



TEACHING AND LEARNING RESEARCH EXCHANGE

Web 2.0 to Go! A Study in Technology Integration to Improve Student Engagement in Social Studies

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Introduction

Our world has changed from an individual, paper-and-pencil world to a collaborative, global, digital world. Students today have grown up digital. They spend countless hours using digital technologies and are comfortable with the medium. The education system, in general, has not changed as quickly as many other industries. According to Tapscott (2009), “The Net-Geners have grown-up digital. They’re living in the twenty-first century, but the education system in many places is lagging at least 100 years behind” (p. 122). Prensky (2010) stated “More and more young people are now deeply and permanently technologically enhanced, connected to their peers and the world in ways no generation has ever been before” (p. 2). Change in the way we conceptualize education and general teaching pedagogy seems necessary if we are going to continue to engage students in curriculum. At this point, a great number of teachers are not taking advantage of the digital orientation of students and perhaps if what was going on in classrooms had a greater connection with technology, it may increase engagement in what we are trying to do. According to Richardson (2010),

easily without question, our ability to publish content online and to connect to vast networks of passionate learners will force us to rethink the way we communicate with our constituents, the way we deliver our curriculum, and the expectations we have of our students. (p. 6)

Motivating and engaging students in their own learning is a huge issue faced by schools. Attitude can colour our every experience in either a positive or a negative way. According to a long-term study involving student engagement using web-based discussions conducted by Persell (2004), “using the Web is correlated with more interdependency, more engagement, and greater complexity of thought through time” (p. 73). Much research has been done on student engagement. Kearsley and Shneiderman (1998) discussed the fundamental ideas underlying “engagement theory” as “students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks” (p. 20). Research has shown us that certain factors improve engagement for students—one of these factors is collaboration. Web 2.0-based technologies help students broaden their audience of collaboration. The learning does not need to stay within the walls of the classroom, but can be a much broader, global experience. Tapscott (2009) stated “students need to talk among themselves. In fact, research has found collaborative learning to be more effective in increasing academic performance than individual or competitive learning” (p. 137).

Although not much research has been done to date focusing on web 2.0 technologies specifically, there has been a broad base of research conducted on the use of technology in the classroom. Kearsley and Shneiderman (1998) stated “we believe technology can facilitate engagement in ways which are difficult to achieve otherwise” (p. 20). According to the research findings of Ghaznavi, Kiekha, and Yaghoubi (2011), “use of information and communication technology has been effective to a high extent on the increase in educational motivation, enhancement of question-making skill, enforcement of research spirit, increase in curricular scores and in total on educational improvement” (p. 121). According to an ACOT study conducted by Sandholtz, Ringstaff, and Dwyer (1997), “student

engagement remained highest when technology use was integrated into the larger curricular framework, rather than being an ‘add-on’ to an already full curriculum” (as cited in Ringstaff & Kelley, 2002, p. 22). Persell (2004) described a study focusing on web-based discussions used to enhance student engagement and deeper understanding. Some of the evidence collected during the study indicated “using the Web is correlated with more interdependency, more engagement, and greater complexity of thought through time” (p. 73).

Research Context

Our research was conducted at Pleasantdale School in Estevan, Saskatchewan. Estevan is a small city with a population of about 13,000, located in the southeast corner of Saskatchewan. Pleasantdale School is a K-8 school with a student population of about 220 students. Research was conducted using our Grades 5-8 students, mainly focusing on the new Saskatchewan social studies curriculum outcomes and indicators. Many of the tools used were also used with other subjects and other curriculum outcomes. There were about 115 students ages 10-14 involved in the project. The percentage of male and female participants was close to equal. There were five teachers involved in the project—four classroom teachers and the response to intervention teacher.

Research Question

Can we improve student engagement with the Grades 5-8 social studies curriculum by using web 2.0 tools and technology?

For the purpose of this study:

- student engagement was defined in terms of attitude toward school and school work, feelings about school, understanding of own learning, and participation in classroom activities.
- web 2.0 was defined as the movement of the World Wide Web from being a research tool to a place for participation and collaboration; using technologies to provoke responses, question and predict outcomes, research, and show end results or products.
- the web 2.0 tools used were: blogs, wikis, digital posters, digital story-making tools, digital cartoon-making tools, presentation tools, and research tools.

Research Objectives

Our objectives were to:

- increase engagement with curricular outcomes, specifically in the area of social studies.
- offer opportunities for both staff and students to learn about web tools available for classroom use.
- increase confidence of both staff and students with technology use, specifically web tools.
- give students opportunities to take control of their own learning and teachers the opportunity to become facilitators of learning.
- share what we have accomplished with other teachers.

Background of the Study

The idea for the study was conceived through countless conversations we had at our school about the lack of student engagement in our classrooms. Some of the evidence that teachers were seeing included students not caring about their learning or their finished products when it came to handing in assignments. Many assignments were poorly done or, in some cases, not being completed at all. Some students did not seem interested in many of the topics being presented in the classrooms and did not make personal connections to learning in order to be engaged with it. Teachers were frustrated with the amount of work they were doing with lesson planning and marking poorly completed assignments. According to Tapscott (2009), “today tools on the Net make it a great way to teach kids and free up the teacher to design the learning experience and converse with the students on an individual and more meaningful basis” (p. 133). The implementation of new, updated curriculum documents in all Grades 6-8 subject areas seemed to be an overwhelming task for teachers to undertake. It was a good time to try to undertake a project that might be able to help with both issues. Could we use more technologies in the classroom and increase engagement for students? Could we turn some of the learning over to our students while introducing the new technologies, try to become facilitators, and in doing so, lessen our work load? Could we work together as a team to create a plan for Grades 6-8 social studies and share that work in a web format that could be accessed by other teachers? The research evidence is growing.

Compared with students enrolled in conventionally taught courses, students who use well-crafted computer mediated instruction . . . generally achieve higher scores on summary examinations, learn their lessons in less time, like their classes more, and develop more positive attitudes towards the subject matter they’re learning. (Tapscott, 2009, p. 133)

Breeding (2007) also stated web 2.0 assists in “building an environment that’s more focused on the user, that embraces the dynamic content over static pages, that not only delivers content to users but also seeks content from users, and that fosters engagement, participation and collaboration” (p. 22). These results held true for a broad sampling of students ranging from elementary school to college students and over a broad range of disciplines.

Data Collection

Our data was collected using the following methods:

1. A survey was conducted using www.surveymonkey.com at the beginning of our study to set a baseline for technology use related to web 2.0 tools and what teaching and learning methodologies students felt worked best for them (see Appendix A).
2. Classroom observation and anecdotal records were kept by teachers.
3. Teacher collaboration and reflective feedback before, during, and at the end of our project were used.
4. A survey was conducted using www.surveymonkey.com at the end of our study to show changes in comfort level in technology use, teaching and learning methodologies, and general feedback on the different methodology used to teach social studies (see Appendix B). Teachers involved in the project were given the opportunity to meet together five full days between September and May. We spent our time learning about web 2.0 tools and what opportunities they could open up to our students. We practiced using the tools and brainstormed ideas we might share about using the tools in the classroom. Using the curriculum outcomes and indicators, we planned and brainstormed, sharing ways we could help students meet outcomes using the web and providing opportunities for them to be more independent and in charge of their learning. We spent time sharing anecdotal observations to be recorded for future reference.

Our team of five teachers had the opportunity to visit two classrooms in Regina where we were able to observe Kimberly Brown at Haultain Community School and Grant Urban at McDermid Community School and their students as they used technology within their classrooms. The time spent in Regina was very useful and we gained many great ideas.

SOME OF THE THINGS WE WERE ABLE TO DO IN OUR CLASSROOMS

1. All classroom teachers developed a classroom blog and wiki page.
2. All students participating in the project developed their own blog page that is linked to the classroom blog.
3. Students were able to make accounts and become confident using the following web tools:
 - www.wikispaces.com
 - www.wordpress.com
 - www.animoto.com
 - www.toondoo.com
 - www.webquest.org
 - www.prezi.com
 - www.storyjumper.com
 - www.dipity.com
 - www.voicethread.com
 - www.glogster.com

Data Analysis

BEGINNING SURVEY

The beginning survey set a baseline on the comfort level of students with technology. It also gave us an indication of the purposes for which students were using technology and with which web 2.0 tools they were familiar. We also asked some questions about engagement in school: what subjects were their favourite, whether or not they liked using technology in their learning, and whether they thought technology engaged them and helped them learn more. Males made up 53% of the respondents while 47% were females. Respondents ranged in age from 9-14.

Some of the attitudes reflected in the beginning survey were:

- The percentage of respondents who stated they used technology at least one to three times a day at school was 74.4% and 23.1% said they used technology four to six times a day at school.
- Students who said they spent less than one hour using the computer at home on a daily basis amounted to 50%.
- When asked how they would rate their experience and comfort level using web-based tools, 47.4% said they felt they were experienced but would like to learn more.
- When asked if they liked to explore new web tools, 38.5% said they liked to but didn't know where to find them so they would lose interest, while only 11.5% said they never did because it was boring.
- When asked if they enjoyed using technology to support their learning, 53.8% said they loved it and wished we would do more; 37.2% said they liked it (see Figure 1).
- At the beginning of the project, the tools the students were the most familiar with were Facebook, blogs, and Google Maps.
- Most students responded very positively to the questions that asked if they liked to use technology in their learning and if they felt technology helped them learn.
- The percentage of students who strongly agreed or agreed that they like to use technology to show their learning at school was 93.2%.
- The percentage of students who stated they strongly agreed or agreed that they find their classes more interesting when they get to use technology was 93.4%.
- Seventy-three out of the 78 respondents to the beginning survey felt that using computers helped them learn at school.

TEACHER OBSERVATIONS AND ANECDOTAL RECORDS

Teachers kept anecdotal records and observations were recorded during classes. Some of the observations recorded in this data were:

- Students were more engaged in what they were doing—especially the Grade 7s.
- It seemed to motivate the kids who do not like to write things down using pen and paper.
- The students were very shocked at the amazing things they found online.
- Using the ToonDoo tool in science made it very easy to see who understood the outcome and who still did not quite get it.
- It was not necessarily the top students who were doing exceptionally well using this method.
- The students seemed to want to take things further, in some cases, than they did using the pen-and-paper method.
- Participation with any tools such as VoiceThread, ToonDoo, blogs, and wikis was 100% and some of the products were exceptional.
- Using the tools seemed to get far more detailed information from the struggling students than did pen and paper.
- Reflection and sharing their finished products allowed students to see how they could have been better.
- The teachers were very impressed at the number of students demonstrating on-task behaviour and discussing ideas about the outcome.
- It allowed the teacher to have students working on different things without chaos.
- Grade 5 students seemed to be more comfortable with taking the new tools and figuring them out than the Grade 8 students did.
- When working on a difficult webquest about time zones, the Grade 6 students loved it. They had a lot of questions and they were on-task and engaged.
- The students loved the independence.
- Some students who really do not like school and do not like writing something down loved this way of learning.
- All Grade 6 students showed better learning.
- Some lower level students who might not have ever completed a finished product were able to complete something, even if it was still at a lower level.
- The technology is the sample for them, so they can take what is there and begin their learning journey.
- The students learned there were many ways to show their learning besides using a PowerPoint presentation.

- It gave them choices.
- They were starting to realize that different technologies or tools are for different purposes.
- If given a choice, the Grade 5 students would almost always go toward showing their learning with technology.

TEACHER REFLECTIONS

During the project, teachers involved used a private blog in order to record reflections and frustrations. Some of the teacher reflections were:

- I have learned plenty as a teacher and I feel revitalized in my profession with this new way of looking at learning.
- I have seen an overall increase in their excitement to learn.
- They [the students] love the independence and as a general rule, each and every one of them has shown growth in their learning through this technological approach.
- The students who were already engaged have become more independent and even more engaged in their learning.
- The majority of students who were not engaged at all have shown an increase in their desire to learn.
- A few who were not engaged in traditional practices have shown a huge increase in their engagement and have taken off way beyond what I ever imagined.
- I was amazed at how much they put into their Wikispace to share with other students about their topic.
- They still need guidance and help sometimes with ideas and I felt my role shift to facilitator, which is what I was striving for.
- They realized that people out there somewhere are viewing their creations!
- This was a hilly ski trail to say the least! I do love those hills because you sweat all the way up and coast down enjoying the forest and speed.
- For Grade 5 students to reflect on the multiculturalism of Canada and what that now meant to them was difficult, but at least two out of three understood the concept and have since used it [that understanding] in a journal entry or when they were blogging.
- The really good VoiceThreads had other students going back on their own time to revise and add information to their own work.

FINAL STUDENT SURVEY

The students completed another survey at the end of the project that included some of the same questions as the first survey so we could see if attitudes had changed. Some new questions were added to reflect the work of the project and the students were given the opportunity to provide feedback on the project. One hundred eight students completed the survey with 50% being male and 50% being female. The students ranged in age from 10 through 14.

Some of the results reflected in the survey were:

- The number of students who chose social studies as their favourite subject had increased from 5.1% at the beginning of the project to 12% at the end.
- The students who felt they had the opportunity to use technology in school one to three times per day had gone down from 74.4% at the beginning to 56.4% at the end, while the students who felt they had the opportunity to use technology in school four to six times per day had gone up from 23.1% to 38.9%, reflecting that students were using technology more often during the school day.
- When asked about their comfort level with technology, the results remained close to the same. The students felt they were comfortable, but would still like to learn more.
- The percentage of students who stated they did enjoy using computers to support their learning at school was 89.9%, which was similar to the beginning survey.
- Students had gained a comfort level with a broader range of web tools.
- Students chose a broad range of web-based experiences that helped them learn in school (see Figure 2).
- Students stated they enjoyed using technology as part of their learning, with 97.2% indicating this preference.
- 79.7% of students felt they could concentrate better in class when the teacher used technology.
- 96.3% of students felt they would use technology to demonstrate their learning if they had a choice to do so.
- 95.3% of students stated they found their classes more interesting when they used technology.

STUDENT REFLECTIONS

Students were asked to reflect and to give feedback on whether they enjoyed using technology and web tools in social studies this year and whether using technology helped them learn. Some of their personal reflections were:

- Yes, I do because it is more interesting than paper and pencil and I'm more interested in fun stuff and I like to use technology!
- I think they do because kids are more interested in using computers and it is more fun.
- Yes, I do because it can help you learn about things that you never knew before.
- Yes, it does because you can learn so much when you use a computer to learn stuff.
- Yes, because if you have to look up the answer to a really hard question, the answer is right there.
- I think working with computers helps us learn better because we have the internet with a bunch of information that is way more fun and way better than a written essay.
- Yes! It keeps us interested instead of using paper and pen.
- I think they help me learn because at home I use the computer, so when I come to school I have something I'm comfortable with.
- Yes, because it makes things easier for me.
- Yes, I feel comfortable using computers and the internet because you can learn more and it is easy to show what you learned.
- Yes, because I like to watch things like videos on YouTube because I learn better that way than reading things out of books, etc.
- Yes, I think that it does because you can look up words and subjects faster and do presentations without losing your sheets.
- Yes, because when I use the internet I found out new things all the time. I learned facts I never knew before. I can post my opinion and read other people's opinions. I like making movies, PowerPoints, Glogsters, blogs, and VoiceThread. It always helps me learn and I like learning how to use different websites so I can show other people.
- Yes, I agree using computers and the internet helps me a lot because you can search whatever you need—find facts, pictures, information—and have fun with it.
- I think it helps because in textbooks we can't find some information that is on the internet. It works better for everyone, and makes it easier to find information.
- Yes, I like using computers and the internet in school to help me learn because there is an answer to pretty much anything on the internet.

- Yes, because we are able to look up definitions and other stuff on the internet. We can express our answers in many ways and in science we look up and post videos and other stuff.
- Yes, using the computers and the internet in school helps me learn because when things are visual, it's easier to learn from it and it helps me to understand better than sitting there and reading a textbook or something. It's easier to learn when you are having fun, and the computers and internet are fun and easy to use. It makes things clear and easy to understand.
- Yes, I feel it does because if you don't understand something, you can look it up! You can also find information faster and easier than in a textbook!
- Yes, because there are many different sites and things that are filled with information for the one topic you are researching and there are many different online tools I can use to present the stuff I found.
- Yes, because you get to see what other people think and know. Also it helps because some people think different than other people so then you have to look on other sites and see who is right and who has the right answers. We also use different web sites.
- I feel that it does because I am completely attached to tech stuff and I love to type; I hate to write, but love to type. If I get to use a computer, my info is more valid and I would get more marks.
- Yes, I think computers help me learn. I like using the computer because you can post on your wiki as well as look at what other people said and it helps a lot. The only thing I don't like is when it gets hard to find information. It is a lot of fun and more exciting because we were not just working out of a textbook.
- I agree using technology helps me concentrate and learn more interesting facts, personally. I like technology in class because it is easy to use—anything you want to know, you can use the internet to find out. It helps me learn and keeps me on task because the programs we are using are interesting and I like using them. If I had an option to use technology for most of our school learning and projects, or if we wanted to learn out of a textbook or get taught to, writing pencil and paper, I would much rather use technology.

Conclusions

The findings of this project were not shocking to those teachers involved. We were not surprised that the majority of students were motivated by technology. We all agree that it is important to acknowledge the world our students live in and to try to embrace the tools that are important to them. We were able to see improvement in engagement through on-task behaviour and completion of products to show learning with a majority of our students, from the least motivated to participate, to the top, self-motivated students who reached a higher level of independence with their learning.

We were able to see a huge growth in independence as teachers stepped back and allowed students to take more control over their learning. We realized we did not have to be the experts in everything and to feed information to our students as we had all traditionally done. The students did not make an immediate transition between traditional teaching methods and the inquiry-based method of learning that we were able to introduce using the web tools available to us. We were, however, able to see vast progress over the course of the project from students waiting to be fed what they needed to know, to students taking control of their own learning and showing more motivation to learn and to share their learning with others.

We also realized that we did not need to spoon-feed technology tools to students. It was difficult to let go of the feeling we needed to show them every step involved in using a tool, but after beginning our project using VoiceThread, where we walked them through every step, we realized we could introduce the tool, get students started, and they would do the rest. Teachers do not need to feel overwhelmed or discouraged because they lack a lot of technical knowledge. Students can easily take control and it was amazing to see them learn and share what they learned with others. The responsibility of directing learning toward outcomes was the teacher's role, where using the technology and discovering what it could do for us became the student's role.

One thing that did surprise us was the younger students (Grades 5 and 6) seemed much more comfortable trying new tools than the older students (Grade 8). It was difficult to know whether it was attitude or comfort level with technology. Not all students were as technologically inclined as we had originally thought. Most students are good at doing what they normally do on the web, such as YouTube or Facebook, but a few students needed extra support to branch out of their comfort zone.

Some of our students who continue to struggle year after year with organization of paper and binders voiced they really liked the project because there was a lot less organization required for them. For the most part, students would save all writing in a Microsoft Word document or on blogs or wikis. Most assignments or instructions were posted on the Wikispace. Almost all web tools have an automatic save function, so things get lost less often. We did struggle with some students and their passwords, despite the fact they were told to use the same user name and password for all tools.

It was very important to teach students digital citizenship skills along the journey, so they could safely and cooperatively operate in the digital environment on the web. Ribble and Bailey (2007) stated

it is not enough to simply have a policy. We also need to provide active direction to students. With technology, we cannot assume that everyone knows what is appropriate and what is not. It is the responsibility of educators and the school community to help define appropriate use. (p. 11)

Students needed guidance about user names and passwords, copyright, personal information, commenting appropriately, writing content to post online, and so forth. We had very few incidents of inappropriate use of the web, and most times things could be used as teachable moments.

We did have some issues with technology that were frustrating for both students and teachers. The school division IT personnel were able to try to solve our technical issues quickly. We were given access to web sites not included in our normal access policies and were given much support with our project.

Future Action

As a result of our project, teachers within our school would not return to traditional methods of teaching social studies and will move toward using web-based technologies in all subject areas. We were able to meet curriculum outcomes by turning the responsibility of learning over to students and we were able to teach using very little paper and without the expense of using a textbook that will soon be out of date, especially with a subject like social studies. We will continue to build on what we have started.

Most classes in our school have class blog sites and blog on a regular basis, so we will continue to use them, as well as our wikis to promote writing, reading, and sharing skills.

It was important for us to be able to have a space where we could share our work with other teachers. We are passionate about our project and hope to convince other teachers to try this method as well. We have posted most of the things we have developed on our Wikispace which can be found at the following address:

<https://smartsocialnetworking.wikispaces.com/>

We hope other teachers will use our Wikispace and will add to what we have started—that is what the web 2.0 world is all about.

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APPENDIX A

Beginning Survey Questions

1. Are you male or female?
2. What grade are you in?
3. How old are you?
4. What is your favourite subject at school?
5. How many times a day at school do you have the opportunity to use technology to help you show what you know?
6. Approximately how much time do you spend a day on the computer at home?
7. How often do you play games online?
8. How would you rate your experience and knowledge of using computers and online applications (tools)?
9. How often do you explore and try new tools and applications online? (Things you have never done before)
10. Do you enjoy using computers to support your learning at school? (For example: PowerPoint, Audacity, Photo Story, etc.)
11. Select all of the web tools and applications from the list below that you feel you are comfortable using.
12. Select all the activities or experiences from the list below that you feel help you learn or would help you learn if you did them.

Questions 13 through 18 are given the following choices:

Strongly Agree Agree Disagree Strongly Disagree

13. I enjoy learning using technology.
14. I concentrate better in class when technology is used by the teacher.
15. I can learn many things when I use technology.
16. I feel comfortable using the internet.
17. If I had the choice I would use technology to help me demonstrate my learning.
18. I find my classes more interesting when we use technology.
19. Do you feel that using computers and the internet in school helps you learn? Explain why or why not.

APPENDIX B

Student Survey #2

1. Are you male or female?
2. What grade are you in?
3. How old are you?
4. What is your favourite subject at school?
5. How many times a day at school do you have the opportunity to use technology to help you show what you know?
6. Now that we are finished our project, how would you rate your experience and knowledge of using computers and online applications (tools)?
7. Do you enjoy using computers to support your learning at school? (For example: PowerPoint, Audacity, Photo Story, etc.)
8. Select all of the web tools and applications from the list below that you feel you are comfortable using.
9. Select all the activities or experiences from the list below that you feel help you learn or would help you learn if you did them.

Student choices the same as in beginning survey for questions 10-16.

10. I enjoy learning using technology.
11. I concentrate better in class when technology is used by the teacher.
12. If I had the choice I would not use technology to show my learning.
13. I can learn many things when I use technology.
14. I feel comfortable using the internet.
15. If I had the choice I would use technology to help me demonstrate my learning.
16. I find my classes more interesting when we use technology.
17. Do you feel that using computers and the internet in school helps you learn? Explain why or why not.

FIGURE 1

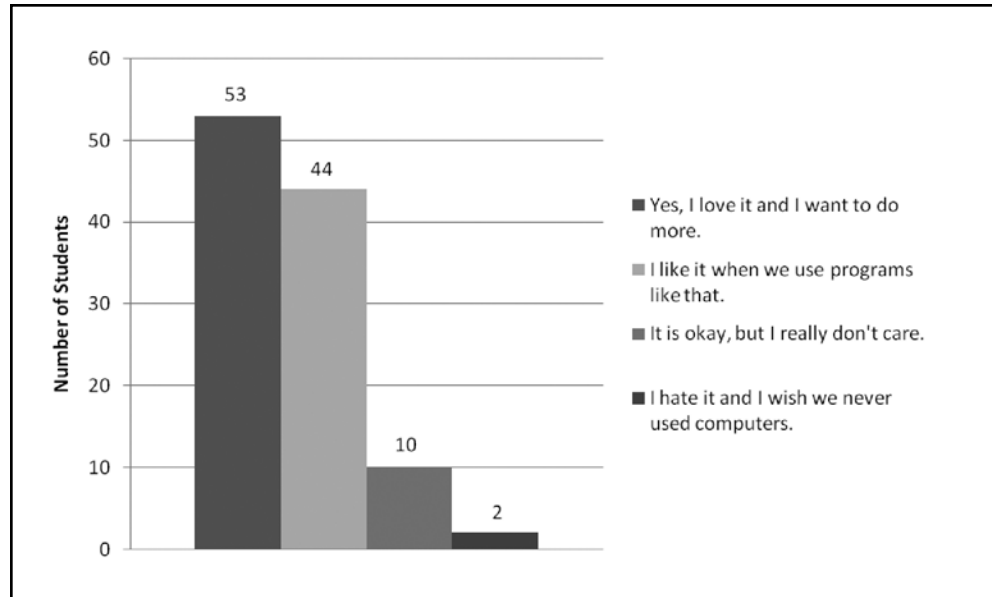


Figure 1. Student responses to survey question: Do you enjoy using technology to support your learning? (109 students responded to survey). Copyright 2011 by D. Aspinall, D. Hamilton, M. McKinnon, M. Smart, and A. Smeltzer.

FIGURE 2

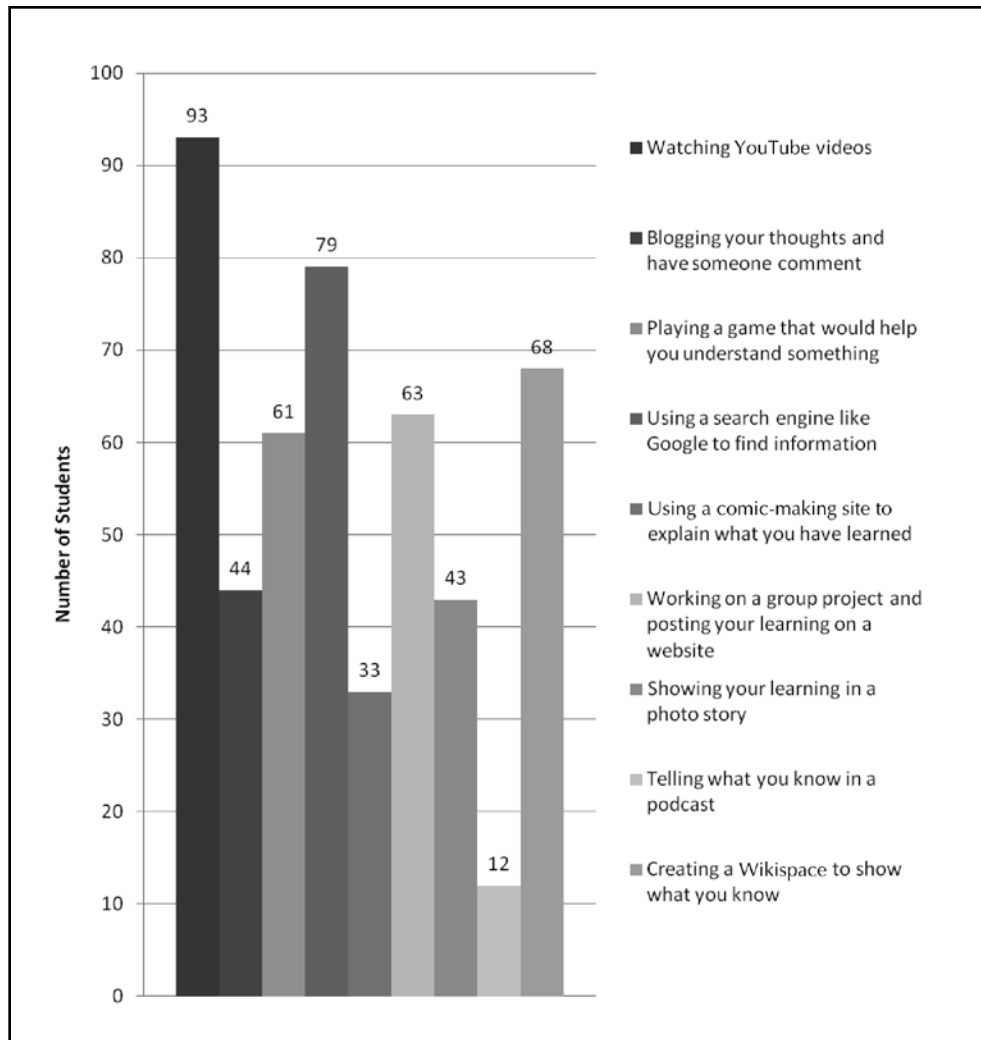


Figure 2. Student response: What web-based experiences helped you learn? Students selected all of the activities or experiences from the list that they felt helped them learn or would help them learn if they used them. Copyright 2011 by D. Aspinnall, D. Hamilton, M. McKinnon, M. Smart, and A. Smeltzer.

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