Using Web 2.0 Tools in the Classroom to Promote Higher Achievement and Deeper Thinking

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Setting and Context

This capstone experience will take place at Lambert High School. Lambert High School is located in Suwanee, Georgia. It is the southernmost high school in the Forsyth County School district. Since opening in 2009, Lambert High School has always met the criteria for Annual Yearly Progress (AYP), and was awarded the State of Georgia Silver Award for Excellence in 2010-2011 (FCS Public Information and Communications Department, 2011). The Lambert High School population is predominantly White and affluent, with approximately 77% of the student population self-identified as White and less than 7% of the population qualifying for free or reduced lunch (Forsyth County Schools, 2013). The teacher population is similar to the student body.

Capstone Problem and Rationale

This capstone project will focus on integrating technology into the classroom to promote higher achievement and deeper thinking for students. Forsyth County Schools is a Bring Your Own Technology (BYOT) district where students are encouraged to bring their own device(s) to school for use in the classroom. However, even among schools at the same level, this policy is applied in a variety of ways across the district. At Lambert High School, BYOT creates a great deal of frustration for teachers and a great distraction for students. Many teachers would like to integrate technology but are uncertain how to maintain the academic integrity of students while doing so. Other teachers would prefer to eliminate technology all together to avoid determining which students are on task and which students are texting, which students are on Facebook, and which students are participating in Twitter chat that is part of the day's lesson.

However, negatives do exist and those interested in integrating technology should not overlook them. The National Survey on Student Engagement found that students who

participated in social media for non-academic purposes during class time "reported lower grades and satisfaction," as well as "perceiving their campus environment to be less supportive" (2012, p. 18). Another concern is how to handle students who do not have access to technology when implementing a BYOT policy. However, while the effects of poverty on the achievement gap should not be ignored, the Single Path case study of Indian Prairie School District found that "those needing school-supplied devices are a small percentage, which frees the District to invest the majority of its technology budget on building a first-class infrastructure" (p. 2).

Lastly, and perhaps most importantly, is the issue of student attention and focus. As difficult as it can be to engage students in the material at hand, how much more difficult will it be if they have the entire world readily available? All educators know the importance of focusing "more on what they want the kids to know and to do, and how they should demonstrate mastery of concept rather than the avenue or tool that they use to get there" (Hobson, J. as cited by Hill, 2011, p. 26). However, as Downes and Bishop found, "Students' quest for identity and struggle for peer acceptance sometimes hinder their ability to learn, even in the best of classrooms. As one student explained honestly, 'There are some days when we're really focused and other days when we are not'" (p. 9). Despite these negatives, when done effectively and correctly, there is much good that can result from effectively integrating devices that can also distract.

Current technologies can serve to expand the learning environment, assist students to reach higher levels of thinking, and to increase student engagement as seen through participation and collaboration. A common finding in studies on how technology integration affects student engagement and learning when used appropriately is students are able to reach higher levels of thinking as assessed by Bloom's Taxonomy. A recent study by The National Survey of Student Engagement shows that "activities that call on students to construct, transform, and apply

knowledge are generally more educationally effective than rote memorization and recall" (2012, p. 5). The use of technology to achieve this goal can be seen through Project Tomorrow and Blackboard K-12's study. In all of the classes surveyed, technology was integrated into the curriculum, serving as a tool to be used instead of a concept to be studied. When asked if their students were developing creativity, an average of 51% of teachers responded affirmatively. Asked if students were "developing problem solving and critical thinking skills," approximately 44% of teachers believed that this was true as a result of the digital tools that students can now use as a resource (Project Tomorrow & Blackboard K-12, 2013, p. 7).

Another common reason for most educators to choose to integrate technology into the curriculum is to increase student engagement as seen through participation and collaboration. Harper (2009) experimented with technology-enhanced feedback as a way to increase engagement, participation, and comprehension of the material. He found that the use of digital technologies "contributed to increased perceptions of competence, intrinsic motivation, autonomy while promoting pro-achievement behaviors like regular attendance, careful reading and engaged learning that will increase the likelihood of academic success" (2009, p. 7). Allen substantiated these finding through another study conducted in North Carolina. Students proclaimed themselves as having "increased communication" with teachers and peers, as well as being "more engaged in learning math." Foundations of Flipped Learning also found positive results with math classes, finding that after one teacher received positive reinforcement as he observed his students "actively doing math rather than passively watching [him] do math," he decided to flip almost all of his math classes. The rest of the math department quickly adopted his innovation and test scores increased by 9-12 percentage points across the board (pp. 1-2). Another teacher, when asking students to participate in class *conversations* via Twitter, found

that previously silent and disengaged students were able to "find their voice" and began actively

participating in class discussions (Osterman, 2011). Eighty-one percent of teachers participating

in another study reported that student engagement had increased post-implementation of a BYOT

policy, and 70% of students felt that the initiative had increased their learning (Single Path,

2011).

As mentioned previously, many of the potential negatives resulting from technology

integration can be offset with proper training and use. Institutions and educators must recognize

the importance of classroom arrangement when utilizing technology in the classroom. Miller-

Cochran and Gierdowski (2013) found that they faced decreasing student engagement and

participation in their college-level writing classes as a result of a fixed, unmovable classroom

arrangement. As a result, they designed a "flexible BYOT classroom" for writing classes with

furniture that could move so that students could collaborate on writing projects, participate in

whole-class discussions, watch a lecture, or write independently, all with the same level of

engagement, just by moving the furniture as needed (2013).

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Objectives/Deliverables

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Based upon the needs of teachers to integrate technology into the classrooms, promoting

deeper thinking and academic achievement the project will focus on the following objectives:

- Demonstrate the knowledge, skills, and dispositions to model effective integration of
  technology to promote higher achievement and deeper thinking in my own classroom

- Conduct pre- and post-surveys of teachers to assess integration of and attitudes toward
  technology integration

- Conduct a survey of teachers to assess their needs and desires for technology integration

- Design, develop, and deliver professional development lessons inspired by teachers' needs for technology integration

- Create a teacher showcase of effective technology integration

  Upon completion of the capstone experience, the following deliverables will serve as | evidence:

  - Pre- and post-survey of teacher needs for technology integration

  - Lesson plans for professional development lessons

  - Teacher showcase website promoting effective technology integration

PSC Standards

- Model and facilitate the design and implementation of technology-enhanced learning experiences aligned with student content standards and student technology standards (PSC 2.1/ISTE 2a)

- Model and facilitate the effective use of digital tools and resources to support and enhance higher order thinking skills (PSC 2.3/ISTE 2c)

- Model and facilitate effective classroom management and collaborative learning strategies to maximize teacher and student use of digital tools and resources (PSC 3.1/ISTE 3a)

- Develop, model, and facilitate the use of online and blended learning, digital content, and learning networks to support and extend student learning (PSC 3.3/ISTE 3c)

- Troubleshoot basic software and hardware problems common in digital learning environments (PSC 3.5/ISTE 3e)

USING WEB 2.0 TOOLS

- Collaborate with teachers and administrators to select and evaluate digital tools and resources for accuracy, suitability, and compatibility with the school technology infrastructure (PSC 3.6/ISTE 3f)

- Model and promote strategies for achieving equitable access to digital tools and resources and technology-related best practices for all students and teachers (PSC 4.1/ISTE 5a)

- Model and facilitate the use of digital tools and resources to support diverse student needs, enhance cultural understanding, and increase global awareness (PSC 4.3/ISTE 5c)

- Conduct needs assessments to determine school-wide, faculty, grade-level, and subject area strengths and weaknesses to inform the content and delivery of technology-based professional learning programs (PSC 5.1/ISTE 4a)

- Develop and implement technology-based professional learning that aligns to state and national professional learning standards, integrates technology to support face-to-face and online components, models principles of adult learning, and promotes best practices in teaching, learning, and assessment (PSC 5.2/ISTE 4b)

- Design and implement program evaluations to determine the overall effectiveness of professional learning on deepening teacher content knowledge, improving teacher pedagogical skills and/or increasing student learning (PSC 5.3/ISTE 4c)

- Evaluate and reflect on their professional practice and dispositions to improve and strengthen their ability to effectively model and facilitate technology-enhanced learning experiences (PSC 6.2/ISTE 6c)

Project Description

Throughout Spring Semester of the 2013-2014 academic year, the researcher will conduct monthly training sessions for teachers at Lambert High School based upon their expressed needs and desires for technology integration. Upon returning to school in January, teachers will take a survey of their current levels of technology integration as well as possible tools for future use. Possible tools will include new tools available through our new online learning management system, itslearning, and Web 2.0 tools such as Voki, VoiceThread, Socrative, Twitter, OneNote, Today's Meet, etc. Based upon the results of this survey, one itslearning tool and one Web 2.0 tool will be highlighted each month through professional development sessions offered during select planning periods, as well as before and after school. At the end of each month, teacher success stories will be shared with the faculty through an internal web page on itslearning.

Time Frame	Description of Activity	Predicted # of Hours
Dec. 2013	Create survey for teacher use	3 hrs.
Jan. 2014	Conduct survey and evaluate results	4 hrs.
	Create Professional Learning lessons on itslearning and Web 2.0 tools	10 hrs.
	PL session #1 on itslearning tool	5 hrs.
	PL session #1 on Web 2.0 tool	5 hrs.
	Curate teacher success stories to highlight on itslearning web page, create page, promote page	4 hrs.
Feb. 2014	Create Professional Learning lessons on itslearning and Web 2.0 tools	10 hrs.

	PL session #2 on itslearning tool	5 hrs.
	PL session #2 on Web 2.0 tool	5 hrs.
	Curate teacher success stories to highlight on itslearning web page, create page, promote page	4 hrs.
Mar. 2014	Create Professional Learning lessons on itslearning and Web 2.0 tools	10 hrs.
	PL session #3 on itslearning tool	5 hrs.
	PL session #3 on Web 2.0 tool	5 hrs.
	Curate teacher success stories to highlight on itslearning web page, create page, promote page	4 hrs.
Apr. 2014	Create Professional Learning lessons on itslearning and Web 2.0 tools	10 hrs.
	PL session #4 on itslearning tool	5 hrs.
	PL session #4 on Web 2.0 tool	5 hrs.
	Curate teacher success stories to highlight on itslearning web page, create page, promote page	4 hrs.
May 2014	Create post-survey to evaluate new level of technology integration and strengths/weaknesses of professional learning sessions	3 hrs.
	Conduct survey and evaluate results	4 hrs.
	Curate year-end success stories to highlight on itslearning web page, create page, promote page	4 hrs.

In order to complete this capstone experience successfully, the following resources will be needed:

- Computer lab or office space for training purposes

- Administrator access to itslearning for creating surveys, registrations, posting training documents, and creating success story web pages

- Administrator approval of professional learning sessions

Evaluation Plan

The success of the capstone project will be evaluated through a survey delivered to staff members via itslearning, the online learning management system adopted by Forsyth County Schools to be implemented during the 2013-2014 academic year. Teachers will respond to questions about their previous technology implementation, expectations, and results and then to compare their current situation. Teachers will also be asked to evaluate the presenter on effective teaching methods, choice of technology, and leadership.

May 2014	Create post-survey to evaluate new level of technology integration and strengths/weaknesses of professional learning sessions
	Conduct survey and evaluate results
	Curate year-end success stories to highlight on itslearning web page, create page, promote page

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Appendix A

Pre-Survey

Technology Integration: Attitudes and Uses

1. How often do you use technology to enhance your instruction?

   a. Never

   b. 1-2 times per month

   c. 1-3 times per week

   d. More than 4 times per week

2. If you do, how do you use technology to enhance your instruction? (Mark all that apply.)

   o To provide resources and materials delivered in class to students electronically

   o To provide additional enrichment and remediation resources to students

   o To provide a record of what was done in class and what students should complete for homework

   o other: _____

3. If you do not use technology to enhance instruction, what are your reasons?

4. How comfortable are you with your technology use in class?

   a. very uncomfortable

   b. somewhat uncomfortable

   c. somewhat comfortable

      d. very comfortable

5. Which of the following would you like to learn more about (mark up to 3):

- how to use the new LMS to deliver content to students

- how to use the new LMS to assess students

- how to use the new LMS to communicate with students and parents

- how to use the new LMS to allow students to deliver content to each other

- how to use the new LMS to allow students to assess each other

- how to use the new LMS to allow students to communicate with each other

- how to use Web 2.0 presentation tools in class (Prezi)

- how to use Web 2.0 communication tools in and out of class (TodaysMeet, Twitter)

- how to use Web 2.0 assessment tools (Socrative)

- how to use Web 2.0 discussion and blogging tools (VoiceThread, Weebly)

- how to use Web 2.0 organization tools (OneNote, Evernote)

- other: _____

Appendix B

Post Survey

<u>Technology Integration: Attitudes and Uses</u>

1. How often do you use technology to enhance your instruction?

    a. Never

    b. 1-2 times per month

    c. 1-3 times per week

    d. More than 4 times per week

2. If you do, how do you use technology to enhance your instruction? (Mark all that apply.)

    o   To provide resources and materials delivered in class to students electronically

    o   To provide additional enrichment and remediation resources to students

    o   To provide a record of what was done in class and what students should complete for

        homework

    o   other: _____

3. If you do not use technology to enhance instruction, what are your reasons?

    _____

    _____

    _____

    _____

4. How comfortable are you with your technology use in class?

    a. very uncomfortable

    b. somewhat uncomfortable

    c. somewhat comfortable

    d. very comfortable

5. Which of the following would you like to learn more about (mark up to 3):

- how to use the new LMS to deliver content to students

- how to use the new LMS to assess students

- how to use the new LMS to communicate with students and parents

- how to use the new LMS to allow students to deliver content to each other

- how to use the new LMS to allow students to assess each other

- how to use the new LMS to allow students to communicate with each other

- how to use Web 2.0 presentation tools in class (Prezi)

- how to use Web 2.0 communication tools in and out of class (TodaysMeet, Twitter)

- how to use Web 2.0 assessment tools (Socrative)

- how to use Web 2.0 discussion and blogging tools (VoiceThread, Weebly)

- how to use Web 2.0 organization tools (OneNote, Evernote)

- other: _____

6. How many of the technology training sessions did you attend?

    a. none

    b. 1-3

    c. 4-6

    d. 7+

7. Which type of technology training session did you find the most beneficial?

    a. sessions focused on itslearning

    b. sessions focused on Web 2.0 tools

8. Which type of technology training session would you like to see in the future?

     a.   sessions focused on itslearning

     b.   sessions focused on Web 2.0 tools

9. What was your biggest impediment to attending technology training sessions?