Assistive Technology: Developing an Assistive Technology Grant
Honors Program
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Acknowledgments

I would like to take this time to thank my family for their support throughout this project. Also, I would like to thank Dr. Bryan Dallas for allowing me to do a capstone project with him this semester. This project would have not been able without his help, insight and guidance throughout the semester. Further, I want to thank my parents for being great role models in what hard-work and perseverance can accomplish. They instilled the love of teaching and to take pride in what you do. Treat people as you want to be treated was instilled at a young age and is my philosophy in my classroom. This has made me successful in and out of the classroom. Also, students don’t care how much you know until they know how much you care has been with me in establishing respect in the classroom. This advice came from my grandma who taught math and is my inspiration in the classroom. The journey in doing this project and completing my degree has been a great learning experience and one I take pride in accomplishing.

State of the Problem

About 20 percent of Americans identify as having some type of impairment that may impact one or more major life activities (U.S. Census Bureau, 2011). AT is often needed to ensure independence in work, educational, community and home settings. The employment rate for Americans with disabilities is significantly lower compared to individuals without disabilities (U.S. Bureau of Labor Statistics, 2016). One study found that most employed individuals with disabilities were using one or more AT devices (Yeager, Kaye, Reed, & Doe, 2006). The researchers surveyed people using the Center for Independent Living in California and found that the majority (54.2 percent) employed individuals were using some form of assistive technology. Work benefits included productivity and hours worked, as well as improve attendance. In
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addition to work benefits, participants reported benefits related to self-esteem. Lenker, Harris, Taugher, and Smith (2013) also found that individuals highly values assistive technology for its positive impact on well-being, school, and work. Research done by Hocking (1999) suggest people with disabilities have negative feelings about using assistive technology as an aid. Many people with disabilities do not like extra attention drawn at them which makes them to feel self-conscious about their disability. This can be expressed as humiliation which leads the individual abandoning their assistive technology device. However, to eliminate any stigma associated with using assistive technology AHRS 495: Assistive Technology in Rehabilitation was developed to address the growing need for professionals to have AT education and training. Postsecondary disability resource centers are federally mandated to provide access to programs and services for students with disabilities. While postsecondary institutions cannot purchase assistive technology for students with disabilities to keep and own, institutions should make assistive technology available for use on campus while students are enrolled in classes.

Purpose of Assistive Technology Tri County Grant Proposal

Therefore, the purpose of this project is to provide new or improved assistive technology for 1) undergraduate students enrolled in REHB 495: Assistive Technology in Rehabilitation and 2) NIU students with disabilities. The assistive technology used in REHB 495 will also be made available to NIU students with disabilities to ensure independent access to programs and services on campus. For example, many college students with disabilities use assistive technology to independently complete coursework and exams. The assistive technology in the project will be
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housed in an NIU computer classroom on campus (Wirtz 307) and at NIU’s Disability Resource Center.

**Review of Literature:**

Designing and Implementing an Assistive Technology Lab for Postsecondary Education

**Summary**

Assistive technology is growing exponentially and when people acquire a disability they have to adapt and get tested for different assistive technology devices. Many people do not know the different types of assistive technology devices for each category of disability. Further, in my Assistive Technology class taught by Dr. Dallas I learned about different assistive technology devices I never heard of and it made me more aware of the different programs and organizations for people looking to obtain assistive technology devices. This article explores one university’s process in setting up an assistive technology laboratory for students to explore. Such experiential learning opportunities are vital to the success of special education educators. This paper explores how the lab is set up and the activities visitors complete to provide a foundation for those looking to develop a similar lab.

**Introduction**

Why is assistive technology important for students with disabilities? According to United States Census Bureau (2012), “About 56.7 million people — 19 percent of the population — had a disability in 2010, according to a broad definition of disability, with more than half of them reporting the disability was severe”. This statistic shows several people live with a disability which is affecting their independence and ability to perform activities of daily living. Therefore, when it pertains to students with disabilities it can impair how well they do in school. Today, students with
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disabilities are presented with many challenges, but one of those challenges is stigma. Stigma is common for students and people with disabilities to experience no matter if it is at school, work, or in the community. However, why is there a stigma placed on students with disabilities? Are students not aware of different types of disabilities, or do students need to be educated? Further, even if a student brings his or her assistive technology device to class, and the professor doesn’t have any background or prior knowledge in assistive technology it puts the student with a disability in a tough situation. Therefore, research done by Jones, Williams and Rudinger (2018), reports how an Assistive Technology lab was created at Texas A & M University-Commerce. This lab allowed students with disabilities to use assistive technology to better benefit them, but most importantly the lab was open to the community.

Literature Review

The lab organization described in the article was interesting. For the Assistive Technology lab at Texas A & M-Commerce it was arranged in a color-coded and interactive stations. Since the lab was built in Texas A & M library it made it more convenient and accessible for students with disabilities and professors. In their lab, each station had a computer, iPad, two chairs and some had QR codes linked to different class websites and books. Since Northern Illinois University is trying to adopt an Assistive Technology this set up would be a good one to follow for their students. Further, for each type of disability for Texas A & M-Commerce it is color-coded. For example, the article mentions the Sensory Impairment station was color-coded yellow. This would allow for organization for the students, and it ensures where everything is depending on the individual’s disability.
Furthermore, the article begins to highlight all the stations it has at Texas A & M-Commerce. The main stations mentioned at the university were communication/behavior station, academic station, sensory impairment station, physical disabilities, and daily living station. All the station mentioned-above had all the necessary equipment. For example, for the daily living station it had flashing doorbell for those with hearing loss, braille and many more. Therefore, from this brief example one can see how Texas A & M-Commerce set up their assistive technology lab. Not to mention, since Northern Illinois University wants to implement and design a lab, they could get help from IATP (Illinois Assistive Technology Program). This facility has several assistive technology devices, and it is set up in station like the one mentioned in the article. Dr. Bryan Dallas and other colleagues can gain a better understanding in structuring their assistive technology lab.

To go on, the article mentions different lab activities students without disabilities, parents and community to learn more about different assistive technology devices. One of the ideas presented was a scavenger hunt. This activity will help engage other people who might not use/need assistive technology to hopefully get rid of any stigma individuals might have. Hopefully the exposure to assistive technology will change people’s minds about how they think about AT seen in school, work and the community. Therefore, one way of implementing this activity is having NIU students in the College of Health and Human Sciences and other majors to take seminar in assistive technology. This would educate students on disabilities, assistive technology and gain a better appreciation for people with disabilities.

Lastly, another important point for implementing an assistive technology program is to have some type of orientation video in the lab. The video can explain the purpose of the lab, set up and brief explanation of all the assistive technology devices presented in the lab. Since, the lab will be open to everyone not everyone has a disability, and most don’t know what each AT device
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This video would allow them to gain a better understand of the devices. For example, when I went to IATP the individual gave us a brief overview of the place and most of the assistive technology devices. I believe students and people without disabilities would benefit from this tutorial the most.

Conclusion

To conclude, the purpose of the assistive technology lab at Texas A & M-Commerce was to give professors exposure to different types of assistive technology devices. Knowledge is the key concept the lab wants to address. Implementing an assistive technology device would be beneficial for students, professors and the community. Equality is something all people no matter if they have a disability or the color of their skin. AT is an essential component of any teacher preparation program, and the creation and utilization of an AT lab is one that will pay dividends for countless students.

Importance

The importance of the literature review mentioned-above is because it highlights how to design an assistive technology lab for a variety of disabilities including people with physical and sensory disabilities. One main concept that was emphasized in the literature was having multiple stations of different colors to showcase what each station is depending on the disability. Dr. Bryan Dallas can implement this color scheme when he is designing his own assistive technology lab for people with disabilities, students and the community. Not to mention, the literature will give Dr. Dallas an idea about using videos to the students and the community before they engage in the assistive technology devices. By doing this, it will eliminate any frustration the students might encounter. Therefore, I particularly think this is a good idea because many students do not know
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how to use different types of assistive technology devices. Since, technology abandonment is common, video tutorials will give the students a level of appreciation and understanding of the devices. Further, an assistive technology lab at Northern Illinois University will be a success because past and present research shows how students become more aware about different software’s and programs they can utilize for their own benefit.

Quotes of Assistive Technology Devices:

I was required to find educational quotes for specific devices Dr. Bryan Dallas wants in his assistive technology. Below you will find the devices and the quotes. Further, I examined multiple computer labs at Northern Illinois University to determine which assistive technology devices were missing. This will allow Dr. Bryan Dallas to gain a better understanding of the type of devices he needs for his own lab.

Product Description:

- **Dragon USB Headset:** The unit price for this device is $150.00. The SKU is NU-K889A-RD7-15-0. Therefore, for this our quantity would have the 30. Resulting in a total of $4,500.00. Lastly, the Dragon USB headset delivers superior audio input for use with Dragon NaturallySpeaking. A noise-cancelling microphone enhances speech accuracy while the USB-enhanced digital sound ensures consistent audio quality every time. The adjustable single earphone design fits left- or right-side and lets you tune in to your PC while remaining in touch with your surroundings.

- **Revolabs xTag USB Wireless Microphone System:** The unit price for this device is $194.95. The part number is: 02-DSKSYS-D. Further, for this product we want around 3 for the quantity. Resulting in a total of $584.85. Lastly, this device has Superb audio
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performance with wireless convenience brought to the individual workspace. Connecting to a Windows or an Apple personal computer via the USB interface, the xTag wireless microphone is ideal for podcasting, VoIP, Skype, web conferencing, distance education, speech recognition, and many other audio applications.

- **ZoomText Large Print Keyboard:** The unit price for this device is $129.00. The SKU is KM0553. The quantity we need for this device is 1. Resulting in a final price of $129.00. Lastly, this keyboard is designed to help people find the keys on their keyboard which helps people who have low-vision.

- **Basic Training for NVDA (eBook):** The unit price for this eBook is $30.00. For this eBook we would only need 1 of these. Resulting in a final price of $30.00. Lastly, the Basic Training for NVDA eBook is the first module in the official set of training materials for learning to use the free NVDA screen reader.

- **iPad:** The unit price for iPads are $329.00. For this device we would need a quantity of 30. Resulting in a final price of $9,870.00. Lastly, with the iPads we can download different programs like Jaws for example to show how it works. Students need hand-on experience instead of watching Dr. Dallas show them. I believe when the students are engaging that is when they learn the best.

- **Zoom Text:** Depending on which model you get the price will be different. For the Zoom Text Magnifier, the unit cost is $500.00. The product code for this device is: 340746-001. The quantity we would need is 30. Resulting in a final price of $15,000. However, for Zoom Text Magnifier Reader the unit price is $700.00. The product code is 340766-001. The quantity we would need is 30. Resulting in a final price of $21,000. Lastly, ZoomText Magnifier/Reader is a fully integrated magnification and reading program
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tailored for low-vision users. Magnifier/Reader enlarges and enhances everything on your computer screen, echoes your typing and essential program activity, and automatically reads documents, web pages, email.

- **JAWS**: The unit price for this device is $1,200.00 for a professional license of the software. The quantity we would need is 30, but we are currently trying to find a way that requires us only buying one license. Resulting in a final price of $1,200.00. Lastly, Jaws is a computer screen reader program for Microsoft Windows that allows blind and visually impaired users to read the screen either with a text-to-speech output or by a refreshable Braille display.

- **Kurzweili 3000**: The unit price for this software is $200 for each license for 20-30 users which will be perfect for our assistive technology lab. Resulting in a final price of $200.00. Lastly, is an educational technology, or assistive technology, which provides a reading, writing and study platform aimed at people with learning disabilities or other disabilities that make reading or writing difficult. This will help an abundant number of individuals with vision problems.

- **Motiva Personal FM System w/CARRY CASE**: The unit price for this device is $701.00. The ASIN is: B01LZYS3S8 and the UPC is: 612750460135. The quantity we would need is 1. Finishing with a final price of $701.00. Lastly, a Motiva Personal FM System reduces background noise and maximizes listening by wirelessly broadcasting a speaker’s voice, audio program or simultaneous mix for all participants to hear. It’s ideal for classrooms, small group listening, employee training, consultations, or any environment where listening can be difficult.
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- **BigKeys LX w/Keyguard:** The unit price for this device is $89.00. The product number is: 80000028. Further, for the quantity we would only need one. Resulting in a final price of $89.00. Lastly, a rigid keyguard provides a barrier between the user’s hand and the keyboard enabling them to rest their hands on the keyboard without activating any keys on the keyboard.

- **Reading Pen TS w/Case:** The unit price for this device is $249.00. The quantity we would need for this device would be 1 with a total price of $249.00. Lastly, a Reading Pen TS is a personal, portable and powerful hand-held assistive reading technology tool designed for English Language learners and special education students to help boost vocabulary, fluency, and comprehension skills needed for reading autonomy, and confidence.

- **Big Track Switch Adapter Trackball:** The unit price for this device is $81.95. The part number is: 12000006. Further, the quantity we would need is 1. Finishing with a total price of $81.95. Lastly, a BIGtrack is ideal for those who don't have the fine motor skills required by a mouse. Adapted for switch activation.

- **Compact 7 HD Video Magnifier:** The unit price for this device is $895.00. The item number is: COMP7HD. The quantity we would need is 1. Finishing with a total price of $895.00. Lastly, this device is for people who have low vision which helps magnify certain things they are looking at.

- **1 Scanner flat bed, high speed scanner:** The unit price for this device is $249.000. We would only need one of these resulting in a final price of $249.00. Lastly, a Canon high speed scanner will allow for documents to be scanned at a faster rate for the individuals using it.
References