

Introduction

Digital cameras and video-recording technology have introduced some remarkable opportunities in education. The researcher believes that cameras and similar devices can be used effectively and successfully in the classroom today. The researcher embarked on an action research project to gain insight into the use of cameras to create digital labs, rather than traditional written labs, in the science classroom.

How can teachers develop creativity and creative thinking in their classroom practices? Beghetto and Kaufman (2013) emphasize that “creativity involves the combination of originality *and* task appropriateness”. These researchers also stress that creativity is most likely to develop in environments that “support personal interest, involvement, enjoyment, and engagement with challenging tasks” rather than environments that emphasize rewards, social comparison, evaluation and competitiveness.

The Research Question

What creative experiences emerge from boys' production of digital lab reports?

Research Context

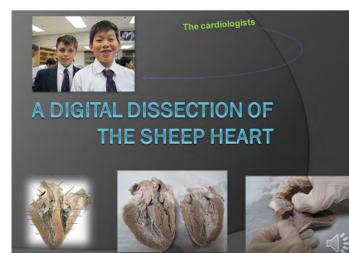
St. George's School is an independent school for boys in Vancouver, BC Canada, and established in 1930. The school consists of a Senior and Junior campus, and a total enrollment of 1150 boys. The school provides a broad range of programs (academic, arts, cultural, and athletic) and the school seeks to develop the “well-rounded” boy.

Participants

A total of 3 classes of Grade 8 boys from the 2012-13 academic year participated in this action research project. Research was conducted on two classes in the final weeks of October 2012. The third class participated at the end of January 2013.

The Research Action

Boys were instructed to photograph their dissection of a sheep's heart, and document the experience in a “digital lab report”.



- Photograph Dissected Sheep Heart.
- Label Images, make slides & add special effects.
- Create synthesis section, narrate slideshow & complete Digital Lab Report.

Data Collection

This action research collected data that were both quantitative and qualitative. They included:

- Pre and post lab questionnaires (including open-ended questions to explore student experience and opinion)
- Samples of student work – their digital labs were collected
- Teacher's notes and observations

Data Analysis

Statistical analysis of the responses from the surveys in chart form was performed.

Qualitative data from student responses was examined for recurrent themes and attitudes (codes) that may constitute the “student voice” in the action research.

A limited number of specific quotes from student responses were included to provide some examples that articulate the “student voice”.

Key Findings and Discussion

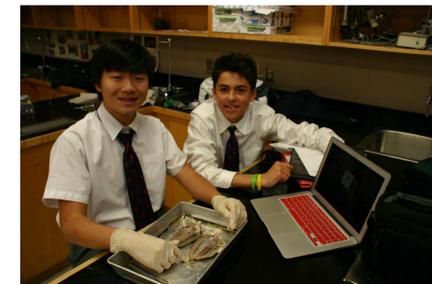
1. When given a task, a camera and a laptop, boys were easily motivated to produce a well documented and informative digital lab. They enjoyed the opportunity to create something that was original.

What did you most enjoy in producing the digital lab report?

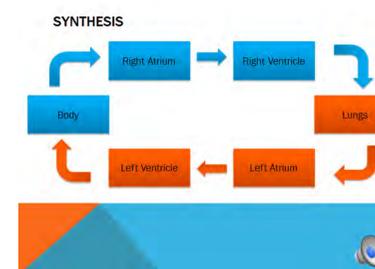
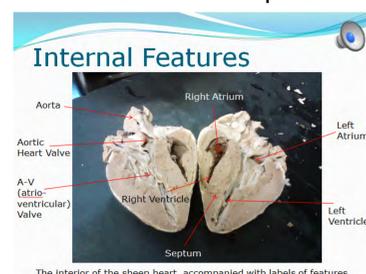
....”I think that creating the synthesis was the most fun part for me, because I felt we could explain the information in a creative way.”

...”The most fun about my project (was) writing the script for the synthesis (section) because I felt more creative than I am normally.”.

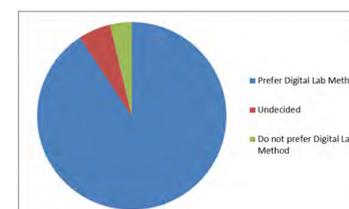
..... “the most fun part was when my partner and I performed a rap song that told the story of how blood flows through the body. This was probably the best section since we had the chance to be very creative.”



2. Boys' use of technology to create animations, narrated slide presentations, and enhance digital pictures lead to original and unique works. Boys commonly used *Photoshop* to alter images, added labels, transitions, special effects and other enhancements to emphasize features in their digital lab presentation.



3. Boys preferred producing a digital lab over a traditional lab report.



91% of boys preferred the “digital lab”.

....”I felt I learned a lot more seeing the features of a heart. I learned more seeing it rather than learning about it. I am a person that enjoys seeing an object rather than listen to a person/teacher explain about the object”

Conclusions

Boys enjoy being authors, narrators, and photographers of their own experiences.

The boys who participated in this action research seemed to enjoy the following:

- An opportunity to learn in a setting that was team-centered, rather than teacher-centered.
- An opportunity to illustrate, using their own images, and explain their story of a dissection that they performed. Boys developed an ownership for both their learning and their final product.

Implications of this research

- Boys “love their toys” ..and their smartphones, and other technological gadgets. Boys also enjoy “doing things” like dissections in a Biology lesson.
- Lesson plans and activities that encourage boys to use their technologies (cameras, laptops, and iPads) in a lab setting can provide them with the “task appropriateness” required to nurture their creative talents.

- I plan to use more cameras, and more “digital lab reporting” especially during practical lab sessions, like dissections.



Key Readings

Beghetto, R. A. and Kaufman, J. C. (2013). Fundamentals of Creativity. *Creativity Now!* Vol. 70 (5). Pp. 10-15.

Hofer, M. and Swan, K. O. (2005). Digital Move-making – The harmonization of technology, pedagogy and content. *International Journal of Technology in Teaching and Learning* 1(2) pp. 102-110.

McWilliam, Erica (2009). Teaching for creativity: from sage to guide to meddler. *Asia Pacific Journal of Education*. Vol. 29(3), pp. 281-293.

McNiff, Jean (2002). *Action research for professional development - Concise advice for new action researchers*. Retrieved from: <http://www.jeanmcniff.com/ar-booklet.asp>

Tatar, D., & Robinson, M. (2003) Use of the Digital Camera to Increase Student Interest and Learning in High School Biology. *Journal of Science Education and Technology*, Vol. 12 (2).

Further Information

The full report of this project and an online copy of this poster are available at <http://www.theibsc.org/>.

Researcher's Email: wmackay@stgeorges.bc.ca