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# USING ASSISTIVE TECHNOLOGIES IN THE WORKPLACE BY INDIVIDUALS WITH VISUAL IMPAIRMENTS – AN ANALYSIS OF USER EXPERIENCES*

**Introduction:** This article presents the results of research examining various aspects of professional activity among individuals with visual impairments.
**Research Aim:** The aim of the study was to explore the professional experiences of individuals with visual impairments in relation to their use of assistive technologies (AT) in the workplace, with particular emphasis on the impact of these technologies on work efficiency and job satisfaction.
**Research Method:** The study employed a diagnostic survey method and was conducted between May and December 2024. A total of 28 respondents (16 women and 12 men) participated in the research.
**Results:** The majority of respondents were employed under standard employment contracts, primarily in the open labour market. Participants rated the usefulness of AT highly and emphasized their significant impact on job satisfaction. The most frequently used AT included screen readers, mobile applications, and mobile devices.
**Conclusions:** The findings highlight the diversity of career paths pursued by individuals with visual impairments and underscore the crucial role of technological solutions in professional task execution. The study suggests that modern AT have become a standard feature in workplaces for visually impaired individuals. Respondents highly valued the effectiveness and practicality of these technologies.

**Keywords:** individuals with visual impairments, professional activity, assistive technology, job satisfaction

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## INTRODUCTION

Vocational activity constitutes a fundamental dimension of human development and life during adulthood. However, the selection of a vocational education pathway and the acquisition of relevant competencies do not necessarily guarantee access to satisfactory employment opportunities or the fulfilment of professional aspirations – particularly in the case of persons with disabilities. The professional engagement of individuals with disabilities differs markedly from that of the general population. In the fourth quarter of 2022, the labour force participation rate among persons with disabilities in Poland was 19.6%, while the employment rate stood at 18.6% (Jabłonowski, 2023).

Scholarly analyses of disability and employment underscore the multifaceted significance of professional engagement for this population. Four principal dimensions are typically highlighted: (1) the social dimension, which reinforces a sense of agency and participation, and mitigates the risk of social exclusion; (2) the integrative dimension, which enables the development of social bonds beyond familial contexts and fosters a sense of group affiliation; (3) the economic dimension, which facilitates full or partial financial independence; and (4) the rehabilitative dimension, which supports self-actualisation despite disability-related constraints, thereby contributing to the development of a stable social identity (Jaglarz, 2017; Kobus-Ostrowska, 2017, 2018; Lubrańska & Jezierska, 2022). From the perspective of persons with disabilities, employment is frequently regarded as a highly valued domain of life, serving as a key indicator of quality of life (Jaglarz, 2017).

An important barrier to the employment of persons with disabilities concerns employers' limited preparedness to engage this demographic in the labour market. Such reluctance is typically rooted in insufficient knowledge and pervasive stereotypes surrounding disability, misjudgements regarding individuals' professional competencies, as well as inadequate awareness of workplace adaptation strategies and the associated financial implications (Hildt-Ciupińska & Pawłowska-Cyprysiak, 2021). According to Chodkowski (2019), a key constraint on the vocational integration of persons with disabilities is the employers' perception of reduced productivity, elevated absenteeism, excessive entitlements, demanding attitudes, and prohibitive employment costs. Kobus-Ostrowska (2018) further emphasises the bureaucratic burden linked to employing individuals with disabilities in Poland.

Workplace normalisation, however, enhances the prospects of vocational adaptation among persons with disabilities, contributing to the autonomy of both employees – through the fulfilment of essential social needs – and employers – through improved organisational efficiency (Chodkowski, 2019). As in the general population, there is a growing trend of self-employment among persons with disabilities, defined as the initiation of sole proprietorships by individuals (Sieklicka, 2020).

A range of factors influence the vocational activation of persons with disabilities, including both individual-level determinants and external structural vari-

ables. Individual factors may be classified as either volitional – such as level of education, vocational qualifications, and professional skills – or non-volitional, such as age, type, and degree of disability. Equally significant are environmental factors broadly understood, encompassing infrastructural accessibility, technological support, and prevailing social stereotypes.

Analyses conducted by Kukulak-Dolata and Poliwczak (2015) indicate that age constitutes a key variable differentiating levels of professional activity among persons with disabilities. Both the willingness to seek employment and the likelihood of securing a job are strongly age-dependent. The highest employment rates are observed among persons with disabilities in the working-age population, particularly between 25 and 54 years of age. The authors also identify a correlation between educational attainment and professional activity. The probability of employment increases with higher levels of education – for instance, during the period from 2010 to 2013, approximately one in three persons with disabilities holding a university degree was employed, compared with one in five individuals possessing post-secondary or vocational secondary education.

Nonetheless, among socio-demographic variables, the most influential determinant of vocational activity is the nature and severity of the disability. The feasibility, type, and scope of professional engagement are closely tied to the extent and kind of functional limitations experienced by the individual (Kukulak-Dolata & Poliwczak, 2015).

This article focuses specifically on the use of assistive technologies (AT) in the professional lives of persons with visual impairment. In today's technologically advanced world, the vocational engagement of persons with visual impairment is inextricably linked to the possession of digital competencies. Not only education and employment, but also the daily functioning of individuals who are blind or partially sighted is significantly facilitated by the use of information and communication technologies (ICT).

Studies addressing the impact of new media on the functioning of persons with disabilities (Całek et al., 2021; Karyń, 2024; Plichta, 2018, 2020; Zaorska, 2021) consistently emphasise the crucial role of digital technologies – particularly specialised software, mobile devices, and user interfaces adapted to the needs of persons with disabilities – in enhancing autonomy and enabling more active participation in social life.

Śmiechowska-Petrovskij (2017) underscores that AT allow for the compensation of limitations in accessing visual sources of information through diverse, individualised, and specialised means. These include, among others, Braille displays and notetakers, speech synthesizers, screen reading software, Braille printers, GPS transmitters, barcode and label readers, and software for optical character recognition and the conversion of print into Braille or audio formats. Audio formats in particular provide rapid access to information. The multimodality of devices

and software – enabling flexible use of auditory and tactile options depending on context and individual preference – is of central importance. It must be stressed that a lack of digital competencies results in social isolation. Therefore, it is essential that persons with visual impairment continuously develop their skills in this domain (Pawłowska-Cyprysiak & Hildt-Ciupińska, 2021).

Assistive technologies that enhance access to information, communication, and work tools are becoming indispensable in promoting the independence, self-determination, and active participation of persons with disabilities in both social and professional life. Empirical findings consistently confirm that appropriately selected and implemented technological solutions can significantly improve employment prospects for individuals with disabilities, enhance their professional efficiency, and positively influence their psychosocial well-being (Kruse et al., 2024). From the perspective of inclusive workplace practices, AT serve not only as compensatory tools for functional limitations but also as mechanisms for promoting equal opportunities. They contribute to the development of work environments grounded in accessibility and respect for diversity (Marinaci et al., 2023).

Analyses focusing on the experiences of persons with visual impairment highlight that proficiency in operating AT – as well as the sense of efficacy and satisfaction derived from their use – are critical factors enabling individuals to perform professional roles on par with their sighted peers (McDonnall et al., 2024). The significance of technology thus extends beyond functional applications; it encompasses a psychological dimension tied to self-efficacy, belonging, and the preservation of personal dignity among persons with disabilities.

Another crucial issue related to the execution of professional duties is the accessibility of both public and virtual spaces for individuals who are blind or partially sighted. Digital accessibility should be conceptualised as a chain of interdependent elements, including training, hardware, software, content, and standards, all of which must operate in a coordinated and dynamic manner – given the continuously evolving nature of the digital landscape (Botelho, 2021).

In Poland, there is a growing number of good practices and innovative solutions in this domain, including legislative measures such as the Act of 4 April 2019 on the Digital Accessibility of Public Sector Websites and Mobile Applications (Ustawa, 2019). Olszewski (2024) presents findings from a study assessing the digital accessibility of public and private sector websites. The results indicate that, following the implementation of the aforementioned Act, accessibility improved for public sector websites (as reported by 69% of respondents) and for private sector websites (according to 46% of participants). The study also demonstrated that increased digital accessibility is attributed not only to enhanced web design and compliance but also to the progressive development of assistive software supporting blind and partially sighted internet users.

## RESEARCH AIM AND QUESTION

The primary objective of the present study was to explore the ways in which individuals with visual impairments utilise AT within their professional environments. The research further sought to examine users' evaluations of the usefulness, accessibility, and impact of these technologies on work efficiency and job satisfaction. Particular emphasis was placed on the analysis of the subjective experiences of individuals employing such technologies in their occupational settings.

## RESEARCH METHOD AND SAMPLE CHARACTERISTICS

The study was conducted over an eight-month period, from May to December 2024. Participant recruitment followed a purposive sampling strategy, with eligibility restricted to adults with visual impairments (either blindness or low vision) who were actively engaged in professional employment. Recruitment was facilitated through the researchers' professional networks using a snowball sampling technique, supplemented by outreach via social media platforms.

Given the aims of the study, a quantitative research design was employed. Data were obtained using a bespoke instrument developed specifically for the purposes of this investigation – the Satisfaction and Assistive Technology for Visually Impaired Workers Questionnaire (SAT-VIW-Q). This tool comprises two sections. The first section captures key demographic and occupational characteristics of respondents. The second focuses on the use of AT in the workplace, encompassing assessments of users' operational competencies, the accessibility and availability of such technologies, employer support, perceived barriers, and the overall influence of assistive tools on work efficiency and occupational comfort.

Job satisfaction was assessed using a brief, five-item measure – the Job Satisfaction Scale (JSS) – developed by Zalewska (2003) and adapted from Diener et al.'s (1985) Satisfaction With Life Scale. This scale enables a subjective appraisal of occupational satisfaction by asking respondents to rate their agreement with five evaluative statements on a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Aggregate scores reflect the overall level of job satisfaction, with higher totals indicating greater occupational fulfilment. The instrument demonstrates robust psychometric properties, with Cronbach's alpha coefficients ranging from 0.814 (among social workers) to 0.888 (among self-employed professionals), indicating high internal consistency.

The study was conducted using an electronic version of the questionnaire, which was designed in accordance with the Web Content Accessibility Guidelines (WCAG) 2.1. In terms of perceivability, the questionnaire featured a logically structured layout, including clearly organised multiple-choice response lists. In the domain of understandability, the language used was intentionally simplified,

avoiding technical terminology or ambiguous formulations that might hinder interpretation. Participants were informed that completion and submission of the questionnaire constituted their informed consent to the use of the provided information for the purpose of data analysis and publication of findings.

The research sample comprised 28 individuals with visual impairments, including 16 women (57.1%) and 12 men (42.9%). The largest age cohort consisted of respondents aged 35–44 years (50%), while the smallest group represented those aged 55–65 years (3.6%). The mean age of participants was $M = 39.0$ years ($SD = 7.28$). A majority of respondents resided in large urban areas with populations exceeding 100,000 inhabitants (64.3%). Most participants were classified as having a severe degree of disability (25 individuals, 89.3%), and the majority were blind, with no functional use of vision (17 individuals, 60.7%). Detailed demographic characteristics are presented in Table 1.

Table 1.
*Demographic characteristics of the study sample (N = 28)*

| Variable | *N* | % |
|---|---|---|
| **Gender** | | |
| Women | 16 | 57.1 |
| Men | 12 | 42.9 |
| **Age** | | |
| 25–34 years | 9 | 32.1 |
| 35–44 years | 14 | 50.0 |
| 45–54 years | 4 | 14.3 |
| 55–65 years | 1 | 3.6 |
| **Place of residence** | | |
| Large city (>100,000 inhabitants) | 18 | 64.3 |
| Medium-sized town (20,000–100,000) | 7 | 25.0 |
| Small town (<20,000 inhabitants) | 3 | 10.7 |
| **Degree of disability** | | |
| Moderate | 3 | 10.7 |
| Severe | 25 | 89.3 |
| **Functional visual status** | | |
| Blind (no functional vision) | 17 | 60.7 |
| Low vision (limited functional vision) | 11 | 39.3 |

Source: Authors' own study.

## STATISTICAL DATA ANALYSIS PROCEDURE

The study employed the diagnostic survey method. The research instrument was a questionnaire made available in two accessible formats: as a Microsoft Word document and as an online questionnaire distributed via the Google Forms platform. Participants were given the option to select their preferred format in accordance with their individual needs and preferences. The data collection process was conducted over a period spanning from May to December 2024. Statistical analysis of the collected data was performed using IBM SPSS Statistics software.

## RESULTS

This section of the article presents an analysis of key aspects related to forms of employment, methods of job seeking, and factors influencing the professional activity of individuals with visual impairments. Particular emphasis is placed on the role of AT, which constitute a critical support mechanism in the vocational functioning of this population.

### Employment structure and career pathways of individuals with visual impairments

From the perspective of the study's objectives, it was essential to determine the employment status of the respondents. The nature of one's employment may influence both access to modern assistive tools and the extent to which such technologies are integrated into daily professional tasks. Individuals employed under standard employment contracts may benefit from greater technological support provided by their employers, whereas those who are self-employed or working under civil law contracts may be required to independently acquire and finance their assistive devices.

The largest proportion of respondents were employed on a full-time basis (57.1%), indicating the predominance of stable employment forms among individuals with visual impairments in the sample. A further 17.9% of participants operated their own businesses. These self-employed individuals were engaged in various occupations, including conducting professional training, operating therapeutic massage practices, engaging in commercial trade, running private legal practices, and working within the insurance sector. Additionally, 14.3% of respondents worked under contracts for specific tasks (*umowa o dzieło*), while 7.1% were employed under mandate contracts (*umowa zlecenie*). The sample also included individuals outside the formal labour market, such as a trainee (3.6%) and a person engaged in unregistered employment (3.6%).

The analysis of participants' employment status revealed diverse career trajectories among individuals with visual impairments and highlighted the significant role played by both standard full-time employment and self-employment in shap-

ing the professional activity of this population. The respondents exhibited considerable diversity in their patterns of professional engagement. The largest proportion (50.0%) were employed in the open labour market, while one quarter (25.0%) were working within the supported employment sector. A notable trend identified in the study was the prevalence of remote work arrangements, reported by 42.9% of participants. An equally interesting finding was the relatively high popularity of hybrid work models (28.6%), which combine remote and on-site employment. This flexible model enables individuals to benefit from both the advantages offered by AT and the support derived from direct interaction with colleagues in the workplace. Exclusively on-site employment was reported by 21.4% of respondents.

An analysis of the respondents' job roles revealed that the largest subgroup (26.1%) held specialist positions, including roles in digital accessibility, AT, and consultancy for persons with disabilities. A further 21.7% were engaged in creative professions, such as sound engineering, music production, and content creation. Employment in the service sector – comprising massage therapists, insurance agents, and personal advisors – was reported by 17.4% of participants. An equal proportion (13.0%) worked in administrative or clerical roles and in the education and training sector, respectively. The smallest proportion of respondents (4.4%) were employed in the legal profession, specifically as lawyers, with an identical percentage representing occupations not classified within the aforementioned categories.

In terms of job-seeking strategies, the most frequently reported method among individuals with visual impairments was direct application to employers (28.6%). Additionally, 21.4% of participants found employment through information provided by friends or family members, while 10.7% received active support from relatives during the application process. The internet served as a source of job-related information for 14.3% of respondents. Non-governmental organisations played a mediating role between job seekers and employers in 7.1% of cases. Self-employment was the chosen path for 17.9% of participants. Notably, none of the respondents reported using local employment offices (*Powiatowy Urząd Pracy*) or newspaper advertisements as job search methods, which may reflect the limited effectiveness of these channels in supporting the labour market inclusion of individuals with visual impairments.

### Determinants of professional activity among individuals with visual impairments

The subsequent stage of analysis focused on identifying the factors influencing the engagement in professional activity among individuals with visual impairments. Understanding these determinants is essential for the development of effective strategies aimed at supporting their integration into the labour market and for tailoring technological and organisational solutions to their specific needs.

Participants reported a range of factors that shaped their decisions to pursue employment. The most frequently cited motivation was the need to generate or receive financial resources (85.7%). The desire for self-fulfilment was indicated by 57.1% of respondents, suggesting that personal and professional development plays a significant role in motivating employment among this population. Employment stability, financial security, and health-related concerns were cited by 46.4% of participants. Furthermore, 42.9% expressed a need for social interaction and the opportunity to leave the home environment.

The need for professional recognition was highlighted by 28.6% of respondents, indicating that for some individuals, employment is also perceived as a means of achieving social status and gaining occupational prestige.

**The role of AT in the workplace**

Labour market access and occupational functioning among individuals with visual impairments are profoundly influenced by the availability and effective utilisation of AT. These tools play a pivotal role in mitigating functional limitations, facilitating not only the job search process but also the execution of daily professional responsibilities. To elucidate the interplay between disability-related barriers and employment, respondents were asked to assess whether their visual impairment posed a challenge during both the job acquisition phase and the subsequent performance of work-related tasks.

The findings revealed a salient divergence between perceived difficulties encountered during the recruitment process and those experienced in routine professional activities. This conclusion emerged from a comparative analysis of responses to two items in the SAT-VIW-Q questionnaire: one addressing the perceived difficulty in securing employment and the other relating to challenges in fulfilling occupational duties. Responses were recorded using a five-point ordinal scale, ranging from *no difficulty* to *very severe difficulty*.

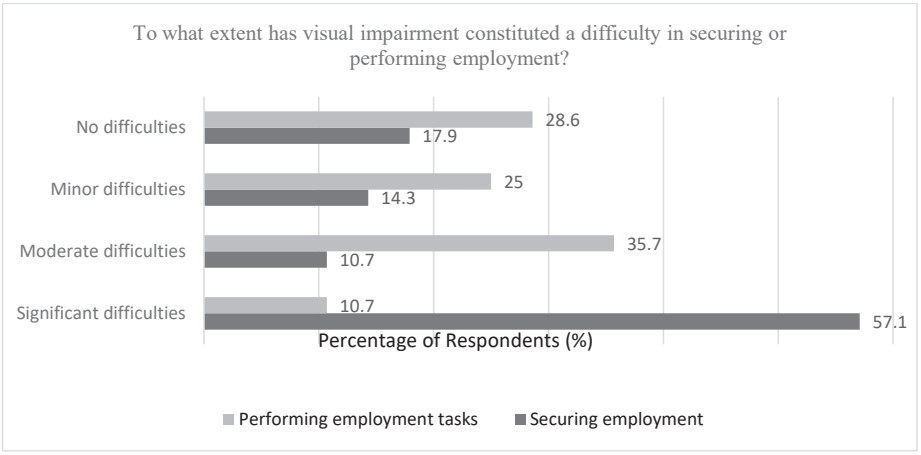
The results indicated that the job search phase constituted a significantly greater challenge. Over half of the participants (57.1%) reported that their visual impairment posed a very substantial obstacle to obtaining employment. An additional 14.3% described the difficulties as minor, while 10.7% rated them as moderate. Interestingly, 17.9% of respondents reported experiencing no employment-related barriers due to their disability.

By contrast, once employment had been secured, the severity of reported difficulties appeared to decline. Only 10.7% of respondents continued to perceive their visual impairment as a major impediment in the execution of work tasks. The highest proportion of participants (35.7%) described these challenges as moderate, whereas nearly one-third (28.6%) reported no significant difficulties in the workplace.

Although statistical testing was not conducted due to the limited sample size, the magnitude of the observed discrepancy was descriptively substantial and clear-

ly reflected in the distributional pattern of responses. This variation is further illustrated in the graphical representation provided (Figure 1).

Figure 1.
*Comparison of vision-related difficulties in securing and performing employment – findings from the present study*




Source: Authors' own study.

A detailed analysis of the types of assistive tools used by respondents revealed that the most frequently employed technology in the workplace was a screen reader, utilised by 78.6% of participants. Ranked second in terms of frequency of use were mobile devices and mobile applications (32.1% each). Their widespread adoption may be attributed to the increasing availability of smartphones and tablets, which enable communication, task management, and information access in ways tailored to the needs of individuals with visual impairments.

Scanners and optical character recognition (OCR) software, used by 25% of respondents, also play a significant role by converting printed materials into digital formats, thus, facilitating access via screen readers.

Braille-based technologies – such as Braille monitors (21.4%) and Braille displays (17.9%) – were less commonly used but remained essential for individuals who prefer to work with Braille. Less frequently reported were screen magnification software (14.3%) and reading devices (14.3%). The least commonly used technologies included Braille typewriters (10.7%), Braille notetakers (7.1%), electronic magnifiers (7.1%), and Braille embossers (7.1%) (see Table 2).

Table 2.
*Assistive technologies used in the workplace (N = 28) – findings from the present study*

| Type of device | *N* | % |
|---|---|---|
| Screen reader | 22 | 78.6 |
| Mobile devices | 9 | 32.1 |
| Mobile applications | 9 | 32.1 |
| Scanner with OCR software | 7 | 25.0 |
| Braille monitor (refreshable Braille display) | 6 | 21.4 |
| Braille display | 5 | 17.9 |
| Screen magnification software | 4 | 14.3 |
| Text-to-speech devices | 4 | 14.3 |
| Braille typewriter | 3 | 10.7 |
| Braille notetaker | 2 | 7.1 |
| Electronic magnifier | 2 | 7.1 |
| Braille embosser | 2 | 7.1 |
| Voice recorder | 2 | 7.1 |
| Optical aids (e.g. magnifying lenses, rulers) | 1 | 3.6 |

Percentages do not sum to 100, as respondents were allowed to select multiple options.
Source: Authors' own study.

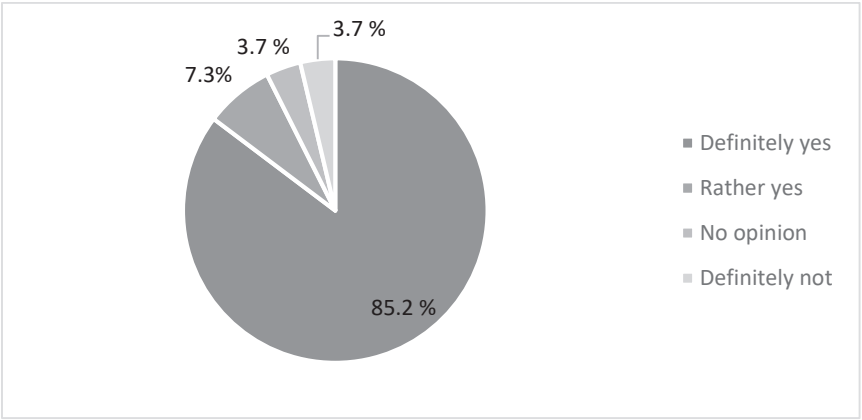
In light of these findings, it was deemed essential to examine how users evaluated the usefulness of AT in the context of their daily professional activities. The data indicate that AT were rated very positively by the respondents, underscoring their effectiveness and functional relevance across diverse occupational settings. A substantial majority (61.5%) assessed these technologies as very good, reflecting a high degree of alignment with user needs. An additional 30.8% described them as good, while only a small proportion (7.7%) rated them as average. Notably, no negative evaluations were recorded, pointing to a generally favourable perception of available technologies among individuals who are blind or have low vision.

However, the high overall ratings of AT usefulness do not imply that their implementation in professional contexts is devoid of challenges. The findings reveal considerable variation in user experiences regarding the application of such tools. The most frequently reported category was rarely (44%), suggesting that while AT are broadly functional, difficulties in their use do arise on occasion. A combined 28% of respondents reported encountering difficulties either very often (16%) or often (12%), which may indicate issues related to the suboptimal adaptation of tools or their limited accessibility. Conversely, another 28% of respondents reported experiencing very rare (12%) or no difficulties (16%) in using these technologies, highlighting a segment of users for whom assistive tools function reliably and without disruption.

The effective use of AT is contingent not only upon their availability but also upon the users' level of preparedness and competence in operating such tools. The results of the study suggest substantial limitations in access to training in AT. As indicated by the data, only 19.2% of respondents reported having received formal training related to the use of these tools, whereas a striking 80.8% had not received any such support in their workplace. This implies that the responsibility for acquiring the necessary operational skills rested predominantly with the employees themselves.

The analysis further revealed that AT had a notable impact on respondents' perceptions of their occupational performance. A substantial majority (85.2%) reported a clear, positive effect of assistive tools on their work efficiency, suggesting that these technologies were generally well-adapted to their functional needs. An additional 7.3% stated that the technologies were somewhat helpful, although they acknowledged the presence of certain limitations in their practical use. Only 3.7% of respondents expressed no definitive opinion, while a further 3.7% reported that AT did not enhance their productivity (see Figure 2).

Figure 2.
*Perceived impact of AT on work performance (N = 27) – findings from the present study*

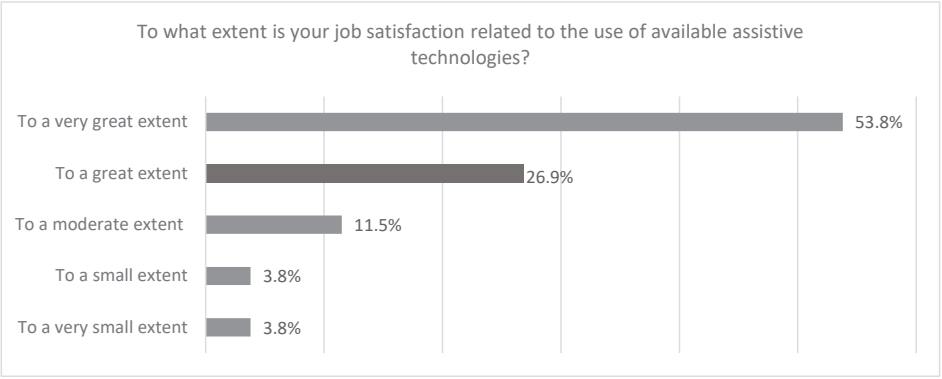



Source: Authors' own study.

As demonstrated thus far, AT play a pivotal role in shaping the professional experiences of individuals with visual impairments. In the subsequent phase of the analysis, respondents' subjective perceptions regarding the relationship between the use of AT and their level of job satisfaction were explored. It is important to note that the data presented in this section are declarative in nature and were not subjected to statistical testing for correlation between variables.

A substantial majority of participants (80.7%) reported that AT had a considerable or very considerable impact on their job satisfaction, highlighting the perceived importance of such tools in their everyday professional functioning. A smaller proportion (11.5%) rated the influence as moderate, which may suggest that while AT were meaningful, they were not the primary factor determining satisfaction. Conversely, 3.8% of respondents indicated that the impact of AT on their job satisfaction was minor or very minor. This finding may imply that in some cases, other elements – such as working conditions, the nature of the job, or employer support – played a more prominent role in shaping their overall workplace satisfaction (see Figure 3).

Figure 3.
*Perceived relationship between job satisfaction and the use of AT (N = 26) – findings from the present study*




Source: Authors' own study.

To deepen the analysis of job satisfaction among respondents, the Job Satisfaction Scale (JSS) developed by Zalewska (2003) was employed. Participants rated five statements using a seven-point Likert scale, where 1 indicated *strongly disagree* and 7 indicated *strongly agree*.

The analysis of mean scores revealed a moderately high level of job satisfaction within the study sample. The highest average ratings were observed for items reflecting overall job satisfaction ($M = 5.18$, $SD = 1.66$) and the willingness to choose the same job again ($M = 5.18$, $SD = 1.85$). The lowest mean was recorded for the belief that one's job is close to the ideal ($M = 4.54$, $SD = 1.53$), potentially reflecting an awareness of limitations inherent in working conditions.

Standard deviation analysis indicated the greatest variability in responses related to the willingness to choose the same job again ($SD = 1.85$), and the lowest variability in perceived opportunities to achieve goals ($SD = 1.40$). Response values spanned the full scale range (1–7), suggesting substantial individual differences.

All variables exhibited negative skewness, particularly overall job satisfaction and willingness to choose the same job again (*Sk* = -1.09), indicating a predominance of high ratings. The most symmetric distributions were observed for the items "job is close to ideal" (*Sk* = -0.26) and "ability to achieve goals" (*Sk* = -0.30). The highest response concentration (positive kurtosis) was noted for overall job satisfaction (*Kurt* = 0.72), while the greatest response dispersion (negative kurtosis) was associated with the perception of one's job as being close to the ideal (*Kurt* = -0.79) (see Table 3).

Table 3.
*Descriptive statistics for the Job Satisfaction Scale – findings from the present study*

| Scale item | *M* | *SD* | Min | Max | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| In many respects, my job is close to ideal | 4.53 | 1.53 | 1.0 | 7.0 | -0.26 | -0.79 |
| I have excellent working conditions | 4.96 | 1.50 | 1.0 | 7.0 | -0.81 | 0.18 |
| I am satisfied with my job | 5.18 | 1.66 | 2.0 | 7.0 | -1.09 | 0.72 |
| So far, I have been able to achieve what I want in my job | 4.89 | 1.40 | 1.0 | 7.0 | -0.3 | -0.42 |
| If I had to decide again, I would choose the same job | 5.18 | 1.85 | 1.0 | 7.0 | -1.09 | 0.41 |

*M* = Mean; *SD* = Standard Deviation

Source: Authors' own study.

## DISCUSSION AND CONCLUSIONS

The present study constitutes a preliminary exploration of the determinants of professional activity among individuals with visual impairments, with particular attention to the nature of employment arrangements, job search strategies, and the factors influencing labour market participation. Special emphasis was placed on the role of AT as a key enabler of professional functioning within this population.

The findings indicate that the predominant form of employment among respondents was standard contractual employment (i.e. full-time salaried positions), reported by 57.1% of participants. This suggests that, similarly to the general population (CBOS, 2021), individuals with visual impairments tend to favour stable forms of employment. At the same time, self-employment – declared by 17.9% of respondents – emerged as a significant alternative, offering flexibility and allowing for the customisation of working conditions to meet individual needs and capabil-

ities. Notably, 25% of participants were employed under civil law contracts, which may reflect ongoing barriers to accessing secure and long-term employment.

The results also highlight the diversity of employment forms among individuals with visual impairments. Half of the respondents (50.0%) were employed in the open labour market, while 25.0% worked within the protected employment sector, underscoring the continuing relevance of this framework for the vocational inclusion of persons with disabilities. Remote work (42.9%) and hybrid work arrangements (28.6%) were found to be increasingly prevalent, offering greater flexibility and enhanced opportunities for the effective use of AT. Conversely, on-site employment was less common (21.4%), a finding that may be attributed to persistent infrastructural and transport-related barriers, as well as insufficient workplace adaptations for employees with disabilities – issues previously identified by the Supreme Audit Office of Poland (NIK, 2022).

The analysis of respondents' occupational roles reveals a considerable diversity in the career trajectories of individuals with visual impairments. The largest subgroup comprised professionals engaged in fields such as digital accessibility, AT, and disability-related consultancy (26.1%). A significant proportion of respondents (21.7%) were involved in creative professions, including sound production, music editing, audio mixing, and content creation. Service-oriented roles – such as massage therapy, financial advisory services, and insurance – were also common, accounting for 17.4% of the sample. Employment in the education and training sector, as well as in administrative and clerical positions, each accounted for 13.0% of the responses.

When these findings are viewed in light of earlier studies, including the report by Pentor Research International (2009), they suggest a notable evolution in the employment structure of individuals with visual impairments in recent years. Whereas earlier analyses often pointed to the concentration of individuals with blindness in low-skilled, manual, or routine occupations, the present study highlights a growing trend towards occupational diversification and increased access to specialist roles. This shift may be attributable, in part, to the expanded possibilities afforded by contemporary AT, which enable individuals with visual impairments to participate more fully in complex and highly skilled professional domains.

Individuals with visual impairments most frequently seek employment through direct applications to employers (28.6%) or by leveraging informal networks, such as family and friends (21.4%). Similar patterns were observed in a study conducted between 2005 and 2006 by the Institute for Marketing and Social Research, VRG Strategia (2006), which found that 46% of blind individuals obtained employment through informal personal connections, while 21% were successful through direct employer contact. A comparison of these data suggests that, despite technological advancements and structural changes in the labour market over the past two decades, social relationships continue to play a crucial role in facilitating access to employment for this group.

The persistence of informal support networks as a central component of vocational activation among persons with visual impairments may point to the limited effectiveness of institutional job placement services. This conclusion is reinforced by the present study's findings, in which none of the respondents identified local labour offices as a helpful resource in the job search process. These results are consistent with earlier research (Pentor Research International, 2006), which highlighted that local labour offices have largely failed to adapt their services to the specific needs of individuals with visual impairments, often limiting their role to the passive dissemination of job postings, without offering meaningful assistance to either candidates or employers.

Respondents identified the need for stable income as the primary motivation for entering the workforce, cited by 85.7% of participants. The pursuit of self-fulfilment also emerged as a significant factor, with over half of the respondents (57.1%) highlighting it as a key driver of their professional activity. Of particular interest is the relatively high proportion (42.9%) of individuals who indicated that social mobility and interaction with others were decisive factors in their decision to seek employment. These findings are consistent with those of Bilewicz and Kluczyk (2012), Wolan-Nowakowska (2017), and Rogowska (2023), who emphasise the importance of psychological and social dimensions in the vocational integration of blind individuals.

The data also revealed that individuals with visual impairments encounter substantial barriers both during the job search process and in the execution of work tasks. Critical challenges include difficulties with digital accessibility, limited access to printed materials, and constraints related to work pace and sustained concentration demands. These results align with those reported by other researchers in the field. For example, a recent study by McDonnall et al. (2024) found that nearly 60% of visually impaired workers experience persistent difficulties accessing various digital platforms, including computer applications, websites, and documents (e.g. PDFs, spreadsheets, printed resources) – underscoring the ongoing inadequacy of workplace environments in meeting the accessibility needs of this population. Similarly, research conducted by the American Foundation for the Blind (2022) reported that technological barriers affect nearly every stage of employment – from recruitment and training to everyday duties – often resulting in reduced employee productivity and, in some cases, job loss.

The convergence between the present findings and those reported in international literature suggests that the difficulties faced by employees with visual impairments are not merely anecdotal or context-specific. Rather, they appear to reflect broader, systemic, and global issues concerning the structural accessibility of contemporary work environments.

The significance of available technological solutions in supporting professional tasks was further underscored by the analysis of data concerning the types of

assistive tools used in the workplace and respondents' evaluations of their utility. A striking 96.3% of participants reported using AT in the performance of their daily work responsibilities, confirming that modern technological tools have become standard within the professional environments of individuals with visual impairments. Screen readers (78.6%) and mobile applications or devices (32.1%) remain the most frequently used technologies, gaining increasing prominence due to their wide availability and functionality in promoting user autonomy (Fundacja Mir, 2024; Tyfloświat, 2015).

Scanners combined with OCR (Optical Character Recognition) software (25%) were also reported as playing a critical role in converting printed materials into accessible digital formats. Although used less frequently, Braille-based technologies, such as refreshable Braille displays (21.4%), continue to serve as essential tools for a subset of users (Fundacja Instytut Rozwoju Regionalnego, 2023; Polski Związek Niewidomych, 2020). Similar patterns of technology use were reported in a study conducted by McDonnall et al. (2024), which found that blind and visually impaired professionals most commonly relied on screen readers (81.2%), mobile applications (48.9%), and OCR software (24.0%) to perform job-related tasks.

Respondents' declarations suggest that AT play a significant role in shaping job satisfaction among individuals with visual impairments. Although the present study did not include statistical verification of the relationship between the use of AT and job satisfaction levels, participants' subjective evaluations point to the considerable relevance of such tools in their everyday professional functioning. A substantial proportion of respondents (80.7%) reported that AT had a large or very large impact on their work satisfaction, while only 3.8% rated this impact as marginal. Nevertheless, the average scores obtained on the Job Satisfaction Scale (JSS) indicate a moderately high level of satisfaction ($M$ = 5.18, $SD$ = 1.66), with the highest-rated item reflecting a willingness to choose the same job again ($M$ = 5.18, $SD$ = 1.85). The lowest-rated item concerned the perception of one's job as being close to ideal ($M$ = 4.54, $SD$ = 1.53), which may reflect ongoing limitations related to employment conditions and the availability of appropriate work tools.

It is important to emphasise that the mere implementation of innovative technological solutions is insufficient to ensure their full effectiveness. A critical factor underpinning the successful use of AT is the level of user preparedness, which must be supported through structured training and technical assistance. A review conducted by Muhsin et al. (2024) underscores a strong correlation between users' competency levels and the functional efficacy of assistive tools. However, findings from the present study revealed significant deficits in the provision of such support: 80.8% of respondents reported receiving no workplace training on the use of AT. As a result, the responsibility for acquiring the necessary skills falls almost entirely on the employees themselves.

## STUDY LIMITATIONS

Caution must be exercised when drawing conclusions from studies based on small sample sizes. However, in cases where access to narrowly defined research populations is limited – particularly when investigating topics that remain significantly underexplored – analysing and interpreting data collected from a relatively small number of respondents can still offer valuable insights. For example, a study on the professional activity of individuals with visual impairments conducted by Zaorska (2015) also involved a modest sample size of 29 participants.

An additional limitation of the present study lies in the use of purposive sampling combined with the snowball technique, which increases the risk of self-selection bias. Individuals who are more professionally active and open to adopting new technologies may have been overrepresented, potentially skewing the results and limiting the generalisability of the findings.

Moreover, the applied research model – based on the analysis of self-reported, declarative data – does not allow for causal inferences to be drawn. The associations observed between the use of AT and levels of job satisfaction are descriptive in nature and were not subjected to statistical verification. Thus, the interpretation of the findings should be approached with an understanding that they are exploratory. The goal of the study is to identify emerging trends rather than to confirm statistically significant relationships.

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## KORZYSTANIE Z TECHNOLOGII ASYSTUJĄCYCH W ŚRODOWISKU ZAWODOWYM OSÓB Z NIEPEŁNOSPRAWNOŚCIĄ WZROKU – ANALIZA DOŚWIADCZEŃ UŻYTKOWNIKÓW

**Wprowadzenie:** W artykule zaprezentowano wyniki badań dotyczących różnych aspektów aktywności zawodowej osób z niepełnosprawnością wzroku.
**Cel badań:** Głównym celem badań było poznanie zakresu wykorzystania technologii asystujących podczas wykonywania zadań zawodowych przez osoby niewidome i słabowidzące oraz zweryfikowanie poziomu satysfakcji z pracy wykonywanej z wykorzystaniem technologii asystujących.
**Metoda badań:** W badaniach wykorzystano metodę sondażu diagnostycznego. Badania przeprowadzano od maja do grudnia 2024 roku. Wzięło w nich udział 28 respondentów (16 kobiet i 12 mężczyzn).
**Wyniki:** Wśród respondentów największą grupę stanowią osoby zatrudnione na etacie. Domi-

nuje zatrudnienie na otwartym rynku pracy. Badani wysoko ocenili przydatność technologii asystujących i wskazali na ich znaczący wpływ na poziom satysfakcji zawodowej. Najczęściej stosowanymi technologiami okazały się czytniki ekranu oraz aplikacje i urządzenia mobilne.
**Wnioski:** Badania wskazały na różnorodność ścieżek zawodowych osób z niepełnosprawnością wzroku oraz duże znaczenie rozwiązań technologicznych w realizacji zadań zawodowych, co pozwala wnioskować, że nowoczesne rozwiązania technologiczne stały się standardem w miejscu pracy osób z niepełnosprawnością wzroku. Badani wysoko ocenili przydatność technologii asystujących.

**Słowa kluczowe:** osoby z niepełnosprawnością wzroku, aktywność zawodowa, technologie asystujące, satysfakcja z pracy