Visual Disabilities Assistive Technology Lab (VDATL) Renovation

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1. Project description

We are proposing to update the Visual Disabilities Assistive Technology Lab (VDATL) housed in the School of Teacher Education in the FSU College of Education by acquiring various assistive technology devices and modifying the lab into an active learning space. The VDATL is used to prepare pre-service teachers in the Visual Disabilities Program at the undergraduate and graduate levels to use technology when providing services to children, youth, and adults who are blind or who have low vision.

The Visual Disabilities Assistive Technology Lab was opened in 2004 and is located in 1207 Stone Building. The current room arrangement is very basic, with rows of tables with 14 computers (accessible to students who are blind or who have low vision for the purposes of teaching) and some assistive technologies (a braille embosser, a scanner, a video magnifier, an Alva braille display, a Reading Edge, a tactile tablet, electronic braille devices, and handheld electronic viewers).

Most of the VDATL devices and software were purchased or donated in 2004 as part of a joint effort of FSU and the Florida Division of Blind Services with a onetime grant available at that time. Though we have been making efforts to upgrade selected devices, most of the technology is no longer current. In order to increase the likelihood that FSU students are familiar with more recent technologies used by their future clients and students, we ask vendors to come to campus to demonstrate their products, but this arrangement is not ideal because vendors introduce bias and, when vendors are not available, FSU students are not able to explore and use the devices being discussed. Not having devices available at all times throughout a semester does not allow students sufficient practice and limits their learning experiences. The importance of technology use by individuals with visual impairments and the professionals who serve them has been well documented in the literature (see References section in the proposal for selected sources). The addition of a national certification in teaching technology skills to this population, the Certified Assistive Technology Instructional Specials for People with Visual Impairment by the Academy for Certification of Vision Education and Rehabilitation Professionals, underscores this importance.

Figure 1. Steelcase Media:scape

A limitation of the current VDATL is that workstations are arranged in a typical classroom style, with 4-5 workstations in three rows. This arrangement works well when the instructor is providing instruction at the front of the room, as was common and acceptable in 2004, but it does not promote active learning and collaborative activities by modern students. Thus, we are proposing that the room be equipped with a Steelcase media:scape system (Fig. 1) that creates a more active learning environment and that facilitates the kinds of project-based activities that are now used by instructors preparing teachers of students with visual impairments. Through the integration of space, technology, and furniture, we will enable our students to share content with each other wirelessly from their laptops and to be connected to vendors, teachers, and adult and child users of equipment for presentations related to the content being discussed and activities practiced. This connectivity will be further strengthened by the inclusion of a ClearTouch panel, such as those used in K-12 schools today, which will provide more authentic experiences for students who are preparing to adapt instruction and learning materials selected by teachers in whose classrooms students with visual impairments are placed.

With the proposed funding, the equipment in the Laboratory will be expanded and updated. Items listed and described in detail below include (a) equipment teachers of students with visual impairments use to facilitate the learning of academic, functional, and career skills of their K-12 students, primarily literacy skills and those skills needed to access online environments (necessary for success in both educational and vocational placements), as well as (b) computers

with necessary software designed for use by people with visual impairments.

Once the Lab is modernized, the FSU Visual Disabilities Program will make the space available as a place for professionals in the local school systems and rehabilitation facilities to use, so that they can better educate people with visual impairments within our community.

2. Impact of this project on instruction

Students in the Visual Disabilities major are primarily preparing to work as teachers of students with visual impairments (TVIs) in local education and rehabilitation agencies. These highly specialized teachers assume a variety of roles as they work with the diverse group of children and adults who are blind and who have low vision. In addition to supporting the instruction of children in general education classes, TVIs are responsible for (a) ensuring that students have the skills to access written and online information and (b) are prepared to complete the tasks associated with independent adult functioning across several domains, known as the Expanded Core Curriculum. The program of study is based on preparing students to meet these responsibilities. As might be expected, the lives of people with visual impairment are both challenged and simplified through technology, so its use is integrated within many of our courses, but most particularly, the following:

a. *EVI 4324/EVI 5325: Technology for Individuals with Visual Impairment.* In this course, students preparing to work with children and adults with visual impairment are taught about the various types of assistive and mainstream technologies that are used by individuals with blindness and low vision, how to assess their own students to determine the need for these technologies, and how to teach individuals who cannot use a monitor or mouse easily to perform a variety of functions, such as use spreadsheets, access webpages, and create text documents. Most of the technologies identified for purchase in this proposal will be used by students in this class, including the computers with JAWS installed on them, the Braille Focus (Fig. 2), the Kurzweil software, the Pearl scanner and Open Book software, as well as other software and devices already available in the AT lab.

Figure 2. Braille Focus

b. *EVI 4311: Teaching Reading and Writing to Students with Visual Impairments.* In this course, students are required to use the braille embossers and braille translation programs to transcribe print into braille. The power of these devices is increased when students have access to OCR devices and software, such as the Pearl scanner and the Open Book software, the purchase of which are included in this proposal.

Figure 3. Prodigi Connect 12

c. *EVI 4314/EVI 5316: Low Vision.* The majority of students with visual impairments have low vision, and consequently, their teachers need to be familiar with the types of technology that facilitates low vision access to the environment, print, and web-based materials. In this class, use of the Prodigi Connect 12 (Fig. 3) and other camera systems, such as the Pearl scanner, both of which would be purchased if this proposal is funded, would be taught.

d. *EVI 4312: Academic Accommodations in the Public School Class.* It is in this class, offered every summer, that students in the Visual Disabilities Program learn how to adapt print materials for use by individuals who are blind and who have low vision. Students are taught to use low and high tech equipment to create tactile maps, emboss diagrams, graphs, and charts, and to increase access to students with visual impairments enrolled in core curriculum classes, such as science, mathematics, social studies, art, and language arts. Increasingly, the solution to this access involves the kinds of technology that would be purchased through this proposal. For instance, FSU students could practice adapting a science lesson presented on the ClearTouch panel and create tactile diagrams to support this lesson using the Tactipad drawing tablet (Fig. 4) and TactileView design software with the existing Tiger braille embosser, a piece of equipment already housed in the Visual Disabilities Assistive Technology Lab.

Figure 4. Tactipad drawing tablet

In-class project-based learning activities are common in the Visual Disabilities Program. For instance, students are

frequently asked to review and evaluate educational materials designed for students with visual impairments. Given that these materials are expensive to purchase and difficult to store, there are limited copies available for students to examine. The media:scape system will provide a mechanism for students to share materials with each other, as well as to jointly prepare reviews that can be projected for peers to see. Specific ways that the media:scape system can be used in classes follows:

a. *EVI 4110: Assessment of Students with Visual Impairments.* In this course, assessment tools are reviewed by students and strengths and weaknesses discussed. The media:scape system could be used for students to prepare reports on these assessment tools and to display those reports for others in the class to see.
b. *EVI 4212: Nemeth Code and Supporting Mathematics Instruction to Students with Visual Impairments.* In this course, students are asked to examine items included on the statewide FSA mathematics test in order to determine in what areas in which to provide instruction to their K-12 students. Students, working in collaborative groups, could be assigned one or more items to discuss with the entire class and could work together to create appropriate tactile graphics. In addition, students could use the media:scape system to demonstrate knowledge of teaching the abacus to students who are blind.
c. *EVI 4230: Educational Management of Students with Visual Impairments:* The instructor in this class often uses group-based learning strategies to introduce students to the kinds of issues that they will encounter as they work with families, administrators, and other teachers to provide high quality services to students with visual impairments. The learning environment created by the media:scape system will offer a unique learning space in which these activities can occur, thereby increasing their effectiveness as learners and when they enter the field of teaching.

Because of the highly specialized nature of our program and limitations in space we can utilize, the Visual Disabilities Program admits in cohorts only 15 students each year. Three cohorts are active in any one semester, so approximately 45 students each semester would be directly impacted by this funding and be able to take advantage of this innovative learning space and the technologies housed within it.

3. Project plan

Major project activities, milestones, and expected outcomes are outlined in Table 1.

Table 1. Project plan

Project Activities	Who	When	Outcomes
Allocation of funds	FSU ITS	Spring 2017	Funds available.
Purchase proposed items and complete room redesign	Faculty in Visual Disabilities Program COE OIIT	Spring 2017	Lab renovations completed; technology purchased.
Embed new technology and active learning pedagogy in instruction, train faculty and TAs	Faculty in Visual Disabilities Program, TAs, Lighthouse of the Big Bend	2017-2018	Courses modified; workshops on technology for other professionals working with visual impairments within the community held.
Use the Lab as a community resource for people with visual impairments.	Faculty and Graduate Students, Visual Disabilities Program Instructors, Lighthouse of the Big Bend	2018-2019	Workshops to local children and adults with visual impairments offered by Visual Disabilities' graduate students.
Participate in COE Tech Showcase.	Project team	October 2017	Workshops/demos/display of the technology implemented.
Participate in FSU Digitech.	Project team	April 2018	Workshops/demos/display of the technology implemented.

4. Relationship of this project to other University activities and how these activities will be enhanced and/or leveraged

The three-part mission of the state university system of Florida includes teaching, research, and public service, and our project outcomes proactively contribute to fulfilling this mission by engaging students in high quality learning and supporting professionals in the local school systems and rehabilitation facilities.

This project is directly related to initiatives outlined in the FSU Strategic Plan 2017-2020. By successfully implementing modernization of the VDATL, we achieve alignment with the following:

- Goal 1: Deepening Our Distinctive Commitment to Continuous Innovation
- Goal 2: Amplifying Excellence Across our Academic and Research Programs
- Goal 3: Realizing the Full Potential of Diversity and Inclusion
- Goal 4: Ensuring Student Success on Campus and Beyond
- Goal 5: Preparing our Graduates for 21st Century Careers

This project, if funded, has the capacity to strengthen infrastructure, incorporate collaborative learning approaches that reflect the modern workplace, create incentives to connect with the Tallahassee community, support diversity, help students connect school goals to work goals, and increase students' capabilities for successful careers.

This project aligns with the advancement of the state of Florida, the Florida State University, and College of Education strategic goals.

5. Cost of ongoing support

Per our prior agreement, College of Education Office of Information and Instructional Technologies will assist with ongoing support. Thus, we do not envisage any additional costs for ongoing support.

6. Description of the project team

The project team includes the following members of the Visual Disabilities faculty: Mickey Damelio, Sandra Lewis, and Sarah Ivy, in addition to COE OIIT and selected FSU approved vendors.

Mr. Mickey Damelio has extensive experience teaching assistive technology to individuals of all ages with visual disabilities. He currently coordinates the orientation and mobility specialization within the Visual Disabilities Program at Florida State University and in that capacity, has taught the assistive technology class for FSU students preparing to provide services to adults and children with visual impairments. In 2008, Leon County Schools honored him as one of their teachers of the year. Mr. Damelio also works very closely with various vendors and service providers, thus being the best person to coordinate this aspect of the project.

Dr. Sandra Lewis is a Professor in the School of Teacher Education in the College of Education at Florida State University. In her role as the Coordinator of the Visual Disabilities Program at FSU, she developed most of the syllabi for the courses that are mentioned above, committing instructors to ensure that a variety of mainstream and access technology is embedded throughout the curriculum.

Over the past 23 years, Dr. Lewis has been the Principal Investigator of several personnel preparation grants funded by the U.S. Office of Special Education Projects, the U.S. Rehabilitation Services Administration, and the Florida Department of Education. In addition, she has been taken the lead on several successful proposals to use technology funds to improve the preparation of FSU students as future TVIs. Dr. Lewis has extensive experience managing projects, including procurement, keeping track of equipment, and reporting results.

Dr. Sarah Ivy is an Assistant Professor in the School of Teacher Education. Previous to her doctoral work, Dr. Ivy completed an M.S. in Special Education and served as a classroom teacher at the Helen Keller School for the Blind and an adjunct lecturer at Hunter College. She teaches *EVI 4110*.

College of Education Office of Information and Instructional Technologies has extensive experience in implementing and coordinating instructional technology projects funded through FSU tech fees and other sources. Specific expertize of staff includes instructional design, project management, procurement, and tech support.

Vendors: We enjoy strong partnership relations with many vendors who loan us their equipment for student use and consider them to be members of our project team: Emerald Coast Vision Aides, Florida Reading and Vision, Humanware, and Freedom Scientific. These relationships are strong and are reflected in several price reductions for equipment and software that will be purchased if this proposal is funded.

7. Budget justification

Rationale for modernizing the Visual Disabilities Assistive Technology Laboratory (VDATL) and our justification for purchasing specific technologies was outlined in sections 1 and 2 of this proposal. To summarize, we are proposing to purchase technologies in three major categories:

1. *Assistive technology* used by individuals with visual impairments and by the professionals who provide services to these individuals. Students in the Visual Disabilities Program need to learn how to use these devices and to teach them to their future students. Included in this category are the Kurzweil 1000 Scan/Read software, JAWS software, Pearl scanner and Open Book package, the OpenBook software, Duxbury Braille Translator software, Braille Focus 40, Prodigi Connect 12 Low Vision with distance camera, and the Tactipad Drawing tablet, and Tactileview Design software.
2. *Classroom technology*: 8 Win laptops and 2 Macs for students to learn and practice specialized software; ClearTouch interactive panel to demonstrate authentic classroom teaching situations and manipulate digital content.
3. *The media:scape system* that integrates technology with furniture and that can be used to create the unique collaborative and active learning space that will enhance student learning experiences and change the quality and depth of interaction of our students with each other, learning materials, course facilitator, and experts in the field. Selected models will allow students to connect their own devices or laptops that will be provided in the lab.

We are also including several accessories (power strips, extension cords, etc.) to connect devices safely. Overall cost of this proposal is $81,997.98 and the itemized budget is presented in Appendix A (also available as a separate file for more readability). Price quotes for major equipment (Appendix B) were obtained based on FSU procurement guidelines. Due to the length (22 pages) and a specific format of the price quotes, we made available Appendix B as a standalone document.

If funded, this project will greatly improve student learning experiences, prepare them for successful careers, and ultimately affect quality of life of children and adults with visual disabilities.

References

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Appendix A

Project Budget

INFORMATION TECHNOLOGY SERVICES

STUDENT TECH FEE BUDGET

2016-2017 Project Funding Proposal

Project Details

Project Title:	**Visual Disabilities Assistive Technology Lab Renovation**
Organization or College:	FSU College of Education
Department or Unit:	School of Teacher Education
Project Period:	Spring 2017-ongoing
Start Date:	Spring 2017
End Date:	Ongoing

I. Senior/Key Personnel (list senior and/or key personnel whose compensation will be funded through project non-recurring funds)

First Name	Middle Name	Last Name	Project Role	Requested Salary	Fringe Benefits	Funds Requested

Total Funds Requested for Senior/Key Personnel $ -

II. Student & Other Personnel (insert description)

Type	FTE	Requested Salary	Fringe Benefits	Funds Requested
Graduate Students				
Undergraduate Students				
Other Personnel				

Total Funds Requested for Students & Other Personnel $ -

Total Salaries, Wages & Benefits $ -

III. Equipment (list items and dollar amounts for each item or multiple items of the same type, including software, with a total cost of over $2,000)

Item	Description	Funds Requested
Steelcase Media:scape with physical PUCK	Integrating technology and furniture to promote collaboration and interaction between students and content. Physical PUCK allows up to 6 laptops to be connected and displayed with one click of a button.	$ 16,159.97
14" Dell laptop (8x$1576)	Workstations for students enabling active learning in the classroom; to download software restricted to FSU-owned devices only, as per license agreem	$ 12,608.00
Steelcase Media:scape with virtual PUCK	Integrating technology and furniture to promote collaboration and interaction between students and content. Virtual PUCK allows any devices to be connected and displayed with one click of a button.	$ 11,926.10
JAWS software site license (2x$2961.25)	Job Access With Speech, a popular screen reader developed for computer users who cannot see screen content or navigate with a mouse. JAWS provides speech and Braille output for the most popular computer applications on your PC.	$ 5,922.50
13" MacBook Pro (2x$2952.85)	Workstations for students enabling active learning in the classroom; to download software restricted to FSU-owned devices only, as per license agreem	$ 5,905.70
70" Cleartouch interactive panel	This electronic presentation panel, which is often seen in K-12 school classrooms, allows for up to ten simultaneous points of touch, immediate access to mobile apps and software, device mirroring, and wireless connectivity—all designed to get students collaborating immediately.	$ 4,088.00
Duxbury Braille Translator software (8x$419.50)	Software used to produce contracted and uncontracted braille, mathematics, and technical braille by taking Word, text files, HTML, etc. and converting the text into a format that can be read by a braille embosser.	$ 4,195.00
Prodigi Connect 12 low vision with distance camera	Lightweight, portable, and powerful, wireless camera with up to 40x magnification in 12.2-inch full HD with integrated capture function to directly access to object or document being viewed. Has smartboard connectivity and open Android platform that provides access to 1,500,000 apps and native	$ 2,895.00
Braille Focus 40	Lightweight and compact device that combines the latest Braille technology with a keyboard and control layout, plus USB and Bluetooth that easily connects to iOS and Android devices including smartphones, iPads, tablets, and other mobile devices. Combines with JAWS for the speech and	$ 2,695.00
ITS computer assessment fees (11x$235)	Charged by FSU ITS for Windows and Macintosh computers to offset a campus-wide licensing agreements. We will be paying for 10 laptops (8 PC and 2 Mac) and a Cleartouch computer component.	$ 2,585.00
Samsung 32" LED display (4x$536.24)	To be mounted on the Media:scape for content display.	$ 2,144.96
Cleartouch convertible stand	To use the interactive panel either as a standing display or as an interactive multitouch table.	$ 2,129.83
Steelcase Media:scape units (4x$524.52)	Additional chairs to accommodate the class size.	$ 2,098.08
Pearl Scanner and OpenBook package	OpenBook and the PEARL document camera create a complete scanning and reading system. The software enhances access to printed and electronic materials for people who are blind or have low vision by converting printed documents or graphic-based text into an electronic text format using high-quality speech and the latest optical character recognition (OCR) technology.	$ 1,690.00
Cleartouch PC module	Computer necessary to run the Cleartouch interactive panel.	$ 1,234.94
OpenBook software license	License required to use OpenBook software	$ 995.00
Kurzweil 1000 scan/read software	Software speaks text aloud in a variety of natural-sounding voices that can be modified to suit individual preferences. In addition, it provides users with document creation, editing, and study skill options for note taking, summarizing, and outlining text.	$ 895.00
Tactipad drawing tablet	Device use with the TactileView, tactile graphic design software, to create usable tactile graphics for use by braille readers.	$ 499.00
Tactileview design software	Software used with Tactipad drawing tablet to import complex graphics and convert them to simple line drawings to create a usable tactile image. Graphics can also be created directly and stored for multiple use.	$ 295.00
Epson V600 flatbed scanner	The main target of this scanner is the digitalization of non transparent material, such as for paper photos, graphics, or text documents. Can use for scanning books and other larger items.	$ 210.90
USB 4-port hub (4x$49.06)	Enable multiple connections.	$ 196.24
12 outlet power strip (4x$29.64)	Allow power expansion for additional items.	$ 118.56
10 foot extension cord (4x$11.80)	Accommodate additional power mobility.	$ 47.20

Total Funds Requested for Items Over $2,000 $ 75,353.14

Total Funds Requested for Items Under $2,000 $ 6,181.84

Total Funds Requested for Equipment Costs $ 81,534.98

IV. Other Costs

Category	Funds Requested
Materials & Supplies	
Consultant Services	
Equipment or Facility Rental/Use Fees	
Additional Project Costs (describe in budget justification)	$ 463.00

Total Funds Requested for Other Costs $ 463.00

Total Project Cost **$ 81,997.98**

Appendix B

Price Quotes

Note to reviewers: All price quotes are assembled in a separate document. As the document is 22 pages long, the file is available as a standalone item.