Technology

Introduction

Technology has been rapidly integrated in society and our educational systems over only a few years. It has been accurately utilized in classrooms for efficiency and multi-dimensional purposes. It has opened up new doors for both teachers and students to self-regulate and construct their own learning. I remember throughout my school how technology was integrated from only short video clips or movies to substantial SmartBoard activity games and camera/video applications. As a student I definitely was grateful for the increase of technology usage in the classroom, and now as a teacher I am even more so grateful. Technology can enhance student learning by acting as a support to lessons and a way for students to express their knowledge. When implementing technology I believe it is imperative to know our students, their potential, and specifically what can motivate them to challenge themselves to learn. Technology in education allows the incorporation of the Universal Design for Learning approach, can be applied in special education classrooms as a tool of communication, and can also be used as an open resource for communication between parents and teachers.

Universal Design for Learning

The Universal Design for Learning Approach allows for a well-developed framework for students to have equal opportunities to learn. It provides a highlighted blueprint for teachers to create instructional goals, materials, methods, and assessments that can be customized and adjusted for each student’s individual needs (Cast, 2013). UDL also allows teachers to make use of multiple pedagogical approaches and technological tools within a single curriculum. The three elements that the UDL approach focuses on are multiple means of representation, multiple means
of action and expression and multiple means of engagement. Throughout my past and current teaching experiences, I have been able to accurately reach these three elements and exhibit them in multiple ways in order to reach each individual student’s learning needs.

*Multiple Means of Representation*

The multiple means of representation component in the UDL hones in on how students gather facts and categorize what is seen, heard, and read. It involves the teacher being metacognitively aware that not only one method of representation will be optimal for every student; thus emphasizing a need for multiple ways to present the content. Throughout my teaching I have expressed the ability to provide multiple means of representation for my students. Within a lesson plan that I developed but not have had the chance to implement into a 3rd/4th grade classroom, I created an interactive PowerPoint on the mathematics book *Sir Cumference and the First Round Table*. Rather than just reading the book aloud to the students this interactive project will allow them to actively practice and understand different geometric shapes, and the process for finding perimeter and area. Students have opportunities to read the text on their own pace and learning capabilities; and click on different activities throughout the interactive project to receive immediate feedback in order to track their progress. If I were to implement this within the classroom I could present it in several different ways including whole group guided instruction, small cooperative learning groups, or individual learning opportunities. Presenting it in various group settings to the students will give me the opportunity to modify the instruction and support or scaffold students when needed. Through presenting it on the SmartBoard with the whole group I could track student learning through formative observation of student participation and active engagement. Whole group guided instruction would benefit the class because it will allow opportunities for students to explore the text together and gather
immediate feedback from the interactive PowerPoint and myself as the teacher if needed. If I were to implement it within small cooperative groups, the students would have the benefit of peer-to-peer learning as well as the opportunity for me as the teacher to monitor the small groups to check for understanding. If further adaptation needed to be completed to achieve multiple means of representation; I could highlight important text within the PowerPoint, add on voice sound for students who succeed more with auditory representations, or break the PowerPoint text into smaller manageable chunks for struggling readers.

I have also used multiple means of representation during my student teaching placement while instructing a literacy lesson on comprehending narrative non-fiction. Along with my poster board presentation of the important questions one should ask himself while reading a non-fiction task; I also presented the metacognitive questions through the strategy of a think-aloud using a Voki avatar. This proved to be quite effective for my students because it granted them an engaging opportunity to see and hear the thought process that they should exhibit while reading non-fiction text for comprehension. Many of the students understood the different tasks that must be completed for the strategy and were able to successfully replicate it independently. If I were to implement this presentation again I could present the strategy on the SmartBoard and possibly break up the tasks into individual pieces in order to aid the students who had further difficulty.

*Multiple Means of Action and Expression*

The multiple means of action and expression component within the UDL framework stresses the importance of differentiating ways students can demonstrate what they know or have learned. This element focuses more on the “how” students learn and their abilities in planning,
organizing, and performing certain tasks (Cast, 2013). Allowing multiple ways for students to express their knowledge will produce a higher self-efficacy among students and a higher productive rate of learning.

There are a vast amount of occasions where I have incorporated multiple ways for students to express their knowledge using technology. For a unit that I have no yet to implement into a classroom; I created a web quest for students to complete during school hours or at home. The web quest proves to be a useful tool for allowing students to track their own learning on their own pace and then choose different activities to complete in order to express their learning. The students are given a set of directions to follow for the assignment as well as separate tasks that they may choose to complete. For my specific web quest I assigned the students a choice between two assignments. Giving students a choice between either writing a narrative and a poem can help benefit and increase the maximum learning potential for each student.

Implementing this assignment into a real classroom would gift the students with a sense of responsibility over their own learning which could prove to be effective in increasing student knowledge schema. If I were to implement the web quest in an actual class I would use a rubric and an exit slip to measure the effect the assignment had on student learning. The rubric would allow the students to track their own progress and will also allow me to configure student learning. The exit slip would allow me as the teacher to informally assess student comprehension and allow students the chance to demonstrate their knowledge or ask any further questions on the topic. What I could do differently, based on the student learning styles within my classroom would be to present two or three more choices for those students who do not prefer writing. These choices could be either Voki avatars, PowerPoint presentations, or a graphing assignment. Another occasion where I have touched upon technological choices for
students to express their knowledge would be a history lesson involving the iPad application SonicPics. I did not get the chance to actually implement the lesson with real students but the application would have involved students choosing their own pictures and inserting their found poems through the voice narration option. SonicPics definitely provided multiple means of expression because the students had the chance to create their own slideshow from scratch. The activity also deemed beneficial for those students who disliked presenting in front of others. If I were to implement this activity again I would possibly include other applications that could provide students with options to record videos or to draw/write text on the slideshow sides.

Multiple Means of Engagement

The multiple means of engagement component in the UDL approach focuses on how students are challenged and remain motivated to complete learning tasks. As teachers we must constantly modify our instruction to stimulate the individual interests in our classes, and luckily the incorporation of technology sparks that wanted motivation we need from our students. I incorporated plenty of technology in a history unit I created for one of my graduate courses here at Marist College. Although I did not get the chance to utilize the unit in an actual classroom, the unit includes multiple technological resources that will prove to be effective in achieving student motivation. Throughout my unit I present students with SmartBoard activities or PowerPoints, links to videos and articles, and different applications for students to use such as SonicPics and Glogster. If I were to implement these resources and applications into a classroom I would formally observe student participation to measure motivation and require students to fill out exit slips to gather an awareness if the resources used were effective or not. What I could do differently if the resources were not effective in achieving high motivation among students is determine why. Whether if the applications need more modeling to avoid student confusion or
maybe new resources may need to be introduced to establish an appropriate level of expectations.

**Assistive Technology in Special Education Classrooms**

Technology in special education classrooms can definitely be utilized to increase communication between students and teachers and students to students. Many students that are struggling in academic or behavior areas can be supplied with technology to express their knowledge in ways that make it less stressful and easier for them. “In a school setting, this technology is not an end in itself; rather it is a means to provide increased experiences, opportunities, and independence for children who have disabilities,” (Sableski 2000). It provides them opportunities to successfully achieve daily and vocational activities, as well as academic skills like writing, hearing, listening, and reading. Luckily there is an abundance of technological resources in supply today that can be used for such purposes within classrooms.

I have used multiple technology resources within my student teaching placements that have allowed students to sufficiently communicate not only their knowledge, but also their wants, and needs. Students with autism are known to have severe difficulty in communicating what they want as well as understanding what is being communicated towards them. Using technology to communicate with these students can be useful in preventing any behavioral problems or misunderstandings. In my student teaching placements I used picture icons that were created and printed out from an online program called Boardmaker. These picture icons can be small or large depending on its goal within instruction but will mostly allow the teacher to communicate to the student and vice versa. For example, I used a picture icon for the word “Wait” this allowed students to understand that they need to wait before receiving what they are
requesting. For example; my one student had extreme difficulty staying on task and would ask for things repeatedly, also known as perseveration, during individual work. When I started implementing the wait card during this time; he understood that he had to wait to get what he was asking for. I also used an organizer that said “First _____”, then “_____”; I would put whatever activity we were completing in the “First” section followed by the student’s reinforce in the “Then” section. This allowed him to understand what was expected from him or what he needed to do before he would transition to the next activity or receive reinforcement. These technologies appeared to help a lot with this particular student and definitely decreased his perseveration and anxiety during individual work time. When implementing these technologies it is important to observe the effect it has on the student and whether or not the student understands the given picture icon. When students are able to appropriately request items using different picture icons without engaging in harmful behavior or using the picture icons accurately in a lesson without hand-over-hand guidance; the picture icons are effective means of communication for the given student. Changes may need to be made to picture icons depending on student understanding; these changes can include either changing the picture on the icon or changing the word.

Another use of technology that has been effective within my instruction regarding students diagnosed with autism is the DynaVox which is a portable speech communication software system. The DynaVox was and is still used a majority of the time during the school day to ensure students are accurately communicating their wants and needs. The DynaVox allows students to become enabled in reaching their education potential and experience a greater quality of life by maximizing each student’s ability to communicate and learn (DynaVox, 2014). These devices can clearly affect student learning because without a stable foundation of communication
not much learning will be taken place; I can definitely see learning present within my instruction when using the DynaVox because it permits a steady pace of response and immediate feedback. For example, one of my students diagnosed with autism and is also non-verbal has been working with a DynaVox to request and identify certain items. It has been a slow and gradual process but he is starting to accurately identify snacks that he prefers. Soon we hope to have him start identifying other objects that are necessary during lessons like: glue, markers, and scissors. His success is measured by whether or not if the device is allowing him to transfer thoughts to other peers, adults or to the teacher. This can be measured by assessing how independently and accurately a he can utilize the DynaVox over a period of time. If the device isn’t influencing communication and learning in a positive way, other devices such as iPads could be purchased or other communicative strategies can be used instead.

Technology can also be used in special education classrooms as a tool of reinforcement and motivation for students. In my previous placement, food and technology was primarily used for the main reinforcements for the students. Not every technology source can work as a tool of motivation for each student so it’s important to be mindful of the variety of resources that can be used. Some of the students in my class worked for YouTube clips of trains or music videos while other students were motivated to be reinforced with iPad game applications or radio music. For example; one of my students diagnosed with autism was severely aggressive and he knew that he would be reinforced with his preferred YouTube video (usually a train video or Sesame Street Episode) if he had “Quiet hands” throughout his day. This certainly did help at times because he would become very eager to earn the reinforcement and wouldn’t engage in any aggressive behavior throughout the day. This led him to remain more focused and on task throughout the lessons as well because he knew what he was working for. YouTube videos or music can
definitely be effective in the classroom because they allow students to know that they will be rewarded after completing a specific activity or task. This creates a higher productive rate of learning and comprehension after lessons. If I realized some of the technology resources weren’t motivating students I could expose them to other resources that may be favored more.

**Conclusion**

Technology has definitely shown to improve many pieces of today’s world; especially in our educational system. Technology has allowed me to motivate my students and enhance their learning by offering them another outlet in reaching their academic goals. Not only has it proved to assist me in my general education placements by engaging students but it has also served a purpose in my special education placement; aiding in the improvement of behaviors during academic learning time. As I move forward with my teaching career I plan to integrate technology into my instruction in a way that will meet the needs and abilities, and increase learning potential among all of my students.

**Standards**

The first Marist Initial Teaching Standard I am addressing is **Standard 5**. Since there are a variety of important skills for students to develop within the classroom; it is important for teachers to be aware of the different methods and strategies that can strengthen them.

One aspect of **Standard 5** is using technology and different instructional methods based upon learning goals and student needs. I addressed this standard with my implementation with the webquest activity which involved students using technology to develop on their critical thinking skills about different historical weather events. Another activity that achieves Standard 5 is my unit that includes the implementation of different instructional and technological
resources. By utilizing different strategies and resources students will be able to build a deeper understanding of the content and the ability to form connections to the subject through choosing different activities to demonstrate that understanding.

Another aspect of **Standard 5** involves engaging students in active learning that promotes their critical thinking and performance abilities. I addressed this standard throughout my utilization of the software app Boardmaker. Without Boardmaker I would lack the ability to effectively reach to my students diagnosed with autism and fail to exhibit important content for them to learn. Boardmaker allowed students to demonstrate or perform their knowledge because they were required to accurately select a Picture Exchange Icon as a response to the lesson. I also addressed this standard through my implementation of the webquest activity. The webquest activity allowed students to independently follow and perform the tasks presented to them. By utilizing the different technologies I was able to promote my students performance skills and enhance the active learning aspect of Standard 5.

The second Marist Initial Teaching Standard I am addressing is **Standard 9**. One of the aspects listed in this standard involves a demonstration of sensitivity to physical differences in classroom communication and to students’ communication. This is reflected through my use of picture icons in my class of six students diagnosed with severe autism. The picture icons are non-verbal communicative devices that allow my students to successfully communicate and build an understanding of the content. These picture icons allowed students to work collaboratively with peers or staff in order to effectively communicate wants, needs, thoughts, and feelings. Another aspect that is listed for this standard involves using a variety of media communication tools throughout instruction. Again this is reflected through my use of picture
icons which are formulated using a computer software program called Boardmaker, and communication devices such as the DynaVox.
References

Cast.org (2013) "Until Learning Has No Limits." Web.
