Technology in a UDL Classroom: More Than Just Assistive Technology

Incorporating technology to make a classroom universally designed for learning is an important step in making high quality learning accessible for everyone. Assistive technologies, such as text to speech and speech text, were designed specifically to help students with learning disabilities have the same chance for success as everyone else. Assistive technology provides classrooms with tools to make them more inclusive for a variety of learning styles and abilities and therefore contributes to the implementation of UDL principles. However, providing assistive technology to only students with learning disabilities does not qualify as UDL. This would be like making a wheelchair ramp for the entrance of a building but only allowing a person in a wheelchair to use the ramp, while a person with a walker could benefit from this ramp as well. Throughout this essay the importance of assistive technology for implementing UDL in the classroom will be discussed but also the importance of using this technology to benefit students of all learning styles and needs. Technology has become entrenched in every part of modern society. Providing all students with the ability to use technology to enhance their learning experience will help raise the achievement standard and close the achievement gap. However you must keep in mind that UDL is much more than providing technology for all students. Implementing UDL in a classroom is providing an instructional strategy which meets the needs of all learners, whether this means using technology or not.

Before we move on to how technology contributes to implementing UDL in the classroom, we need to understand what Universal Design for Learning is all about. CAST (Center for Applied Special Technology) is a non-profit organization which works to increase learning opportunities through UDL and defines UDL as "a set of principles for curriculum development that give all individuals equal

opportunities to learn"[1]. Through new research in the field of learning sciences we have found people possess a wide variety of learning styles with strengths and weaknesses that differ greatly. Neuroscience has revealed these differences in learning styles to be as distinctive as our DNA or fingerprints[2]. Keeping this in mind it is no wonder UDL is such an important part of curriculum design and pedagogy in our modern educational systems. Through UDL we can provide an inclusive classroom environment and through instructional strategies provide accessible course material for all learning styles[3]. The main principles of UDL are to provide students multiple ways to take in new information, express their comprehension and become engaged in learning. Technology plays an integral role in these principles but teacher pedagogy is as important to implementing UDL in the classroom.

If teachers are to change their pedagogy from teaching in a traditional style of instruction to a more constructivist style, they need proper professional development. Traditionally a classroom was teacher-centered where the student regurgitated facts and figures provided by the teacher. However, recently education has shifted towards providing a constructivist type of learning experience for students. The constructivist view of learning is "a personal, reflective, and transformative process where, ideas experiences, and points of view are processed into something new"[4]. Technology can play a fundamental role in providing this type of learning experience for all types of learners, with the help of UDL principles. However, there needs to be continuous professional development on how to implement technology in a way that promotes UDL and a constructivist view of learning.

Teachers are regularly provided opportunities to attend professional develop sessions to help implement technology in their classrooms. There is evidence however suggesting teachers presently

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[1] *About UDL,* accessed July 25, 2014, http://www.cast.org/udl/
[2] *About UDL,* accessed July 25, 2014, http://www.cast.org/udl/
[3] *Access to Postsecondary education through Universal Design for Learning*, Colorado State University, accessed July 25, 2014, http://accessproject.colostate.edu/udl/
[4] Rozalind G. Muir-Herzig, *Technology and its impact in the classroom*, Computers & Education 42 (2004): 113.

have not had enough time to be prepared and embrace technology[5]. Professional development on how to implement technology in the classroom needs to "include supports for teachers' engagement in critical reflection on information" gained from these professional learning experiences[6]. Providing teachers a one day seminar on how technology can provide students an equal opportunity for learning, does not guarantee technology will be implemented in the long run. Research has shown "teachers need time to learn the new technology, they need time to feel comfortable using it as a learning tool"[7]. Research has also provided evidence showing a 3-hour UDL training session does not guarantee teachers "can actually implement these plans in real classrooms"[8]. Keeping this in mind, teachers need more opportunities to learn effective methods of implementing technology and UDL strategies in a real classroom. Facilitators of UDL and professional learning on technology need to provide opportunities for reflective practice, where teachers have the opportunity to share their experiences with their peers[9]. This will offer teachers the ability to share their own expertise on how to effectively implement UDL principles and technology together in their classrooms.

Even after sufficient professional development there are still challenges to employing UDL principles together with technology in the classroom. UDL on its own has a number of challenges when it comes to implementing its principles into classroom instruction and assessment. Primarily it comes down to being able to provide enough resources to offer all students equal opportunities for learning. Instead of just pen and pencil tests, students need opportunities to showcase what they have learned through different mediums. This can include making posters, collages, writing poems or songs but also

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[5] Muir-Herzig, *Technology and its impact in the classroom,* 124.
[6] Ciampa, Katia and Tiffany L. Gallagher. *Professional Learning to Support Elementary Teachers' use of the iPod Touch in the Classroom.* Professional Development in Education 39 (2013): 217. doi:10.1080/19415257.2012.749802.
http://resolver.scholarsportal.info/resolve/19415257/v39i0002/201_pltsettititc
[7] Muir-Herzig, *Technology and its impact in the classroom,* 125.
[8] Courey, S.J., Tappe, P., Siker, J., and LePage, P. *Improved Lesson Planning With Universal Design for Learning (UDL).* Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children, 36 (2013): 17. http://tes.sagepub.com/content/36/1/7
[9] Katia and Gallagher, *Professional Learning to Support Elementary Teachers'*, 217.

needs to include technological programs such as using word processors or digital imagery. It has been

recognized by special education and technology personnel that UDL without the support of technology

"is just an impracticable theory"[10]. You can apply many UDL principles in the classroom but to fully

implement the UDL theory, technology should be incorporated into a teachers instructional and

assessment strategies.

A point worth stressing is if teachers want to apply UDL strategies to instruction and

assessment, "they need access to digital materials"[11]. Research has shown textbooks can be difficult to

understand, filled with marginally related facts and information[12]. If a teacher wants to take a UDL

approach to instruction and assessment, a valuable first step would be to digitize printed curricula[13].

Providing this resource for all types of learners can help offer multiple opportunities for all students to

be engaged in learning. Teachers need to provide access to computers with high quality word processing

software that can read not only digitized materials but also help express a student's learning

capabilities. This will help establish the three UDL principles by providing students multiple ways of

expression, comprehension and engagement.

Implementing UDL principles as part of a teachers instructional and assessment strategy is much

more than using technology. Providing assistive technology for all students compliments the capabilities

of UDL but does not replace "the need for UDL overall"[14]. Our society is saturated with technological

gadgets with access to infinite amounts of information. Providing students the ability to use these

technological gadgets to become engaged in learning and express their compression will benefit them

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[10] David H. Rose & Anne Meyer. *Teaching Every Student in the Digital Age: Universal Design for Learning*, (ASCD, 2002), chapter 8: Making UDL Work in Practice: The Concord Model, http://www.cast.org/teachingeverystudent/ideas/tes/chapter8_3.cfm

[11] Rose & Meyer. *Teaching Every Student in the Digital Age*, chap. 8, doc. 3.

[12] Margaret King-Sears. *Universal Design for Learning: Technology and Pedagogy.* Learning Disability Quarterly, 32, (2009): 200. http://www.jstor.org.proxy1.lib.uwo.ca/stable/27740372

[13] Rose & Meyer. *Teaching Every Student in the Digital Age*, chap. 8, doc. 3.

[14]*UDL and Technology,* National Center on Universal Design for Learning, accessed July 25, 2014, http://www.udlcenter.org/aboutudl/udltechnology

into the future. Research has shown when students use software programs such as word processers, website design, Photoshop, browsers, which are used in many career fields; students develop some skills that prepare them for the workforce[15] . By using technology and the principles of UDL a teacher can provide students with a variety of options to present their learning progression and provide equal opportunities for all students to learn. There are a number of challenges to helping teachers use technology and UDL strategies in the classroom. However, by providing continuous professional development, teachers will acquire the necessary skills to implement technology and UDL materials in their classroom. Using technology is not the only way to employ UDL strategies but technology makes UDL a much more practical and effective tool. In the end technology in a UDL classroom is much more than providing assistive technology to all students. Providing all students opportunities to use technology to become engaged in learning will help all students find a way to express their learning progression in a way that best suits them. Encouraging teachers to implement UDL principles with the help of technology, will hopefully raise the achievement standard while reducing the success gap.

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[15] John Cradley, Mary McNabb, Molly Freeman, and Richard Burchett. *How Does Technology Influence Student Learning?.* Learning & Leading with Technology, 29 (2002): 49.
http://www.lakeridge.k12.in.us/cms/lib7/IN01000416/Centricity/Domain/205/techology%20influence.pdf

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