Summary Table 1: ICT & ICT-AT and EDUCATION

Research Papers

Citation	Topic	Research design	Results	Conclusion	Link
O'Malley, P., Jenkins, S., Wesley, B., Donehower, C., Rabuck, D., & Lewis, M. E. B. (2013). Effectiveness of Using iPads to Build Math Fluency. *Online Submission*.	Examination of the effect of the use of a basic math skill application on an iPad to increase basic math fluency.	Ten 7th and 8th grade students (3 females, 7 males) with a primary diagnosis of autism spectrum disorder or multiple disabilities. The students were between 1 2 and 15 years of age. The dependent variable for this study was the rate of basic math fluency gains. The independent variable was the timed math probe. A paper and pencil assessment was used during the baseline phases and an iPad app (Math Racer) was used during the intervention phases.	iPad was an effective instructional tool for students with moderate to severe disabilities. Additional support for iPads as an effective instructional tool was found in the results from both the statistical and visual analyses The intervention may have not been effective for some students. Advantages Barriers	I-pad could be used as an effective and efficient instructional tool to foster basic math fluency of students with moderate to severe disabilities. Teachers had a strong interest for expanded use of iPads in classroom instruction. Social validity data can serve an essential role in understanding, and possibly alleviating, potential obstacles in the successful adoption of evidence-based practices. Need for the incorporation of a comprehensive professional development component.	http://files.eric.ed.gov/fulltext/ED541158.pdf

Citation	Topic	Research design	Results	Conclusion	Link
Ari, I. A., & Inan, F. A. (2010). Assistive Technologies for Students with Disabilities: A Survey of Access and Use in Turkish Universities. *Turkish Online Journal of Educational Technology*, *9*(2).	The assistive technology needs of university students with disabilities and the availability of these technologies & attitudes of the students with disabilities toward computers and the extent to which these are used by students with disabilities.	Data was collected through a questionnaire, from 22 university students enrolled in one private and four public universities located in Ankara, Turkiye.	School facilities for disabled students are accompanied by a severe lack of necessary faculty orientation or training in regard to teaching students with disabilities. Additional facilities, when available, were ill-equipped to address student instructional needs. All of the students indicated they had access to a computer either at home, school, or both. Additionally, the majority of students (N=13) preferred to use computers at Internet Cafés, which had internet access and special software installed. Students with disabilities utilized technology for different purposes, such as writing and conducting research, when the resources and support were available. Students' beliefs and attitudes toward computer technology were high. Students scored low on knowledge of computer resources and support available to them. When students with disabilities received support	In academic settings, facilities for students with disabilities are limited.Several factors should be addressed, including: Trained staff to provide services for disabled students, knowledge and awareness of assistive technologies among students with disabilities, and support in the form of availability of these technologies from university administration.	http://web.b.ebsc ohost.com/ehost/ pdfviewer/pdfvie wer?sid=782e86b 4-bafe-4b39- 8a4a- 961209a177e9% 40sessionmgr114 &vid=1&hid=108

			and encouragement from their peers, or witnessed the utilization of technology by others, their beliefs about what they could do with technology increased		
McLaren, E. M., Bausch, M. E., & Ault, M. J. (2007). Collaboration Strategies Reported by Teachers Providing Assistive Technology Services. *Journal of Special Education Technology*, *22*(4).	Collaboration strategies to provide assistive technology services to students. Strategies such as collaborative consultation, problem solving, and teaming are discussed, and interview findings are provided.	Qualitative study:96 interviews conducted with special and general education teachers regarding collaboration strategies to provide assistive technology services to students.	Current teacher collaboration practices. Teacher-reported barriers to collaboration. Teacher suggestions to improve collaboration. Reasons why teachers do not practice collaboration.	Opportunities that bring together general and special education teachers need to be offered to break down barriers.	http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=24304d85-d290-4355-97d1-c3307ba7308b%40sessionmgr4003&vid=1&hid=4204
Hetzroni, O. E., & Shrieber, B. (2004). Word processing as an assistive technology tool for enhancing academic outcomes of students with writing disabilities in the general classroom. *Journal of Learning Disabilities*, *37*(2), 143-154.	The use of a word processor for enhancing the academic outcomes of three students with writing disabilities in a junior high school.	A single-subject ABAB design was used to compare academic output produced during class time with and without a computer equipped with a word processor. The number of spelling errors, the number of reading errors, and the number of words used per text were counted, and the overall structure and organization of text	Data demonstrated a clear difference between handwritten and computer phases. In traditional paper-and-pencil phases, students produced outcomes that had more spelling mistakes, more reading errors, and lower overall quality of organization and structure in comparison with the phases in which a computer equipped with a word processor was used. The results did not indicate any	The use of word processing improved written outcomes produced in the classroom for students with writing disabilities and allowed them to structure and organize the text, decrease their spelling errors, and reduce their reading errors when reading their own written	http://ncset.uoregon.edu/ncset_media/refbase/Marilyn%20papers/Hetzroni2004Wordprocessing.pdf

		were examined across all in-class materials.	noticeable difference in the number of words per text.	output.	
Fichten, C. S., Nguyen, M. N., Barile, M., & Asuncion, J. V. (2007). Scale of Adaptive Information Technology Accessibility for Postsecondary Students with Disabilities (SAITAPSD): A Preliminary Investigation. *Journal of Postsecondary Education and Disability*, *20*(1), 54-75.	To develop and evaluate the Scale of Adaptive Information Technology Accessibility for Postsecondary Students with Disabilities (SAIT APSD)	An 18-item self-administered tool that evaluates computing accessibility for and by students with various disabilities. The scale, a companion to the service provider version of the measure (Fossey et al., 2005), contains a total score and three empirically derived subscales: Adaptive Computer Availability and Support, Perceived Computer Competency, and New Computer Technologies.	a) overall, SAIT APSD scores were more favorable than unfavourable. (b) the computer-related needs of students with visual impairments seemed to be met least well; (c) the scores of male and female students and students from English and French-speaking schools were very similar (d) students were more optimistic about the accessibility of ICTs than were campus service providers; (e)the most common impairment of our sample of junior/ community college students was a learning disability, with or without attention deficit/attention-deficit hyper-activity disorder (LD/ADD/ADHD), followed by mobility, visual, and psychological impairment; (f) approximately ¼ of our sample had more than one disability; (g) specialized software that improves writing quality such as grammar and spell checkers, and software that reads	...	http://files.eric.ed.gov/fulltext/EJ825766.pdf

			material on the screen were the two most popular types noted by students; (h) students with LD/ADD/ADHD also frequently mentioned voice dictation software while students with other disabilities noted the importance of software that magnifies material on the screen, adapted input devices such as an adapted keyboard and mouse, a large screen monitor, and a scanner with optical character recognition software.		
Parette, H. P., Stoner, J. B., & Watts, E. H. (2009). Assistive technology user group perspectives of early childhood professionals. *Education and Training in Developmental Disabilities*, *44*(2), 257.	To examine the perceptions of teachers and aides who had participated in a series of AT user groups. The aim of this examination was to provide a better understanding of the perceived benefits of these users related to the development of AT knowledge and skill sets	10 teachers who had participated in AT user groups and who were using an AT toolkit in their classrooms were interviewed and provided responses regarding (a) perspectives of user groups, (b) use of the toolkit, (c) benefits of user groups, (d) concerns regarding user groups, (e) perceived effects of AT on teaching and decision-making, and (f) perceived effects	(a) perspectives of user groups, (b)use of the AT Toolkit, (c) benefits of user groups, (d) concerns regarding user groups, (e) perceived effects of AT on teaching and decision-making, and (f) perceived effects of AT on the classroom.	Teachers have expressed support for user groups as a professional development venue to help them develop knowledge and skills to more effectively use AT in educational milieus with young children.	http://www.dadd cec.org/Portals/0 /CEC/Autism_Dis abilities/Researc h/Publications/E ducation_Trainin g_Development_D isabilities/Full_Jo urnals/ETDD200 906V44n2.pdf#p age=73

	that were translated into early childhood classroom practices.	of AT on the classroom.			

Theoretical Papers

Citation	Topic	Commentary/narration/ review	Conclusion	Link
Morrison, K. (2007). Implementation of Assistive Computer Technology: A Model for School Systems. *International Journal of Special Education*, *22*(1), 83-95.	A well documented gap exits between the potential of ACT and the realities of the classroom. Educators need easy access to professionals with expertise in technology and pedagogy. Technology strategic planning is essential. This report reviews these factors and suggests a model to address the ACT implementation process. This report includes, but is not limited to, research related to assistive computer technology for student with identified learning disabilities.	• Barriers for Effective Implementation of ACT into Core Curriculum ✓ Human Resources ✓ The Decision Making Process ✓ Instructional Environment ✓ Managing ACT • A Model for Implementation of ACT: Components ✓ School System Leadership ✓ School Leadership ✓ The Education of Teachers ✓ Teachers ✓ Educational Assistants ✓ Universal Design ✓ Communities of Practice ✓ Decision-Making ✓ The Research Community ✓ Technical Support ✓ Funding ✓ Student Focused ✓ Where Are We?	All elements of learning should be considered Recent advances in ACT research are not being employed as widely as experts argue they should be All stakeholders need to make a commitment to the ACT implementation process and align their efforts to insure that students with learning problems are provided with equitable access to learning using Assistive Computer Technology.	http://files.eric.ed.gov/ fulltext/EJ814473.pdf
Floyd, K. K., Smith Canter, L. L., Jeffs, T., & Judge, S. A. (2008). Assistive Technology and Emergent Literacy for Preschoolers: A	Information and research on available AT used with young children to promote literacy skills. Lack of empirical research in the combined areas of	Findings and discussion: ✓ Conceptualization problems: lack of or poorly communicated delineation of the terms "emergent literacy" and "AT".	Incorporating technological advances should be a key component in designing the most effective and innovative emergent literacy	http://files.eric.ed.gov/ fulltext/EJ884370.pdf

Literature Review. *Assistive Technology Outcomes & Benefits (ATOB)*, *5*(1).	emergent literacy, AT, preschool children. Need for conceptualized definitions of AT and emergent literacy across disciplines, existing barriers and gaps in research.	✓ Barriers to implementation: ✓ Teacher perceptions, attitudes and practices. ✓ Socio-cultural issues. ✓ Limited Research Base: Limited amount of research addressing AT, emergent literacy and preschool children simultaneously. Outcomes and Benefits of AT: ✓ Need for more Empirical Research: researchers must decipher the effectiveness of AT isolated from other educational interventions. ✓ Common Conceptual Framework. ✓ Increased collaboration, communication and investment of time and resources among key stake holders regarding AT. ✓ Recognising socio-Cultural influences.	interventions.	
Lee, H., & Templeton, R. (2008). Ensuring equal access to technology: Providing assistive technology for students with disabilities. *Theory into practice*, *47*(3), 212-219.	An overview of current AT services including service delivery models, universal design, effects of AT devices on students with disabilities, and issues and challenges in providing AT services.	A preliminary case study on how selected education and rehabilitation agencies deliver AT services is introduced, along with discussions on future research and practice. Effects of AT on Student Learning and Daily Life ➢ AT for Infants and Toddlers	Diverse options and an extensive amount of assistive technology information present challenges and warrant a user-friendly, easily accessible information system for searching and retrieving needed information.	http://blogs.monashores.net/assistivetech/files/2011/02/Equal-Access-for-students.pdf

		➢ AT for Students with Mild Disabilities ➢ AT for Students with Sensory Impairments ➢ AT for Individuals With Severe and/or Multiple Disabilities A Preliminary Study on AT Service: We conducted a preliminary study to explore how education and rehabilitation agencies ensure access to AT service for individuals with disabilities → Findings: (a) all of the agencies have an AT service delivery system that they developed on their own, (b) educational agencies tend to use the two aforementioned existing service delivery models, SETT or Tech Points, (c) the nature of their AT inventory includes all levels of technological sophistication from low to high and is based upon the needs of the students/clients they serve; and (d) funding is the major issue in ensuring access to assistive technology, followed by lack of family participation, availability of devices, and lack of AT qualified personnel Current Issues in Providing AT Services: • Interpretation of Federal Laws	Education agencies must develop or restructure a seamless service delivery system that ensures access to AT devices and services Educational professionals must acquire additional knowledge and skills in assistive technology regardless of their level of involvement in providing AT services Policy makers need to collaborate with educators and practitioners to provide clear, legal guidelines to remove barriers associated with the misinterpretation of the intent of various laws	

		• Funding • Collaboration		
Citation	**Topic**	**Commentary/narration/review**	**Conclusion**	**Link**
Hasselbring, T. S., & Bausch, M. E. (2005). Assistive technologies for reading. *Learning*, *63*(4).	AT for literacy	Providing Reading Supports Improving Skills with Reading Interventions	As assistive technologies have advanced over the years, they have delivered instruction in new ways. But simply improving access and delivery will not necessarily improve instruction. As teachers, we must Become more aware of the role that Technology plays In learning.	http://olms1.cte.jhu.edu/olms/tmp/file/AT%20Evaluation/Session7Readings/Tech-Reading-Hasselbring.pdf
Lee, H., & Templeton, R. (2008). Ensuring equal access to technology: Providing assistive technology for students with disabilities. *Theory into practice*, *47*(3), 212-219.	An overview of current AT services including service delivery models, universal design, effects of AT devices on students with disabilities, and issues and challenges in providing AT services.	At Service Delivery Models Universal Design For Learning Effects of AT on Student Learning and Daily Life • AT for Infants and Toddlers • AT for Students with Mild Disabilities • AT for Students with Sensory Impairments • AT for Individuals With Severe and/or Multiple Disabilities **A Preliminary Study on AT Service** We conducted a preliminary study to explore how education and rehabilitation agencies ensure access to AT service for individuals with	Funding is the major issue, followed by lack of family participation, availability of devices, and lack of AT qualified personnel.	http://blogs.monashores.net/assistivetech/files/2011/02/Equal-Access-for-students.pdf

		disabilities. Current Issues in Providing AT Services • Interpretation of Federal Laws • Collaboration With Families and Professionals		
Mechling, L. C. (2007). Assistive technology as a self-management tool for prompting students with intellectual disabilities to initiate and complete daily tasks: A literature review. *Education and Training in Developmental Disabilities*, *42*(3), 252.	Use of assistive technology as a self-management tool for persons with intellectual disabilities.	Forty investigations were identified which provided information on assistive technology to assist persons with disabilities to initiate and complete daily tasks. Four areas of research were defined and analyzed through the identified studies: (a) pictorial prompts; (b) tactile prompts; (c) auditory prompts; and (d) computer-aided systems.	Research supports assistive technology as an effective tool for providing antecedent prompts that can be self-operated by persons with intellectual disabilities.	http://daddcec.org/Portals/0/CEC/Autism_Disabilities/Research/Publications/Education_Training_Development_Disabilities/2007v42_Journals/ETDD_200709v42n3p252-269_Assistive_Technolgoy_Self-Management_Tool_Prompting_Students.pdf
Mull, C. A., & Sitlington, P. L. (2003). The Role of Technology in the Transition to Postsecondary Education of Students with Learning Disabilities A Review of the Literature. *The Journal of Special Education*, *37*(1), 26-32.	The use of technology in helping students with LD succeeded in postsecondary education. The primary purposes of this article are to (a) identify the specific technology recommendations found in the literature, (b) identify issues related to using these recommendations in the transition to p/s education, and (c) provide recommendations for	Legislation Addressing Assistive Technology Specific Technology Recommendations in the Literature. Issues Involving Assistive Technology and Transition : instructors and students have identified issues and barriers that prevent the general use of technological accommodations by students with identified learning disabilities in postsecondary settings.	Recommendations for Planning for Transition to Postsecondary Education.	http://set.or.kr/CGI/board/LD_tech/upfile/The_Role_of_Technology_in_the_Transition_to_Postsecondary_Education_of_Students_with_Learning_Disabilities.pdf

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	planning for the transition to p/s education.			
Parette, H. P., Peterson-Karlan, G. R., Smith, S., Gray, T., & Silver-Pacuilla, H. (2006). The State of Assistive Technology: Themes from an Outcomes Summit. *Assistive Technology Outcomes and Benefits*, *3*(1), 15-33.	Findings from a December, 2005, national assistive technology (AT) Outcomes Summit attended by AT experts representing vendors, higher education, government, and public schools. Discussions conducted centered around three questions: (a) What are the current challenges with the use of technology and AT in assessment of educational outcomes? (b) How do these challenges affect the assessment of writing, reading, math, and other content areas? and (c) What is needed to measure the impact of AT on educational progress?	**(a) assessment,** Allowable technology may be driving decisions to implement technology in classrooms. Technology supported performance viewed with suspicion. **(b) evidence-based research in AT effectiveness,** Need for research base demonstrating effectiveness of AT for student learning. Need to identify common achievement outcome measures so that data sets can be aggregated. Need to make better connections between research and development and research to practice. **(c) professional preparation** Disconnect between technology readiness of teachers and curricula, classrooms, and standards. **(d) technology generalization.** Preparing students for the information technology world requires new thinking. New technology tools require new skills for implementation.	The application of AT into the lives of individuals with disabilities can be of great benefit and expand placement, educational, and overall developmental options for individuals with disabilities, their families, and the professionals that provide supports to them. Participants agreed that we have a great deal of work ahead of us as a profession if we seek to integrate AT into meaningful instruction/assessment and to truly understand the outcomes of these applications.	http://files.eric.ed.gov/fulltext/EJ902502.pdf
Parette, H. P., & Stoner, J. B. (2008). Benefits of assistive technology user groups for early childhood education	The effectiveness of AT User Groups to prepare teachers to incorporate AT in the early childhood setting. User Group	**Teacher Benefits** New Skills Collaboration Individualization On-Site Support	Benefit teachers. Teachers who have been trained in AT User Groups have reported significant positive child outcomes in	http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=67b1d047-a742-489d-9bb0-bdaf68a55778%40sessi

professionals. *Early Childhood Education Journal*, *35*(4), 313-319.	benefits to teachers, (i.e., increased knowledge and skills, effective use of time, collaboration, individualization of training, and onsite support) as well as distracters and strategies for involving "new" teachers are discussed. Reported child outcomes, such as increased attending, behaviour, and communication are also presented.	**Child Benefits** Attending Behavior Communication **Distractors to Maximum Benefits of User Groups** **Bringing Others into the Community**	areas of attending, behavior, and communication.	onmgr4002&vid=1&hid =4204
Istenic Starcic A., Bagon, S. (2013). ICT-supported learning for inclusion of people with special needs: Review of seven educational technology journals, 1970-2011. *British Journal of Educational Technology*, 45(2), 202-230.	This paper focuses on how ICT-assisted learning provides accessibility and facilitates inclusion and integration.	Findings in terms of ICT intervention, disability groups, groups of study participants by relationship with ICT, and research design, together with trends in published studies in terms of mainstreaming and inclusion, are presented.	The authors of this paper have identified a need for application of universal design principles in research and development of learning environments to provide equal accessibility and inclusive education.	http://onlinelibrary.wil ey.com/doi/10.1111/bj et.12086/pdf
Wojcik, B. W., Peterson-Karlan, G., Watts, E. H., & Parette, P. (2004). Assistive Technology Outcomes in a Teacher Education	The purpose of this article is to: (a) provide a description of the instructional and AT influences on teacher preparation curricula, (b)	**AT Influences on Teacher Education** Curricula Instructional Technology K-12 Standards Movement A Broadened Conceptualization of	A majority of students using the two-stage innovative component achieved targeted knowledge and performance	http://files.eric.ed.gov/ fulltext/EJ1002111.pdf

| Curriculum. *Assistive Technology Outcomes and Benefits*, *1*(1), 21-32. | present an overview of a teacher preparation model to foster AT outcomes, (c) discuss preliminary results from the model, and (d) present future directions for the model. | AT Technology Standards in Teacher Education

Creating a Model to Achieve Student Outcomes
The Alternative System – ITPS Competency 9
The Traditional System – Coursework & Experiential Activities

Outcomes and Benefits
Future Directions
Measuring AT Outcomes
Expanding the Model | competencies. Recommendation are offered for expansion of the outcomes measurement system to include a range of both teacher and student outcomes and for expansion of the model to in-service training to general education and special education teachers. | |