



THE JOURNAL ON
TECHNOLOGY AND
PERSONS WITH
DISABILITIES

Introducing the University Assistive Technology Specialization in Visual Impairments

Stacy M. Kelly, Ed.D., TVI, COMS, CATIS, Sean Tikkun, M.S. Ed., TVI, CATIS

Visual Disabilities Program, Northern Illinois University

skelly@niu.edu; stikkun@niu.edu

Abstract

There is a long-standing demand for highly trained assistive technology (AT) experts in the field of visual impairments. There have been many viable attempts at establishing an AT credential for people with visual impairments. The efforts have all fallen short of that elusive goal until now. The opportunity finally exists to train professionals at the university level in the field of visual impairments to meet this long-standing demand. On May 1, 2016 the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP) launched the Certified Assistive Technology Instructional Specialist for People with Visual Impairments (CATIS) credential. At the exact same time, the first university training program in AT for people with visual impairments began offering coursework. This paper details ACVREP's CATIS eligibility criteria and, in doing so, outlines the CATIS qualification requirements. The body of knowledge, structure, content and other important details of the CATIS credential are included to further explore the context of the guidelines and translation into a viable training program.

Keywords

Assistive technology, blind, certification, personnel preparation, visually impaired

Introduction

There is a long-standing demand for highly trained assistive technology (AT) professionals in the field of visual impairments (Edwards and Lewis; Kapperman, et al.; Kelly, 2008, 2009, 2011, 2016). Augusto and Schroeder explained that university preparation programs must add and develop their curricula to offer specialized training in AT for pre-service vision professionals, newly proclaimed vision professionals, and veteran vision professionals. More than a decade later, Kelly's (2008) research outlined the need for a national effort to develop a new specialty in AT in the field of vision, similar to the effort that was undertaken to establish the orientation and mobility specialty: "Further study that takes into account the need for this innovative aspect of education can best be geared toward gradually expanding a specialty in assistive technology training for the blind that reflects existing, emerging, and ever-changing technologies relevant to the field of visual impairment...this new aspect of education that embraces the existing, emerging, and ever-changing aspects of assistive technology is ready for immediate attention. If the necessary research was generated and policies were adopted, the education of visually impaired students could reorient itself immediately with this emphasis" (p. 96).

The opportunity finally exists to train professionals at the university level in the field of visual impairments to meet this long-standing demand. There is now a specialty in AT for professionals who work with people with visual impairments (that is, those who are blind or have low vision) (Kelly, 2016). In May of 2016 the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP) launched the Certified Assistive Technology Instructional Specialist for People with Visual Impairments (CATIS) credential (Kelly, 2016). At the exact same time, the first university training program in AT for people with

visual impairments began offering coursework within the Visual Disabilities Program at Northern Illinois University (NIU). Although the CATIS program of study is brand new, the NIU Visual Disabilities Program is well-established since its founding more than 50 years ago in 1964. These accomplishments are a direct response to what has been documented in the literature for the past two decades in terms of developing a new specialization in AT in the field of vision (Augusto and Schroeder; Kapperman, et al; Kelly, 2008). There were, however, many stumbling blocks involved in getting to this point. The discussions leading up to the launch of the new ACVREP CATIS credential first started in the 1990's during conferences related to assistive technology (ACVREP). There have been many viable attempts at establishing such a credential but they have all fallen short of that elusive goal until now in large part because of the challenge of answering the overarching question: "How do we figure out who is qualified for the assistive technology credential?" (ACVREP).

This paper overviews the response to this pressing question in terms of the ACVREP's CATIS eligibility guidelines. The body of knowledge, structure, content and other important details of the CATIS requirements are included to further explore the context of the guidelines and translation into a viable training program.

Discussion

CATIS Eligibility Criteria

In order to answer the question of who is qualified for this new AT credential, it is important to look toward the specific methods for acquiring CATIS eligibility outlined and established in the CATIS handbook (ACVREP). Those pursuing CATIS eligibility through Category 1 complete either a university/college degree program in assistive technology for the visually impaired or a university certificate program in assistive technology for the visually

impaired and a full-time (350 hour) internship supervised by a CATIS. To qualify for CATIS eligibility through Category 2, it is required that there be a university degree, AT education/technical training in AT for individuals who are visually impaired, general technical training, a high degree of direct work experience providing AT instruction and assessment to people with visual impairments, and a 350-hour internship supervised by a CATIS. Table 1 shows the approved education and work experience requirements for acquiring CATIS eligibility through Category 2.

Table 1. CATIS Category 2 Educational and Work Requirements.

Degree Type	AT Education/Technical Training for VI Individuals	General Technical Training (Post-Secondary)	Experience Providing AT Evaluation/ Training to VI Individuals
Master's degree with an emphasis in vision studies (TVI, COMS, CVRT, CVLT).	Post-secondary credit hours of AT education or technical training equal of no less than 30 contact hours	15 contact hours	1,000 hours in the most recent 3 years
Master's degree in Special Education or Rehabilitation with no emphasis in vision studies	Post-secondary credit hours of AT education or technical training equal to no less than 45 contact hours	15 contact hours	1,500 hours in the most recent 3 years
Bachelor's degree or higher in any other field	Post-secondary credit hours of AT education or technical training equal to no less than 60 contact hours	15 contact hours	2,000 hours in the most recent 3 years

Source: Academy for Certification of Vision Rehabilitation and Education Professionals.

Certified Assistive Technology Instructional Specialist Handbook. May 2016,

www.acvrep.org/certifications/catis. Accessed 26 November 2016.

Note: AT = assistive technology; TVI = Teacher of Students with Visual Impairments; COMS = Certified Orientation and Mobility Specialist; CVRT = Certified Vision Rehabilitation Therapist; CVLT = Certified Low Vision Therapist.

Thus, there is a full-time internship requirement for both CATIS Category 1 and Category 2 and anyone who meets the CATIS requirements through Category 1 or Category 2 is also required to pass the CATIS certification exam.

CATIS Proficiencies

A review of the body of knowledge of the ACVREP CATIS puts into context the competencies in assessment, configuration, instruction and exploration. These domain areas are not perfectly even in weighting, as demonstrated in Figure 1, but operate dynamically and intersect to create a well-versed professional. As the name CATIS specifies with the inclusion of the word ‘instructional’, professionals in this new domain are expected to be teachers/trainers and not simply a prescriber of technology. This is an important distinction consistent with accepted best practices (Cook and Polgar). These best practices are expanded with the inclusion of the Expanded Core Curriculum (ECC) for individuals with visual impairments (Sapp and Hatlen) offering a broader systemic understanding of the impact of a visual impairment beyond individual tasks. The dilemma of training a professional well versed in visual impairments as well as instruction and technology has made the development of this new credential vital to the future of the field.

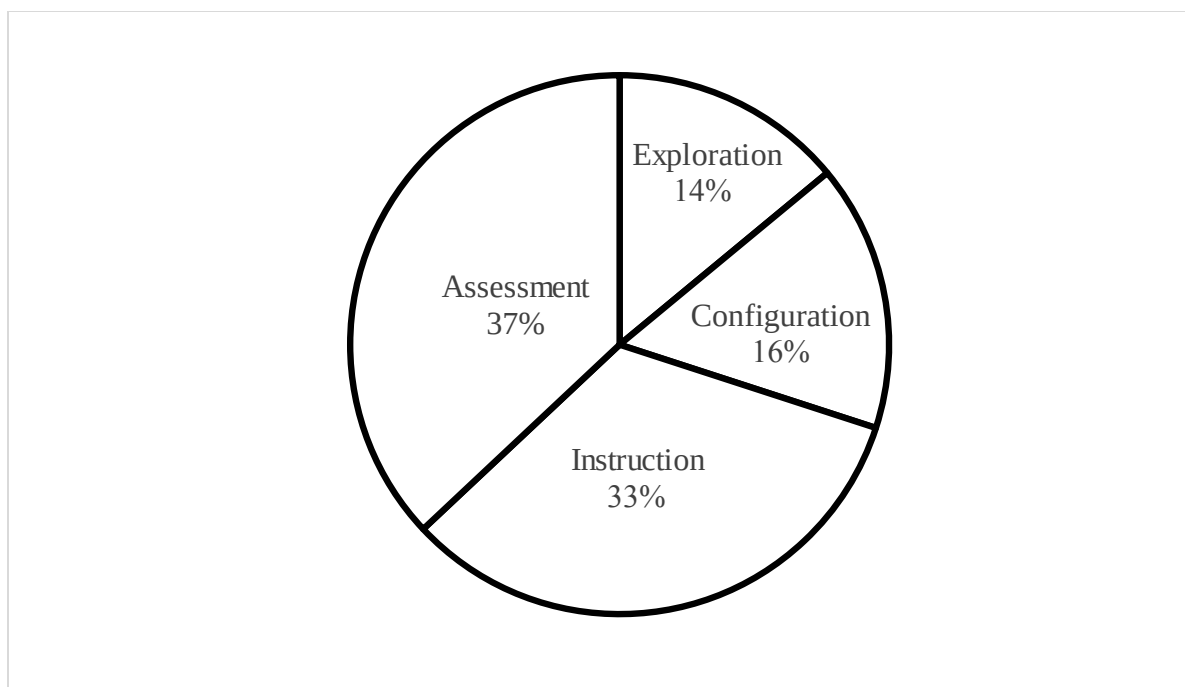


Fig. 1. Percentage of items in the CATIS body of knowledge by CATIS domain area.

The knowledge domain of assessment includes a wide range of evaluation and information. Sensory impairments impact life in a variety of ways and information gathering must include sources such as medical professionals, individuals, family members, and other involved specialists. Information should include both objective data (acuity and ocular health) and functional use of existing vision (reading rate, print size, braille use, environmental conditions, etc.) (Corn and Lusk). The vision specific information must also be taken into consideration along with additional implications, even including cognitive and neurological functioning. The gathered medical and functional information must then be paired with the individual capacities making use of high-low & hard-soft technologies (Cook and Polgar; Zabala et al.).

Instruction lies at the core of the field of visual impairments and includes use of vision (Erin and Topor), literacy skills (Holbrook et al.), use of optical devices (i.e. low tech) (Bell Coy and Andersen), and assistive technology (Presley) in an extensive manner. The context of visual

impairments saturates the work of a CATIS, but the body of knowledge demands a rigorous understanding of learning styles, teaching methods and flexibility in instructional design as well. To meet the spirit of maximizing independence and self-determination (Sapp and Hatlen) the CATIS must also attend to the ability of the client to select and adapt the technology on their own, including regular maintenance and troubleshooting. Since many devices for individuals who are blind include braille and/or auditory feedback as the only means of output, some familiarity with the use of non-visual feedback is critical and will frequently require specific lessons for the client in addition to the capacity of the instructor. These examples of the instructional body of knowledge provide a portion of the content which also includes access technology use of mainstream device and applications.

The understanding of client or student needs, existing barriers, and instructional approaches address the direct services of a CATIS, but do not address the technological capacity and professional maintenance of skills. The configuration domain within the body of knowledge includes the hard skills (e.g., computer analytics) of the professional working directly with the technology to ensure the best results from delivery and instruction (ACVREP). These skills must detail hardware familiarity as well as software and operating system (OS) troubleshooting (ACVREP). Where information technology (IT) professionals are sometimes available to assist in these areas, personal and end site services too frequently demand technical expertise to repair, install or consult regarding the highly specialized technology in visual impairments.

The pace of technology is acknowledged through the exploration body of knowledge. With the emergence of rapid patching and updates, as well as annual version releases, a CATIS must be well equipped with conferences, websites, and training sources to stay current with their skills. These sources must include sources within the field of visual impairments and also

broader settings so that the CATIS can be a well-informed professional participating on assistive technology teams. The CATIS professional should also be prepared to train others and share knowledge with the ability to develop tutorials, reviews and training manuals as needed (ACVREP).

Structure of the CATIS University Training Program

The CATIS is not intended to supplant any existing roles, but instead to elevate a cadre of professionals that will take their place among similarly trained individuals in other specialty areas. This philosophy of teamwork and collaboration has fueled the design of the Northern Illinois University CATIS certification efforts. The program was originally designed with the intent of preparing AT specialist certified in professional domains of visual impairments who would also be eligible for the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Assistive Technology Professional (ATP) certification. During the refinement and proposals of this program of study this new AT certification specific to visual impairments has emerged. In the interest of the highest quality of instruction the NIU CATIS program seeks to prepare professionals who can meet both sets of requirements either upon graduation or after, during professional growth and experience.

More specifically, the NIU CATIS program was designed in a unique manner to offer more than one way of acquiring ACVREP CATIS eligibility. Multiple pathways have been developed to support both new and existing vision professionals at the same time. This high degree of differentiation in AT coursework is not something that has not previously been built-into a single university program infrastructure (Augusto and Schroeder; Kapperman; Kelly, 2008). However, evidence of the variety of approaches can be observed through review of separate programs offering Assistive Technology Professional certification.

The CATIS eligibility options at NIU include the following three pathways: (#1) traditional and comprehensive school year coursework and a full-time internship for new professionals earning a master's degree in AT for people who are visually impaired, (#2) AT graduate coursework (specifically, a graduate certificate program in AT for people with visual impairments) and a full-time internship for existing vision professionals (i.e., Teachers of Students with Visual Impairments [TVIs], Certified Orientation and Mobility Specialists [COMS], and Certified Vision Rehabilitation Therapists [CVRTs]), and (#3) on-line synchronous workshop series over 16-weeks to prepare existing AT professionals with support to their personal body of knowledge in preparation for testing and certification.

The design of the NIU master's degree program in AT for new CATIS professionals in the field is three-fold. Individuals are first educated in the specific academic specialties in visual impairments and assessment, including for example knowledge of the visual system and its functional use, literary braille code, basic orientation and mobility, and collaboration principles and skills for professionals working with people who are visually impaired. Candidates are next trained in a wide range of low-tech and high-tech low vision and blindness specific assistive technology tools for compensation with attention to the user experience. Finally, methods of instruction address advanced assistive technology skills and topics specific to people who are visually impaired with and without additional disabilities. This three-area focus reflects the CATIS core domain proficiencies outlined by the ACVREP. The training specific to technology assessment draws heavily upon the existing SETT (Zabala et al.) and HAAT (Cook and Polgara) models practiced by AT professionals in school settings and rehabilitation. This approach addresses the training of new professionals being introduced to practices, but there exists a large group of existing professionals that work in the area of AT.

addresses the training of new professionals being introduced to practices, but there exists a large group of existing professionals that work in the area of AT.

For professionals already versed in the domain of visual impairments and experienced in instructional methods, the NIU program has created the summers-only AT graduate certificate program to bring AT skills up to speed with the increased demands attention to AT instruction. It is required that any existing vision professionals accepted into the summers-only AT graduate certificate program at NIU have already acquired the non-AT specific core domain vision knowledge and expertise outlined in the CATIS handbook. The intensive summers-only program at NIU provides the AT coursework (a series of 4 graduate-level university courses) and a full-time AT internship that are included in the core domain and required for ACVREP eligibility. As presented at the onset of this paper, the vast majority of currently practicing professionals lack the AT expertise that meets the ACVREP CATIS standards.

Conclusions

This multifaceted approach of creating new professionals and training existing professionals is a direct response to ongoing and emerging demands in the field of practice. The goal of the CATIS program is to prepare extensively experienced vision professionals to collaborate on equal footing with other domain AT specialists. Existing AT specialists that have emerged from other disciplines such as physical therapy, occupational therapy, and communications areas will have new resources and colleagues as a result of the ACVREP CATIS. Vision professionals will now have a certification demonstrating their capacity and body of knowledge as part of an international accrediting body.

The need for the CATIS and supporting university coursework is long overdue. For the first time in history, the requirements for qualification as an AT specialist in the field of visual

impairments have been explicitly established. Many of the eligibility requirements can only be fulfilled through formal university training. As outlined in this paper, universities with specializations in the area of visual impairments are uniquely situated to contribute the growth of this new assistive technology credential.

Works Cited

- Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP).
Certified Assistive Technology Instructional Specialist Handbook. May 2016,
www.acvrep.org/certifications/catis. Accessed 26 November 2016.
- Augusto, Carl R., and Paul W. Schroeder. "Ensuring Equal Access to Information for People who are Blind or Visually Impaired." *Journal of Visual Impairment & Blindness*, vol. 89, no. 4, 1995, pp. 9-13.
- Bell Coy, Jennifer K., and Erika A. Anderson. "Instruction in the Use of Optical Devices for Children and Youths." In Anne Corn Editor & Jane Erin Editor (Eds.), *Foundations of Low Vision (2nd ed)*. AFB Press, 2010. pp. 527-588.
- Cook, Albert, and Jennifer Polgar. (2015). *Assistive Technologies: Principles and Practice (4th ed.)*. Elsevier Health Sciences, 2015.
- Corn, Anne, and Kelly Lusk. "Perspectives on Low Vision." In Anne Corn Editor & Jane Erin Editor (Eds.), *Foundations of Low Vision (2nd ed)*. AFB Press, 2010. pp. 3-34.
- Edwards, Barbara J., and Sandra Lewis. (1998). "The Use of Technology in Programs for Students with Visual Impairments in Florida." *Journal of Visual Impairment & Blindness*, vol. 92, no. 5, 1998, pp. 302-312.
- Erin, Jane, and Irene Topor. "Functional Vision Assessment of Children with Low Vision, Including those with Multiple Disabilities." In Anne Corn Editor & Jane Erin Editor (Eds.), *Foundations of Low Vision (2nd ed)*. AFB Press, 2010. pp. 339-397.
- Holbrook, M. Cay., et al. "Instruction of Literacy Skills to Children and Youths with Low Vision." In Anne Corn Editor & Jane Erin Editor (Eds.), *Foundations of Low Vision (2nd ed)*. AFB Press, 2010. pp. 484-526.

- Kapperman, Gaylen, et al. "Survey of the Use of Assistive Technology by Illinois Students Who are Visually Impaired." *Journal of Visual Impairment & Blindness*, vol. 96, no. 2, 2002, pp. 106-108.
- Kelly, Stacy M. *Correlates of Assistive Technology Use by Students Who are Visually Impaired in the U.S.: Multilevel Modeling of the Special Education Elementary Longitudinal Study*. Unpublished Ed.D., Northern Illinois University, 2008.
- Kelly, Stacy M. "Use of Assistive Technology by Students with Visual Impairments: Findings From a National Survey." *Journal of Visual Impairment & Blindness*, vol. 103, no. 8, 2009, pp. 470-480.
- Kelly, Stacy M. "Assistive Technology Use by High School Students With Visual Impairments: A Second Look at the Current Problem." *Journal of Visual Impairment & Blindness*, vol. 105, no. 4, 2011, pp. 235-239.
- Kelly, Stacy M. "Introducing the New Assistive Technology Credential and Project VITALL University Training Program." *Visual Impairment and Deafblind Education Quarterly*, vol. 61, no. 4, 2016, pp. 25-29.
- Presley, Ike. "The Impact of Assistive Technology: Assessment and Instruction." In Anne Corn Editor & Jane Erin Editor (Eds.), *Foundations of Low Vision (2nd ed)*. AFB Press, 2010. pp. 589-654.
- Sapp, Wendy, and Phil Hatlen. "The Expanded Core Curriculum: Where we Have Been, Where we are Going, and How we Can Get There." *Journal of Visual Impairment & Blindness*, vol. 104, no. 6, 2010, pp. 338-348.
- Zabala, Joy, S. et al. "SETT and ReSETT: Concepts for AT Implementation." *Closing the Gap*, vol. 23, no. 5, 2004, p. 1.