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Adaptive Technology

Part 1a

When creating an assistive technology self-evaluation for students, a user is directly impacted by the final product and decision. Thus, in this case, the students assume a user's role; hence, necessitating asking themselves some questions pertinent to their functional limitations. These questions include:

    i.   Have you ever been diagnosed or recently developed a learning disability that has seen you struggle in any of your academic skills?

    ii.   Are you an auditory, tactile, visual learner, or dual media learner?

    iii.   State any motor skills or other form of disabilities that need to be considered vital when you use technology?

    iv.   What is your interest, skill, and experience in using technology?

    v.   State any environmental considerations (such as accessibility, lighting, positioning, space, portability, sound, electricity) that need to be optimized to enable you to use technology? Does your consideration above require any training or support for you to use technology?

Correspondingly, students with learning disabilities who require assistive technology to address their various learning challenges need different technology. Some of the technology they might need depending on their needs, includes electronic mathematics worksheets to create and store electronic notes. Graphic organizers and outlining technology will help these students to organize their project information into desired categories and order (Lee & Templeton, 2008). The students might need optical character recognition technology to scan printed materials into handheld or computer units. Personal frequency modulation listening systems will help some

students directly transmit a speaker's voice into their ears. Talking calculators will be vital for students with learning disabilities since they will help them with auditory feedback necessary in verifying the accuracy of pressed keys on key-in besides answer verification before they transfer it to paper.

Part 2

Central Access Reader (CAR) was designed for learners with visual impairment, ADHD, dyslexia, etc. The tool helps students decipher mathematical notations not supported by most screen readers (Leibs, 2015). To use CAR for math accessibility on campus the mathematical problems or work will be formulated as Microsoft Word or those completed using *MathType*. Using the insert option equations are inserted into the Word document, which I will save on the desktop. Eventually, I will open CAR and drag the document into it. Lastly, I test it out (by listening as it reads aloud) and make necessary edits. Text to speech in mathematics has two main advantages. First, it helps students read symbols, numbers, and exponents to overcome print disabilities to solve mathematical problems (Leibs, 2015). Secondly, it allows a user to customize how mathematical text sounds and looks for easy understanding and easy problem-solving. Another app that can read math aloud is the Dolphin Screen Reader, which reads math information composed in MathML (Washington.edu, 2019).

To use a tool such as Chem4word for text to speech accessibility in chemistry, I will open the Microsoft Word add-in and use the tool to write and render chemistry information semantically. Then, I will make Word speak the document by selecting the chemistry text and clicking the speak button to listen to the reader. A text-to-speech tool such as Chem4word is essential in a Chemistry class since it helps students with reading or learning difficulties. However, it has one main advantage in an attention-to-details subject like Chemistry. The

synthesized Chemistry information audio files help learners learn reading chemical expressions as well as mathematical equations, particularly when they may have missed a Chemistry lecture (Ruedas-Rama & Orte, 2012). Besides the Chem4word application, *NaturalReader* is an alternative application that can read chemistry aloud. In essence, the app presents a real-world Chemistry simulation and can read web pages, text, and pdf formatted chemistry documents.

References

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