

Guest editorial: The role of enabling technologies for employment of people with disabilities

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The *Journal of Enabling Technologies* reports on research and practice around how technologies can enable disadvantaged, disabled or otherwise marginalised groups to better engage in life and society. It does so with the understanding that empowerment of marginalised persons would create a more equitable, just and inclusive future for all. Starting from this point, the journal presents insights in how technologies are (co-)created, used and evaluated in practice and the impact they have on the people using them. From a bird's-eye perspective, the journal produces insights for users, practitioners, researchers, designers, stakeholders and caregivers for fostering empowerment by technology and in societies building on technologies.

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Prior special issues have investigated how to design enabling technologies for marginalised groups (volume 16, issue 3); set a focus on applications of virtual reality in autism research (volume 16, issue 2) and reported on the role of enabling technologies for people with disabilities (PWD) during the COVID-19 pandemic (volume 15, issue 2). While these spotlights focused on specific fields of technology-supported inclusion and touched upon various life domains, this special issue considers a different perspective. It assembles articles looking at different technologies, methodologies and topics but focusing on one life domain and one target group.

This special issue focuses on technology-enabled participation in the life domain described as the “world of labour” and the connected perspective of “employment”. It covers aspects from labour and employment to enabling technologies and PWD. Within this space we see innovations for participation of PWD in the world of labour through, and supported by, enabling technologies. The special issue reports on examples of enabling technologies fostering labour market participation as well as innovations in the use of enabling technologies for employment or other forms of labour market participation and so conveys a state-of-the-art report on work undertaken, actually performed and planned in this field.

The world of labour perspective on PWD is a topic of increasing interest to practitioners in policy, industry or civil society as well as researchers – in Europe, not least due to the European Accessibility Act that is becoming part of EU member states’ national legislation in the next few years. The EEA contextualises “disability” in congruence with the UN’s International Classification of Functioning Disability and Health (ICF) “as a result of an interaction between a person (with a health condition) and that person’s contextual factors (environmental factors and personal factors)”. In other words, disability is not seen as an individual’s intrinsic feature but as a result of

interaction in an environment (i.e. social models of disability). This special issue focusses on the environment of the labour market.

The aim of the special issue is to cover different international and interdisciplinary perspectives on the possibilities of inclusion in the labour context through enabling technologies. Exploring a variety of theories, methods and disciplinary perspectives, this special issue intends to diversify our understanding of the relationships between labour market participation, PWD and enabling technologies. Therefore, this special issue covers the heterogeneity of PWD as well as different work contexts and technologies. This special issue explores school-to-labour transitions, transitions from sheltered workshops to the general labour markets, participation of PWD in the general labour market and examines education as an important prerequisite for access to the labour market. Given the interdisciplinary and international nature of this special issue, we recognise that “disability” can be described in different ways. We also recognise that there is no “one size fits all” and that current research suggests a range of perspectives expressed by disabled communities. Therefore, the articles in the special issue do differ in their use of terminologies and language, reflecting the background, culture, and context of each author’s work.

We start the special issue with the work of Marianne Kreuder-Schock and Sabrina Lorenz, who report in their article “Opportunities and Barriers in Digitalised Labour Settings in People with Invisible Disabilities” on the results of their empirical study on the opportunities and barriers faced by people with invisible disabilities in digitalised work environments. The data for the study are primarily based on semi-structured interviews that take orientation of the ICF. Their findings include challenges such as difficulties with video-call programs, complex password requirements, insufficient opportunities for regeneration or inadequate digital skills. The authors propose solutions to meet these challenges including the creation of opportunities for social contact such as fixed tandems for exchange or the provision of contexts for participation in joint induction trainings and learning activities on new tools, as they argue a “one-size-fits-all” approach proved insufficient. The authors advocate the potential of the approach to promote inclusivity and improve working conditions for a diverse workforce, leading all employees to overall workplace well-being and productivity. The article is of particular interest for readers looking for empirical insights into the work context of people with invisible disabilities and questions of digital transformation.

Following on, Ann Christin Schulz, Diana Cürlic, Carina Goretzky, Daniel Krüger, Bastian Pelka and Lisa Preissner undertake a methodological journey. With their article “Enabling Technology Hand in Hand with Enabling Practices”, they start from the position that PWD do not lack consultation on occupational opportunities, as they meet consultation from several stakeholders, including teachers, the labour market agency, parents or professionals working in sheltered workshops. But the authors argue that PWD need more support in their own reflection on their own desires, possibilities and fears in order to form their own opinion. Starting from this, the authors report on a project aiming at developing an AI app supporting PWD in reflecting on their own occupational perspectives. This app should be co-designed not only transdisciplinary by researchers from different academic fields but also participatory with PWD. The article therefore presents initial findings from a development project and explains how transdisciplinary results will be incorporated into the development of a tool to support PWD working in a sheltered workshop in navigating their occupational orientation. Within their methodological setup, people with and without disabilities are co-creating the tool. This tool will include both a technological solution at the centre and a set of tested new practices for its successful application. The article is a good read for those interested in applicable methodology for participatory design of enabling technologies.

Nor Shahniza Shahbudin and Rossilah Jamil offer valuable insights into the role of technology in promoting employment and work for PWD. In their article “Technology Empowerment in Disability Employment: A Bibliometric and Systematic Review”, the authors report on a comprehensive analysis using both bibliometric and systematic review methods, examining research spanning 1994–2023. Their findings reveal a growing interest in assistive technology (AT) research, reflecting the increasing focus on PWD inclusion in the workplace. Significantly, the research highlights a critical point: technology empowerment is not solely dependent on the technology itself. It’s a complex interplay between individual, environmental and societal factors. The study’s theoretical

contribution lies in proposing a novel conceptual model for PWD employment and workplace inclusion. We recommend the article “Technology empowerment in disability employment: A bibliometric and systematic review” for all. Through this article, readers will gain a comprehensive overview of publication trends, key terms, research areas and potential gaps in the research field of technology empowerment in disability employment.

Neha Kumari and Usha Lenka examine with their article “Virtual Revolution: Leveraging Teleworking as an HRD Intervention for Successful Employment of People with Disabilities in the Digital Age” the specific occupational field of telework and investigate the challenges PWD face there. In this article, the authors aim to find the important factors responsible for developing PWD to be successful teleworkers. They use a systematic literature review to gauge the interrelationship between the factors and finally prioritise the factor. The research identifies trust (TR), top management support (TMS), organisational commitment (OC), training and education (TE), information and communications technology (ICT), job satisfaction (JS), flexibility and autonomy (FA) and job productivity (JP) as crucial factors responsible for making PWD successful teleworkers. This article holds key messages for readers who seek an overview on studies in the field of PWD as (tele)workers and could profit from a suggestion of hindering and fostering factors for employment of PWD.

Frauke Mörike and Ioannis Kiossis, with their article “Workarounds as enabling factor in the Use of Assistive Technology amongst White-collar Workers with Visual Impairment”, explore how workarounds – practices deviating from official pathways – enable the use of assistive technologies for visually impaired office workers. Employing an ethnographic approach with in-situ observations in office settings and interviews, the research identifies three types of workarounds: personal investment in invisible work, engaging support from colleagues and complete circumvention of technology use. The study connects the concept of workarounds, traditionally rooted in workplace studies and computer-supported cooperative work, with the daily practices of visually impaired knowledge workers. This perspective provides valuable insights into the integration of enabling technologies in office environments. Technology designers and IT professionals can use this model to enhance participatory design processes and improve the integration and effectiveness of assistive technologies in the workplace. This paper is an interesting read for researchers and practitioners alike interested in both empirical insights into lived work practice and theoretical frameworks in the context of AT use in complex organisational work environments.

Ingo Karl Bosse, Daniela Nussbaumer and Dennis Christian Hövel focus on education and the role of ICT as a learning tool. In their article “The role of ICT as LT in shaping inclusive and special education – a systematic review for 2012–2023”, they report on how ICT can expand opportunities for inclusive learning and access to information and create new exclusions. As technologies are developing at a rapid pace and users’ needs are individual and specific, it is important to summarise the current focus of research and what technologies are currently being used. With this in mind, the authors conducted a systematic review, analysing research published between 2012 and 2023 in various literature databases. The review provides a valuable contribution on two main fronts. First, it provides a comprehensive overview of recent trends in the use of ICT for special and inclusive education, including key research objectives, methodologies and findings. Second, it identifies critical research gaps and highlights the potential of ICT to improve the quality of education for all learners. Finally, this work advances the conversation on digital equity and inclusion, highlighting the importance of user-centred design in bridging the gap between technological advances and their practical application in promoting a truly inclusive learning environment. The paper will be of particular interest to readers seeking an overview of the opportunities and risks of ICT for access and equal participation in education, including the possibilities of using ICT or digital media to enable, support or enhance inclusive teaching and learning.

Finally, Charles Scott Thull raises the question about how autistic learners could be supported in vocational training. The author proposes that this group may benefit from visual instruction, skill modelling, prompting, and assistive handheld technologies, such as tablet-based instruction and video-based instruction (VBI). In his case study, the author reports on a hands-on example from an educational context. The author describes how he developed a self-directed vocational VBI with an

iPad for an autistic high school student to complete a vocational task. He structures his insights gained in this case by sociocultural factors (like community work, limited participation in development and teacher training), technical considerations (involving iPad photos app usage, contextual relevance, learner control, user-friendly experience and error prevention) and pedagogical factors (including research-based strategies, goal alignment with needs and work experience and efficient content organisation). We suggest the article “Video-based instruction for career development for a learner with Autism Spectrum Disorder: a case study” to all readers. This article will be of specific interest for readers who are interested in practical insights and how to support individual learners or small groups of autistic learners with iPads.

We hope the findings of this special issue will help to better understand the challenges of implementing and using technology in the labour context from an inclusive perspective – both through an academic and practical lens.

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