Title: Enhancing Access through Assistive Technology

Proposer: Lisa Diekow, Disability Resource Center, Rita Inman, Disability Resource Center, Sabrina Saucier, Disability Resource Center: Contact: Rita Inman, ritainman@ufl.edu 1316 Museum Road, Gainesville, FL 32611, 352-392-8565

Purpose:

The Disability Resource Center's (DRC) mission and vision is to provide access by removing barriers for students with disabilities. Currently the DRC serves over 6,200 students, with that number increasing each semester. Implementing new assistive technology will help the DRC go beyond access for our students. The Disability Resource Center is requesting $81,750 for the purchase of LiveScribe smart pens, remote testing proctoring camera systems, and Phonak Assistive Listening Devices (ALD). The funds will be distributed in three different categories, LiveScribe Smart Pens, Assistive Listening Devices (ALD), and remote camera systems.

The Disability Resources Center is requesting $33,750 to purchase 150 Livescribe smart pens, Smart Ruled paper, and smart pen ink cartridges to facilitate note taking services for students, faculty, and staff to record audio of lectures and take handwritten notes simultaneously.

This use of LiveScribe smart pens will help the DRC go beyond access for current DRC students, faculty, and staff. To meet access needs, students will have the ability to demo, be trained on pen use, and check out LiveScrive smart pens from the main DRC office. Accessibility Specialists will be trained in the use of LiveScribe smart pens, so during student appointments they can share the features of the pen and how it will remove access barriers. Students will have the ability to contact the Assistive Technology Accessibility Specialist for more in-depth training as needed.

The Disability Resource Center is requesting $30,000 to purchase Assistive Listening Devices (ALD) which includes, Phonak Roger Focus II, Phonak clip on microphones, and Phonak Select microphones. These ALDs will provide access for students with auditory processing disorders, various levels of hearing loss, and Autistic students. The University of Florida has various sized classrooms, some of which are very large lecture halls; acoustics in those larger lecture halls make it difficult to accurately hear, process, and/or block out exterior noises even if the speaker is utilizing a built-in microphone. The use of an ALD will help to remove those barriers for the student and improve hearing of information and engagement.

The DRC currently provides students with FM systems, that are five or more years old, for students to check out for a given semester. FM systems are wireless devices that transmit what the speaker is saying directly to the student using standard radio waves. The difficulty of using our current, outdated FM system is the inability to Bluetooth into students' hearing aids, the quality of the speaker is often not clear or muffled, and the technology is significantly outdated. The Roger Clip on microphone is designed to directly transmit the speaker's voice into the students' hearing aid or cochlear implant using Bluetooth technology. Bluetooth technology removes background noise, adjust voice levels as needed, and have the ability to connect to various multimedia devices.

Like the Roger Clip on, Roger Select microphones are stationary systems that also Bluetooth into students' hearing aids or cochlear implants. The biggest advantage of the Roger Select microphone is the ability to improve speech in group conversation with

multiple speakers by automatically selecting the speaker, which reduces confusion for the listener. The Roger Select microphone would be most helpful to students in class discussions, lab settings, and small group learning environments.

The Phonak Focus II will replace the outdated FM systems, for students that may not currently have hearing aids or cochlear implants, and thus the ability to acquire a Bluetooth connection. The Phonak Focus II provides direct access from the speaker to student, removes background noise, and has adjustable volume controls. The DRC currently has a loan system in place for students to check out various assistive technology. Adding new updated AT will help to go beyond the access we currently provide for our students.

The DRC Testing Services currently utilizes a closed-circuit camera system, which uses video monitoring software that allows for viewing live and recorded cameras in the standard testing spaces. As the demand for testing spaces continues to rise, the DRC has had to expand seating in areas that do not have cameras, in individual staff offices and larger low distraction spaces outside of the DRC office spaces in Reid and Cypress Halls, to accommodate the accommodated test requests for specific dates and times per instructors.

Maintaining test integrity for all exams is a top priority for the DRC and an obvious expectation from faculty. The DRC will be able to provide both live and video proctoring for any additional spaces being used for accommodated testing, with a comprehensive mobile recording system. The DRC has researched individual stand-alone video camera systems with memory cards and associated accessories that will allow for recording exams in any alternate testing location.

The Disability Resource Centers proctors approximately 12,000 accommodated tests annually to students with disabilities. The importance of having dedicated spaces to allow for a variety of testing environments allows students to receive distraction-reduced or distraction-free testing, Assistive Technology, extended time, and other educational testing accommodations. This benefits students with learning disabilities, physical disabilities, medical-related and mental health disabilities, as well as students with hearing and visual impairments. Due to the increasing number of students with disabilities testing with our office, the Disability Resource Center has expanded test seating options beyond the designed testing rooms that are monitored to include the DRC waiting room, conference room, and individual staff offices. Therefore, additional proctoring security cameras are required, to allow the Disability Resource Center in maintaining the highest level of test integrity when proctoring exams in expanded test seating options within the DRC and external to the DRC spaces.

The DRC is requesting $18,000 for the purchase of 25 video recorder systems, with accessories to include memory cards, camera cases, tripods and cases, chargers, cables, extension cords, power blocks and associated protection plans for the higher priced equipment items.

Impact/Benefit:

The DRC currently serves almost 200 students for note services. These students are assigned a specific note taker in each of their courses. The downfall is that the students with disabilities are not taking their own notes.

The Livescribe Echo smartpen is an assistive technology device that assists in notetaking and can enhance the learning process. (Frankenberg, 2020) Students that type notes on a laptop are less able to process and grasp information, leaving them less able to reframe the information into their own words. Studies have shown that laptop note-takers perform worse on conceptual exam questions compared to longhand note-takers (Mueller & Oppenheimer, 2014). Thus, resulting in students that are more challenged with conceptual understanding and having surface level understanding of material. By encouraging students to take their own, handwritten notes the DRC can help students advocate for their own learning. Thus, guiding students to take control of their learning and notetaking, while providing reasonable means to do so. We expect that students take deeper, more impactful, and meaningful notes and rely less on note services and other student notetakers. Given the capabilities of the pen, students can listen to the material auditorily and/or manipulate the information they handwrite, digitally. Once information is downloaded from the pen and corresponding notebook it can be accessed, stored, manipulated, and even emailed. Again, putting students back in charge of their own learning versus receiving notes from other students or even more verbatim style notes from taking them via a laptop and keyboard. Developing these note taking skills now can help students transition into their career after their post-secondary education by increasing productivity, identifying key concepts, and retaining vital information.

The current population of DRC students receiving services for communications disorders (autism spectrum disorder), hearing impairments, and learning disabilities is about 15%. Assistive Listening Devices (ALD) helps learners by reducing background noise, provides direct sound from the speaker to learner, and amplifies speaker volume (Baquis, 2023). Providing ALD to students will support direct access and reduce the need for additional services. Large classrooms with poor sound quality can be modified by a small discrete device, sending the information directly to the student with little to no effort. It can be almost impossible for students sitting in the middle to back of the classroom to fully or clearly hear the speaker or process the information accurately (Cole, Flexler, 2007). By eliminating external noises, the student can focus on the speaker and process the information fully. Some students currently utilize hearing devices that will have the capability to directly pair with the speaker through the Bluetooth microphone systems. Students working in small groups or lab settings will have less distractions with the Phonak select capture to correctly identify the main speaker in their specific group by minimizing the excess noise from their peer groups working in close proximity.

The Disability Resource Centers proctors approximately 12,000 accommodated tests annually to students with disabilities. More specifically, of over 6,200 students registered with the Disability Resource Center, more than 5,000 have testing accommodations, which require the exams to be proctored, in some fashion. The most often provided testing accommodations are additional time/time and one-half (3,202), low distraction environment (1,869), breaks/restroom (1,782), double time (899) and separate testing environment (625).

The Disability Resource Center strives to maintain the highest level of academic integrity with accommodated testing. We are an extension of each faculty member, and we proudly collaborate with them to ensure that exams are prepared in an accurate and timely manner, as well as returning the exams per the instructions noted by each instructor. The impact of academic dishonesty goes beyond the individual impact of crossing a moral or ethical boundary. It also reduces the perceived academic integrity of the institution,

devaluing degrees earned from that institution (Chace, 2012; Mensah et al.,2016), and threatens the validity of those credentials (Wollack & Cizek, 2017).

The importance of having dedicated spaces to accommodate a variety of testing environments is central to ameliorating academic dishonesty while allowing students to receive distraction-reduced testing, Assistive Technology, extended time, and other educational, testing accommodations. This benefits students with learning disabilities, physical disabilities, medical-related and mental health disabilities, as well as students with hearing and visual impairments. Due to the increasing number of students with disabilities testing with our office, the Disability Resource Center has expanded test seating options beyond the designed testing rooms that are monitored to include the DRC waiting room, conference room and individual staff offices. Therefore, additional video recording camera systems are required, to assist the Disability Resource Center in maintaining the highest level of test integrity when proctoring exams in expanded test seating options within the DRC and, when necessary, external to the DRC offices.

Sustainability: The Disability Resource Center supports this proposal, will maintain the equipment as needed, and will absorb maintenance cost.

Budget & Budget Narrative: What is the expected cost of the project? Include startup costs, operating costs, and equipment costs when appropriate. A maximum of two years is allowed for the budget.

Technology	Quantity	Price
LiveScribe Pens/ Bundles	150	$33,750
Phonak Roger Focus II	5	$10,000
Phonak Roger Select Microphone	5	$10,000
Phonak Roger Clip On Microphone	10	$10,000
Total for Assistive Listening Devices		$30,000
Zoom Q2n-4K Handy Video Recorder	25	$4,749.75
Sunpak Video Pro M-4Tripods	25	$1748.75
Neoprene Memory Card Pouch	6	$59.70
SanDisk 128GB Memory Cards	25	$399.75
Century Wire and Cable Pro Power Extension Cords	25	$812.50

Xuma 2.4A USB Charger with folding Prongs	25	$224.75
Pearstone USB 2.0 Type A Male to Micro Type B Male Cable	25	$174.75
Case Logic DCB-304 High Zoom Camera Case	25	$498.75
Ruggard Deluxe 27" Tripod Case	25	$748.75
Impact filled saddle sandbag	25	$ 548.75
Furman Pro Plug 6-outlet power block	25	$648.75
Total with protection plans		$18,000
	Total Requested	$81,750

Sources:

Baquis, D. (n.d.). *Benefits of Assistive Listening Systems*. National Association of the Deaf. https://www.nad.org/resources/technology/assistive-listening/assistive-listening-systems-and-devices/

Bouchrika, I. (2022, September 26). *Digital Notes vs Paper Notes: Benefits of Taking Notes by Hand*. Research.com. Retrieved March 7, 2023, from https://research.com/education/digital-notes-vs-paper-notes

Cole, E.B., & Flexer, C. (2007). *Children with hearing loss: Developing listening and talking: Birth to six*. San Diego: Plural Publishing Inc.

Timeline:

Timeline	Action	Responsible Parties
Summer 2023	Gather quotes and preliminary planning	Project Team
August 2023	Funds awarded	Fiscal Services and Grant Manager
August 2023	Equipment purchased	Project Team, and Fiscal Services

September 2023	UF IT for UF Risk Assessment review of equipment items	Project Team and UFIT
October 2023	Cataloging and tagging of equipment items	AT Accessibility Specialist
October 2023	Equipment testing and staff training	Project Team
November 2023	Equipment advertised and promoted	Project Team and DRC Marketing Team
November 2023	Updating equipment loan guidelines	Project Team
November 2023	Update DRC website, including links to all instruction manuals	Project Team and Library IT
January 2024	Launch of Equipment Loan program	Project Team
Spring 2024	Instruction for use of	Project Team
Summer 2024	Assessment of usage, efficacy, and impact	Project Team