the main positive effects is increased teaching effectiveness and confidence. Teachers who are skilled in using digital technologies feel more satisfied with their work and are better able to meet students' needs.

However, the study also shows that digital transformation may increase teachers' workload and stress. Many teachers need additional time to learn new programs, prepare digital content, and adapt educational materials.

The unequal level of digital competence among teachers is another important issue. Some teachers adapt quickly to new technologies, while others may feel overwhelmed. Therefore, professional development programs should be flexible and individualized.

School leaders have an important role in supporting teachers. They should create positive working conditions, reduce unnecessary workload, and ensure access to technical and emotional support.

Educational policymakers should also invest in digital infrastructure and teacher training programs. Without sufficient resources, digital technologies may become an additional burden instead of a useful tool.

Conclusion

Digital technologies have become an important part of hearing-impaired education. They help teachers provide more effective, accessible, and engaging lessons for students with hearing impairments.

At the same time, the use of digital technologies affects teachers' professional well-being. Positive effects include increased confidence, motivation, and teaching effectiveness. Negative effects may include stress, workload, fatigue, and emotional burnout.

To ensure teachers' professional well-being, educational institutions should provide technical support, professional development opportunities, emotional support, and modern digital infrastructure.

Supporting teachers in the process of digital transformation is essential for improving both the quality of special education and the well-being of teachers themselves.

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