Applying Universal Design to Education
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In this day and age, Universal Design has grown to become a very mainstream topic. As of right now, the need for universal design is strongly encouraged due to the increase in life expectancy and the number of individuals with disabilities constantly rising. Universal design is described as a design approach that maximizes usability of products, services, and environments for everyone (young and old, short and tall, people with disabilities, people without). The idea is that with universal design, only a small minority of students will need “special” accommodation (Bowe, 2000). As developed by the Center for Universal Design, there are seven basic principles that are needed in order for universal design (UD) to be effective and applicable. These principles include the following: equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance of error, low physical effort, and size and space for approach and use. Some classic examples of UD are curb cuts, automatic door openers, and TV audio captions. Curb cuts are accessible by anyone, especially individuals in wheelchairs, those using strollers, skateboards, etc. Automatic doors openers accommodate anyone as well. How difficult would it be to try and open a door with a cart filled with groceries? Instead, it is more accommodating for the door to open automatically when an individual is walking out with a cart full of groceries. TV audio captions can benefit individuals who are in a noisy environment (airport, train station, bus station, sports bar, etc), those who are deaf and so on. From these classic examples, it can be assumed that universal design provides services and accommodations for all people, with many characteristics, not just those with disabilities.

Many people ponder about how to apply universal design in education. There is no one answer to this, but there are many ways universal design can be incorporated in the classroom. Universal design principles place responsibility on educators and schools for making materials used in the classroom and the school’s environment more accessible to and usable by the entire
student population. By applying universal design, education is made more convenient for students that are pressed for time, more comfortable for students that come from diverse backgrounds, and more flexible for students with different learning styles (Bowe, 2000). Universal design in the education setting is a framework of instruction that aims to be inclusive of different learners to reduce barriers for all students, including those with disabilities. It creates an educational environment that is not just inclusive of students with disabilities, but of all students (Black, D., et. al., 2014, pg.48). The concept used most in education is universal design for learning (UDL), which is an offspring of Universal Design, that focuses on a broad range of learners and provides a means of representation, expression, and engagement of students. In higher education, this particular framework is seen as a conceptual and philosophical foundation on which to build a model of teaching and learning that is inclusive, equitable, and guides the creation of accessible course materials (Davies, P. L., et. al., 2013).

UDL aims to provide multiple ways for students to obtain information and learn effectively and multiple opportunities for expression, therefore, allowing students to show what they know and understand through action. UDL also aims to increase the motivation and interests of learners by providing opportunities to gain a deeper understanding of the subject. Applying UDL within a classroom begins with three basic steps: identify suitable and feasible goals that allow for multiple means of attainment, evaluate diverse learner needs, and assess possible barriers in existing curricula. Universal design for learning encourages the design of flexible and supportive curricula that are responsive to students’ various needs, skills, talents, interests and experiences and social skills (Tzivinikou, S. (2014) pg. 157). Students with disabilities have the most evident and pressing needs for universal design. According to Frank Bowe, learning disabilities are one of the most common types of disabilities and are becoming
more common in college students. The number of college students with learning disabilities is increasing rapidly on college campuses across the country. As a result of this, educators are constantly reviewing potential approaches and concepts that can be incorporated in the classroom to benefit college students with learning disabilities as well as the rest of the student population.

UDL seems to be the “go to” concept used in the classroom as it has been proven to provide many benefits for students with learning disabilities in higher education.

Furthermore, learning disabilities often impact one’s ability to read, write and/or process information, preventing effective learning from taking place. If learning disabilities are not treated, the student’s ability to learn effectively is challenged. Learning disabilities often cause students to have a difficult time processing information quickly and completing assignments in a timely manner. Educators can accommodate these students by repeating key points from the presented material, providing more examples in regards to the presented material, and allow more time to complete assignments and exams outside of the classroom. Audiotaped books, speech outputs, and screen enlargement systems are examples of tools educators should be making available inside and outside the classroom for students with learning disabilities to utilize. After reviewing three studies relevant to universal design for learning and learning disabilities, interesting findings showed that many instructional faculty are unfamiliar with the concept of universal design, using multimedia in the classroom helps students to learn and process information quicker, and digital textbooks helps to increase levels of engagement and grades for students.

The first study was the Center for Applied Special Technology (CAST) strategic reader e-textbook project. CAST was one of the developers of the UDL concept. When conducting this study, CAST aimed to meet the needs of diverse learners by implementing an electronic textbook
in the classroom. This textbook served as an alternative learning tool challenging the engagement of all students. After receiving feedback about previous textbooks from students, researchers involved in this study wanted to ensure that the e-textbooks followed three simplistic guidelines. These guidelines aimed to do the following: provide a simplified and clarified presentation of core content, provide an outline view of key topics, promote strategic use of the outline view, facilitate and simplify access to selected reference materials and engagement during a mock congressional debate assignment (Pisha & Coyne, 2001). By designing the digital textbook and following these guidelines, researchers strongly believed that students would be more involved in the process of learning, which would then lead to better grades. As a result of this study, researchers found there were higher levels of engagement from students in the classroom and better results on exams and assignments. The digital textbook was seen as very easy to read and navigate. There were also options of various tools such as, an online dictionary and an outline of the key points from the reading, to assist students with comprehending the material. As a result of these features, students were able to gain a better understanding of the reading and contribute to active discussions in the classroom. Factors that contributed to these findings include, the digital textbook material being readily available, students were required to respond verbally instead of through writing, and lastly, students were able to work in small groups, supporting one another rather than alone (Pisha & Coyne, 2001). Researchers concluded that the implementation of the digital textbook has been a great tool and resource for a wide range of diverse learners, improving students’ engagement and academic progress.

The next study considered was a CAPS (content acquisition podcast) study. This study was conducted in a high school setting including 141 high school student participants as well as one high school social studies teacher, Mr. Awesome. The students were split into two different groups, student with disabilities and students without disabilities and were randomized across sections in a world history course taught by Mr. Awesome. Mr. Awesome was instructed by researchers to teach certain sections using the CAPS method and teach certain sections without using the CAPS method. Before using this
method, he was provided with preproduced CAPS to incorporate into the lectures and reviews prior to an exam. When a new term was introduced, Mr. Awesome would use the overhead and classroom speakers to play the CAP. It would be shown twice, once when the term was first introduced and again, during the review prior to the exam. Students with disabilities were given the opportunity to watch each CAP two additional times during the study hour. In contrast, students in the Non-CAP sections were provided with text-based definitions and concepts using the overhead. These terms were also highlighted once when the term was first introduced; and again during the review. Researchers found that when students who were instructed using the CAPS method, learned at a faster rate and in a more powerful way than when taught using the traditional style of teaching. Using CAPS in classrooms in higher education may or may not work, however it has been proven to be impactful and beneficial for students with learning disabilities and might be an approach worth trying out.

The final study of this review was a study in regards to Universal Design for Instruction and Learning. This study was conducted on a college campus in Southern California aiming to determine if faculty members were incorporating UDI/UDL into their instruction and evaluating their attitudes toward students with disabilities (Black et. al., 2014). It was seen as an important step in implementing universal design in higher education. There were approximately 485 faculty participants in the study. Each faculty member was sent a survey via email requesting their participation in completing the survey. Of 485 faculty members, only 73 responded and sent back a completed survey. The survey aimed to evaluate the attitudes of faculty in regards to students with disabilities and universal design. Results from the survey indicated that a variety of instructional methods including class discussions, interactive activities and lectures were being used in the classroom. Other practices used by faculty and based on the principles of universal design include, providing feedback, being available outside of class and following their syllabus. At the time of the study, many faculties were unfamiliar with the concept of universal design and not aware that the methods used in the classroom represented the principles of universal design. Interestingly, faculty who had negative experiences with students with disabilities reported using fewer instructional methods than other faculty (Black et. al., 2014). In addition, faculty who worked closely
with students with disabilities in the past year used a variety of universal design instructional methods more frequently than faculty who did not work with students with disabilities. Therefore, it seems as if despite most faculties being unfamiliar with the concept of universal design, they were still using instructional methods in some way, shape or form. It is safe to assume that faculty working with students with disabilities were more knowledgeable about the principles of universal design and were able to incorporate more methods aligning with those principles in their instruction. If faculty, staff, instructors and other professionals involved in higher education became more familiar with the concept of universal design, would more accommodations be made for students with disabilities/learning disabilities?

The concept of UDL was supported by all three studies as researchers believed it to be a concept that should be implemented in all educational systems. In terms of learning disabilities, two of the studies emphasized the importance of using multimedia and advanced technology in classrooms. As previously stated, students with learning disabilities struggle with processing information quickly and the use of multimedia in the classroom has been proved to help students with learning disabilities learn effectively, through their ability to process and retain information at a faster pace. Study one and two were similar as they both addressed the effectiveness of multimedia and advanced technology used in the classroom. Study three did not address multimedia at all. These findings suggest that students with disabilities who are taking online or hybrid courses at UW-Platteville can benefit from digital textbooks that include dictionary and summary of chapter features, content acquisition podcast, professors being available outside of class, active discussions and interactive activities. Currently, UW-Platteville offers testing accommodations, assistive technology, document conversion – examples are books in audio or electronic format and print enlargement, note taking, recorded lectures, preferential seating, sign language interpreter, and captioning for students with disabilities to utilize. Although UW-Platteville provides a wide variety of accommodations for students with disabilities, upgrading to modern and advanced technology would provide more options for all students. Researchers suggest that these techniques and tools are effective when working with students with disabilities. By
implementing these tools and techniques, educators are committed to making the learning environment more inclusive and comfortable while ensuring that the need for “special” accommodation is decreasing.

The number of Americans with disabilities is constantly on the rise, requiring universal design for almost any product and service. There is a definite need for universal design, especially in education, as it accommodates all students making learning more accessible. Research has proven universal design and the various concepts that stem from it to be beneficial for all individuals. Multimedia products and equipment, repeating key concepts, making presented material available online, etc. are effective ways to incorporating universal design in the classroom. Multimedia products, services and equipment are the most common and popular accommodations made available for students with learning disabilities and have been proven to improve learning at a faster rate and more impactful way. Without universally designed products and services many of us would fall short and struggle with our demanding characteristics and limited abilities. Current research suggests that more instructional staff need to become familiar with the concepts and principles of universal design. If that happened, more students would actually benefit from learning, improve academically, require less “special” accommodations and become more confident in their abilities to excel as a student.
References


