Facebook with CPET: The Surveyed Affects of a Biomedical Lecture Series on Educational and Social Attitudes and Potential Value of High School Students in an Experimental Science Class Through the Use of Social Networking

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Abstract:

This study would examine the educational and social attitudes of students in science classes of nine teachers. Students will be exposed to a biomedical lecture series, using a Facebook page as a method of communicating. The lecture series would include topics from Bench to Bedside such as biomedical ethics, introduction to stem cells, and current trends in stem cell research. The lectures would be further supported by the students reading the lecturers research.

Rationale:

The Experimental Science (ES) teachers in the Seminole County School District need to have a voice in how the class is structured and how the content will be presented. Each ES teacher may have as many as 20 students in their program or as few as 5 students. Each student is asked to create a research project based upon his/her interest. The student then works on the research and presents findings at the regional Science Fair. As the research may not utilize all of the students time in class, the ES teachers of this program wanted the students to experience other domains of research that might be useful to the students in the future. To fulfill this request, the ES teachers asked for a speaker/presenter/lecturer series with a research focus.

Students are expected to develop an original piece of research, keep a log based upon their experimental design, analyze and present their findings. The projects are a critical component of this course. Not all students come to this class with the skill set to meet those requirements, so examples of research are explored for potential application. If a student comes to this class with a genuine love for science and no skill set for research, this student struggles not only with the concept of research but, potentially, with a topic. If a student elects to take this course for more than one year, the student may want another topic to study. This is where a lecture series would come in, fulfilling the content need. Students need to hear about real research from real researchers. Students need exposure to researchers with skills, knowledge and experiences that they have not had.

Social networking is a technique used by high school students to connect with each other to share resources, thoughts, and support (Brunsell and Horejsi, 2010). Social networking programs such as Facebook and Twitter are fast becoming the emailing and texting of the early millennium. With cell phone in hand, students connect with each other early and often to “check out” important, and not so important events. This steady flow of ideas and information makes the students feel connected to something larger- a community of learners.

Teachers today have such little time to investigate and incorporate new ideas into their practice. Technology is an ever-changing factor that also contributes to the new ideas. The amalgamation of best practices and technology is overwhelming. Teacher support should be designed to promote innovative instructional materials related to the teachers’ customized
instruction. The use of effective best practices should permit teachers to modify instruction/experiences to meet the needs of the learner, not the strict confines of the intended use from a specific experience. Teachers need to adapt experiences in this course because each student has different requirements, defined set of instruction will not work for this class or these teachers (Gess-Newsome, Luft, and Bell, 2009). Teachers should be able to go from window to window, finding the point of view that works for their learners. This is where setting up a Facebook page for the experimental science class and a twitter account would come in . . . iChats.

Fodeman and Monroe (2009) found that Facebook can take up excessive bandwidth, scams by hackers are initiated and that there may be a false of sense privacy by students. Some school districts put limits on the bandwidth used in schools, so that would need investigating prior to initiating this project. Scams and hackers abound in the internet. Cautions, such as demonstrating knowledge about passwords and personal information sharing, would need to be in place for students to participate in this project. Finally, the idea of privacy in a text-centered project would need to be monitored for appropriate/inappropriate responses.

A study from China and Hong Kong implies that the use of social networking site such as Facebook can improve a student’s social and educational abilities. This study revealed that through the use of Facebook, students were more inclined to connect and develop relationships with other students in class as well as with their instructor (Inderscience Publishers, 2011). On the other hand, a study in the United States, specifically Ohio, indicates that grades go down due to the impact of laptop use in college classes and the distraction of Facebook during class (Grabmeiser, 2009).

After reviewing relatively few articles, there did not appear to be many studies that dealt with learning, science, social networking or current trends in technology and communication with students. At this time, there does not appear to be enough research out there to support, or refute, this use of social networking as a process for student learning.

This project would meet needs (1) of teachers requests for assistance with content and concepts in research, (2) of students with help determining a research project and experimental design by experts in their field and (3) of district to meet the demand for bioscience experiences i.e. science, technology, engineering, math, and medicine in Seminole County.

The **purpose of this project** will be to use a lecture series to examine the educational and social attitudes and potential value of using a Facebook page as a method of communicating.
Action research intervention:

Prior to this project starting, I will visit each high ES class, explain the project, and request their involvement. With their acceptance, I will also inform them of their opportunity to travel to the University of Florida for a field trip to visit the campus, be introduced to the Science for Life program, and perform a suitable lab from the Bench to Bedside Institute. The selection of lab will be determined prior to end of the video lecture series. The choice/selection of lab could possibly support a topic presented in lecture. The lecture series may provide insight into the learning needs of students and/or teachers.

Schools have been sent a request to allow the Facebook webpage for use in this class. The technology facilitator at each school is being contacted and requested to *allow* this page for educational purpose. The site will be monitored by me for appropriateness of content. As this is a school site decision, the executive director of the high school supports the project and will contact schools if there is a problem.

The lecture series would start with the students reading an article written by the researcher or an article related to the research to give some context to the student about the content and a bio on the researcher (if appropriate). The students would discuss the article and bio. Also a draft some questions for presenter for use on later Facebook or for consideration during the presentation (were the questions asked and answered during the lecture) could be formed at this time.

A lecture series would be set up in a 20 minute segment. This would allow class time for questions or for the teacher to bring up points or clarify points. Some of the questions may be included as part of a larger discussion on Facebook.

Another component of the project would include the use of Facebook as a forum for students and researchers sharing discussing their thoughts. A page, not a friend request, would be the medium for student questions and comments. After the lecture, students could post questions and/or comments which could be responded to by the lecture.

I would like to bring this experience all together by creating field trip experience for the nine high school involved in the ES program. Each prospective trip would include three high schools and their teachers, along with me. The experience would include a presentation from the Science for Life program and a couple of the labs offered by CPET.

This experience would upgrade the unusual tour of UF by elevating the Science for Life program for students, and show the ES teacher the quality experiences provided by CPET in Bench to Bedside and ICORE.

I would like to start this project in September, but it may not get going until later depending upon what happens with permission from the district level personnel.
Connections to Bench to Bedside summer institute:

1. Dr. Houda Darwiche as a resource for the lecture on intro to stem cell and current trends in stem cell research. She has agreed to present the lectures.
2. Dr. Ray Moseley as a resource for a lecture on biomedical ethics. He had not been contacted for the lecture.
3. Dr. J.K. Yamamoto as a resource for a lecture on FIV/HIV. She had not been contacted for the lecture.
4. Kassidi as a resource for a lecture on bioterrorism and Anthrax. She had not been contacted for the lecture.
5. Dr. Connelly as a resource for a lecture on Dengue Fever. She had not been contacted for the lecture.
6. Dr. Salemi as a resource for a lecture on HIV. He had not been contacted for the lecture.
7. Dr. Grant McFadden as a resource on Virus: Friend or Foe (European rabbit disease). He had not been contacted for the lecture.
8. Dr. Chuck Lawrence as a resource for the video and editing of the lecture series.
9. Each lecturer will be asked to furnish an article on their topic for students to read.
10. Each lecturer/proxy would be asked to participate in the Facebook page.
11. CPET will create a link for viewing the lecture series.
12. CPET’s existing Facebook page.
13. Develop a field trip component for ES students to visit UF and participate in a lab.

Data collection and analysis:

Data collection plan-
1. Facebook survey to indicate usage and attitudes pre and post
2. Research survey to indicate understanding and current trends in research pre and post
3. Small focus groups post lecture series and Facebook postings dealing with their overall experience using Facebook to support content and learning.
4. Teacher interviews post lecture series and Facebook postings dealing with their overall experience using Facebook to support content and teaching.
5. Personal field notes taken during lectures
6. Artifacts from Facebook postings
7. Personal reflections on process and outcomes

Data analysis and interpretation plan-
- Use descriptive statistics from surveys and look for meaningful patterns in the data, as well as any discrepancies.
- Transcribe content of focus groups and interviews and look for patterns in the dialogue.
- Print out Facebook content relating to the lecture series.
- Use triangulation of data to establish emerging themes for multiple sources.

**Literature cited:**


**Budget and budget justification:**

1. The video production may have a cost for a disk/tape. I know that CPET aka Chuck has the video equipment. I don’t know if he would require payment for his services.
2. I would like to use the $200 to bring the students and their teachers here for a follow up visit to meet the presenters (some or all) and experience a lab with CPETs assistance. This would have a twofold effect: one the students would be able to see what real research looks like and hear about the Science for Life program. The classroom teachers to see what CPET can offer them as learners during the Bench to Bedside and ICORE experiences.

**Permissions:**

At each high school, the appropriate administrator would be contacted and the project reviewed. If the administrator deemed it necessary, I would make a formal district level request for the project to be approved. Hoping that it will not be necessary . . . the following permission procedure will be followed.
ES teachers have requested a lecture series, but do not know of the context of the series and potential social networking connection. They may also require a projection system to show the lectures and develop a grading system for students to respond through Facebook.

While ES students will not be required to get parental permission, I do believe it is important for me to inform them of the opportunities. It is significant for them to participate in the lecture series and the Facebook portion because they will be providing noteworthy data for use by other science teachers in Florida and potentially around the country.

The district level IT leaders need to be informed as to the use of streaming lectures that may impact bandwidth consumption. I will need to contact each school's Tech Facilitator to inquire about the ability of ES teachers to view the UF lecture series.

Working up the leadership ladder, the new Executive Director for Teaching and Learning will need to approve a Facebook page for the ES class. I am not sure whether Facebook will be allowed on the school server. In conversations with the Executive Secondary Director, he has seen the need for the use of social networking within the school to connect kids, families and the district.
What I think about Social Networking and Experimental Science Class Survey

**Directions:** Answer by circling numbers as appropriate.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

1. When I learn something new through a social networking site, I am willing to spend my free time on it.  
   
   | 4 | 3 | 2 | 1 |

2. I would like to have class time to use social networking to learn more about content.  
   
   | 4 | 3 | 2 | 1 |

3. It is fun for me to use social networking to learn more about content.  
   
   | 4 | 3 | 2 | 1 |

4. Social networking is very important to me.  
   
   | 4 | 3 | 2 | 1 |

5. Today's life would be unthinkable without the use of social networking in my daily life.  
   
   | 4 | 3 | 2 | 1 |

6. I expect my achievement in the Experimental Science class to be high.  
   
   | 4 | 3 | 2 | 1 |

7. When I am working on my research, I do not realize how time flies.  
   
   | 4 | 3 | 2 | 1 |

8. It is personally meaningful to me to be a good researcher.  
   
   | 4 | 3 | 2 | 1 |

9. I understand/comprehend my research for this class.  
   
   | 4 | 3 | 2 | 1 |

10. Scientific research is one of the most important disciplines.  
    
    | 4 | 3 | 2 | 1 |