Technology Integration

Tech in the Classroom – Dr. Ervin – Spring 2017

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INTRODUCTION

Technology integration is becoming more and more prevalent in the classroom. Not only is technology a valuable tool for classroom instruction but it also permeates many different areas of everyday life and students need to become aware of how it can benefit them outside of school. Through the course of the semester I have learned many vital ways that technology can and should be used in my future teaching. In this paper I will discuss two specific examples of how technology could be implemented as well as give an overview as to how I plan to make tech a central part of my students' classroom experience.

TEACHING PARADIGM and TECHNOLOGY'S ROLE

In my future classroom I intend to utilize the Student-Centered paradigm of teaching. This places the focus on the students and gives them more freedom to learn in the way that best works for them. It is a more hands off approach that gives the students the reins of their learning while the teacher guides them and teaches them ways to handle those reins effectively. Student Centered Teaching "focuses on students' ability to actively seek out resources available to them for learning while simultaneously teachers facilitate and employ teaching methods that encourage the use of these resources" (Bradford, Mowder, & Bohte, 2016, p. 1). Bradford (2016) proves through his work with student-centered classrooms at the college level that students exhibit both emotional and active engagement in student-centered classrooms and the implementation of these forms of engagement have been proven to increase student-learning outcomes.

Technology will definitely play a role in my future classroom. The use of technology generally has been shown to increase the academic success of students. In a study done in 2016 it was proven that through a digital classroom students showed greater learning outcomes than in a traditional classroom (Ozerbas & Erdogan, 2016). Through research, personal experience, and information that I have learned in this class I agree that technology should be part of an effective classroom. The following examples are two of the many ways that I believe tech can be implemented.

EXAMPLE 1: STUDENT CREATED POWERPOINT

GOALS, CURRICULUM, and ENVIRONMENT

Technology standard: (9,4,A,1) Format text, select color, insert graphics and include multimedia components in student-created media/communication products.

Content: Dihybrid crosses.

The goal of this assignment is for students to learn about dihybrid crosses through the creation of a PowerPoint. The curriculum includes a mini explanation by the teacher explaining dihybrid crosses and how to create them. Then the students will take over and be creative in coming up with their own dihybrid cross in pairs. The students will then create a PowerPoint giving background information for each parent in the cross as well as the Punnett square and resulting offspring. After the students finish they will present their PowerPoints to the class. The classroom environment will be a fun atmosphere with music to encourage creativity and energy. The desks will be arranged in pairs so that the students can work effectively with their partner on a computer.

TEACHER AND STUDENT ROLES

The first role of the teacher in this assignment is to talk through the mini explanation at the beginning of the class period (or set of class periods). This could be done via a PowerPoint of his or her own or through use of a white board/Smart Board. This will prove to be an explanation of what is expected of the students. Secondly, while the students are working the teacher will be walking around making sure that the students are working effectively and efficiently with their partners, checking the Punnett squares that the students create for accuracy, and giving hints on design of PowerPoints while answering any questions students may have. Finally the teacher will also provide students with a guideline for how their presentation skills will be graded.

The students in this activity have a lot of freedom in how they create their PowerPoint, the scenario they create, and the way in which they present the material. They will be in charge of working together to produce an example of a dihybrid cross to exhibit what they have learned and apply it to a new situation. They will then teach dihybrid crosses to their classmates through presenting the example of the dihybrid cross they created.

BENEFITS

The benefit of using technology for this activity is that students will learn more about PowerPoint and its effectiveness at providing visual material for the audience to view while explaining information. Murugaiah states, "students must be exposed to new ways of exploring the [PowerPoint] software that would lead to

better oral presentation skills." (Murugaiah, 2016) Therefore the guidelines given by the teacher for how to effectively present will provide the students with an opportunity to assess their presenting skills and work to better them, as well as guide the design of the slides to maximize the effectiveness of their presentations.

Using technology also gives students the freedom to use their creativity in the design of the PowerPoint. Finally, this activity gives the students an opportunity to make the material their own, internalize it, and then teach it to their peers.

21ST CENTURY SKILLS

This activity provides students with Life and Career skills and in regards to presenting and communicating information effectively, as before mentioned. "Throughout history, effective communication skills have been highly valued and viewed as essential for achieving professional success. Business and education researchers agree that communication skills are vitally important for citizens in the 21st Century" (Germaine, Richards, Koeller, & Schubert-Irastorza, 2016). Presentation is a key component of many jobs in business. Also when providing a boss with information on what you have accomplished on a task or communicating with a future employer, proper presentation etiquette is necessary. This activity also provides students an opportunity to work in pairs and work creatively together which is an important Creativity and Innovation skill for students to learn for use in future jobs. Finally, it provides the students with Media Literacy through creating their own media presentation. PowerPoint is a tool that is very widely used in jobs

of all types and thus is an important information-providing platform to become acquainted with.

EXAMPLE TWO: ONLINE LAB

GOALS, CURRICULUM, AND ENVIRONMENT

Technology standard: (10, 2, E, 2) Produce graphs and/or charts to describe trends and visualize data.

Content: Manipulate variables (e.g., distribution of traits, number of organisms and change in environmental conditions) in a simulation that represents natural selection in terms of how changes in environmental conditions can result in selective pressure on a population of organisms.

The goal of this lesson is for students to understand how different variables affect a population of organisms. They will learn about "fitness" and what makes organisms more "fit" for an environment. They will also gain an understanding of how to use an online simulation to aid them in completing learning objectives. The curriculum includes having the students walk through a lesson on population genetics/natural selection online. The students will be presented with a model of an environment. An outside factor will be introduced and the students must predict what they think will occur. They will watch the result and count the number of surviving individuals. They will then analyze the data in order to determine the relationship between the populations and the outside factor. (Increase of fox = decrease of fat rabbits). Then the simulation will continue showing multiple changes to the population. At the end of the lesson the students will create a line graph tracing the overall population of a species (for example: overall population of birds) throughout the simulation and a bar graph depicting types of a species from specific times throughout the lesson (for example: large beak vs. small beak birds before and

after the drought). The environment will be quiet, maybe with soft music playing, so the students can focus since the lab will take a little more critical thinking than the last lesson idea.

TEACHER AND STUDENT ROLES

The role of the teacher in this lesson is to give instructions for completing the lab, but for the most part the lab explains what to do as the students move through it. Therefore the teacher should be available to answer questions and guide students who are having difficulties with completing the lab as well as managing the volume level in the classroom and preventing distractions. The teacher is also responsible for providing a rubric for how the graphs will be evaluated.

The role of the student is to work diligently on the lab and to get it finished in the number of class periods allotted. They can either make their graphs on excel or on paper and they are responsible for turning them into the teacher on time and following the rubric.

BENEFITS

In general labs are highly beneficial to student learning. "The strong experience of laboratory work helps many students to permanently memorize studied issues" (Ožvoldová & Ondrušek, 2015). Labs provide a way to apply the knowledge that students are learning which assists them in the learning process. This specific assignment will provide the students with the opportunity to work

independently and effectively learn strategies for self-regulating their learning. Additionally, the online lab gives the students the opportunity to be in the position of the researcher – giving them a first hand experience that they are more likely to enjoy and learn from (Ožvoldová & Ondrušek, 2015).

21ST CENTURY SKILLS

The online lab will provide students the opportunity to develop the Life and Career Skills of Initiative and self-direction. It gives the students the opportunity to be in charge of their learning. The teacher is there to assist and guide but ultimately the students have to be diligent to do the work themselves and learn the material that is presented in the lab. This lab also provides yet another form of Technology Literacy as they navigate the lab online and follow the prompts presented.

CONCLUSION

The integration of technology into the classroom is becoming more and more important in culture of America today. As the society leans more towards the use of technology in everyday life, business, medicine, communication, etc, education must follow suit. As educators we cannot be stuck in traditional methods of teaching while the rest of the professional world moves into new waters. Instead we must adjust to the times and use the multitude of resources available to us through the use of technology.

As shown through the two lesson plans discussed, the use of technology in education has many benefits and provides opportunities for students to learn skills

that they will use the rest of their lives. By implementing technology into my future classroom in a student-centered format, I will be able to provide my students with many opportunities that they otherwise wouldn't receive through traditional teaching.

REFERENCES

Bradford, J., Mowder, D., & Bohte, J. (2016). You can lead students to water, but you can't make them think: An assessment of student engagement and learning through student-centered teaching. *Journal of the Scholarship of Teaching & Learning, 16*(4), 33-43.

Germaine, R., Richards, J., Koeller, M., & Schubert-Irastorza, C. (2016). Purposeful use of 21st century skills in higher education. *Journal of Research in Innovative Teaching, 9*(1), 19-29.

Murugaiah, P. (2016). Pecha kucha style powerpoint presentation: An innovative call approach to developing oral presentation skills of tertiary students. *Teaching English with Technology, 16*(1), 88-104.

Ozerbas, M. A., ozerbas@gazi.edu.tr, & Erdogan, B. H., bilgehas@windowslive.com. (2016). The effect of the digital classroom on academic success and online technologies self-efficacy. *Journal of Educational Technology & Society, 19*(4), 203-212.

Ožvoldová, M., & Ondrušek, P. (2015). Integration of online labs into educational systems. *International Journal of Online Engineering, 11*(6), 54-59.