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ESWOCHY

The Role of Assistive Technology in the Academic Performance of Students with Disabilities in Slovakia.

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Erasmus Mundus Master's Degree in Social Work with Children and Youth

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ABSTRACT

This study examines the role of assistive technology (AT) in the academic performance of students with disabilities (SWDs) in Slovakia, a country making notable progress in inclusive higher education. The study utilizes a broad range of studies about assistive technology, academic performance, and inclusive education, predominantly from the domains of special education and social work. The study uses qualitative methods, specifically semi-structured interviews, to explore the experiences of SWDs with AT. Framed by the social model of disability and empowerment theory, the research examines the perceived impact of AT on academic outcomes, identifies barriers SWDs face in accessing and using AT, and analyzes how university counseling centers allocate these technologies.

The findings of this study show that assistive technology (AT) greatly helps university students with disabilities by making learning easier and more accessible. Students used many types of AT tools, both software and hardware, to support their needs. Most students had very positive experiences, saying AT made them more independent, confident, and able to participate in their studies. It helped them finish tasks faster, be more accurate, understand material better, and improve their grades. However, some students faced problems like learning how to use new tools, technical issues, or not enough training, which sometimes slowed them down.

The thesis emphasizes interdisciplinary work in social work. It suggests that social workers support students with disabilities using assistive technology, empower them, and collaborate with educators to promote inclusion. Through advocacy and support, social workers can help these students succeed academically.

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LIST OF ABBREVIATIONS

AT	Assistive Technology
AI	Artificial Intelligence
ADHD	Attention Deficit Hyperactivity Disorder
SWDs	Student(s) with Disabilities
CRPD	Convention on the Rights of Persons with Disabilities
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
ESWOCHY	Erasmus Mundus Master's Degree in Social Work with Children and Youth
GPA	Grade Point Average
OCR	Optical Character Recognition
PDA	Personal Digital Assistant
PDF	Portable Document Format
SSP	Student with Specific Needs (Študent so špecifickými potrebami in Slovak)
TUKE	Technical University of Košice
UNICEF	United Nations Children's Fund
WHO	World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

The global need for assistive technologies is substantial since more than 1 billion people are estimated to be disabled worldwide, accounting for around 15% of the total human population (WHO, 2023), and relying on one or more ATs to assist them in their daily tasks (Amin et al., 2024). This figure is expected to rise to two billion by the year 2030. However, despite high demand, only a small proportion of people who could benefit from AT currently have access, with only 10% being able to utilize these technologies (Amin et al., 2024). Higher education for people with disabilities has seen notable advancements recently. Given that the inclusion of students with disabilities in education, especially learning, has become a global concern in higher education, many educational systems in Europe and other countries are shifting towards more inclusive education models (Čerešňová et al., 2018; Ndoluv, 2021).

The Universal Declaration of Human Rights and the Convention on the Rights of Persons with Disabilities (UNRPD) are two international legal frameworks that countries have signed onto, committing to provide inclusive education for all (Ndlovu, 2021). Additionally, the UN Convention on the Rights of Persons with Disabilities (CRPD) recognizes assistive technology (AT) as a human right (De Witte et al., 2018; McNicholl et al., 2019; Sender & Polackova, 2022). It implies that by ratifying the UN Convention, countries automatically support using AT to help all people acquire knowledge, including those with disabilities. Concurrently, aiming to eliminate barriers in Europe by enhancing accessibility, employment, and education for persons with disabilities, the European Commission approved the European Disability Strategy 2010-2020. This strategy emphasizes equal access to facilities, services, and inclusive education for students with disabilities (Čerešňová et al., 2018). The European Agency for Development in Special Educational Needs (2012) further emphasized the significance of inclusive education, advocating for diversity-positive attitudes and enhancing mainstream schools' capacity to meet all students' needs (Sender & Polackova, 2022). Essentially, governments around the world, and in Slovakia in particular, have pledged to support education for all, including persons with disabilities, to increase

accessibility to education for all and raise awareness about available AT options (Sender & Polackova, 2022).

According to De Witte et al. (2018), Hersh & Mouroutsou (2019), and Mishra et al. (2022), assistive technology is any technology, apparatus, devices, equipment, services, systems, processes, and environmental modifications that elderly and/or disabled people use to get past social, infrastructure, and other obstacles that prevent them from being independent, participating fully in society, and performing tasks safely and easily. It can also be defined as any software or device designed to improve a student's functional capability or assist a student with special educational needs in accessing the universal education curriculum (Mustafa et al., 2023; Iyamuremye et al., 2023). People of all ages, with any kind of impairment (locomotor, visual, auditory, verbal, or cognitive), and with varying constraints in their activities, can use assistive technology, either temporarily or permanently (De Witte et al. 2018). A student with a visual (blind and partially sighted) or hearing (deaf and hard of hearing) disability, or any type of physical or mental impairment that significantly limits one or more major life activities, is deemed to have a disability, according to Cernakova & Pokryvkova, (2019) and U.S. Dept. of Health and Human Services (2020).

According to research, assistive technology (AT) helps students with disabilities make up for their functional limitations and improve their classroom learning experiences much like their peers (McNicholl et al., 2019; Kunka & Wahome, 2021), reduce activity limitations, be more socially included, and participate more in civic life, the labour market, and education (Areej, 2018; McNicholl et al., 2019). A wide variety of assistive technologies-including wheelchairs, white canes, eyeglasses, prosthetic limbs, crutches, screen readers (such as JAWS for Windows), braille embossers, optical character recognition systems, screen magnifiers, braille note takers, dot pads, tactile diagram software, infrared and induction loop systems, radio aids, hearing aids, cochlear implants, FM assistive listening devices, adaptive keyboards, mouse emulators and pointers operated by head or mouth movements, and voice or speech recognition software (like Amazon Alexa)-have significantly enhanced educational access and participation for students with disabilities (Cernakova & Pokryvkova, 2019; Hersh & Mouroutsou, 2019) since it makes it easier

to create flexible curricula, support individualized learning, and help students with varying needs participate in the educational process equally (Tony, 2019). Nevertheless, although assistive technology offers significant benefits for students with disabilities, research shows that students lack access to assistive technology in educational environments and lack training in AT use (McNicholl et al., 2019; Muranda-Kaseke & Mbawuya, 2021; Mustafa et al., 2023).

Currently, as part of global efforts to promote inclusive education for all students, including those in higher education who have disabilities, Slovakia's integration of students with disabilities (SWDs) in higher education has been on the increase since 2015 (Sender & Polackova, 2022). Given the potential for AT accessibility in higher learning to enhance students' academic performance, most studies on AT in Slovakia have focused on providing access to technology to SWDs and how specific ATs help students with visual impairments (Regec & Pastierikova, 2016; Mishra et al., 2022; Sokolova et al., 2022), creating a significant gap in its role in academic performance.

1.1 Problem Statement

Slovak universities have seen a growing number of students with specific needs since 2015. While data for earlier years is unavailable, likely, such students have always been present. In the past, universities likely handled these needs on a case-by-case basis, creating individualized study plans for each student (Sender & Polackova, 2022). It is anticipated that students with disabilities will achieve academically on par with their peers without disabilities (De Los Santos et al., 2019). Research has shown that AT is helping them compensate for their challenges to achieve similar starting points for learning as their peers (McNicholl et al., 2019; Kunka & Wahome, 2021). Numerous studies have been conducted to determine the importance of incorporating assistive technology into the general curriculum and using it for evaluation purposes in the classroom (Areej, 2018). According to research, assistive technology enhances educational participation and well-being, enabling over 75% of children with disabilities in mainstream schools across European countries such as Portugal, Spain, Ireland, and Italy (McNicholl et al., 2019). Similarly, in recent years, Slovakia has ensured equal participation of students with disabilities. In contrast to previous educational levels, Slovakia does not have “special” institutions that are specifically developed

and equipped to serve students with disabilities. In the past, the only way to attend university was to integrate either alone or in groups; today, this is the sole option (Sender & Poláčková, 2022). Slovakian institutions have also made their campuses more accessible by providing appropriate accommodations for students with disabilities while maintaining academic standards. Universities have also established support centers to offer guidance and assistance to students with particular needs, including study program selection, screening, and registration. They ensure the students are provided with expert and specialized pedagogical counseling. Technical support, which includes appropriate equipment, easily accessible study materials, assistive technology, personalized examinations, interpreting services, intervention and therapy services, and adaptations, is included in academic support (Sender & Polackova, 2022).

Despite increased admissions of students with disabilities and attempts by institutions to provide inclusive settings in which these students can succeed, certain ongoing challenges persist. Inadequate physical and information accessibility in the educational environment, as well as a lack of support centers for students with unique requirements, significantly impact academic progress and graduation rates of students with disabilities (Čerešňová et al., 2018). For instance, this makes students with disabilities face tough times dealing with navigating inconvenient campus environments while focusing on their studies (De Los Santos et al., 2019). According to De Los Santos et al. (2019), McNicholl et al. (2019), and Muranda-Kaseke & Mbawuya (2021), many students with disabilities currently lack access to assistive technology-based solutions that would allow them to participate on an equal footing in education and modern society, leading to their dependency on others, which also makes learning and success more difficult than necessary. Similarly, Lamond and Cunningham (2020) and Mustafa et al. (2023) assert that there is a lack of training for AT use and the unavailability of materials that they could use to teach students with disabilities, which can push students with disabilities to drop out of school or complete their education than their non-disabled counterparts as they will be unable to excel in school activities (Mustafa et al., 2023). Additionally, disabled students face challenges in adapting to university requirements due to a lack of accommodations and support services (Becker & Palladino, 2016) and possibly negative attitudes from instructors, administrators, and other students (De Los Santos et al., 2019). Although Slovakia has made progress, the situation regarding assistive technology

solutions and their accessibility for people with disabilities is still evolving. Similar to many other countries, there are still issues with accessibility, knowledge, preparation, and making sure that learning environments are truly inclusive (Sokolova et al., 2022; Regec & Pastierikova, 2016).

1.2 Research Aim

This is not surprising given that there is not much study on the role of assistive technology in the academic performance of students with disabilities is scarcely developed (McLaughlin et al., 2016; Svensson et al., 2019), and wide-ranging research frequently excludes this student population (Fernández-Batanero et al., 2022). Slovakia is no exception since individual studies usually explore how specific technologies aid students with visual impairments or dyslexia, and existing research often focuses on providing access to technology rather than analyzing its effect on academic outcomes (Regec & Pastierikova, 2016; Mishra et al., 2022; Sokolova et al., 2022). This limits the understanding of its true potential to improve academic performance. As a result, this study aims to explore the role of assistive technology in the academic performance of students with disabilities in Slovakia and the challenges faced while using it to present a valuable opportunity to fill this gap and provide insightful information to educators, policymakers, and students with disabilities worldwide, including Slovakia.

1.3 Research Objectives

1.3.1 Main Objective

Investigate the role of assistive technology (AT) on the academic performance of students with disabilities (SWDs) in Slovakia.

1.3.2 Specific Objectives

- To explore the perceived impact of assistive technology on the academic performance of SWDs in Slovakia.
- To identify the challenges and barriers faced by students with disabilities in Slovakia in accessing and effectively using assistive technology.
- To discover the internal processes, the University Counselling Center employs for allocating assistive technology to students with disabilities.

1.4 Research Questions

- How do SWDs in Slovakian universities perceive the influence of AT on their academic performance?
- What challenges and barriers do students with disabilities in Slovakia face in accessing and effectively using assistive technology?
- How does the University Counselling Center assess student needs and determine eligibility for assistive technology?

1.5 Significance of the Study

1.5.1 Policy

- The study will highlight the importance of advocating for increased funding, inclusive policies, and support for assistive technology implementation in Slovakian education to enable fair access for students with disabilities.

1.5.2 Practice

- Insights from the study will guide social workers to better understand the needs of students with disabilities and develop effective strategies to overcome barriers to using assistive technology, resulting in better service delivery and support.
- The findings will offer valuable insights into the experiences of students with disabilities and the impact of assistive technology on their academic performance. This will broaden practitioners' awareness of how technology may be used to address social challenges and promote social justice.

1.5.3 Knowledge

- The study is also deemed to contribute to the existing body of knowledge on how assistive technology affects academic performance among Slovakian students with disabilities.
- For students, this paper may provide students with a clearer understanding of the advantages of assistive technology and motivate them to incorporate it more actively into their learning processes.

- For teachers, this paper may provide insight into the need to leverage assistive technology to create inclusive classrooms that cater to diverse learning needs, enabling them to support and facilitate a more engaging learning environment for students with disabilities.
- For parents, this study can provide an understanding of the benefits of assistive technology for their children's learning, enabling them to better motivate their children and collaborate with teachers to ensure their academic success.

1.6 Definition of Terms

1.6.1 Assistive Technology

Assistive technology is any software, device, or service designed to raise, maintain, or improve the capacities of a student with disabilities (Hersh & Mouroutsou, 2019; Mustafa et al., 2023).

1.6.2 Students with disabilities

A student with a visual (blind and partially sighted) or hearing (deaf and hard of hearing) disability, or any type of physical or mental impairment that significantly limits one or more major life activities, is deemed to have a disability, according to Cernakova & Pokryvkova, (2019) and U.S. Dept. of Health and Human Services (2020).

1.6.3 Academic performance

Academic performance refers to the degree to which students achieve their educational goals through exposure to learning (Panhale & Doshi, 2024), serves as a critical benchmark for success in educational systems. It represents a student's ability to engage in academic activities and overcome obstacles to success (Kumar et al., 2021).

CHAPTER TWO

2.0 LITERATURE REVIEW

The section includes a literature review and theoretical framework of evidence relevant to the current study. The review is divided into the following themes: the concept of disability and students with disabilities, assistive technology, government policies and support in Slovakia, benefits of assistive technology, the impact of assistive technology on academic performance, challenges of assistive technology, challenges/barriers to academic performance for students with

disabilities, and inclusion in an academic environment. A literature search was conducted using databases such as ScienceDirect, Wiley Library, Connected Papers, Academia, ResearchGate, and Google Scholar. Articles were appraised and included once they were found to be relevant to the concepts under focus.

2.1 The Concept of Disability and Students with Disabilities

More than one billion individuals are estimated to be disabled worldwide, making up roughly 15% of the total population (WHO, 2023). It has come to light that the definition of disability is complicated. This stems from the idea that perceptions of disability differ across history, within nations, and in communities (Muranda-Kaseke & Mbawuya, 2021). According to Clarke and Sawyer (2014), the "medical model" of disability defined disability as a health concern based on impairment; persons with disabilities were viewed as inactive recipients of services aimed at curing or managing their illness. Critics have been pressed flat against this definition, giving rise to the 'social model'. Although this definition seeks to address the mechanisms that restrict individuals with disabilities from participating in society and strives to rectify this disparity, discussions concerning the intricate relationship between social and health issues have persisted (Muranda-Kaseke & Mbawuya, 2021). Consequently, contemporary perspectives view disability as emerging from the complex interplay between an individual's personal and environmental circumstances and their health condition (such as illness, injury, or disorder) or disability can also be seen as a consequence of social and environmental barriers that hinder individuals from participating equally in society (Clarke & Sawyer, 2014).

According to Cernakova and Pokryvkova (2019) and the US Department of Health and Human Services (2020), a student with a visual (blind and partially sighted) or hearing (deaf and hard of hearing) disability, or any type of physical or mental impairment that significantly limits one or more major life activities, is considered disabled. It ensures that qualified individuals with disabilities are not denied access to or discriminated against in any federally funded program (US Department of Health and Human Services, 2020).

Disabilities involve a wide range and can affect various aspects of life, including vision, movement, learning, communication, hearing, and mental health. They can be present at birth, develop over time, or be caused by injury or illness. Some common types include physical, learning, medical, and psychiatric disabilities. ADHD, autism, cerebral palsy, deafness, dyslexia, and traumatic brain damage are a few examples (Centers for Disease Control and Prevention, 2020). People with impairments frequently face societal challenges like bias, discrimination, and stigma. Modern perspectives recognize both environmental and institutional barriers. Environmental barriers involve physical infrastructure and impediments to communication in locations like public transportation, healthcare facilities, housing, businesses, schools, and the media. Institutional barriers also highlight problems such as national laws, policies, practices, or resource limitations that restrict access to daily activities in society (Clarke and Sawyer, 2014; Muranda-Kaseke & Mbawuya, 2021).

2.2 Assistive Technology

Technology is becoming increasingly significant, and having it available and useful in classrooms can improve learning outcomes for all students-including those with disabilities, providing alternative approaches that may better accommodate individual learning preferences (Hersh & Mouroutsou, 2015). Under the Individuals with Disabilities Education Act (IDEA), assistive technology represents one of several support services that may be necessary to meet the needs of students with disabilities (Gomes & Mensah, 2015; 2020). According to De Witte et al. (2018), Hersh & Mouroutsou (2019), and Mishra et al. (2022), assistive technology is any technology, apparatus, devices, equipment, services, systems, processes, and environmental modifications that elderly and/or disabled people use to get past social, infrastructure, and other obstacles that prevent them from being independent, participating fully in society, and performing tasks safely and easily. It can also be defined as any software or device designed to improve a student's functional capability or assist a student with special educational needs in accessing the universal education curriculum (Mustafa et al., 2023; Iyamuremye et al., 2023).

Wheelchairs, glasses, prosthetic limbs, white canes, crutches, and hearing aids like cochlear implants are examples of assistive devices. Digital solutions include screen readers, adaptive

keyboards, voice/speech recognition software (Amazon Alexa), smartphones with accessibility features, and apps like Be My Eyes (WHO, 2024). In Slovakia, individuals with disabilities have access to a wide array of assistive hardware and software, as well as learning support systems, designed to facilitate their participation in education and daily life. Available technologies include optical character recognition tools, screen magnifiers, and screen readers such as JAWS for Windows, along with braille notetakers, braille embossers, dot pads, and specialized software for creating tactile diagrams to support blind users. For individuals who are deaf or hard of hearing, options encompass induction loops, infrared and radio systems, hearing aids, cochlear implants, and FM-assistive listening devices. Also, for those with physical disabilities, assistive solutions such as mouse emulators and pointers operated by head or mouth movements are provided (Cernakova & Pokryvkova, 2019; Hersh & Mouroutsou, 2019).

2.2.1 Benefits of Assistive Technology

Assistive technology has the potential to enhance functional abilities, reduce activity limitations, foster social inclusion, and increase participation in educational settings, the workforce, and broader civic activities (Ndoluv, 2021). Without assistive devices, these people are more likely to be socially alienated, fall into poverty, or rely more heavily on their family and society (WHO, 2021). Assistive technology devices, including reading pens, iPads equipped with text-to-speech functionality, PDAs, advanced screen magnification software, and scanners, have been shown to facilitate note-taking, exam preparation, and assignment completion, especially for students with partial visual impairment (Hersh & Mouroutsou, 2019; Malcolm & Roll, 2017; McNicholl et al., 2019). Iyamuremye et al. (2023) also found that students with learning difficulties who used laptops and tablets for note-taking experienced improved legibility in their writing, along with enhancements in both the quantity and quality of their notes.

Furthermore, McNicholl et al. (2019) found that using AT, such as PowerPoint, iPads, classmate reading devices, and computer programs, has a substantial favorable influence on participants' sense of autonomy since it allows SWDs to autonomously engage with and finish coursework. iPads also provided children with visual impairments with a level of anonymity in their communications, allowing SWDs to freely express themselves creatively while writing. Similarly,

Silman et al. (2017) claimed that visually impaired students could communicate more effectively and use a variety of technological resources in their classes, such as audio maps, iPads, cubes, and trays.

Also, according to WHO (2024), early supply of hearing aids for young children promotes language and communication skills development while limiting negative effects on their involvement in school and community activities. The use of assistive technology has also been associated with enhanced feelings of independence and self-determination in daily college activities. Wessel et al. (2015) found that, in particular, the use of wheelchairs contributed to a greater sense of autonomy among students with disabilities, enabling them to make their own choices regarding their activities and mobility on campus.

2.2.2 Challenges of Assistive Technology

Predominantly, research shows that assistive technology (AT) significantly improves academic engagement for students with disabilities (SWDs), but several challenges hinder its effectiveness. Inadequate training and support from personal assistants, teaching assistants, or interpreters can hinder or even prevent students with disabilities from effectively utilizing assistive technology. This is especially true for those who struggle with information overload and rely on interpreters to filter lecture content (McNicholl et al., 2019; Mosia & Phasha, 2017). Notably, studies by Nelson & Reynolds (2015) found that AT benefits educational engagement only when students receive proper training.

Inadequacies of the AT devices themselves also hampered student learning and performance. Issues included small screens, outdated software, poor audio quality, and difficulty navigating recordings. These resulted in students using the device infrequently (McNicholl et al., 2019) and hindered tasks like completing assignments, studying lectures, and accessing online materials (Nelson & Reynolds, 2015; Mosia & Phasha, 2017). Similarly, Traina et al. (2019) acknowledge that barriers such as insufficient access to suitable assistive technology (AT) solutions in classroom settings can present significant risks for students with disabilities. Also, Hersh and Mouroutsou (2015; 2019) argue that inappropriate use and design of AT-where devices are not fully accessible,

usable, or responsive to the diverse needs of individuals with disabilities, exacerbate the digital divide, and contribute to further marginalization. These challenges highlight that simply providing AT is not enough; its design and implementation must be inclusive and tailored to the varied requirements of users to avoid reinforcing existing inequities and to ensure meaningful participation in education.

Moreover, affordability and access to AT remain a major challenge**.** Due to the limited market size, high-quality assistive devices are frequently too expensive for many people in both high- and low-income nations. Likewise, users often have little choice in the matter, with purchasing decisions typically made by insurance companies, governments, or aid organizations (De Witte et al., 2018). While some everyday technology offers potential assistive solutions (e.g., smartphones and tablets), these are not always affordable for everyone with disabilities (De Witte et al., 2018). There's also a need for better awareness campaigns and a central source of information on available AT options. While some European countries have established databases (e.g., EASTIN and National Equipment Database), a wider need exists for such resources (De Witte et al., 2018). Specific to Slovakia, Hersh & Mouroutsou (2019) highlight a lack of specialized learning technologies, limited device availability, complex funding procedures, and a general lack of information on available AT options.

To conclude, the persistent gap between disability rights legislation and its practical implementation at universities in Slovakia remains a significant concern (Regec & Pastieriková, 2016). Despite the existence of comprehensive legal frameworks such as Act No. 81/2006 Coll., Decree No. 55/2015, Regulation No. 458/2012 Coll., and the international WCAG 2.0 standards, the current level of e-accessibility at higher education institutions has been unsatisfactory for a long time (Regec & Pastieriková, 2016). This shows that the majority of universities in Slovakia fail to meet even basic e-accessibility requirements, with only a small fraction achieving high compliance scores, hence directly contradicting the stated legal and international obligations, and enforcement measures or penalties for non-compliance have been largely absent. As a result, stronger enforcement mechanisms and clearer, more realistic rules are urgently mandatory to

guarantee that students with disabilities have equitable access to electronic information and academic resources, as mandated by national and international standards.

2.3 Academic Performance

Academic performance refers to the degree to which students achieve their educational goals through exposure to learning (Panhale & Doshi, 2024), serves as a critical benchmark for success in educational systems. It represents a student's ability to engage in academic activities and overcome obstacles to success (Kumar et al., 2021). Traditional metrics such as grades, GPA, and standardized test scores remain widely used to quantify academic performance (York et al., 2015). However, contemporary scholarship emphasizes a multidimensional understanding of academic performance that transcends these conventional indicators (Kumar et al., 2022; Silva et al., 2023).

This expanded conceptualization integrates cognitive and non-cognitive dimensions. Cognitive outcomes encompass subject-specific knowledge, intellectual competencies, and mastery of academic content, while non-cognitive outcomes include affective and behavioural domains such as psychological well-being, value internalization, and adaptive social behaviours (Kumar et al., 2022; Martín Sanz et al., 2017). Researchers argue that holistic evaluations of academic performance must account for factors like resilience, motivation, and self-regulation, which significantly influence learning trajectories (Bowers, 2019; Silva et al., 2023). Such a framework aligns with inclusive pedagogical practices that prioritize equitable access to education and diverse expressions of achievement.

In the context of this study, academic performance is defined from the perspective of assistive technology (AT) as a tool for empowering students with disabilities. AT enables meaningful engagement with academic tasks, fosters independence in accessing curriculum materials, and dismantles barriers to participation, thereby allowing students to demonstrate knowledge in previously inaccessible ways (McNicholl et al., 2021; Loveys & Butler, 2025).

2.4 Impact of Assistive Technology on Academic Performance

Malcolm & Roll (2017) and McNicholl et al. (2019) discovered that the use of assistive technology makes it easier for SWDs to perform common academic tasks such as note-taking, test-taking, studying, reading, and writing, facilitating their access to and engagement with course materials, thereby enhancing their learning experiences and supporting improved academic outcome. It also gives students with disabilities more autonomy in the classroom by improving interactions with teachers, increasing task completion, and ensuring active participation with teachers and peers (Mustafa et al., 2023). Iyamuremye et al.'s (2023) study on assistive technology use in Delhi discovered that the use of various assistive technologies in mathematics and sciences, such as Abacus, talking calculators, tactile geometric kits, tactile maps, and science tactile diagrams for visually impaired students, stimulates students' conceptual understanding of mathematics and encourages learning science, particularly in biology (animal and human anatomy). Similarly, in a Namibian primary school, the quantitative results implied that constructivist digital assistive technology improved students' mathematical performance for the quantitative data, while qualitative data showed that constructive assistive technology encourages teamwork, investigation, self-evaluation, learning from mistakes, independent knowledge seeking, self-regulation, self-reflection, and metacognitive thinking of mathematical concepts among students with hearing impairments (Iyamuremye et al., 2023).

According to Rodríguez-Cano et al. (2022), employing audio-visuals as an instructional technology tool improves conceptual understanding and motivation for students with intellectual disabilities in mathematics. Furthermore, assistive technology in the inclusive classroom has a significant impact on mathematics performance and attitude, and using technology to support students with autism increases their engagement and motivation in science education, particularly biology (Iyamuremye et al., 2023). Access to AT can also help students with visual impairments improve their orientation and mobility abilities, which is critical given the current emphasis on preparing students for independent life. Thus, adequate training for students with visual impairments can improve both academic performance and social skills (Mustafa et al., 2023). These results underscore the crucial role of experienced teachers in AT use and support services

for students with disabilities, since AT has the potential to enhance functional abilities, minimize activity limitations, foster social inclusion, and boost participation in educational activities.

2.5 Barriers to Academic Performance for Students with Disabilities.

Although more students with disabilities attend higher education, their academic performance has generally been worse than that of their nondisabled counterparts. De Los Santos et al. (2019) estimate that students with disabilities will perform academically on equal with peers who do not have difficulties. Consequently, to help individuals succeed academically, institutions must recognize them and offer support (Kayhan et al., 2015). A major factor affecting students' academic progress and graduation rates is the difficulty they experience in maintaining academic focus while managing the challenges associated with their disability or disabilities (De Los Santos et al., 2019). It could be difficult to get around campus. While most college students find it inconvenient to use the stairs when the elevator is not working, students in wheelchairs may find it hard to get to class. It's possible that success and learning are more difficult than necessary if adaptive technology is unavailable or out of date (De Los Santos et al., 2019). In a similar vein, Dryer et al. (2016) validate this claim by noting that students with disabilities have been found to achieve significantly less academically than their peers, particularly in situations where institutional support for disabilities is lacking. They are also more likely to contemplate dropping out of school before finishing their degrees, frequently due to obstacles with the curriculum that include peer bullying, physical access to buildings, and teaching materials, learning, and assessment (Dryer et al., 2016; Mustafa et al., 2023).

Furthermore, students with impairments frequently struggle to adapt to the expectations and demands of a university because there are so many variables influencing their academic performance. They are not getting the accommodations and support services required for them to succeed in college (Becker & Palladino, 2016). Negative views against them may exist or be perceived by faculty, administrators, and other students (De Los Santos et al., 2019). Taking charge of their academic endeavors and contacting disability services are critical for college students with impairments who require accommodations. According to student reports, they have experienced

stigma or prejudice from peers, advisers, and teachers; they have also reported feeling different from their peers and having difficulty getting accommodations. Students with impairments, for example, are more likely to struggle academically and drop out early. Students with disabilities are held to the same admissions criteria as their peers, thus, this development is unexpected (Fleming et al., 2017).

In conclusion, college admissions for students with disabilities are on the rise, but their success rates haven't kept pace. This academic performance gap stems from a lack of institutional support, including inaccessible environments and outdated technology. Students with disabilities often struggle to juggle their studies with the additional challenges posed by their disability. Navigating campuses, limited access to adaptive tools, and outdated technology can all create significant hurdles. The solution lies in recognizing and supporting these students. Assistive technology helps to create a more inclusive learning environment. Institutions can help students with impairments reach their full academic potential by providing them with the essential tools and resources.

2.6 Inclusion of Students with Disabilities in an Academic Environment.

In many countries, inclusive education is replacing traditional teaching methods. Inclusive education refers to teaching students with disabilities along with their peers who do not have impairments in general education courses (Kart & Kart, 2021). In certain circumstances, disabled children were denied the opportunity to attend school. However, as laws and practices evolved, education for students with disabilities was provided in general education classrooms (Kart & Kart, 2021). Inclusive education recognizes all people's entitlement to a quality education, with an emphasis on removing barriers and ensuring equal chances through effective support services (Bagalová et al., 2015). Inclusion seeks to provide equal educational and social opportunities for those with impairments while rejecting breakdowns and fostering uniformity. It seeks to eliminate exclusive pressures in education, establish a dynamic link between inclusion and exclusion, and increase participation in educational and cultural possibilities (Sender & Polackova, 2022).

2.6.1 Legislative Mandates and Framework for Inclusive Education

Over the past five decades, significant legislative reforms have transformed the education of students with special needs. Many countries have adopted and ratified international legal instruments that establish a commitment to inclusive education for all learners, including the Individuals with Disabilities Education Act (IDEA), the Individuals with Disabilities Education Improvement Act (IDEIA), the Universal Declaration of Human Rights, and the Convention on the Rights of Persons with Disabilities (UNRPD) (UNICEF, 2017; Ndoluv, 2021). In 2010, the European Union introduced the Europe 2020 strategy, a comprehensive framework aimed at fostering smart, sustainable, and inclusive growth across the EU. It aspires to achieve five key objectives in employment, research, energy, education, and social participation, including lowering dropout rates. Following the new Europe 2020 policy, the European Commission approved the European Disability policy 2010-2020, which aims for a barrier-free Europe. The strategy prioritizes accessibility, employment, and education to ensure that people with disabilities have equal access to facilities and services. Čerešňová et al. (2018) underline the value of inclusive education for students with disabilities. Similarly, the European Agency for Development in Special Educational Needs (2012) highlighted the significance of fostering inclusive education and outlined measures to cultivate positive attitudes toward diversity, as well as to enhance the capacity of educational institutions to address the needs of all students within mainstream schools. According to Šámalová (2016), inclusive schools and universities should foster a welcoming environment where staff and students work together. This necessitates additional support for both teachers and students. Teachers need to employ various instructional methods, assistive technologies, and support services (UNICEF, 2017; Sender & Polackova, 2022). These services can include educational, psychological, and social support, ensuring accessibility to the latest technology and creating a barrier-free environment.

Moreover, the United Nations Convention on the Rights of Persons with Disabilities (CRPD) recognizes access to assistive technology (AT) as a fundamental human right (De Witte et al., 2018; McNicholl et al., 2019; Ndlovu, 2021; Sender and Polackova, 2022). It implies that by ratifying the CRPD, countries commit to promoting, protecting, and ensuring the full and equal

enjoyment of all human rights by persons with disabilities, which includes facilitating access to assistive technologies that support learning and participation for all individuals, including those with disabilities. This international treaty obliges states parties to adopt measures that enable persons with disabilities to access the necessary tools and accommodations, thereby fostering inclusive education and equal opportunities (Sender and Polackova, 2022). In addition, the World Health Organization (WHO) launched the WHO Global Cooperation on Assistive Technology (GATE) in 2018 in its 71st World Health Assembly in May 2018 as a resolution encouraging Member States to create, execute, and enhance policies and initiatives to increase access to affordable, high-quality AT products (WHO, 2021) to address the lack of access to affordable, high-quality assistive technology (AT) for more than 90% of the 1 billion people who need it. In essence, governments around the world, particularly in Europe and Slovakia, have committed to making education more accessible to all people, including those with disabilities. Responsible stakeholders in Slovakia's higher education are also working hard to incorporate students with disabilities into education and learning using AT to promote access to education for all and create awareness about accessible AT choices (Sender & Polackova, 2022).

2.6.2 Government Policies and Support for Inclusive Education in Slovakia

The Slovak Republic has various laws that safeguard the education and rights of individuals with disabilities. These include Articles 38 and 42 of the Slovak Republic's Constitution, Act No. 245/2008 Coll. on Education (School Act), and the Ministry of Education of the Slovak Republic's Decree No. 325/2008 Coll. On School Facilities for Educational Counselling and Prevention, and the Model Statute of Special Pedagogical Counselling Facilities under No. 382/1999-44 dated December 21, 1999. The Act of the National Council of the Slovak Republic no. 365/2004 Coll. on Equal Treatment in Certain Areas and Protection against Discrimination (Anti-Discrimination Act) upholds the Equal Treatment Principle for Persons with Disabilities (Sender & Polackova, 2022)

All universities in Slovakia, whether public or private, are required to establish appropriate academic conditions for students with specific needs, including those with sensory or physical

disabilities, learning disabilities, chronic illnesses, impaired health, mental health conditions, autism, and other pervasive developmental disorders. These supportive measures are implemented without lowering academic standards or performance expectations for these students (Benkova & Copkova, 2018; Sender & Polackova, 2022; 2024). These programs are positive steps toward ensuring that all students have the necessary assistance and resources to flourish and attain their full potential. Support Centers are established at universities to assist students with unique requirements under §100 of the Act on Universities and Amendments to Certain Acts No. 131/2002 of the Slovak Republic. Support Centers have been established to provide targeted assistance to students with specific needs. These centers function as institutional platforms dedicated to promoting inclusion and offering specialized services, such as academic accommodations, counseling, and adaptive resources. Also, coordinators are appointed by the universities to oversee and facilitate support for students with special needs. If the coordinator is a legal entity approved by the university's rector, they may serve in this capacity across multiple institutions. Conversely, when the coordinator is a natural person employed at a university faculty and authorized by the faculty dean, specific qualifications are required. These include a university degree in special pedagogy, social work, or psychology, along with relevant practical experience in the field (Sender & Polackova, 2024). These faculty coordinators are trained in relevant support areas and provide academic guidance, disability screenings, and personalized support plans for students (Sender et al., 2023). These coordinators provide academic support, technical equipment, accessible learning materials, deaf interpretation services, assistive technologies based on disability type, and interventions for learning disabilities (Sender & Polackova, 2022). This well-developed system highlights Slovakia's efforts to ensure equivalent access to education for all students in higher education.

Moreover, according to the website of the Slovak Republic's Ministry of Labour, Social Affairs, and Family, the Slovak government provides financial help and other forms of support to disabled persons. For instance, people with a disability rating of at least 50% (considered "severely disabled") can qualify for various benefits such as compensation for extra expenses due to their disability, such as special diets or adapted vehicles and discounts on services and products and

also Invalidity Pension (invalidný dôchodok), for those with a long-term health condition that prevents them from working and eligibility depends on factors like your insurance history and disability level (Ministry of Labour, Social Affairs and Family of the Slovak Republic, n.d.).

2.6.3 Benefits of Inclusive Education for Students with Disabilities

Maslow's hierarchy of needs suggests that an inclusive environment is more effective in fulfilling students' fundamental requirements. Fruth and Woods (2015) found that children with disabilities experienced greater success in inclusive settings compared to segregated ones, as demonstrated by overall improvements in standardized test scores after the adoption of inclusion policies. This finding is particularly significant given that the students newly integrated into inclusive classrooms had disabilities and initially exhibited lower academic achievement than their peers. Students with disabilities perform better in inclusive environments for a variety of reasons, including effective teaching strategies, including differentiated instruction, universal design for learning, and collaborative or co-teaching models (UNICEF, 2017).

2.6.4 Impact of inclusive education on students with disabilities

The concept of inclusive education is increasingly prominent in global discussions, often linked to the expectation that it will foster greater social inclusion. In response, Slovakia has committed to expanding educational access for all individuals and has taken concrete steps, such as ratifying international agreements and joining the European Agency for Special Needs and Inclusive Education in 2012, to promote consistent and effective implementation of inclusive practices within its educational system (Sender & Polackova, 2022). Since 2020, the Slovak Republic's Ministry of Education, Science, Research, and Sport has emphasized a commitment to inclusive education. For the first time, the Ministry established a dedicated Department of Inclusive Education. This department is tasked with ensuring that the state educational program addresses the needs of all learners, including children and students with disabilities, those from socially disadvantaged backgrounds, foreigners, migrants, students of diverse nationalities, and those identified as talented. According to this approach, the educational framework must be inclusive,

guaranteeing that all students' educational requirements are met regardless of their background or abilities (Sender & Polackova, 2022).

In conclusion, it is clear from the research analysis above that Slovakia is making progress in creating a more inclusive learning environment. Guaranteeing that every student has access to the right tools and assistance and enabling people with impairments to realize their full potential. Numerous studies have also been conducted on the subject of including people with disabilities in the classroom, removing obstacles to inclusion, the role assistive technology plays in promoting inclusion, and the specific ways in which particular technologies support students who are dyslexic or visually impaired. To fill this knowledge gap and provide important information to educators, policymakers, and students with disabilities across the country, the present study explores the role of assistive technology in the academic performance of Slovakian students with disabilities. Previous studies, however, have focused on providing access to technology rather than examining its impact on educational outcomes.

2.7 THEORETICAL FRAMEWORK

This study draws upon a combined theoretical framework, the social model of disability and the empowerment theory.

2.7.1 Social Model of Disability Theory

The social model of disability, which emerged in the 1980s, has been an important theoretical breakthrough in disability studies, emphasizing societal impediments rather than individual disabilities (Boxall, 2018). The approach, founded on the political activism of disabled people's movements, reframes disability as a socially produced phenomenon rather than an underlying physical condition (Shakespeare & Watson, 2016). It critiques how societal structures such as inaccessible infrastructure, discriminatory policies, and rigid institutional norms create exclusion by failing to accommodate diverse physical or cognitive differences (Goering, 2015; Karpin, 2017). By distinguishing between *impairment* (a bodily or mental condition) and *disability* (the systemic disadvantages imposed by societal barriers), the model highlights how disability is contingent on mutable social arrangements (Goering, 2015). This distinction has informed

advocacy for structural changes like universal design in architecture and inclusive workplace policies to enable equitable participation (Sherlaw et al., 2014).

The social model's impact extends across academic, activist, policy, and professional spheres, profoundly shaping frameworks such as the Convention on the Rights of Persons with Disabilities (CRPD) and recasting disability in academic discourse as a social justice issue rather than a medical deficit. Known for its "transformative impact on the lives of disabled people" (Goodley, 2017, as referenced in Thorneycroft, 2024), the model has driven systematic shifts—from inclusive policy design to redefining disability as a product of exclusionary structures rather than individual pathology. However, the model has faced criticism for its perceived radicalism in rejecting medical perspectives and underrepresenting the embodied realities of impairment. Critics argue that its focus on structural barriers risks neglecting subjective experiences, such as chronic pain or mental health challenges, which are inseparable from many individuals' lived experiences of disability (Egurrola, 2022; Beudaert et al., 2023; Twardowski, 2018). This "over-socialization" has been accused of oversimplifying disability by downplaying the interplay between biological conditions and social exclusion (Malhotre, 2024; Levitt, 2017).

Scholars like Twardowski (2018) and Berghs et al. (2019) advocate for a more integrative approach that acknowledges both systemic inequities *and* the personal dimensions of impairment. Such a framework would balance the social model's structural insights with greater attention to individual diversity, ensuring policies and theories reflect the complex realities of disabled lives.

2.7.1.1 The usefulness of the Social Model of Disability Theory to this Study

The social model of disability theory serves as a critical framework for this study, which examines the influence of assistive technology (AT) in the academic performance of students with disabilities (SWDs) in Slovakia. By emphasizing societal barriers rather than individual impairments as the primary source of disability, the model is consistent with the study's emphasis on systemic issues and institutional procedures that hinder or enable equitable access to AT.

The social model's distinction between impairment (individual condition) and disability (systemic exclusion) is critical to understanding how Slovakian universities plan and execute AT support. For instance, the model shifts attention away from framing SWDs' academic struggles as inherent to their impairments and instead interrogates institutional failures, such as inadequate AT provision, inflexible learning environments, or bureaucratic barriers in eligibility assessments. This aligns with the study's objectives to identify challenges in accessing AT and evaluate the University Counselling Center's internal processes for allocating resources.

The theory's emphasis on societal structures helps contextualize the "obstacles" explored in the study (e.g., financial barriers or lack of training). For example, if SWDs perceive AT as ineffective, the social model encourages investigating whether this stems from mismatched technologies (a structural flaw) rather than individual "inability." Similarly, barriers like delayed AT procurement or insufficient staff awareness reflect institutional norms that exclude SWDs, resonating with the model's critique of non-inclusive systems.

By framing disability as a social construct, the model supports the study's potential to advocate for policy and procedural reforms. Findings about gaps in AT allocation processes could highlight the need for universal design principles or participatory decision-making (e.g., involving SWDs in AT selection), aligning with the social model's call for environmental adaptations over individual "fixes." This theoretical lens also strengthens the study's relevance to human rights frameworks like the CRPD, which Slovakia has ratified, by linking AT access to broader principles of equality and inclusion.

While the social model prioritizes structural barriers, this study's focus on the *perceived* impact of AT on SWDs introduces a nuanced layer. Critics of the model argue that it risks overlooking embodied experiences (e.g., pain, fatigue) that may affect AT use. Here, the study can balance the model's structural focus by acknowledging how individual impairments interact with institutional support systems. For example, even with adequate AT, a student with chronic pain may still face academic hurdles, underscoring the need for holistic accommodations.

The social model's strengths lie in its ability to reframe AT not as a charitable intervention but as a right and a means to dismantle disabling barriers. By applying this theory, the study can critically assess Slovakian universities' responsibility to create inclusive environments while remaining attuned to the complex interplay of social, institutional, and individual factors shaping SWDs' academic outcomes. This approach ensures that recommendations for AT integration are both systemic (e.g., policy reforms) and responsive to the lived realities of SWDs.

2.7.2 Empowerment Theory

The empowerment theory evolved as a response to individuals with disabilities' social isolation (Al-Zoubi, Bani & Rahman, 2017). This theory emphasizes a strengths-based approach, recognizing individuals' competencies like self-confidence, self-determination, and the right to autonomy. However, it acknowledges the need for opportunities and resources within the environment to allow these strengths to flourish (Al-Zoubi, Bani & Rahman, 2017; Moran et al., 2017). Empowerment goes beyond simply granting rights; it necessitates the social structures and resources necessary to exercise those rights, showcase abilities, and exert control over one's life (Al-Zoubi, Bani & Rahman, 2017; Moran et al., 2017). Empowerment theory centers on enhancing the personal agency of individuals, organizations, and communities who have historically faced marginalization or limitations on their self-determination (Moran et al., 2017). This approach aims to improve their circumstances through a multi-faceted lens (Sullivan, 2016).

Individual empowerment has been the most widely explored aspect of the theory. It encompasses three key domains: intrapersonal, interactional, and behavioural empowerment (Hough & Pailsey, 2008; Moran et al., 2017). Intrapersonal empowerment entails having an internal sense of control over one's life, believing in one's ability to achieve specified goals (self-efficacy), and being motivated to pursue them. The interactional component focuses on how people perceive and navigate their social environments to achieve their goals. This entails developing a critical awareness of the social and political forces (e.g., causal agents, required resources) that can stymie or support their efforts, as well as learning how to overcome obstacles and mobilize resources for greater control (Hough & Pailsey, 2008; Moran et al., 2017). Finally, the behavioral component

entails taking action to overcome obstacles and attain objectives. This may entail working with people through organized efforts such as community groups, coalitions, and events, as well as displaying improved coping abilities. While the manifestation of empowerment varies depending on the individual and circumstance, it should include elements of all three domains: intrapersonal, interactional, and behavioral (Hough & Pailsey, 2008; Moran et al., 2017). In this study, overcoming challenges and achieving academic success with the help of AT. A student with mobility limitations might use voice-activated software (interactional) to complete assignments, fostering a sense of control (intrapersonal) and allowing them to participate actively in class discussions (behavioral). They gain a sense of empowerment across all three domains, develop self-belief, navigate the learning environment strategically, and take action toward academic success.

Empowerment extends beyond individuals to organizations and communities as well. At the organizational level, it's about creating structures and processes that encourage member participation and propel the organization toward its goals (Moran et al., 2017). Supporting those who interact with people with disabilities in community settings, such as teachers and coaches, is equally important for empowering this population. Many of these individuals lack training in providing the necessary instructional support and modifications that ensure successful participation. Organizations improve their ability to serve their communities by providing instructors with the skills and support they need to work effectively with individuals with impairments. This not only improves the health and physical activity of participants but also empowers them through the support of these trained instructors (Moran et al., 2017). In this study, when schools provide appropriate AT and train teachers on its use, students with disabilities can access information and learning activities just like their peers. This increased participation promotes an inclusive atmosphere in which students with disabilities can prosper academically and realize their full potential.

Moreover, the empowerment theory considers the environment and encourages good behaviors and involvement that help individuals enhance their overall quality of life (Sullivan, 2016). It has positively influenced the health and overall well-being of individuals with disabilities; it also

influences the advancement of human ideals about people with disabilities (Al-Zoubi, Bani, & Rahman, 2017). By focusing on individual strengths, fostering a critical awareness of environmental barriers, and encouraging action to overcome them, the empowerment theory gives people the tools they need to take charge of their lives and achieve their goals. The example of students with mobility limitations using assistive technology demonstrates how empowerment can be achieved across individual (intrapersonal, interactional, behavioural) and organizational levels. When environments are adapted to remove barriers and promote participation, everyone benefits, creating a more inclusive and empowering experience for all.

CHAPTER THREE

3.0 RESEARCH METHOD

This chapter describes the research methods that were used in the study. It also includes information on the research concept, study region, target population, sampling design, data collection methods, and data analysis. Finally, this chapter discusses the ethical considerations and procedures taken to ensure the study's credibility.

3.1 Research Design

A qualitative research methodology investigates and delves further into real-world issues (Tenny et al., 2022). It enables researchers to collect extensive, descriptive information about participants' perceptions, experiences, and behaviour using techniques including semi-structured interviews, participant observations, focused group discussions, and systematic analysis of documentary/artifact evidence (Bryman, 2012). Using this method would provide the researcher with a more nuanced knowledge of how assistive technology influences the academic lives of students with disabilities in Slovakia.

This table (**Table 1)** outlines the alignment between the study's research objectives, research questions, and the corresponding interview questions designed to gather in-depth insights.

Table 1 Research Objectives and Questions

Research Objectives	**Research Questions**	**Interview Questions**
• To explore the perceived impact of assistive technology on the academic performance of SWDs in Slovakia.	• How do SWDs in Slovakian universities perceive the influence of AT on their academic performance?	- What types of assistive technology (AT) has the university provided to you, or what assistive technology do you use? - How has assistive technology made it easier

Research Objectives	Research Questions	Interview Questions
		for you to do your homework or study? - Can you describe how assistive technology has contributed to your confidence or independence in your academic work?
● To identify the challenges and barriers faced by students with disabilities in Slovakia in accessing and effectively using assistive technology.	● What are the main obstacles faced by SWDs in accessing and using AT in Slovakian universities?	- What kinds of obstacles have you faced when it comes to obtaining or making use of assistive technology in your studies? - Can you describe any financial challenges you have experienced in accessing assistive technology for your studies? or have you ever faced any difficulty affording assistive technology tools or devices you needed? - Have you faced any challenges when using assistive technology for your studies? If so, how did

Research Objectives	Research Questions	Interview Questions
		these challenges impact your academic experience? - Can you describe any difficulties you have experienced while adapting to the use of assistive technology? - Can you describe the kind of technical support and training you have received in using assistive technology? Was it sufficient for your needs?
● To discover the internal processes, the University Counselling Center employs for allocating assistive technology to students with disabilities.	● How does the University Counselling Center assess student needs and determine eligibility for assistive technology?	- What criteria do you use to determine if a student is eligible for assistive technology? - What are the processes/ procedures involved for requesting and obtaining assistive technology? - How long does it typically take for a student to receive assistive technology after making a request?

Research Objectives	Research Questions	Interview Questions
		- Are there any challenges or limitations in the allocation of assistive technology that the Counselling Center/ Access Center faces? - How does the Counseling Center/ Access Center ensure that students are adequately trained and supported in using assistive technology? - How does the Counseling Center/Access Center follow up with students who receive assistive technology to ensure it meets their needs academically?

3.2 Data Collection

The data will be gathered through semi-structured interviews using an interview guide (Bryman, 2012), with well-defined questions designed to encourage participants to share detailed experiences with the usage of assistive technology. Semi-structured interviews also allow researchers to gather in-depth information and evidence from interviewees while keeping the study's focus in mind, and they provide researchers with flexibility and adaptability to stay on track, as opposed to an unstructured interview, where the direction is not fully considered (Mashuri et al., 2022). The interviews will be recorded with the consent of the participants.

3.3 Target Population

The participants of the research included students with disabilities from Slovak universities who use assistive technology in their studies, as well as professionals from Slovak universities' support centers.

3.4 Sampling Technique

Due to time constraints and research aims, this study will use a non-probability sampling method. Participants will be deliberately chosen through purposive and snowball sampling methods, focusing on individuals with particular disabilities (such as mobility, visual, or hearing impairments) who can provide detailed insights into how assistive technology (AT) addresses their unique challenges. These students must be at a higher grade level to have sufficient experience with AT and possess a certain level of English fluency to interact effectively with the AT and participate in research activities. Also, students or employers who speak Slovak and fit my criteria would be included, and a translation tool would be used to translate. Additionally, interviews with University Counselling Centre employees will be conducted to understand their process for assessing student needs and determining eligibility for assistive technology.

3.5 Sample Size

The study involved a sample size of 16 participants, comprising 13 students with disabilities from (Technical Universities of Košice, Catholic University of Ružomberok, Constantine the Philosopher University in Nitra and Comenius University of Bratislava) who utilize assistive technology in their academic pursuits, as well as 3 staff members from (Technical Universities of Košice, Catholic University of Ružomberok, Constantine the Philosopher University in Nitra) support centers at Slovak universities. According to Creswell (2018), a sample size ranging from 5 to 25 participants is considered sufficient for obtaining meaningful and in-depth data in qualitative research. This sample size strikes a mix between reaching data saturation and maintaining the level of analysis required for exploring the diverse perspectives and experiences of both students and support staff.

Table 2 Summary of Socio-Demographic Characteristics of Participants

Participants	Gender	Disability Type	University Name	Degree/Position
Students				
Participant 1	Male	Mobility disability	Technical University of Košice	Master's degree
Participant 2	Male	Visually impaired	Comenius University of Bratislava	Bachelor's degree
Participant 3	Male	Visually impaired	Catholic University of Ružomberok	Master degree
Participant 4	Male	Visually impaired	Technical University of Košice	Bachelor degree
Participant 5	Male	Mobility disability	Technical University of Košice	PhD degree
Participant 6	Male	Visually impaired	Technical University of Košice	Bachelor degree
Participant 7	Male	Mobility disability	Constantine the Philosopher of Nitra	Bachelor degree
Participant 8	Male	Mobility disability	Constantine the Philosopher of Nitra	Bachelor degree
Participant 9	Female	Mobility disability	Constantine the Philosopher of Nitra	Bachelor degree
Participant 10	Female	Mobility disability	Constantine the Philosopher of Nitra	Bachelor degree
Participant 11	Female	Dyslexia	Constantine the Philosopher of Nitra	Bachelor degree
Participant 12	Male	Mobility disability	Constantine the Philosopher of Nitra	Bachelor degree

Participants	Gender	Disability Type	University Name	Degree/Position
Students				
Participant 13	Male	Autism	Constantine the Philosopher of Nitra	Bachelor degree
Staff				
Participant 14	Female		Catholic University of Ružomberok	Staff
Participant 15	Female		Constantine the Philosopher of Nitra	Head of Department (Support Centre)
Participant 16	Male		Technical University of Košice	Head of Department (Support Centre)

Source: Field Data, 2025

3.6 Data Sources

This study utilized both primary and secondary data sources. Primary data were collected through semi-structured interviews conducted with participants both in person and online. The interviews employed open-ended questions, allowing participants to share their experiences with assistive technology (AT) devices in detail. Interviews were scheduled at convenient times to ensure participants could discuss their experiences without interruptions. Each interview was conducted for 30 to 45 minutes. In addition to primary data, the researcher also employed secondary data sources. These secondary sources comprised academic journals, government publications, and websites. All secondary materials were carefully chosen and integrated into the analysis and interpretation of the study's findings.

3.7 Data Analysis

For this study, thematic analysis was conducted using the MaxQDA software program. Thematic analysis is a qualitative research method focused on systematically identifying, organizing, and interpreting patterns or themes within qualitative data. As outlined by Maguire and Delahunt (2017) and Naeem et al. (2023), it is often considered a foundational approach in qualitative

research, equipping researchers with essential skills applicable for carrying out a wide range of other analyses. The primary objective of thematic analysis is to identify themes that capture significant or recurring patterns in the dataset, which are then used to interpret findings and support the research narrative. A solid thematic analysis comprehends and makes sense of the information, going well beyond a summary (Maguire & Delahunt, 2017; Naeem et al., 2023). As a result, recorded interviews were transcribed, and those conducted in Slovak were translated into English using Perplexity to enable researchers' interpretation, and then thematically analyzed using the MaxQDA program according to the research objectives. Common themes, ideas, and repeating patterns were recognized and documented. The data for this study were analyzed using Braun and Clarke's (2006) thematic analysis, which involves six steps: familiarization with the data, coding, generating initial themes, reviewing and refining themes, identifying and naming themes, and ultimately producing a comprehensive written report of the findings.

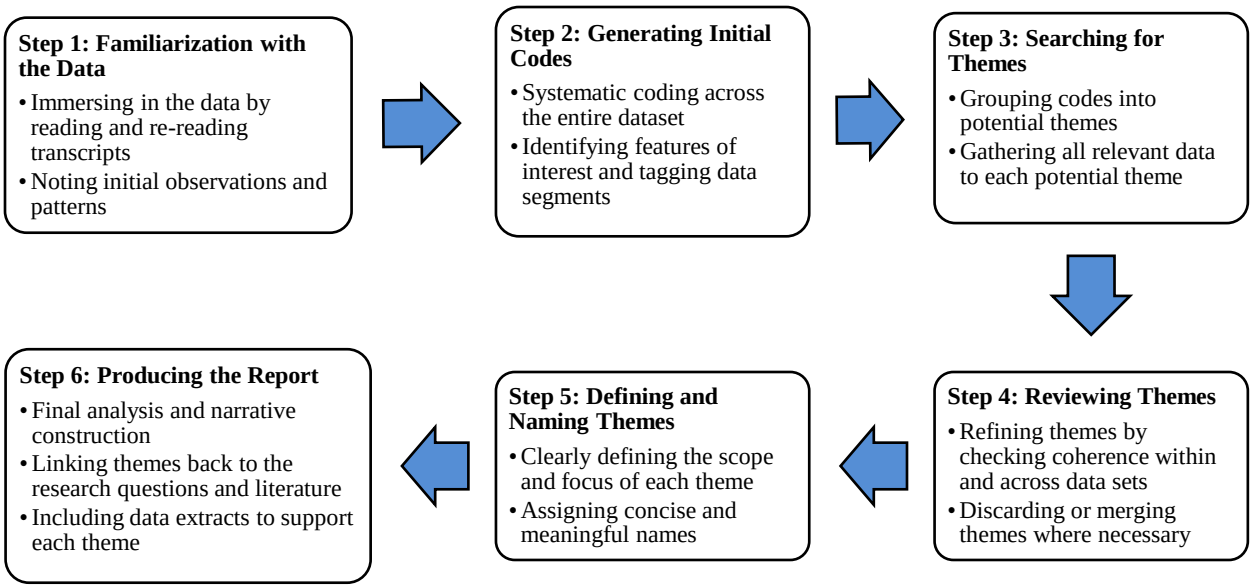


Figure 1 Thematic Analysis Process Based on Braun and Clarke (2006)

3.8 Ethical Considerations

The researcher implemented all necessary procedures to ensure that the ethical standards of social work research were upheld. Accordingly, the following ethical considerations were addressed:

- The researcher provided a self-introduction and secured informed consent from all participants, obtaining verbal agreement at the start of each interview session. Participants were informed that their involvement was entirely voluntary and that they retained the right to withdraw from the study at any point (Creswell, 2018).
- Confidentiality was prioritized throughout the research process. To protect participants' identities, the researcher assigned codes such as "Participant 1" and "Participant 2,". Participants were fully briefed on the purpose of the study, and verbal consent for audio recording was obtained before the commencement of each interview session.

3.9 Research Schedule

The Gantt chart below (**Figure 2**) outlines a comprehensive research schedule spanning from November 2023 to May 2025. It breaks down the research process into key tasks and maps each task against a timeline, allowing for clear visualization of project phases and their duration, helping to ensure that the project remains on track and that all necessary steps are completed in a logical sequence.

Figure 2 Research Schedule

TASK	MONTHS AND YEARS																		
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
	2023		2024												2025				
Planning (Selection and discussion)																			
Introduction																			
Literature review																			
Research Methodology																			
Data Collection																			
Data Analysis																			
Conclusion																			
Final Submission																			

CHAPTER FOUR

4.0 PRESENTATION OF FINDINGS AND DISCUSSION

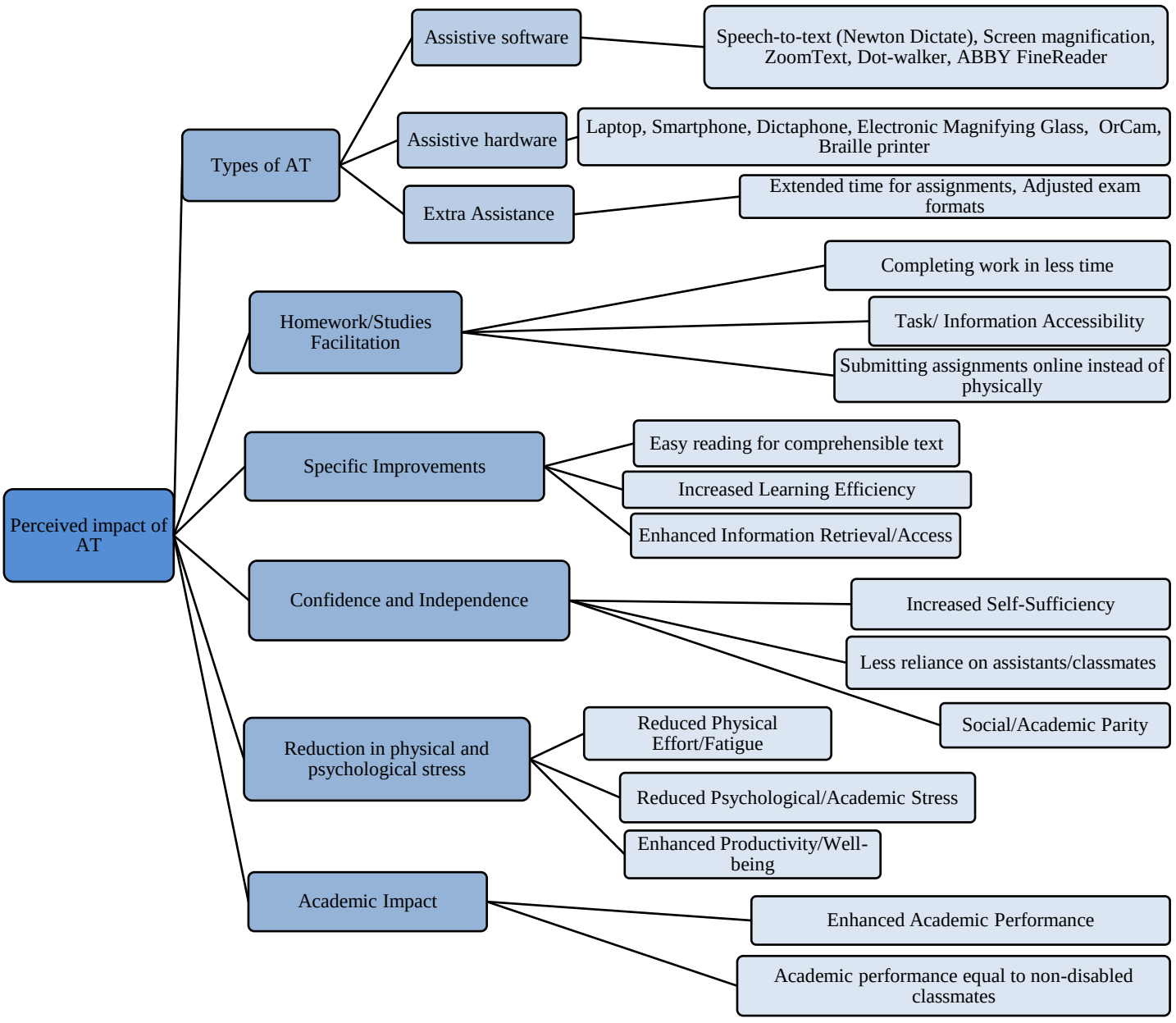
4.1 Findings

This chapter discusses the study's empirical findings and places them within the larger scholarly discourse on assistive technology (AT) and disability inclusion in higher education. Based on Braun and Clarke's (2006) approach for reflexive theme analysis, the findings are organized thematically to address the research objectives: (1) exploring the perceived impact of AT on the academic performance of students with disabilities (SWDs) in Slovakia, (2) identifying challenges in accessing and utilizing AT, and (3) analyzing institutional processes for allocating AT. Data were derived from semi-structured interviews with 16 participants, including 13 students with disabilities and 3 support staff members across four Slovakian universities.

4.1.1 Perceived Impact of Assistive Technology on the Academic Performance of SWDs in Slovakia.

The first objective of the study is to understand how Assistive Technology (AT) affects the academic performance of students with disabilities (SWDs) in Slovakia. Specifically, it aims to explore: the types of AT provided by universities to SWDs or used by SWDs, how AT facilitates homework completion for SWDs, and the impact of these ATs on SWDs' confidence and independence in their studies. The findings' emerging themes are students with disabilities use various ATs, which include both hardware and software tools, ATs make homework facilitation easier, lead to specific improvements in their studies, enhance their self-confidence, increase their independence, reduce physical and psychological stress, and positively impact their academic success.

Figure 3 Overview of Category, Sub-Categories, and Codes for Research Objective One (1)



4.1.1.1 Types of AT Provided by Universities to SWDs or Used by SWDs

This theme examines the range of assistive technologies made available to Students with Disabilities (SWDs) by academic institutions, as well as tools independently adopted by students to enhance their learning. Based on the findings from the responses of the participants, the types of assistive technology (AT) offered by universities or used by students with disabilities (SWDs) in Slovakia can be categorized into three main groups: Assistive Software, Assistive Hardware Devices, and Extra Assistance.

Assistive Software

Several participants reported using various software solutions to aid their studies: Speech-to-text software (e.g., Newton Dictate), Screen magnification and color adjustment software (e.g., ZoomText), screen readers, Optical character recognition (OCR) software (e.g., ABBY FineReader), PDF readers with accessibility features (e.g., Adobe Acrobat), Dot-walker software for Braille users, Microsoft Word 365 with advanced accessibility features, Learning management systems (e.g., Moodle), and Specialized educational software (e.g., Priscilla):

"I use assistive programs such as ZoomText (screen magnification, color adjustment, basic speech output).''

Participant 3

"I used the ABBY FineReader and Adobe Acrobat software to transcribe and edit paper textbooks into digital form."

Participant 5

"I use dot-walker software, which helps me to navigate my space or my way around."

Participant 6

"I used Speech-to-Text Software to convert spoken words into written text."

Participant 11

Assistive Hardware Devices

Participants mentioned a range of hardware devices that support their academic activities: Laptops and desktop computers, smartphones and tablets (including iPads with Apple Pencil), monitors, headsets, electronic magnifying glasses, OrCam (wearable assistive technology for the visually impaired), Braille printers, voice recorders/Dictaphones and digital note-taking devices:

"I use a laptop and smartphone for various human literacy tasks such as reading/writing, internet access..."

Participant 7

"I use a voice recorder/ Dictaphone to capture audio of lectures and meetings for later review."

Participant 9

"The braille printer allows me to convert digital text into braille, providing me equal access to read textbooks, lecture notes, and do my assignments."

Participant 6

"I use the Braille printer to produce tactile representations of symbols and diagrams since I am studying mathematics."

Participant 2

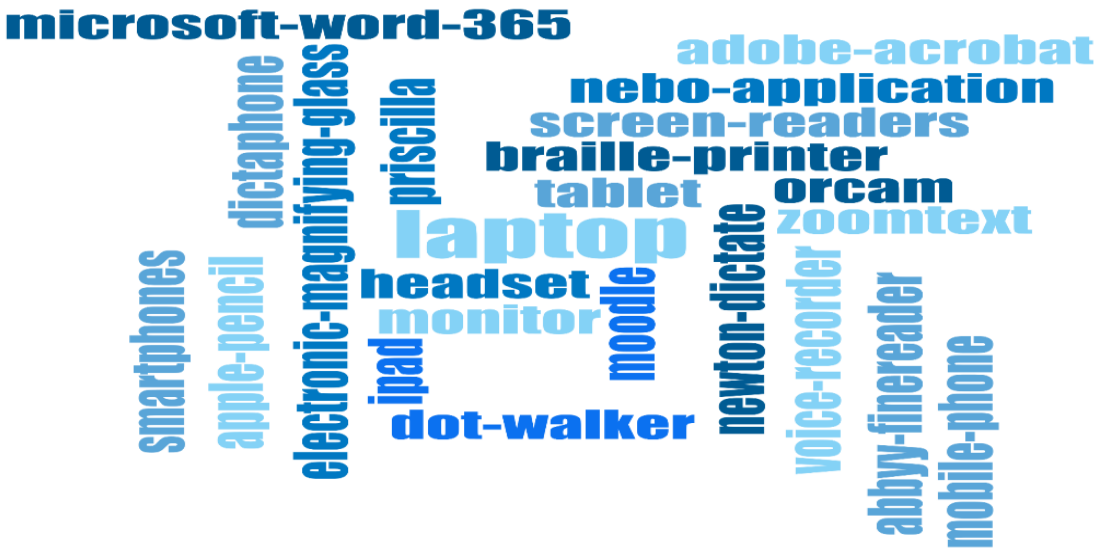


Figure 4 Word Cloud Representing Assistive Technology used by Student Participants

Extra Assistance

In addition to software and hardware, some participants stated receiving extra accommodations: Extended time for submitting written assignments, extended borrowing time for studying literature, modification of examination forms (e.g., oral instead of written), Additional time (30% increase) for shorter written works, individual consultations with teachers and study advisors and extended time for oral responses and thinking during exams:

"I get extended time for submitting written assignments to the e-learning portal, extended borrowing time for studying literature, and adjustment of the examination form for longer written works."

Participant 8

"...I have more time for written assignments."

Participant 10

"I have extended the time prescribed for writing, and when responding orally, I have more time to think and answer."

Participant 11

4.1.1.2 Homework and Studies Facilitation

This theme focuses on how assistive technology (AT) facilitates homework completion and study facilitation for Students with Disabilities (SWDs) in Slovakia. Thematic coding of the responses showed that AT streamlined homework and study processes, enabling SWDs to complete tasks faster and with greater accuracy. Screen readers and magnification tools have enhanced access to both digital and physical resources, while speech-to-text applications minimize physical strain. Digital platforms, such as Moodle and Priscilla, centralized resources, and smartphones simplified note-taking through photo documentation. Participants emphasized AT's transformative impact, reporting that it significantly enhanced their ability to engage in academic work outside the classroom. In their own words, the participants said:

"The electronic magnifying glass allows me to work with physical documents, which makes my assignments quite easier to do."

Participant 3

"*In using these ATs like the 'dictation' on a netbook with MacOS and the Newton Dictate software on a PC with Windows, I can transcribe speech into text, including professional expressions, and create extensive digital documents for it. This way I can do my assignment more easily."*

Participant 5

"Thanks to the computer, I submit assignments online and I don't have to carry them to the professors at school."

Participant 7

"I could use the Braille machine. Assistive technology allowed me to get any information that was necessary to study and made my homework easier to do. PC with screen reading software helped me in reading and understanding my homework task, which made it easier as well."

Participant 6

"Also, I used the ABBY FineReader and Adobe Acrobat software to transcribe and edit paper textbooks into digital form, making my assignment easier. I also used an iPad tablet, the Apple Pencil, and the Nebo application to take notes during lectures and do my homework, making it easier."

Participant 5

"Yes! It has helped reduce the time needed to complete tasks..."

Participant 8

4.1.1.3 Specific Academic Improvements

The findings from the study revealed several specific improvements in academic performance and learning experiences linked to SWDs' usage of assistive technology (AT). One Participant highlighted that assistive technology made reading easier and improved comprehension of texts. Another mentioned that saving notes on a computer eliminated the need to rewrite them in a notebook, resulting in faster learning. Some participants emphasised the ease of finding necessary information, which accelerated task completion. This is consistent with findings that AT facilitates quick access to educational materials, improving efficiency in academic tasks. During the interviews, some participants shared:

"Yes, I often have notes saved on my computer, which means I don't have to rewrite them in my notebook. As a result, my learning is faster…"

Participant 7

"It was so easy to find what I needed, which helped me get things done faster."

Participant 12

"The technology helps me in avoiding issues with reading handwriting or unclear text."

Participant 13

4.1.1.4 Confidence and Independence

This theme explores how assistive technology (AT) has impacted the confidence and independence of Students with Disabilities (SWDs) in Slovakia. Participants shared how AT tools and accommodations have empowered them to take greater control of their academic journeys, fostering self-assurance and reducing their reliance on external support.

The use of assistive technology (AT) enhanced participants' academic confidence, according to their responses. By providing tools to tackle previously inaccessible tasks, AT helped students perceive themselves as more capable and self-reliant learners. According to some of the participants:

"I mean that the technology helps me in avoiding issues with reading handwriting or unclear text, thus increasing my confidence in having accurate information."

Participant 13

"Yes, assistive technology has significantly helped me feel more confident…in my studies. Devices such as voice recorders, computers, and mobile phones have become essential tools for me. These technologies enable me to perform various tasks and activities that would otherwise be difficult or even impossible to accomplish without them."

Participant 9

Also, the findings show that assistive technology allowed participants to complete academic tasks without depending heavily on peers, instructors, or family members. This newfound independence not only improved their academic performance but also enhanced their overall sense of autonomy. Several participants echoed similar views, with some stating:

"Yes! These assistive technologies made my studies more independent. I didn't need that much help from the study assistant."

Participant 5

"…having AT and learning with it is so easy, and I am more independent, I don't have to seek assistance or ask for notes for every lesson from my classmates anymore…"

Participant 8

"Yes, because these assistive technologies help me in completing assignments that we receive from school, I do them on my own without assistance."

Participant 10

Notably, AT's impact extended beyond academics to social integration. Participants described how confidence in their academic abilities translated into stronger social connections. AT fostered a sense of belonging and equality by leveling the academic playing field. As expressed by one participant:

"…approaching my colleagues too is more confident for me in terms of socialization because I am equally good academically as they are…"

The participant added that,

"I have fully integrated into teaching and social life at the university… AT makes me feel like a full-fledged part of the community."

Participant 8

4.1.1.5 Reduction in Physical and Psychological Stress

The research findings reveal that assistive technology (AT) plays a substantial role in alleviating physical and psychological stress for students with disabilities, thereby positively impacting their academic performance. AT tools minimized repetitive or strenuous physical tasks, such as manual typing or rewriting notes. Voice-to-text software, for instance, reduced the physical strain of typing for students with motor impairments. Similarly, digital note-taking systems eliminated the need for laborious handwriting, preserving energy for higher-order cognitive tasks.

Participant 1 highlighted how voice dictation alleviated physical strain:

"Although I can type on a keyboard, I primarily use only my right hand, which makes it more tiring. Using voice dictation and correcting the occasional word the software doesn't recognize is easier."

Also, the usage of AT by SWDs has reduced the time required to complete tasks and alleviated stress during their studies. Participants reported feeling less overwhelmed as AT enabled them to meet deadlines independently and engage with materials more efficiently.

Participant 8 highlighted the holistic benefits of AT on stress and productivity:

"Yes! [AT] has helped reduce the time needed to complete tasks, reduce some psychological stress I used to have during my studies, and make me more productive."

4.1.1.6 Academic Impact

The academic impact of assistive technology (AT) is vividly illustrated through its ability to bridge accessibility gaps and empower students with disabilities (SWDs) to achieve outcomes comparable to their non-disabled peers. Findings from this study show AT's role in enhancing academic efficiency, task completion, and overall performance, particularly for students who initially struggled without such support. Participant accounts demonstrate measurable improvements in grades, productivity, and academic confidence following AT adoption.

Participant 8 provided a compelling longitudinal comparison of their academic journey with and without AT:

"My study performance is better because I was not using AT in my first semester […] and started using it in the second semester. My performance improved—I was able to do more tasks in a shorter period with good marks than in my first semester."

The participant further emphasized the transformative effect of AT on academic equity:

"My academic performance is equally good as my classmates without disabilities. When I was not using AT, I was struggling academically."

4.1.2 Challenges and Obstacles in Accessing and Utilizing Assistive Technology

This objective explores the obstacles reported by SWDs, categorized into five key themes: bureaucratic hurdles, adaptation struggles, academic task difficulties, financial constraints, and variability in technical support. The journey of students with disabilities (SWDs) in Slovakian universities to access and utilise assistive technology (AT) is fraught with systemic, technical, and socio-psychological challenges. While AT holds immense potential to bridge accessibility gaps, institutional inefficiencies, adaptation barriers, and inconsistent support systems often undermine its effectiveness.

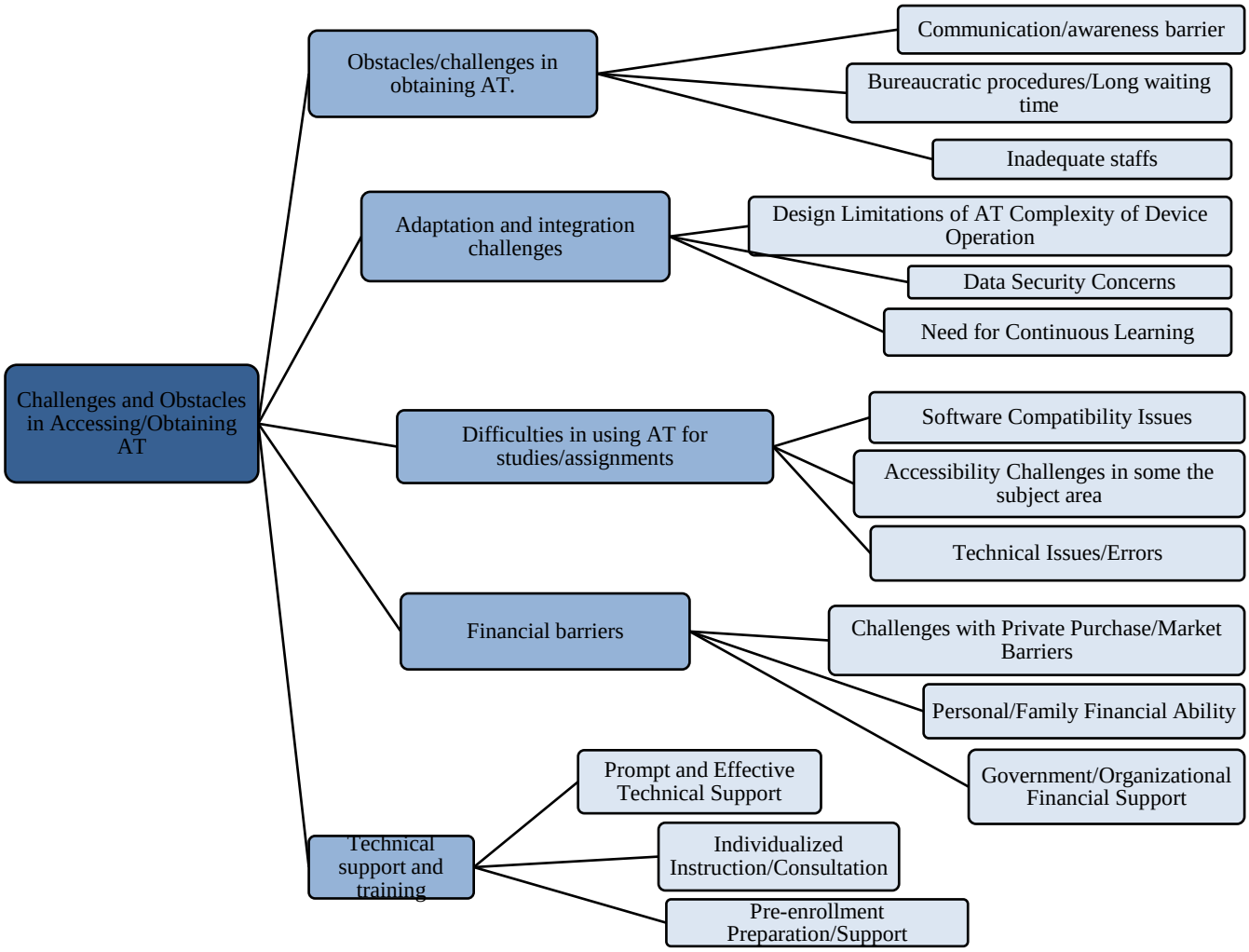


Figure 5 Overview of Category, Sub-Categories, and Codes for Research Objective Two (2)

4.1.2.1 Bureaucratic and Institutional Obstacles

This theme focuses on the systemic challenges faced by Students with Disabilities (SWDs) in navigating institutional processes to secure assistive technology (AT). Participants described bureaucratic inefficiencies, poor communication, and fragmented information as major barriers to timely access to accommodations.

Participants frequently encountered delays due to inadequate communication from university departments, with many discovering critical support services years into their academic journeys. Several participants shared their frustrations:

"I only learned about the access center's activities from the department's website at the beginning of my third year of studies. The faculty coordinator probably didn't inform me adequately."

Participant 1

"The regional office required medical documentation and took two months to process my application. It was administratively demanding."

Participant 5

Also, students faced lengthy assessments, unclear application processes, and appeals for rejected requests, which prolonged access to necessary tools and exacerbated stress. Compounding these challenges was the difficulty of locating or accessing information about available resources, often leaving students reliant on chance discoveries or informal networks. Participants emphasized the administrative burdens and systemic opacity:

"Information is unavailable, either it is paid or inaccessible."

Participant 9

"The process of obtaining compensatory tools took a long time, and my first request for an electronic magnifying glass was rejected. I had to file an appeal."

Participant 3

4.1.2.2 Adaptation and Integration Challenges

This theme explores the technical and psychological barriers students faced when adapting to AT tools, including usability issues, fears of social judgment, and the need for continuous learning.

Poorly designed interfaces and complex commands hindered effective use of AT, requiring significant effort to master. One participant described this frustration:

"Modern Android TVs have screen-reading software, but if it's poorly programmed, you must remember button sequences. It's needlessly complicated."

Participant 6

In addition, students faced dual pressures: managing anxieties about social perceptions while also adapting to the evolving technical demands of AT tools. Fear of stigma influenced how openly participants used AT in academic settings, though acceptance from peers and instructors often alleviated these concerns. Simultaneously, frequent software or hardware updates required continuous relearning, adding to cognitive strain. Participants highlighted these interconnected challenges:

"I feared how peers would perceive me using these tools. Thankfully, my teachers and classmates accepted it."

Participant 8

"Technologies keep improving, so I often need to relearn features or adapt to new interfaces."

Participant 9

4.1.2.3 Difficulties in Using AT for Academic Tasks

Even after obtaining AT, practical challenges persisted. Software incompatibility, inaccessible digital materials (e.g., image-based PDFs), and technical glitches during assignments disrupted workflows. Some faculty members resisted accommodations, such as allowing students to photograph lecture slides, further complicating task execution. As expressed by the participants:

"The speech-to-text software only worked on Windows, but I use a different OS at home."

Participant 1

"My screen reader couldn't process scanned textbook pages in a PDF. I had to ask peers for help."

Participant 6

"Submission errors made me anxious about late penalties. I had to explain issues to professors repeatedly."

Participant 12

"Some professors dislike students photographing slides. My notes ended up blurry and unreadable."

Participant 13

4.1.2.4 Financial Barriers

While government subsidies and university loan programs alleviated costs for some, others faced financial strain. This theme examines the economic challenges and support systems that influence students with disabilities' access to assistive technology (AT) in Slovakia. While institutional programs and government subsidies mitigated costs for many, disparities persisted, with some students facing high prices or relying on personal/family resources.

Many participants avoided financial strain through free university borrowing programs, government donations for basic technologies, or reimbursement schemes. These initiatives reduced out-of-pocket expenses for eligible students:

"...Borrowing assistive technologies from the university's workplace for students with specific needs is completely free."

Participant 1

"...the Slovak government offers visually impaired people donations to basic technologies, such as laptops, smartphones, braille displays, or braille printers."

Participant 2

"After my request for compensatory tools was approved, a large portion of the costs was reimbursed."

Participant 3

"...I was able to obtain assistive technology tools through the access center after an assessment of my specific needs."

Participant 5

In addition, despite support systems, high costs for specialized devices and uneven access to subsidies left some students dependent on institutional negotiation power or personal funds. Those unaware of funding opportunities or lacking family resources faced greater barriers. Some participants shared these:

"AT devices are still expensive, but Slovakia supports persons with disabilities through organizations, university access centers, and government offices."

Participant 6

"There was once I tried purchasing an AT device outside it was difficult, especially when they found out it's not a school authority that is making purchasing, they would usually want to provide it with a high fee and also ask to pay the installment before they provide it to you, so I asked my disability coordinator to get me this AT, since the university has much better negotiations in terms of purchasing AT so prefer seeking their assistance in accessing AT."

Participant 8

"...my parents buy me supportive technologies like a computer, and so far, I have not seen a reason to obtain other supportive technologies from the school."

Participant 7

A subset of participants experienced no financial barriers due to full institutional accommodation or pre-existing access to necessary tools:

"The school accommodated me and provided access to my assistive technology tools, so I have not faced such an issue [financial barrier] yet."

Participant 10

"I did not encounter any difficulties in financing assistive technologies."

Participant 12

4.1.2.5 Technical Support and Training

This theme focuses on the critical role of institutional and peer-led technical support in facilitating effective assistive technology (AT) adoption. While most participants praised the responsiveness and quality of training, gaps in specialized software instruction occasionally hindered academic performance.

Participants reported positive experiences with university access centers and disability offices, which provided prompt repairs, replacements, and tailored training. Clear manuals, hands-on instruction, and rapid problem resolution were frequently emphasized. Reflecting on the seamless support, some participants shared:

"…the center's staff gave me detailed instructions on all hardware components. If technical problems arose, they responded promptly and provided replacement devices during repairs."

Participant 1

"The disability center was swift and helpful, providing me with anything else I may have needed."

Participant 2

"I always received timely technical support or training from experts within 2-3 working days. The support was not only sufficient but above standard."

Participant 8

Also, pre-enrollment consultations and early training sessions ensured students were equipped with AT skills before starting coursework, reducing initial barriers. Discussing the impact of early preparation, participants explained:

"Comenius University offers individual consultations long before enrollment. Technical preparedness is thus very good."

Participant 2

"I received training right from the first lesson, which helped me effectively use tools from the disability center."

Participant 12

While general AT training was robust, some participants lacked instruction for specialized academic software, impacting performance in practical settings:

During my internship, I struggled with Microsoft Excel. School training wasn't enough for real-world tasks."

Participant 7

The structured training significantly improved participants' ability to navigate AT tools, fostering independence and academic efficiency. A student described the transformative effect of Braille training:

"Training on the Braille machine by the access center was very useful in my studies."

Participant 6

Another highlighted the practicality of device-specific instruction:

"The school trained me to use a voice recorder, which greatly facilitates my studies."

Participant 10

4.1.3 Internal Processes for Allocating Assistive Technology to SWDs.

This objective examines the institutional frameworks and practices employed by university counseling centers to allocate assistive technology (AT) to students with disabilities (SWDs). It aims to discover how universities assess student needs, determine eligibility, and manage the procurement, training, and follow-up processes for AT. The findings reveal significant variability across institutions, reflecting differing priorities, resource availability, and institutional philosophies toward accessibility and inclusion. Key areas of exploration include eligibility criteria (e.g., severity of disability, documentation requirements), student-led versus advisor-driven

request processes, challenges in procurement and funding, training protocols for effective AT use, follow-up mechanisms to evaluate impact, and timeframes for delivery. By comparing approaches at Constantine the Philosopher University, the Catholic University of Ružomberok, and the Technical University of Košice, the findings show how institutional structures shape equitable access to AT, emphasizing the balance between student autonomy, procedural formalization, and systemic barriers.

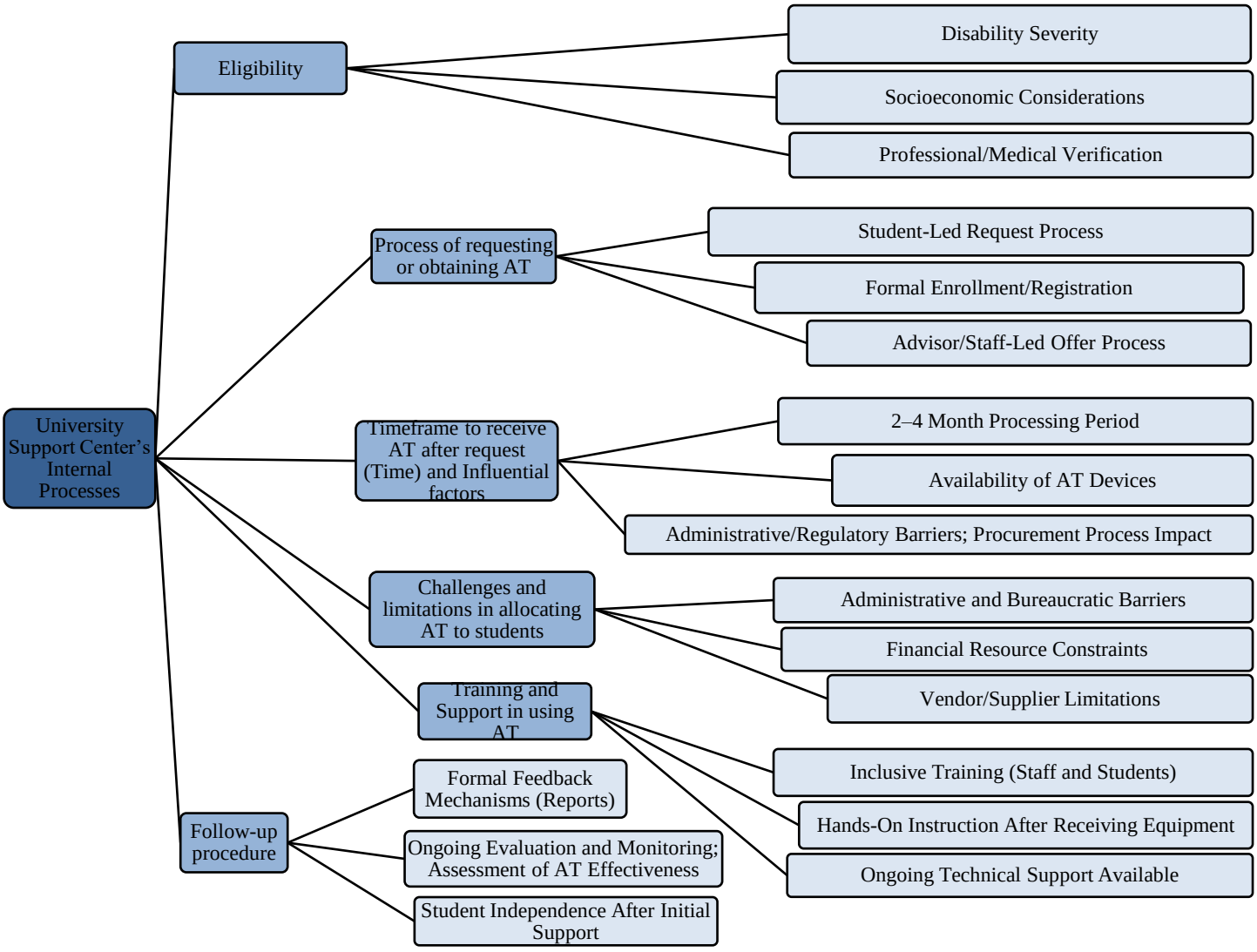


Figure 6 Overview of Category, Sub-Categories, and Codes for Research Objective Three (3)

4.1.3.1 Eligibility for Allocating Assistive Technology

The findings regarding the eligibility criteria for allocating assistive technology (AT) to students with disabilities, based on internal processes at university counseling centers, reveal distinct approaches across institutions.

At Constantine the Philosopher University, staff emphasized the severity of disability and social situation as key criteria for eligibility.

"The criterion is the severity of the disability, social situation."

Constantine the Philosopher University Staff

In contrast, the Catholic University of Ružomberok staff outlined a more formalized process that requires documentation, including consent for data processing and a diagnosis confirmation from relevant specialists such as medical doctors and psychologists. These documents serve to enable students to access services such as counseling.

"To get the status of a student with special needs (SSP), the applicant needs to provide the following documents: the agreement on the processing of personal data and the confirmation from the specialist (doctor, special pedagogue, psychologist) about their diagnosis."

Catholic University of Ružomberok Staff

Similarly, at the Technical University of Košice, staff described a structured system whereby students must register as individuals with specific needs at an Access Centre, attend an evaluation meeting, and receive recommendations. As part of this process, Assistive Technology (AT) may be included in these recommendations, with options for renting AT if unavailable. The participant has this to say:

"The standard condition is to be registered as a student with specific needs at our Access Centre at TUKE… The student must attend an evaluation meeting with our Evaluator/Advisor."

Technical University of Košice Staff

4.1.3.2 Process of Requesting or Obtaining Assistive Technology (AT)

The findings highlight the various internal processes used by university counseling centers to allocate assistive technology to students with disabilities. These processes are reflective of institutional priorities and approaches to meeting student needs.

At Constantine the Philosopher University, the process is mostly led by students. Staff meet students to determine their individual needs and gaps in available technology. This approach focuses on student agency and self-identification of requirements.

"As part of our consulting activities, we ask about the possibilities of providing technology to students, they will tell us what they need and what they lack."

Constantine the Philosopher University Staff

Likewise, the Technical University of Košice employs a dual approach, with advisers offering assistive technology proactively if it is deemed advantageous or when students seek it directly. This provides flexibility in addressing needs, whether through professional judgment or student advocacy.

"Both ways are possible: an initiative from the advisor (we always offer AT if we think it is valuable support and is available) or a request by a student."

Technical University of Košice Staff

Also, the Catholic University of Ružomberok requires students to provide the necessary documentation as part of the application process. First-year students are informed about these procedures early, enabling them to enroll and systematically utilise assistive technology.

"Yes, they need to provide all the needed documents. We inform the first-year students about this procedure, and students may enroll."

Catholic University of Ružomberok Staff

4.1.3.3 Challenges and Limitations in Allocating Assistive Technology (AT) to Students

The study identified several challenges and limitations faced by university counseling centers and staff in allocating assistive technology to students with disabilities. The Staff from Constantine the Philosopher University highlighted the complexity of public procurement processes for specific assistive technologies. The staff shared this:

"Yes, ordering goods correctly and publicly is transparent, even though it is specific. For example, acquiring stair platforms or sign language interpretation services requires adherence to strict procurement regulations, which can be time-consuming and limited to specialized companies."

Constantine the Philosopher University Staff

Correspondingly, the Technical University staff reported significant difficulties in securing financial support for their center, which directly impacts the ability to acquire and allocate assistive technologies effectively.

"A big challenge was to get financial support for our Centre."
Technical University of Košice Staff

Likewise, the Staff from Catholic University in Ružomberok did not report any challenges related to the allocation of assistive technology, suggesting variability in experiences across institutions.

4.1.3.4 Training and Support in Using Assistive Technology (AT)

The findings emphasize the need for training and assistance in ensuring that students with disabilities use assistive technology (AT) effectively.

Constantine the Philosopher University provides training to both staff and students to facilitate the successful use of assistive technologies.

"We provide training for ourselves and our students."
Constantine the Philosopher University Staff

In addition, after receiving assistive devices, students at Catholic University are trained on how to utilize them appropriately. Students can also seek technical assistance from the university counseling center when problems emerge.

"After receiving the assistive technologies or special equipment, students are shown how to use it correctly. In case of technical issues, they may ask for help in our center."
Catholic University Staff

While at the Technical University of Košice, extensive training is regularly provided to staff and students to ensure they are prepared to use assistive technologies efficiently.

"Always they get appropriate training for AT for both staff and students."
Technical University Staff

4.1.3.5 Follow-Up Procedures

The findings on the follow-up procedures used by university counseling centers to allocate assistive technology to students with disabilities demonstrate diverse approaches among institutions.

The staff from Constantine the Philosopher University mentioned that once assistive technology is allocated, the university does not monitor the academic success of students further. Their priority is to create inclusive conditions for study, emphasizing independence rather than continuous oversight.

"Students are then independent, we no longer monitor academic success, but the priority is to create inclusive conditions for study."
Constantine the Philosopher University Staff

Similarly, at the technical university, the staff indicated that a more systematic follow-up procedure is in place. Students are required to produce a report or attend a consultation to assess the benefits and effectiveness of assistive technology used throughout the academic year.

"They are asked to write a report, and/or invited for a consultation to assess the benefit of the AT to them during its use in the academic year."

Technical University of Košice Staff

However, the staff from Catholic University made no mention of any specific follow-up procedures, indicating either a lack of formalized processes or that it uses the procedure of Constantine the Philosopher University, where independence is prioritized after receiving an assistive device.

4.1.3.6 Timeframe to Receive Assistive Technology (AT) After Request

4.1.3.6.1 Timeframe for Allocation

At Constantine University, the process of allocating assistive technology typically takes 2 to 4 months due to specific institutional procedures, such as adherence to public procurement regulations.

"*The process usually takes 2-4 months."*

Constantine University Staff

In contrast, Catholic University and Technical University did not specify a timeframe for allocation. This absence of information could be attributed to differences in internal processes or resource availability.

4.1.3.6.2 Influential Factors Affecting the Timeframe

Constantine University staff highlighted that adherence to public procurement regulations significantly impacts the timeline for acquiring assistive technology.

"When ordering goods, the university must follow public procurement regulations,"

Constantine University staff

In a similar vein, at the Technical University, staff emphasized that the availability of assistive technology plays a critical role. While there is a predefined list of available AT solutions, fulfilling specialized or individual requests may require additional time to address specific needs.

"Availability is such a factor. Of course, we have a list of ATS that is offered to students based on our experience. If it is necessary, we try to solve also a special individual request for a specific service."

Technical University of Košice Staff

4.2 Discussion of Findings

4.2.1 Perceived Impact of Assistive Technology on the Academic Performance of SWDs in Slovakia

4.2.1.1 Types of AT Provided by Universities to SWDs or Used by SWDs

Participants reported using a range of software solutions, including speech-to-text software, screen magnification tools, screen readers, and specialized educational applications. This is consistent with the definition of AT as "any software or device designed to improve a student's functional capability or assist a student with special educational needs in accessing the general curriculum" (Mustafa et al., 2023; Iyamuremye et al., 2023). Hersh and Mouroutsou (2019) highlight the usage of software such as ZoomText for screen magnification and color correction, as well as ABBY FineReader for optical character recognition, as examples of digital solutions for overcoming learning barriers.

In addition to the software solutions, hardware devices mentioned by participants, which include laptops, smartphones, electronic magnifying glasses, and Braille printers, fall under the "physical products" category stated in the WHO's (2024) definition of assistive equipment. The use of OrCam, a wearable assistive technology for the visually impaired, and Braille printers is consistent with the examples given by Cernakova & Pokryvkova (2019) and Hersh & Mouroutsou (2019) for blind individuals in Slovakia. The variety of devices used by participants indicates the wide range of AT available to support students with various kinds of disabilities, as emphasized in the literature study.

Moreover, the extra accommodations noted by participants, such as extended time for assignments and adjustments to examination forms, reflect the broader understanding of AT as not just devices but also “services, systems, processes, and environmental modifications” (Hersh & Mouroutsou, 2019). (Hersh & Mouroutsou, 2019). These adjustments align with AT's goal of aiding students in overcoming barriers to independence and full engagement in society.

The findings support the claim that AT introduces new modalities of learning that may better satisfy the learning needs of students with impairments (Hersh & Mouroutsou, 2015). The wide variety of AT reported by participants indicates how these technologies can raise, maintain, or improve the skills of impaired students, as stated in the literature review. Furthermore, the availability and usage of various assistive technologies (ATs) in Slovak universities is consistent with the Individuals with Disabilities Education Act (IDEA), which recognizes assistive technology as a potential aid for students with disabilities (Gomes and Mensah, 2015; 2020). The findings indicate that Slovak universities are making efforts to provide free, suitable public education by providing a diverse range of AT alternatives to assist students with disabilities in accessing the main curriculum. In conclusion, the findings on AT use in Slovak universities largely align with the criteria and categories of AT outlined in the literature, demonstrating a holistic approach to helping students with disabilities through technology and accommodations.

The findings above align closely with the broader literature on the benefits of assistive technology (AT) for students with disabilities (SWDs). The participants' experiences in Slovakia underscore the transformative potential of AT in facilitating homework and study processes, which resonates with global research on its impact.

4.2.1.2 Homework and Studies Facilitation

From the findings, it is evident that AT tools like screen readers, magnification software, and speech-to-text applications improved SWDs’ ability to access and process educational materials. The use of a personal computer with screen-reading software made reading and understanding assignments easier. Similarly, software like ABBY FineReader and Adobe Acrobat helped them to digitize and edit textbooks, streamlining their workflow. These findings are consistent with Hersh and Mouroutsou (2019) and McNicholl et al. (2019) found that AT devices such as reading

pens, iPads, and screen magnification software improved accessibility for partially sighted students, making note-taking and assignment completion easier. In addition, the study revealed that AT reduced the time required to complete tasks and improved accuracy. This aligns with Iyamuremye et al.'s (2023) research, which found that laptops and tablets enhanced the quality and quantity of notes for students with learning disabilities. Furthermore, tools like iPads and applications such as Nebo enabled creative self-expression and effective note-taking during lectures. These observations are supported by Silman et al.'s (2017) findings on the utility of iPads for visually impaired students.

The findings show how assistive technology (AT) addresses accessibility barriers in homework and study facilitation for students with disabilities (SWDs), supporting the social model of disability, which attributes disability to societal and environmental barriers rather than personal deficits. Tools like screen readers, magnification software, and speech-to-text applications dismantle disabling barriers by adapting traditionally inaccessible formats (e.g., printed assignments, rigid digital platforms) to meet SWDs' needs. For instance, participants noted that PCs equipped with screen-reading software enabled them to independently read and understand assignments, reflecting the model's emphasis on removing systemic obstacles rather than "fixing" individuals. Similarly, ABBY FineReader and Adobe Acrobat allowed SWDs to digitize and edit textbooks, streamlining their workflow and fostering equitable participation—a direct counter to institutional norms that privilege non-disabled students.

Likewise, digital platforms such as Moodle centralize resources, reducing logistical challenges, as noted by participants, including the need to physically submit assignments. This aligns with the model's critique of rigid institutional norms that exclude SWDs. Also, the use of devices like Braille machines and transcription software (e.g. Newton Dictate) allows SWDs to engage with academic content on equal footing with their peers, illustrating how AT fosters equitable participation by adapting environments to the needs of SWDs. As a result, by framing disability as a result of social exclusion, the findings emphasize the necessity of institutional responsibility in providing accessible tools and training for effective usage.

Critically, AT's impact extends beyond functionality: it empowers SWDs to navigate academic environments strategically. Participants demonstrated critical awareness of tools like screen magnification or speech-to-text to overcome barriers, aligning with the interactional domain of empowerment theory, which emphasizes agency in accessing resources. The reduced time and improved accuracy in task completion (e.g., via laptops/tablets) further show how AT shifts responsibility from individuals to institutions, consistent with Silman et al.'s (2017) findings on iPads' utility for visually impaired students. In conclusion, the findings reinforce the social model's call for institutional responsibility in providing accessible tools for SWDs in Slovakia. When barriers like inflexible formats and exclusionary practices are dismantled, AT fosters participation, enabling SWDs to engage on equal terms.

4.2.1.3 Specific Academic Improvements

The findings demonstrate the transformative impact of assistive technology (AT) in enhancing both the academic performance and overall learning experiences of students with disabilities (SWDs). The social model of disability proposes that impairment is caused by exclusionary institutional practices rather than individual limits, and participants' experiences show how AT overcomes these obstacles. For example, digital tools like computers, iPads and smartphones mitigate challenges tied to institutional preferences for handwritten methods by providing equitable access to study materials and note-taking, aligning with the model's emphasis on systemic inclusivity to reduce exclusion.

Also, participants consistently emphasized how AT improved accessibility to educational materials, thereby fostering a more inclusive learning environment. For example, some participants noted that AT facilitated reading and improved comprehension, aligning with Hersh & Mouroutsou's (2015) assertion that AT provides tailored support to meet diverse learning needs. Similarly, others highlighted how AT simplified the process of finding necessary information, which in turn accelerated task completion. This reflects findings by McNicholl et al. (2019), who noted that AT enables SWDs to engage more efficiently with coursework by ensuring quick and seamless access to educational resources.

In addition, the responses from the participants also illustrated the benefits of AT by describing how digital tools, such as computers, eliminated the need for manual rewriting of notes, thereby expediting the learning process. This perspective supports Iyamuremye et al.'s (2023) observation that digital tools such as laptops and tablets enhance both the quantity and quality of notes taken by students with learning difficulties. Moreover, devices such as iPads and PDAs were noted to simplify note-taking processes, making studying and revising more convenient and efficient.

Further analysis of the theme revealed that smartphones simplified access to information by reducing reliance on physical tasks such as turning pages or deciphering unclear handwriting. This resonates with Hersh & Mouroutsou's (2019) definition of AT as tools that help overcome barriers to independence and participation in academic activities. Similarly, WHO (2024) emphasized the importance of early hearing aid availability in supporting language development and school involvement, as well as the significance of AT in minimizing physical obstacles.

From the lens of empowerment theory, AT promotes agency as well as self-efficacy by enabling SWDs to proactively navigate their environments. Some participants related their experiences with improved learning and task completion, and their confidence in their academic abilities increased, reinforcing their self-efficacy. For example, organizing digital notes or Nebo for lecture note-taking demonstrated a keen understanding of the challenges in their environment as well as a proactive approach to finding resources, both of which are features of this theory. By using AT to expedite tasks, students actively work to overcome obstacles, demonstrating their empowerment in decision-making.

4.2.1.4 Confidence and Independence

One of the theories supporting this study is empowerment theory, which evolved in reaction to individuals with disabilities' social exclusion. It emphasizes a strengths-based approach that recognizes their competencies, such as self-confidence, self-determination, and autonomy, while advocating for environmental resources and opportunities to enable these strengths to flourish (Al-Zoubi, Bani & Rahman, 2017; Moran et al., 2017). The findings reveal that AT serves as a catalyst for empowerment, enabling students with disabilities to develop greater confidence and self-reliance in their educational journeys. Participants consistently reported increased confidence as a

result of using assistive technologies. They noted that AT enabled them to keep up with peers and complete assignments independently, reducing reliance on others. This aligns with Hersh and Mouroutsou's (2019) assertion that AT helps overcome barriers to full participation in society, enabling students to engage in academic tasks more effectively. Similarly, AT has fostered faster learning through digital tools, boosting their confidence, reflecting findings by McNicholl et al. (2019), which found that AT had a favorable impact on autonomy and self-expression.

Independence was another recurring theme in participants' responses, resonating with the empowerment theory's prioritization of autonomy. The study showed that AT allowed them to perform essential educational tasks without external assistance, a sentiment echoed by several participants, who described using tools like ZoomText and electronic magnifying glasses for independent work. This reflects findings by Wessel et al. (2015), who noted that AT fosters autonomy by enabling students to complete day-to-day tasks independently. The ability to access information privately through AT calls attention to its role in facilitating personal autonomy. This supports Malcolm and Roll's (2017) observation that AT devices like laptops empower students to engage with coursework independently. Moreover, AT has enhanced efficiency in task completion due to quick access to materials via AT, aligning with Mustafa et al.'s (2023) findings that appropriate training in AT use improves both academic performance and independent living skills, key tenets of empowerment theory.

The study also found that assistive technology (AT) helped students with disabilities (SWDs) integrate socially, which is a key component of empowerment theory's goal for an inclusive social structure. By fostering a sense of academic equality with peers, AT improved their socialization and integration into university life. This aligns with Ndlovu's (2021) findings, which posit that AT enhances social inclusion, reduces activity limitations, and strengthens self-esteem and confidence. Additionally, Silman et al. (2017) found that visually impaired students using AT tools like audio maps and iPads could communicate more effectively, further bolstering their confidence. In the end, the findings show how AT resource and a bridge to empowerment, enabling SWDs to harness their competencies, achieve academic independence, and integrate socially.

4.2.1.5 Reduction in Physical and Psychological Stress

The findings highlight assistive technology's (AT) dual capacity to mitigate both physical and psychological stressors for students with disabilities. Physically, tools like voice-to-text software reduced bodily strain for students with motor impairments, enabling them to engage in academic tasks without excessive exertion. These tools align with Hersh and Mouroutsou's (2019) conceptualization of AT as a means to overcome physical barriers and facilitate safer, more efficient task completion. Participants reported that such technologies minimized fatigue, allowing them to allocate energy to learning rather than struggling with accessibility challenges.

Psychologically, AT alleviated mental strain by streamlining task efficiency. Students noted that tools like adaptive keyboards and voice recognition software simplified complex processes, enabling quicker and more productive task completion. This efficiency reduced anxiety associated with academic workloads, a finding consistent with McNicholl et al. (2019) and Malcolm and Roll (2017), who observed that AT devices improve task completion rates and foster a sense of control. Furthermore, the autonomy gained from AT use diminished feelings of dependency on others, a critical stressor highlighted by Ndoluv (2021). For instance, quick access to information via AT tools not only saved time but also instilled a sense of accomplishment and self-efficacy, bolstering students' confidence in their academic capabilities (Mustafa et al., 2023).

These findings align with empowerment theory's intrapersonal domain, which emphasizes self-efficacy, self-determination, and internal motivation as pathways to overcoming systemic barriers. The physical stress reduction enabled by AT directly supports the theory's focus on personal control: by minimizing bodily strain, students gained autonomy over their academic participation, redirecting energy toward goal achievement. This aligns with the theory's assertion that environmental resources, such as AT, empower individuals to exercise agency over their lives (Al-Zoubi et al., 2017).

The psychological benefits of AT further reflect empowerment theory's emphasis on self-efficacy. Participants' reports of reduced anxiety and heightened confidence mirror the theory's premise that accessible resources strengthen internal motivation and resilience. For example, the efficiency gains from AT tools like voice-to-text software not only simplified tasks but also reinforced

students' belief in their ability to succeed independently—a core tenet of empowerment theory's intrapersonal domain. Similarly, the reduction in dependency-related stress resonates with the theory's advocacy for self-determination, as AT enabled students to reclaim control over their academic processes, mitigating feelings of inadequacy or helplessness (Moran et al., 2017).

4.2.1.6 Academic Impact

The academic performance improvements reported by students with disabilities (SWDs) following the implementation of assistive technology (AT) demonstrate its importance in promoting equal educational outcomes. The findings revealed that the use of assistive technology (AT) correlated with significant academic improvements, including enhanced task efficiency and higher grades, while enabling students with disabilities to achieve performance levels comparable to peers without disabilities. These findings align with existing research highlighting the benefits of AT for academic success. Malcolm and Roll (2017) and McNicholl et al. (2019) discovered that AT improves standard academic skills, including note-taking, test-taking, reading, and writing. This enables students with disabilities to better access and engage with instructional materials, hence improving their learning and academic outcomes.

These advancements resonate with empowerment theory's emphasis on self-determination, as AT tools act as catalysts for students to exercise control over their learning processes. The reported increases in grades and productivity following AT adoption reflect the intrapersonal domain's emphasis on self-efficacy, students' increased confidence in their capacity to perform academically. Mustafa et al. (2023) further support this, noting that AT fosters classroom autonomy, encouraging interactions with teachers and peers, which enhances task completion and active learning engagement. Such outcomes mirror empowerment theory's assertion that accessible resources enable individuals to harness their competencies and achieve desired outcomes, reinforcing their motivation to overcome challenges.

In addition, studies by Iyamuremye et al. (2023) demonstrate that specific AT tools, such as Abacus and tactile kits, can stimulate conceptual understanding in subjects like mathematics and science for students with visual impairments. Similarly, constructivist digital AT has been shown to improve mathematical performance and encourage collaboration, self-assessment, and

independent knowledge-seeking among students with hearing impairments (Iyamuremye et al., 2023). These findings highlight AT's transformative potential in improving the academic performance of students with impairments, which aligns with the larger goal of increasing inclusivity and equal access to education (Hersh & Mouroutsou, 2015).

4.2.2 Challenges and Obstacles in Accessing and Utilizing Assistive Technology

4.2.2.1 Bureaucratic and Institutional Obstacles

The theme of bureaucratic and institutional obstacles highlights the structural problems students with disabilities experience when attempting to obtain assistive technology (AT) within academic institutions. These barriers are rooted in administrative inefficiencies, fragmented communication, and complex procedural requirements, which collectively hinder equitable access to AT. Participants in the study reported significant delays and frustrations due to poor communication from university departments. For instance, some students only became aware of the access center's activities in their third year, highlighting the lack of timely and effective information dissemination. This issue aligns with the findings by McNicholl et al. (2019) and Mosia & Phasha (2017), who emphasize that inadequate awareness campaigns and decentralized resources obstruct access to AT. Fragmented information leaves students uncertain about where to seek assistance, further complicating their academic journey.

Also, the procedural complexity of accessing AT was another recurring theme. Participants described the need to file appeals for rejected requests and highlighted the administrative burden of providing medical documentation alongside enduring long processing times. These bureaucratic hurdles are consistent with Hersh & Mouroutsou (2019), who note that unclear funding guidelines and complex application processes create barriers for students seeking AT solutions. Beyond delays, these cumbersome procedures negatively impact students' academic engagement. One participant reported that critical information is either inaccessible or requires payment, limiting equitable access to resources. Regec & Pastieriková (2016) similarly identified gaps between disability rights legislation and its implementation, further exacerbating these challenges. Institutional noncompliance with accessibility regulations exacerbates these challenges, as Regec & Pastieriková (2016) point out. Despite legal frameworks protecting disability rights,

implementation is patchy, leaving many students without timely access to assistive technology. This disparity between policy and practice highlights the need for systemic transformation to reconcile legislative goals to institutional reality.

Furthermore, the Social Model of Disability elucidates how these systemic issues disable students by failing to provide timely information and navigable processes. Students reported delays and frustration due to poor communication, aligning with the model's emphasis on how institutional structures perpetuate exclusion (Boxall, 2018; Shakespeare & Watson, 2016). Moreover, from an empowerment theory perspective, these obstacles can disempower students, hindering their ability to take control of their academic journeys. The need to appeal rejected requests and the administrative burden of providing extensive documentation undermine students' sense of agency and self-determination.

4.2.2.2 Adaptation and Integration Challenges

The study's findings highlight the multiple challenges students with disabilities (SWDs) encounter when adjusting to and integrating assistive technology (AT) into their academic lives.

Participants reported technical difficulties, such as poorly designed interfaces, which necessitated memorizing complex commands, and psychological barriers, including fears of social judgment when using AT in public. These issues are consistent with the studies by (McNicholl et al., 2019; Nelson & Reynolds, 2015), which emphasize that inadequate training and poorly designed AT devices might impede their effective usage. Similarly, another participant's experience of needing to relearn features due to continuous technological updates underlines the cognitive load associated with adapting to evolving AT tools, a challenge also noted in Hersh & Mouroutsou's (2015; 2019) work on inappropriate designs and usability issues. However, the smoother integration experienced by participants who received structured training reinforces the importance of adequate support systems, as emphasized by Nelson & Reynolds (2015), who found that AT benefits educational engagement only when proper training is provided. This suggests that structured training programs for SWDs should be prioritized to mitigate the technical and psychological challenges associated with AT use.

Also, some participants were concerned about societal perceptions echoing results from De Los Santos et al. (2019), which highlight stigma and prejudice as significant barriers to SWDs' academic success. Participants' fear of social judgment aligns with Fleming et al.'s (2017) findings on stigma and prejudice from peers, advisers, and teachers. These negative perceptions can lead to feelings of isolation and difficulty obtaining accommodations, ultimately impacting academic performance. Furthermore, the findings further reveal some inadequacies in AT devices themselves, such as poorly programmed screen-reading software posing significant obstacles to SWDs' academic performance. Participants commented that modern Android TVs exemplify these issues, which are consistent with McNicholl et al.'s (2019) observation that outdated software and poor design reduce the frequency of AT use. This is consistent with Hersh and Mouroutsou's (2015; 2019) argument that inaccessible or poorly designed AT can worsen the digital divide and lead to increased marginalization.

Moreover, affordability and access were identified as significant challenges in the findings. According to De Witte et al. (2018), high-quality AT devices are prohibitively expensive for many SWDs, particularly in low- and middle-income nations. Also, limited awareness campaigns and a lack of centralized information on available assistive technology options exacerbate these accessibility issues. This is especially true in Slovakia, where Hersh and Mouroutsou (2019) found significant gaps in specialized learning technologies and funding procedures, and the findings backed it up as well. These systemic barriers reflect a larger issue of insufficient enforcement of disability rights legislation, as highlighted by Regec & Pastieriková (2016), who discovered widespread accessibility violations by Slovak universities.

Adaptation and integration challenges further compound the difficulties faced by SWDs. Technical difficulties, poorly designed interfaces, and psychological barriers, such as fear of social judgment, reflect socially constructed challenges (McNicholl et al., 2019; Nelson & Reynolds, 2015). According to the social model of disability, negative beliefs and stigma worsen these challenges, resulting in isolation and poor academic achievement (De Los Santos et al., 2019; Fleming et al., 2017). Likewise, empowerment theory suggests that these challenges reduce students' confidence and self-efficacy. The fear of social judgment, as highlighted in the findings, diminishes their sense

of empowerment, as they may feel compelled to hide their use of AT to avoid stigma. Structured training and supportive environments are essential to mitigate these challenges and foster a sense of empowerment (Nelson & Reynolds, 2015).

4.2.2.3 Difficulties in Using Assistive Technology (AT) for Academic Tasks

Participants reported difficulties, such as speech-to-text software being incompatible with their operating systems and screen readers failing to process scanned PDFs, demonstrating that many assistive technology (AT) tools are designed for specific operating systems, which limits their usability across platforms. These difficulties are congruent with results by Hersh & Mouroutsou (2015; 2019), who stated that poorly designed AT devices typically fail to fulfill the different needs of users, widening the digital divide and limiting accessibility. Similarly, McNicholl et al. (2019) highlighted how outdated software and small screens hinder the effective use of AT, leading to infrequent usage. Additionally, outdated or inappropriate AT devices can hinder learning tasks such as accessing online materials or completing assignments (Nelson & Reynolds, 2015).

Furthermore, technical glitches, such as submission errors, create anxiety about penalties and necessitate repeated explanations to professors. These disruptions align with findings from Goegan et al. (2019) and Abdullahi & Abubakar (2022), where students with disabilities expressed frustration over unreliable technology impacting their academic workflows. While Goegan et al. (2019) stressed the importance of quality training and ambient conditions in the efficient use of assistive technology, Abdullahi & Abubakar (2022) highlighted additional barriers, such as technical problems and the attitudes of instructors, which can disrupt students' academic experiences and lead to frustration. Providing adequate technological help alleviates these concerns, allowing students to concentrate on learning rather than troubleshooting issues. Besides, resistance from faculty members to accommodations, such as allowing students to photograph lecture slides, reflects a lack of awareness or willingness to adapt teaching practices. This aligns with Dryer et al. (2016), who found that negative perceptions among faculty contribute to reduced academic performance among students with disabilities. Building awareness and training faculty on inclusive practices is crucial.

Moreover, the social model of disability emphasizes that disability is caused not just by individual disabilities, but also by societal barriers that prevent participation. The challenges reported by participants are not inherent to the students' impairments but are products of societal and institutional failures. Equally, empowerment theory focuses on enhancing individuals' agency while addressing environmental barriers. Participants demonstrated resilience and problem-solving skills, such as seeking peer support or taking proactive steps (e.g., photographing slides or requesting accommodations). However, their empowerment was limited by systemic barriers that undermined their efforts and their ability to fully participate in academic tasks.

4.2.2.4 Financial Barriers

Financial barriers remain a critical challenge for students with disabilities (SWDs) seeking equitable access to education. While assistive technology (AT) has the potential to bridge gaps in academic engagement, its high cost often limits its accessibility. Participants in the study emphasized the prohibitive costs of AT devices, particularly specialized tools, and noted that "AT devices are still expensive," although universities and organizations occasionally provide financial support. This is consistent with findings by De Witte et al. (2018), which highlight the limited market size and high production costs of AT as key factors driving prices up. Likewise, many students remain unaware of funding opportunities, leading to disparities in access. Hersh & Mouroutsou (2019) emphasize that a lack of centralized information about available AT options exacerbates this issue, leaving students to navigate complex funding systems independently. It is important to understand that financial constraints on AT not only limit accessibility but also have an impact on academic achievement for SWDs. Dryer et al. (2016) found that students who do not receive appropriate help are more likely to struggle academically and consider leaving school. These problems underline the importance of eliminating financial inequalities so that SWDs can fully engage in higher education.

Similarly, the social model of disability posits that disability is caused by social constraints rather than individual deficiencies; thus, the financial burden faced by students attempting to obtain AT emphasizes this aspect. The disparities in access, particularly for those who may be unaware of funding opportunities, reflect systemic exclusion. Universities and organizations that help cover

costs are actively reducing these barriers, aligning with the social model's emphasis on modifying environments to enable equitable participation. The university negotiating better prices exemplifies a structural change that facilitates inclusion. However, the demand for institutional support indicates that more comprehensive systemic adjustments are required to ensure that all students have affordable access to AT. From another perspective, the empowerment thesis highlights the importance of both human talents and environmental resources in enabling people to overcome marginalization. While government donations for basic technologies like laptops can empower students by making AT affordable for them, the financial struggles of other students reveal a lack of necessary resources and opportunities. The intrapersonal, interactional, and behavioral dimensions of empowerment are relevant here. Students who can afford AT, whether through their own means or with assistance, experience a greater sense of control over their academic lives (intrapersonal). They are also better able to navigate their social environment, access resources (interactional), and take action to achieve their academic goals (behavioral). Conversely, financial barriers can hinder all three dimensions of empowerment, limiting students' self-efficacy and ability to participate fully in their education.

However, institutions can play a critical role in reducing the financial barriers that students with disabilities (SWDs) encounter while using assistive technology (AT). Some participants in the study highlighted that their universities negotiated better prices for AT devices, thereby reducing the financial burden on students, illustrating how institutional interventions can make AT more affordable. This aligns with broader strategies such as interdepartmental collaboration, which fosters resource pooling to support AT initiatives. For instance, institutions like Texas A&M University-Commerce have demonstrated the power of departmental collaboration by pooling donations from various departments to establish assistive technology labs, directly benefiting SWDs (East Texas A&M, 2017).

Also, government programs can contribute to alleviating financial strain. Participants highlighted how the government in Slovakia makes donations for basic technologies like laptops to make AT more affordable. Nevertheless, bureaucratic hurdles often impede access to these subsidies. McNicholl et al. (2019) noted that complex funding procedures discourage students from applying

or delay their ability to secure necessary tools. To reduce these bureaucratic hurdles, governments can adopt several strategies: revising eligibility requirements to accommodate a broader range of applicants can ensure more equitable access, and establishing a centralized database or portal for AT funding opportunities would improve accessibility and awareness. Countries like Lithuania have "Technical Assistance Centers for the Disabled," which directly administer AT from the state budget, reducing upfront costs and simplifying access (Smith et al., 2023), and implementing digital platforms for subsidy applications can significantly reduce administrative complexity and waiting times.

4.2.2.5 Technical Support and Training

The findings of this study accentuate the critical role of robust technical support and training in ensuring the successful adoption of assistive technology (AT). Participants highlighted the importance of prompt repairs, peer-led training, and pre-enrollment consultations in enhancing their academic experiences. The participants' experiences reflect the necessity of dependable technical support and training, emerging as a pivotal factor in empowering SWDs to use AT effectively. This corresponds with Rodríguez-Cano et al. (2022), who emphasize that training in educational technology enhances conceptual understanding and motivation among students with intellectual disabilities. Additionally, pre-enrollment consultations at institutions like Comenius University, where students are prepared for academic challenges, reinforce the need for early intervention and tailored training programs. Also, this aligns with a study conducted by Suleiman et al. (2024), which shows that AT fosters independence and confidence by enabling students to manage tasks without relying on others. Similarly, Mustafa et al. (2023) argue that effective AT support minimizes activity limitations and promotes social inclusion, which is crucial for SWDs.

Analyzing participants' experiences with technical help and training through the lenses of the social model of disability and empowerment theory demonstrates the complex interaction between societal structures and human agency. The social model of disability stresses how cultural impediments, not individual deficiencies, construct disability. Robust technical support, such as prompt repairs and pre-enrollment consultations, effectively reduces these barriers, fostering inclusion and participation. From an empowerment perspective, these supports facilitate

interactional empowerment by enabling students to navigate their social environments effectively. Conversely, positive experiences, such as quick issue resolution, exemplify the social model in action by dismantling disabling barriers, while also fostering individual empowerment by reducing anxiety and building self-confidence. Peer support, such as IT students providing training to colleague students with disabilities, further enhances individual empowerment by providing practical skills and a sense of community, reflecting the interactional and behavioral dimensions of empowerment. Therefore, to create truly inclusive educational environments, it is essential to address both the societal barriers highlighted by the social model and the empowerment needs of individuals, ensuring access to resources, fostering self-determination, and promoting active participation.

4.2.3 Internal Processes for Allocating Assistive Technology to SWDs

4.2.3.1 Eligibility for Allocating Assistive Technology

The eligibility processes described by the participants align with broader themes in the literature, particularly regarding legislative frameworks and institutional support structures. The structured processes at Catholic and Technical Universities align with the legal mandates for inclusive education mentioned by (Sender & Polackova, 2022), as Act No. 131/2002 of the Slovak Republic focuses on developing academic circumstances for students with special needs while maintaining academic standards. Similarly, Čerešňová et al. (2018) state that the European Disability Strategy 2010-2020 frameworks ensure that universities have well-defined qualifying criteria and support methods promoting accessibility and equality in education.

Also, Šámalová (2016) highlights the importance of fostering a welcoming environment through additional support services, which necessitates accurate identification of students' needs and the requirement for documentation at Catholic University aligns with the need for formal assessments to identify and address specific needs as well as the evaluation meetings at Technical University further exemplify this approach, ensuring tailored recommendations based on individual circumstances. Furthermore, the mention of AT available for rent at the Technical University of Kosice suggests efforts to eliminate access hurdles, as indicated by WHO's GATE program, which seeks to enhance access to affordable AT products (WHO, 2021). This aligns with Slovakia's

commitment to inclusive education through technological support (Sender & Polackova, 2022). Moreover, Constantine the Philosopher University's focus on disability severity and the social situation as the eligibility criteria for providing AT reflects an individualized approach to inclusion. This is consistent with Bagalová et al.'s (2015) study, which emphasized breaking down barriers and ensuring equal opportunities through effective support services. Such criteria ensure that resources are allocated to those most in need, aligning with inclusive education principles.

To summarize, the eligibility criteria indicated by participants show a commitment to inclusive education through defined processes, documentation requirements, and access to assistive technologies. These methods are backed by statutory mandates and international frameworks emphasizing educational equity and accessibility. By identifying institutional rules with these broader frameworks, universities help to create an inclusive academic environment that respects the rights of all students.

4.2.3.2 Process of Requesting or Obtaining Assistive Technology (AT)

Inclusive education emphasizes equal opportunities and breaking down barriers for students with disabilities. Institutions like Constantine University adopt consultative processes to identify gaps, reflecting the inclusive approach outlined by Sender & Polackova (2022). These practices aim to increase participation in educational opportunities while respecting individual needs. Similarly, legislation such as the United Nations Convention on the Rights of Persons with Disabilities (CRPD) recognizes AT as a fundamental right, ensuring accessibility for all students, and the Technical University's proactive provision of AT reflects this commitment, as advisors serve as facilitators within frameworks that prioritize accessibility (Sender & Polackova, 2022). Moreover, Catholic University's requirement for documentation aligns with Slovakia's structured support systems, where coordinators provide tailored assistance based on specific needs. Institutions are mandated to establish support centers and employ trained coordinators to ensure accessibility to AT and other resources (Sender et al., 2023). In summary, the process of requesting or acquiring AT reflects inclusive education and legislative frameworks in Slovakia. Institutions such as Constantine the Philosopher, Technical, and Catholic Universities use a variety of approaches consultation, proactive provision, and established procedures, to ensure accessibility for students

with impairments. These methods are consistent with international requirements advocating for inclusive education and highlight the necessity of removing obstacles through strong support networks.

4.2.3.3 Challenges and Limitations in Allocating Assistive Technology (AT) to Students

The procurement challenges raised by Constantine the Philosopher University staff reflect systemic inefficiencies that hinder the timely allocation of assistive technology (AT). Hersh and Mouroutsou (2019) emphasize that bureaucratic barriers, such as complex funding mechanisms and poor enforcement of policies, exacerbate delays in AT distribution, creating significant obstacles for students with disabilities. These inefficiencies not only slow the procurement process but also limit institutions' ability to negotiate contracts effectively and strategically implement solutions, making the process lengthy and costly. Similarly, the financial constraints noted by Technical University staff align with global findings on AT affordability issues. De Witte et al. (2018) underline that high costs and limited funding options are persistent barriers worldwide, particularly for low- and middle-income nations. This financial strain is exacerbated by a lack of centralized information on available AT solutions, which hinders access for both institutions and individuals. The absence of comprehensive databases or centralized resources often leaves users unaware of potential solutions, as noted in European contexts where initiatives like EASTIN have been established but remain insufficiently widespread (De Witte et al., 2018). Furthermore, these challenges highlight broader systemic inequities in AT access, and addressing these barriers requires coordinated policy interventions to streamline procurement processes, reduce costs through subsidies or tax reductions, and expand awareness campaigns to ensure equitable access to assistive technologies.

4.2.3.4 Training and Support in Using Assistive Technology (AT)

The integration of AT in universities is not merely about providing devices but also about equipping users with the competencies to utilize them effectively through training, and the various universities have demonstrated a commitment to fostering inclusive educational environments through structured training programs and technical assistance for students with disabilities in Slovakia. Constantine the Philosopher University provides training to both staff and students,

emphasizing the shared responsibility in creating an inclusive environment. This approach ensures that both educators and learners are equipped to use AT effectively, aligning with the principles of inclusive pedagogy (UNICEF, 2022). Similarly, Catholic University adopts a student-centered approach by offering training on assistive devices after distribution. Additionally, the counseling center provides technical assistance, addressing challenges as they arise. This comprehensive support system underscores the importance of ongoing guidance (UNICEF, 2022). Equally, the Technical University implements extensive, regular training programs for staff and students, ensuring readiness to utilize AT efficiently. Such initiatives reflect a proactive strategy to integrate AT into daily academic practices (Alnahdi, 2014). According to Mustafa et al. (2023), training improves not only academic performance for students with disabilities (SWDs) but also their social skills and autonomy. These benefits are essential for their holistic development, enabling SWD to navigate educational challenges with confidence (Alnahdi, 2014). Furthermore, research suggests that early identification of AT needs and adequate training can maximize educational gains while reducing barriers in learning environments (Alnahdi, 2014). In conclusion, the commitment to training by the various universities reflects a broader vision of creating accessible environments where all learners can thrive academically and socially.

4.2.3.5 Follow-up Procedures

At Constantine the Philosopher University, the focus is on fostering independence rather than ongoing oversight. Once assistive technology is allocated, the university does not monitor the academic success of students further. This approach prioritizes creating inclusive conditions for study while emphasizing autonomy. While this may empower students to manage their educational journey, it raises questions about how effectively the AT meets students' needs without systematic feedback mechanisms. In contrast, the Technical University employs a more systematic follow-up procedure. Throughout the academic year, students are obliged to create reports or attend consultations to assess the benefits and usefulness of assistive technology. This organized strategy ensures that the institution collects data on AT's impact and identifies areas for improvement. These methods can improve accountability and allow for adjustments to better meet the requirements of students. Similarly, legislative mandates like the United Nations' Convention on the Rights of Persons with Disabilities (UNCRPD) advocate for follow-up mechanisms that ensure

accessibility and inclusion through assistive technologies (De Witte et al., 2018; McNicholl et al., 2019). These frameworks stress the need for regular evaluations to identify gaps in implementation and address barriers faced by students with disabilities.

Also, the Catholic University of Ružomberok appears to lack formalized follow-up processes or may align with Constantine the Philosopher University's philosophy of prioritizing independence after allocation. The absence of explicit procedures could suggest either a reliance on informal monitoring or a gap in institutional practices concerning AT evaluation.

4.2.3.6 Timeframe to Receive Assistive Technology (AT) After Request

The timeframe for allocating assistive technology (AT) varies significantly between institutions due to differences in internal processes and external influencing factors. For instance, at Constantine University, the allocation process typically takes 2 to 4 months. This extended timeline arises primarily from adherence to public procurement regulations, which are often complex and time-consuming. Conversely, Catholic University and Technical University have not specified a timeframe, possibly reflecting differences in institutional priorities, resource availability, or procedural transparency.

Specifically, Constantine University's adherence to public procurement regulations is a key factor contributing to its longer allocation timeframe. These regulations aim to ensure fairness and compliance with legal standards, but they can introduce delays due to the competitive tendering process and bureaucratic requirements. Such challenges align with global findings on AT procurement, where compliance with national and international standards often slows down access to assistive products (WHO & UNICEF, 2020).

In contrast, at the Technical University, staff emphasized that the availability of AT solutions significantly impacts allocation timelines. While predefined lists of available AT devices may help expedite standard requests, specialized or individualized needs often require additional time for sourcing or customization. This observation corresponds with broader challenges in AT provision, where limited inventories and financial constraints hinder timely delivery (Vincent et al., 2024). Moreover, the absence of a defined timeframe at Catholic University and Technical University

may also reflect variability in institutional support systems and resource management. Factors such as funding availability, administrative efficiency, and prioritization of disability services likely influence how quickly AT can be allocated. Indeed, institutions with robust support systems or dedicated funding streams may be better equipped to meet student needs promptly (Higher Education Authority, 2023).

CHAPTER FIVE

5.0 SUMMARY AND CONCLUSION

This research aimed to examine the role of assistive technology (AT) in academic performance among students with disabilities (SWDs) in Slovakia. The literature review indicates that assistive technology allows students with disabilities to overcome practical restrictions and participate equally in classroom learning. It reduces activity barriers, promotes social inclusion, and supports academic performance. Also, devices such as screen readers, braille tools, hearing aids, adaptive keyboards, and speech recognition software enhance individualized learning, enable flexible curricula, and improve engagement for diverse learners, thereby supporting their academic performance.

The study used a qualitative method and semi-structured interviews to explore how assistive technology (AT) affects the academic experiences of Slovak university students with disabilities. Purposive and snowball sampling were employed to select sixteen people (13 students and three support workers) from four universities. In-depth, open-ended interviews were conducted in both English and Slovak, with translation tools available as needed. The research was informed by both primary (interviews) and secondary (literature) sources. MaxQDA software was used for thematic analysis, which revealed major patterns and themes in the dataset. Informed consent, confidentiality, and voluntary participation were all considered ethical principles throughout the study.

This study is guided by the Social Model of Disability and Empowerment Theory to explain how assistive technology (AT) can improve the academic performance of students with disabilities (SWDs) by eliminating social barriers and encouraging self-determination and agency. In summary, this framework proposes that by removing systemic obstacles and empowering students through AT, their sense of control, self-efficacy, and motivation can be increased. It illustrates how AT aids students in navigating their social and academic environments, overcoming barriers, and accessing resources vital for academic success. According to the study, when AT is adequately offered and supported, SWDs can participate more completely in their education, promoting inclusiveness and enhancing their academic performance. Per these combined theoretical lenses,

AT impacts students' socialization by improving access to education, promoting engagement in learning activities, and increasing opportunities for social interaction within the academic setting, thereby challenging disabling barriers and promoting individual empowerment.

Overall, the findings of this study emphasize the significant role of assistive technology (AT) in higher education accessibility and improving educational outcomes of students with disabilities. Participants utilized a range of software and hardware ATs, mirroring definitions and categories found in existing literature, demonstrating a comprehensive approach to supporting students with disabilities through technology and accommodations. Experiences with AT proved to be overwhelmingly positive, fostering independence and confidence, and enabling students to navigate academic environments strategically and participate more equitably. Students found that AT reduced the time required to complete tasks, improved accuracy, facilitated reading and comprehension, simplified access to information, and improved academic success. However, some students experienced issues such as initial difficulties in learning to use new software, technical glitches, or a lack of adequate training, which temporarily hindered their progress.

A significant strength in Slovakia is the provision of diverse Assistive Technology (AT) tools, encompassing screen readers, magnification software, and speech-to-text applications, which demonstrably enhance SWDs' ability to access and process educational materials, ultimately improving their academic performance. This approach aligns with the social model of disability, emphasizing institutional responsibility for providing accessible resources that promote equitable educational outcomes.

Despite this progress, the underrepresentation of students with less visible or stigmatized conditions, such as autism or dyslexia, remains a critical concern. Future initiatives should focus on expanding the array of AT options and accommodations to address the heterogeneous needs of all SWDs, ensuring that interventions are tailored and inclusive to maximize academic potential. Continuous enhancement of AT training and robust technical support is paramount to enabling students to fully leverage these technologies and effectively overcome any challenges encountered, thereby facilitating improved academic performance. In addition, a forward-looking initiative should involve the integration of Artificial Intelligence (AI) into existing Assistive Technology

frameworks. AI-driven tools, such as adaptive learning systems, intelligent summarizers, and predictive typing, can deliver real-time, individualized assistance aligned with users' cognitive profiles. For example, students with dyslexia might use reading assistants that dynamically change language complexity and offer context-specific explanations; students with autism might benefit from AI-enabled social communication tools. By providing comprehensive training, responsive technical assistance, and a broader spectrum of AT solutions, Slovakian universities can further alleviate both physical and psychological stressors, fostering a more inclusive and equitable higher education environment where all students have the opportunity to thrive academically.

5.1 IMPLICATIONS FOR SOCIAL WORK PRACTICE

The results of this study illuminate a compelling intersection between technology, education, and empowerment, an intersection that social workers are uniquely positioned to navigate. As higher education systems strive to be more inclusive, the experiences of students with disabilities (SWDs) in Slovakia illustrate that assistive technology (AT) can serve as both a bridge and a barrier. For social workers, this presents both an opportunity and a responsibility.

One of the most important implications for social work is the need to advocate for equitable access to assistive technology as a fundamental right rather than a privilege. This study, based on the social model of disability, highlights that learning hurdles are frequently caused by rigid systems and inaccessible surroundings, rather than impairments themselves. Social workers have the potential to significantly contribute to the identification and removal of these barriers through collaboration with policymakers, educators, and disability advocates. Advocacy efforts might include lobbying for more funding for inclusive education initiatives, pushing for streamlined AT distribution processes, and ensuring that training on AT use is embedded in educational policy frameworks.

It is equally crucial to empower students with impairments. The data show that AT promotes independence, confidence, and a sense of belonging in addition to improving academic performance. Social workers, particularly those working in university support centers or educational institutions, can foster this empowerment by involving students as active participants

in their learning experiences. This involves listening to their unique needs, helping them navigate bureaucratic hurdles, and connecting them with appropriate resources and support systems.

Moreover, the study highlights significant disparities in technical training and emotional support available to SWDs. Some students reported frustration and isolation due to insufficient guidance on how to use complex technologies. This is where social workers can offer practical, hands-on assistance—coordinating peer mentoring programs, delivering training workshops, or even simply providing a safe space to discuss challenges. Social work practice must expand to include not just psychosocial support but also digital and academic advocacy in an era where technology is integral to inclusion.

Another pressing implication is the need for interdisciplinary collaboration. Social work professionals must work hand-in-hand with educators, IT specialists, disability services staff, and even software developers. Such partnerships ensure that the technological tools provided to students are not only functional but also truly usable and adapted to their specific contexts. This collaborative approach aligns with the empowerment theory underpinning your study—true empowerment requires an ecosystem of support, not isolated interventions.

Furthermore, social workers must also challenge stigmatizing attitudes and promote inclusive mindsets within educational institutions. Some students in the study reported feeling like outsiders or burdens when asking for accommodations. Social workers are well-placed to lead awareness campaigns, host sensitivity training for faculty and peers, and normalize the use of AT as a tool for equality rather than an exception.

Finally, the findings serve as a reminder that cultural context matters. Slovakia's progress in inclusive education is commendable, but the barriers students face are shaped by systemic, cultural, and institutional dynamics unique to the region. Social workers must be culturally competent and contextually aware, adapting global best practices to fit the specific needs of local populations.

In conclusion, this study calls social workers to action—not just as caregivers or counselors, but as advocates, educators, collaborators, and change-makers in the inclusive education landscape.

By embracing assistive technology as a pathway to social justice, social workers can help turn the promise of inclusion into a reality for all students, regardless of ability.

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APPENDICES

Informed Consent

You are invited to participate in a research study conducted by Gladys Asamoah Aboagye, a master's student in the ERASMUS MUNDUS program Social Work with Children and Youth (ESWOCHY). This study is part of my master's thesis research on "the role of assistive technology on the academic performance of students with disabilities in Slovakia.

Thank you for considering participation in my research project. Before we begin, I would like to provide important information about how your data will be used and your rights as a participant.

Your participation in this study is entirely voluntary. You have the right to choose whether or not to take part, and you may withdraw your consent at any time-even after the interview has concluded-without needing to provide a reason.

All information collected during the interview will be treated with strict confidentiality. Your responses will be securely stored, and only I (the researcher) will have access to the data. No unauthorized individuals will be able to view or access your information.

With your permission, the interview will be audio recorded. This helps ensure the accuracy of the information collected and supports the analysis process. During analysis and in any written reports, any details that could identify you will be altered to protect your anonymity.

The data collected will be used solely for this research project and will not be shared with others. Once the project is completed, all data (including recordings and transcripts) will be securely destroyed.

You have the right to decline answering any questions or terminate the interview without explanation.

You are welcome to contact me or my supervisor in case you have any questions (e-mail addresses below).

	STUDENT	SUPERVISOR
NAME	GLADYS ABOAGYE ASAMOAH	JÚLIA BAČKOROVÁ
E-MAIL	glaboagye@stud.mruni.eu	julia.fricova@ku.sk

Research Interview Guide

Objectives 1 & 2 for Students

Gender:

Academic Level:

Type of disability

Objective 1: **To explore the perceived impact of assistive technology on the academic performance of SWDs in Slovakia.**

- What types of assistive technology (AT) has the university provided to you, or what assistive technology do you use?
- How has assistive technology made it easier for you to do your homework or study?
- Can you describe how assistive technology has contributed to your confidence or independence in your academic work?

Objective 2: **To identify challenges and barriers faced by students with disabilities in accessing and utilizing assistive technology in Slovakia.**

- What kinds of obstacles have you faced when it comes to obtaining or making use of assistive technology in your studies?
- Can you describe any financial challenges you have experienced in accessing assistive technology for your studies? or have you ever faced any difficulty affording assistive technology tools or devices you needed?
- Have you faced any challenges when using assistive technology for your studies? If so, how did these challenges impact your academic experience?
- Can you describe any difficulties you have experienced while adapting to the use of assistive technology?
- Can you describe the kind of technical support and training you have received in using assistive technology? Was it sufficient for your needs?

<u>Objective 3 is for staff.</u>

Gender:

University Name:

Position:

Objective 3: **To discover the internal processes the University Counselling Center/Access Center employs for allocating assistive technology to students with disabilities**.

- What criteria do you use to determine if a student is eligible for assistive technology?
- What are the processes/ procedures involved for requesting and obtaining assistive technology?
- How long does it typically take for a student to receive assistive technology after making a request?
- Are there any challenges or limitations in the allocation of assistive technology that the Counselling Center/ Access Center faces?
- How does the Counseling Center/ Access Center ensure that students are adequately trained and supported in using assistive technology?
- How does the Counseling Center/Access Center follow up with students who receive assistive technology to ensure it meets their needs academically?

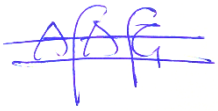
Plagiarism Declaration

I, Gladys Aboagye Asamoah, I hereby declare that my Master thesis titled “The Role of Assistive Technology in the Academic Performance of Students with Disabilities in Slovakia” is the result of my own work and carried out for the Erasmus Mundus Joint Master ‘s degree in Social Work with Children and Youth under the guidance and supervision of Professor Júlia Bačkorová of the Catholic University of Ružomberok, Slovakia. I confirm that the work contained herein is my own, except where explicitly stated otherwise; this text:

- Has not been submitted to any other Institute/University/College
- Contains proper references and citations for other scholarly work
- Has listed all citations in a list of references.

I am aware that violation of this code of conduct is regarded as an attempt to plagiarize and will result in a failing grade in the programme.

Date: 20/05/2025

Signature: 

Name: GLADYS ABOAGYE ASAMOAH