# Summary Table 7: Best Practices in ICT and ICT-AT

## Research Papers

| Citation | Topic | Research design | Results | Conclusion | Link |
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| Scherer, M.J., & Glueckauf, R.L. (2005). Assessing the benefits of assistive technologies for activities and participation. *Rehabilitation Psychology, 50*(2), 132-141 | Defines the Environmental Factors of the World Health Organization's International Classification of Functioning, Disability and Health (ICF) and describes how ATs can improve the functioning of individuals with disabilities in community environments | Key studies with an ICF-focused AT assessment system, Matching Person and Technology were reviewed with a discussion of the implications of findings on the further development of the ICF. | Despite the increased availability of AT, approximately 30% of ATs are discarded within 1 year. Explanations for this are multifactorial, including the product not meeting user expectations or needs, setting the user apart from others, and failing The overriding factor accounting for the poor match of user and technology is that an inadequate assessment was done of the user's needs, preferences, and priorities. Technologies that do not fit with consumer capabilities, preferences, or ways of doing things, and socializing with others diminish the likelihood that they will be used, thus preventing the maximization of potential to participate. | Effective use of ATs and other supports can be maximized by matching device and support features to users' goals, preferences, and environmental resources. Thus, more emphasis should be placed on the need for comprehensive assessment before selecting ATs, particularly of the individual's current goals, past experiences with the use of technologies and other supports, and predisposition to use the AT as well as alternative or additional supports. | http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=2005-05481-006 |

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| Scherer, M., Jutai, J., Fuhrer, M., Demers, L., & DeRuyter, F. (2007). A framework for modelling the selection of assistive technology devices (ATDs). Disability and Rehabilitation: *Assistive Technology, 2*(1), 1–8. | The previously published 'Framework for the conceptual modelling of assistive technology device (ATD) outcomes' assumes antecedent factors that inform it and influence its component variables. This paper proposes a model of factors influencing consumer predispositions and provider practices related to procuring a particular ATD, which is the starting point in the framework. | The relevant literature on a variety of factors that influence specific ATD selection is summarized. | The decision that a particular ATD is an appropriate and desirable support for an individual is the result of a process which is affected by a broader societal climate that determines, in part, unique personal climates which then foster unique provider and consumer perspectives predisposing each to the selection of a particular ATD. | The proposed 'Framework for modelling the selection of ATDs' can contribute to clinical practice and outcomes research by highlighting factors important to consider prior to ATD selection | http://www.ncbi.nlm.nih.gov/pubmed/19263548 |
| Poobrasert, O. & Gestubtim, W. (2014). Breaking Barriers: Assistive Technology Tool as Educational Software to support Writing. *International* | Authors developed and tested *Thai Word Prediction*, an assistive technology program aimed at helping students with learning disabilities in Thailand who struggle with their writing | During the *Thai Word Prediction* program design, usability testing was conducted through the administration, to 4 IT college-level students, of questionnaires which prompted them to evaluate three different aspects of the program: ease of use, technical aspects, and program | Results indicated that all students with learning disabilities participating in the study substantially improved their ability of writing. The AT helped them to write words faster and more accurately, to enrich their vocabulary selection, and to better pronounce words. | A Word Prediction program such as *Thai Word Prediction* can help students with learning disabilities to improve their writing skills through reduction of keystrokes. If used in combination with such programs as the Thai Spell Checker, the Thai Word | http://www.ijcea.com/?s=breaking+barriers&submit= |

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| *Journal of Computer Engineering & Applications, 4*(3),Online: http://www.ijcea.com | | management. The system was improved based on feedback received, and then it was experimentally applied to five students with learning disabilities who struggle with writing in grade 5th at the school in Bangkok | | Spelling, and te Thai Word Processor, it can enhance the learning experience of students with learning disabilities and optimize their accurate writing. | |
| Wielandt, T., Mckenna, K., Tooth, L. & Strong, J. (2006) Factors that predict the post-discharge use of recommended assistive technology (AT). Disability and Rehabilitation: *Assistive Technology, 1*(1&2), 29-40. | This study investigated the ability of client-, assistive technology (AT)- and intervention-related factors to predict the post-discharge use of rails and bathing, toileting and dressing AT, which had been recommended by an occupational therapist during hospitalisation. | A prospective correlational study involving interviews conducted pre and post discharge for *n=167* clients who required rails and bathing, toileting and dressing AT was used. Additionally, a direct logistic regression analysis with backwards elimination was performed to identify predictor variables. | Variables found to predict AT use included participants' perceptions of the characteristics of the AT, the presence or absence of anxiety, and their ability to recall AT training. Additionally four other variables (intended post-discharge use of AT, negative perceptions about disability/illness, perceived benefit of the AT and having a choice during the AT selection process) were strongly related to AT use. Although these four variables were not included in the best final model | Findings suggest that occupational therapists need to ensure that AT is recommended using a client-centred approach, where clients' perceptions and opinions are considered along with their needs and goals. The Matching Person to Technology (MPT) Model is suggested as a useful framework to guide the process of recommending AT. | http://informahealthcare.com/doi/abs/10.1080/09638280500167159 |

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| Braddock, D., Hoehl, J., Tanis, S., Ablowitz, E., & Haffer, L. (2013). The rights of people with cognitive disabilities to technology and information access. *Inclusion, 1*(2), 95-102. | This article presents the case for mounting significant efforts to advance the rights of millions of people with cognitive disabilities to technology and information access. A formal statement of these rights is presented, formulated by professionals and consumers representing a variety of disciplines and perspectives. | To build on the groundwork already done towards documenting the rights of people with cognitive disabilities to technology and information access, in the fall of 2012, the Coleman Institute convened a group of leaders in the United States representing numerous national disability associations and disciplines in cognitive disability, computer science, technology, engineering, special education, disability studies, rehabilitation, psychology, philosophy, philanthropy, and law and public policy. Together they crafted and collectively endorsed *The Rights of People with Cognitive Disabilities to Technology and* | The *Rights of People with Cognitive Disabilities to Technology and Information Access* is a statement of principles. It builds on the history of community integration rights for people with intellectual and developmental disabilities established in law, policy and practice through decades of advocacy by parents, people with disabilities themselves, and professionals in the field. The statement has been endorsed by numerous national, state and local organizations in the developmental disabilities field in the United States and abroad. | People with cognitive disabilities cannot fully participate in modern technology-based society, unless the technology is made accessible, affordable and adaptable for them. Advocates for people with cognitive disabilities may use *The Rights of People with Cognitive Disabilities to Technology and Information Access* declaration to stimulate greater attention nationally and worldwide to the possibilities now at hand for people with cognitive disabilities through technology while promoting their rights as citizens to access to it." | http://aaiddjournals.org/doi/abs/10.1352/2326-6988-01.02.95 |

| | | *Information Access*, appearing in the article. | | | |
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| Darragh, A. R., Sommerich, C. M., Lavender, S. A., Tanner, K. J., Vogel, K., & Campo, M. (2013). Musculoskeletal discomfort, physical demand, and caregiving activities in informal caregivers. *Journal of Applied Gerontology*. Advanced online publication. | The study aimed to characterize the burden of care and musculoskeletal discomfort associated with caring for adults with chronic physical disability among informal caregivers and to describe the most physically demanding caregiving activities and contributing factors, as perceived by informal caregivers of adults with physical disabilities. | A mixed methods approach was used for the study. Forty-six (n=46) informal caregivers of adults with physical disability participated. | Most caregivers were classified as "high burden" caregivers. They reported high levels of physical strain and musculoskeletal discomfort. Caregivers identified several activities related to mobility and self-care as the most physically demanding. Factors affecting physical demand included caregiver and care-recipeint characteristics, activity requirements, and the physical environment. | Interventions that target high-demand caregiving activities, including all three aspects of caregiving activity performance, are necessary to support adults with disabilities in the home and their caregivers. | http://jag.sagepub.com/content/early/2013/07/22/0733464813496464.abstract |
| Braddock, D., Rizzolo, M.C., Thompson, M., & Bell, R. (2004). Emerging technologies and cognitive disability. *Journal of Special Education* | The article discusses utilization of technology by people with cognitive disabilities | Several examples of emerging technologies that have the potential to help persons with cognitive disabilities, and those with age-related cognitive decline, to achieve greater independence, productivity, and quality of life are provided. Various | Despite the potential of emerging technologies to assist persons with cognitive disabilities, significant practical impediments remain to be overcome in commercialization, consumer abandonment, and in the design and development of useful | Innovative engineering approaches, effective needs analysis, user-centered design, and rapid evolutionary development are essential to ensure that technically feasible products meet the real needs of persons with | http://www.tamcec.org/jset-index/emerging-technologies-and-cognitive-disability/ |

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| *Technology, 19*(4), 49-56. | | barriers to the large-scale, long-term utilization of AT by persons with cognitive disabilities, and ways of overcoming these barriers are also discussed. | products. Barriers also exist in terms of the financial and organizational feasibility of specific envisioned products, and their limited potential to reach the consumer market. | cognitive disabilities. | |
| Varney, E. (2013). *Disability and Information Technology.* Cambridge: Cambridge University Press. | *Disability and Information Technology* was a study which examined the extent to which regulatory frameworks for information and communication technologies (ICTs) safeguard the rights of persons with disabilities as citizenship rights. | The study adopted a comparative approach focused on four case studies: Canada, the European Union, the United Kingdom and the United States. It focused on the tension between social and economic values in the regulation of ICTs and called for a regulatory approach based on a framework of principles that reflects citizenship values. The research drew on a wealth of resources, including legislation, cases, interviews, consultation documents and responses from organisations representing persons with disabilities. | Data analysis identified several challenges encountered in the jurisdictions examined and points toward the rights-based approach advanced by the UN Convention on the Rights of Persons with Disabilities as a benchmark in protecting the rights of persons with disabilities to have equal access to information. | The regulatory approach for the ICT sector should perceive persons with disabilities not only as consumers but also as citizens with democratic expectations of effective access to information. Furthermore, the regulatory framework should be based on a clearly defined framework of principles such as equality of citizenship and the protection of human dignity. | http://ssrn.com/abstract=2374759 |

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| Akhutina, T., Foreman, N., Krichevets, A., Matikka, L., Narhi, V., Pylaeva, N., & Vahakuopus, J. (2003). Improving spatial functioning in children with cerebral palsy using computerized and traditional game tasks. *Disability & Rehabilitation, 25*(24), 1361-1371. | The study aimed to examine the effectiveness of combining virtual environment (VE) instruction with additional desk-top tasks, based on the Luria-Vygotsky methodology, for spatial remediation in children having complex motor disabilities restricting movement. | In Experiment 1, from among children attending for residential rehabilitation, an experimental subgroup had additional spatial training using a VE and corresponding desk-top models. All children were tested at the start and end of training, using four spatial tests. In Experiment 2, larger groups of children (pair-matched for initial performance) were given the same training as in Experiment 1, but experimentals received both VE-based training and supporting tasks designed to improve executive functions and verbal regulation of spatial functioning. Assessment involved a wider range of tests than in Experiment 1. | In Experiment 1, both groups showed improvement at retest, but the ones in the experimental group showed greater improvement. Children beginning with the lowest level of cognitive performance failed to benefit from the additional training. In Experiment 2 the experimental group made significantly greater improvement than controls, irrespective of initial performance level. | VE-based spatial training is effective for children with complex disabilities, particularly when combined with training that remediates cognitive weaknesses. | http://www.ncbi.nlm.nih.gov/pubmed/14660204 |

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| Davies, D. K., Stock, S. E., & Wehmeyer, M. L. (2003). Utilization of Computer Technology to Facilitate Money Management by Individuals with Mental Retardation, Education and Training in Mental Retardation and *Developmental Disabilities, 38*(1), 106-112. | The article described final results of an initial investigation of the utility of a specially designed money management software system for improving management of personal checking accounts for individuals with mental retardation. The software provided users capacity to store and retrieve common payees, automatic posting of checks to the register, automatic balancing, and check printing. | The research was designed to examine technical merit and feasibility of the automated checkbook management system for use by individuals with mental retardation. An initial "proof of concept" software-based functional prototype was developed and tested with 19 adults with mental retardation. Participants were trained on the use of the money management prototype and on traditional checkbook usage. A within-subjects experimental design was used to evaluate the utility of the system. | Results of the experimental evaluation indicate that when using the software, the number of errors made in check writing, check recording, and checkbook balancing by users with mental retardation was significantly reduced as compared to the traditional manual method (p .001). This finding was particularly promising given the limited amount of time available for training subjects on the use of the software prototype. | Use of AT to enable a person to do for him- or herself what someone else has previously done for them will, in the long run, enhance individual self-determination as well as increasing autonomy and independence. Moreover, given the wide social acceptance of computer-based money management software use, such software designed for use by people with mental retardation can serve as a means of enhancing social acceptance for this population. | http://www.jstor.org/stable/i23874986 |