**Assignment 1: Assistive Technologies**

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UDL, Universal Design for Learning, is an exciting science-based approach to education.  Using knowledge of the physiology of the brain, we can try to develop lessons and a classroom environment that will work for average students as well as those surrounding average.  The main principals are that the brains’ of students can be broken into specialized “groupings”, vary from person to person and from time to time, and are heterarchical.  The idea is to use these principals to develop lessons and an environment that will benefit most, if not all, students. There are three principals to UDL that will be discussed.  These principals are to provide multiple means of engagement, multiple means of representation, and multiple means of showing and demonstrating what has been learned.

Engaging with learning goals, tasks, and materials is important in any learning situation. There must be options that can grab students’ attention, help with persistence in effort, and assist in self-regulation. Isolveit developed two programs called “Math Squared” and Math Scaled” that are particularly exciting to a Secondary Math teacher such as myself. They allow for multiple means of engagement and the really neat thing is that there is no rigidity about progression through levels. Students can switch levels at any time and can start anywhere. It is not tied to the curriculum so it is truly a puzzle-based, fun and engaging time with Math online. To help with persistence, there are hints throughout and the puzzles give feedback. Another highlight is that the programs do not mark as right or wrong, but just highlight conflicts. These last few options are great at developing coping skills and self-assessment. There are many digital media that allow for more engagement, regulation and persistence. Digital media can be accessed that include graphic organizers, checklists, links to background information, glossaries, etc. that all help with context, engagement and regulation.

How material is represented to students is of importance as students have a variety of strengths and weaknesses. For example, if the material is always presented in print, it will severely limit those students who are not strong in reading. Content should be given in a variety of media that have support for those who need it, but is also interactive with a variety of points of view to benefit all. Some technology available that would help in this area would be text-to-speech programs. IPad’s and most smart phones have this technology built in. There is choice for the font size, speech speed, etc. that can allow a reading of a selected excerpt of text or the whole screen. This is good for the visually impaired students, those who like to read larger text, or those who are not great readers. There are electronic highlighting technologies and note-taking programs that aid students in interacting with online text. These technologies are ensuring that the information is accessible for learning for more students. Other options are animations to show processes and visual and audio alternatives to text to deepen understanding of verbal text. Furthermore, there are “hyperlinked glossaries, background information, on-screen coaching, etc.”  (Meyer, UDL: theory and practice). For teachers, this can be extended to different lesson plan types as well. CAST’s UDL bookbuilder is an online tool that can help develop multi-media lessons. Once the student have been presented with the material in a variety of ways, then there needs to be either formative or summative assessment. This leads to options for expression.

Lastly, there needs to be options for students to demonstrate what they have learned. There has to be options for physical actions using a variety of tools, options for construction and composition of materials, and options for the development of goal setting and strategy development. Spell checker is an amazing tool for spelling problems. It can go so far as to be programmed for an embedded rule to correct consistently incorrectly spelled words. There are a plethora of online rubric developers that allow teachers to clearly describe what is to be expected from students for any assessment. Voice recognition can assist in speech-to-text problems. This is useful for students who are physically incapable of writing or typing or students who may have trouble putting ideas on to paper. Furthermore, there are multiple programs such as Power Point, Keynote, iMovie, etc. that allow students to record their assignment in a format that suits their needs. Digital portfolios, digital notebooks, 3D animation programs are all amazing for demonstrating knowledge or for recording thoughts. Finally, Blogs, social media programs (TOWN, etc), and peer-to-peer mentoring programs allow for sharing of thoughts online. The benefit is that these thoughts are technology based so can be in written form, video form, audio form, etc.

The media that has been mentioned here is truly just the tip of the iceberg. There are so many options that are available to the educations system today. The trick is to realize that it is available already and we just need to become familiar with it and become comfortable with using these programs.