THE IMPACT OF SOCIAL NETWORKING IN THE SECONDARY SCIENCE
CLASSROOM

by

Katherine Loretta Theobald

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In presenting this professional paper in partial fulfillment of the requirements for a master's degree at Montana State University, I agree that the MSSE Program shall make it available to borrowers under rules of the program.

Katherine Loretta Theobald

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ABSTRACT

In our current society, students are inundated with social media. This study explored the impact of its use in a secondary science classroom specifically on discussion board responses and community building. Students utilized a social media outlet to conduct asynchronous discussions, collaborate with classmates, and expand their understanding of the material. The outcomes of this study were gauged through surveys, interviews, and output.

INTRODUCTION AND BACKGROUND

For the past five years I have been teaching science and math at Commonwealth Academy in Alexandria, VA. Commonwealth Academy is a co-educational college preparatory day school for average to superior middle and high school students who benefit from small classes and instruction designed to address various learning styles, including those who have organizational, attention, or learning differences. The school has a yearly enrollment of about 100 students and serves students with a wide array of learning disabilities. The predominant disabilities are attention based and language based. Most of the students come from middle to upper class families and are personally funded while about 10% of the students receive tuition assistance through their public school.

During my five years at Commonwealth, there has been a consistent push to be at the forefront of technology particularly educational technology that can help students compensate for their learning difficulties. According to the school mission, we empower students to reach their highest achievement levels, reflective of their true potential, by teaching personal responsibility for learning and behavior in a comfortable community, conducive to academic risk-taking and social success. We offer a broad-based curriculum, compensatory strategies, and a focus on technology to prepare our students for the challenges of college, career, and life pursuits. Each room contains an interactive whiteboard and mounted projector, students have access to laptops and computer laboratories, which are equipped with a vast array of educational software. Additionally,

students utilize tools such as blogs, podcasts, and discussion boards in many of their classes. This school wide initiative on incorporating technology in order to stay current and accommodate the needs of our particular population of students led to my interest in the area of social media and networking. While my school has and utilizes a lot in regards to technology, we have not tapped into what I believe to be a key area of emerging technology, social media. The school utilizes the Edline platform for the sharing of school information. In addition to the school website, this is the place where announcements and updates are posted. Teachers post daily homework and test reminders under their personal class pages. Within this platform is the capability to post discussion boards, create online homework hand-ins, and communicate with teachers through e-mail. The format is fairly sterile and is limited in its capabilities. For example, with the discussion board, the students are limited in their ability to respond to each other's posts. Being underwhelmed with the discussion and collaboration capabilities that this platform offered led to my desire to explore other avenues to create those virtual learning experiences. The desire to explore that aspect led to my primary research question: What impact does the incorporation and utilization of social media networks have on students in a secondary science classroom? The primary focus will be on participation, interest, motivation, communication, and overall sense of community.

CONCEPTUAL FRAMEWORK

Facebook…Twitter…MySpace. These are all terms that if used 10 years ago would have garnered looks of confusion. However, in today's society, terms such as tweeting and Facebook wall have become part of the vernacular. For Facebook, what started as a small site solely for college students to interact with other college students has turned into a site open to all with a current membership of over 400 million users with about 50% logging in on any given day according to the statistics on their welcome page. While the age demographics are changing regularly, the teenage user base has continued to grow since the site opened to all ages a few years ago with the 13-18 demographic growing rapidly. A study by the National Board Association reported that "96 percent of youth in this age range have used social networking tools at some time, with their average engagement with them rivaling time spent watching TV at nine hours a week" (Klopfer, Osterweil, Groff, & Haas, 2007, p.12). Similarly Twitter, which has been around a shorter amount of time, currently has nearly 106 million users according to a release in April 2010 from Chirp, the Twitter developer conference. In their time, these networks, particularly Facebook, have morphed in their functions to include many socials aspects such as chat and other networking applications. "Evidence shows that social media are already affecting the ways in which people find, create, share and learn knowledge, through rich media opportunities and in collaboration with each other" (Redecker, Ala-Mutka, & Punie, 2010, p.11). Almost instantly after an event (sporting, news, etc.) has occurred, information about it can be found circulating the social scene.

"Social networking media engages the user in the content and allows them to be included as an active participant as they construct a *learning landscape* rooted in social interaction, knowledge exchange, and optimum cognitive development with their peers" (Baird & Fisher, 2006, p.24).

Similar to these social networking sites are online communities; places for the congregation of people with similar interests and objectives. Out of message boards and chat rooms have risen whole online communities dedicated to almost any interest group or subpopulation. These sites provide a place for people with common interests to share information, exchange ideas, and have meaningful interactions without having to be in the same physical space. Because these tools have proven the ability to change the way people interact socially, it could be reasoned that they have the power to change student interactions educationally.

Another finding by the National Board Association (2007) is "that the topic of most conversation at these (social networking) sites is education and 60 percent of the students' surveys said they use the sites to talk about education topics and more than 50 percent use it to talk about specific schoolwork" (Klopfer et al., 2007, p.12).

The current generation of learners is 'hardwired' to simultaneously utilize multiple types of Web-based participatory media. This is a technologically savvy generation of learners who have no concept of using the 26-volume set of encyclopedias. They have grown up with the Web, are 'always-on,' and expect to utilize technology in their learning (Baird & Fisher, 2006, p.10).

The modern day student can typically be found interacting through several social networking sites and holding membership in numerous online communities that cater to their varied interests.

However, "there's a sharp disconnect between the way students are taught in school and the way the outside world approaches socialization, meaning-making, and accomplishment. It is critical that education not only seek to mitigate this disconnect in order to make these two 'worlds' more seamless, but of course also to leverage the power of these emerging technologies for instructional gain" (Klopfer et al., 2007, p.3).

Incorporating social media in the classroom will tap into skills already utilized by many students in their daily lives and can begin to bridge the gap between the way they learn and interact in life and the way they learn and interact in the classroom.

This inundation of technology and flashy media also alters student expectations in the classroom. With the introduction of the latest technologies students "expect interactive, engaging content and course material that motivates them to learn through challenging pedagogy, conceptual review, and learning style adaptation" (Baird & Fisher, 2006, p.24). Students expect to be engaged through interactive lessons, visually appealing simulations, and other modern technology applications. These networks provide a way to "address the needs of neomillennial learning styles and provide students increased opportunities for collective reflection, collaboration, and interaction without being tied to the constraints of physical space, while still addressing their 'always on' learning styles" (Baird & Fisher, 2006, p.17). In this case, Baird and Fisher are referring to learning styles that have come about in the new millennium. There are several

potential benefits that this "always on" learning can promote. The key benefits of discussions and collaborative learning are intertwined and only function in the presence of the other. The use of an online social network could also promote communication, sense of community, and learning motivation.

Discussion boards have been around in some fashion for quite awhile. A discussion board is a forum for interested parties to express views on a particular topic while interacting with others. Just as they can from an in-class traditional discussion, "students can learn science ideas from a well-designed online asynchronous discussion" (Hoadley, 2000, p.855). For students who are struggling with a topic, a discussion board can help them, through the assistance of their peers, flesh out their understanding.

Communicating with peers and allowing them to clarify the topics, can greatly help with overall understanding of topics. When implemented and facilitated correctly, "successful discussions provide a rich collection of ideas and also illustrate how these ideas can be distinguished" (Hoadley, 2000, p.855). This happens because a "discussion board allows learners to take control of their own learning in a supportive and collaborative environment, and encourages them to reflect on how they accomplish tasks" (Bikowski & Kessler, p.28). However, "online discussion does not automatically add value" (Skinner, 2007, p.390). The manner in which the discussion are carried out and the involvement on the part of both the students and instructor to keep the conversation going are crucial. "If online discussion is to be successful as a tool for building a strong sense of community, it must motivate each individual student to engage from the outset" (Skinner, 2009, pp.98-99). The initial discussions need to be engaging and the follow-up needs to be routine. It has been seen that "discussions fail when students do not get

answers to their questions or lack models of the knowledge integration process"

(Hoadley, 2000, p.855). Therefore, it is important to ensure that feedback to discussion

members is timely to foster consistent participation. Also, modeling ways for students to

display their knowledge on discussion boards by providing sample posts and guidelines

will help students provide quality responses and comments. Overall, "students will get

value from a discussion in proportion to their input, but the tutor (instructor) will be

instrumental in the overall input and value for the class as a whole" (Northover, 2002,

p.7). These online, asynchronous discussions are intertwined with and often a catalyst for

online collaborative learning. Collaborative learning through discussion can "foster the

development of critical thinking, clarification of ideas, and evaluation of others' ideas"

(Gokhale, 1995, p.25). These social networks have created "an (online) community that

is able to draw from multiple social Web resources to meet a learner's intrinsic needs,

while still providing opportunities to participate with their peers in a collaborative, social

exchange of information" (Baird & Fisher, 2006, p.23). As the National Board

Association Survey (2007) said, students are already using online tools to discuss school

work, confer with friends, and seek assistance. An established online community simply

provides them a moderated, centralized location to do what many of them are already

doing.

Secondary to the main focus, social media networks can also be important tools to

increase general communication between student and student and between student and

teacher. Aside from responding to the discussion board, students can post questions to be

answered by other students or by the teacher. Also, many social networking sites have a

chat feature allowing immediate feedback to address trouble with assignments or other

general questions. These "social software technologies can work together to support

learning and foster community and interaction in the online and blended classroom"

(Baird & Fisher, 2006, p.24). The sense of community cultivated online could carry over

into the face-to-face classroom and promote a stronger sense of community in the

physical class. Basically, the

> "effective use of social networking and media technologies provides course
>
> designers and instructors with the ability to interject emotion in the online space,
>
> thereby providing opportunities to make emotional connections with classmates
>
> just as they do in the 'real time' world of the brick and mortar classroom model"
>
> (Baird & Fisher, 2006, p.14).

Due to its complexity of programs and array of features, social networking media

might not seem up front to be the ideal platform for students with learning disabilities.

"However, in these cases, due to the richness of social media, alternative tools can be

chosen that accommodate for these differences and mediate the inclusion of learners with

special needs" (Redecker et al., 2010, p.10). In fact, students with attention based

disabilities often respond favorably to social networking sites. The often frenetic pace

and deluge of available information actually plays directly into their attention issues by

providing them constant stimulation. Directing and maintaining their focus on the correct

areas such as discussion and blogs and away from features that are strictly social in

nature provides a challenge but "the use of technology-based interventions shows great

promise for improving the academic performance of students with LD on general

education expectations" (Maccini, 2002, p.260). It also provides a safe space for

collaboration for students with learning disabilities that make it difficult for them to share

in class such as processing and language based. The "discussion board can open up communication for students who would not be heard in a face-to-face class. The forum allows students to compose a contribution over time, check and revise it, before posting it" (Northover, 2002, p.6). This allows the student to feel comfortable formulating their answers and developing their understanding and would possibly translate to increased comfort in the face-to-face classroom particularly if the asynchronous discussion takes place prior to the classroom discussion.

Networking, socializing, and discussing are all things that many students are already doing in virtual spaces. Creating an educational space that taps into that already existent craze seems a natural transition. Students can debate and discuss in real time and stretch the confines of the traditional classroom. For students with learning disabilities, this will allow them to engage with their classmates by continuing the conversation and allowing them to get out all thoughts they might not have had time or ability to express in the classroom. It also allows for extended processing time for students that might not feel comfortable interacting with the pace of a traditional classroom and can allow them to formulate and edit their thoughts prior to sharing them. Students can share and interact in a way that they might not in the traditional classroom and build and foster a community of learners that are engaged, critical thinkers working together to attain increased understanding of material.

METHODOLOGY

My project focuses on the use of social networking and social media as a means to promote student discussion, communication, and a sense of community. As discussed in the conceptual framework, social networking sites have become a facet of our modern society as a place for discussion, information sharing, and community building. While these sites have largely permeated our social lives, they are not as widely utilized in educational settings. This study seeks to determine what impacts the use of social media has on a secondary science classroom. The study will examine specifically participation in asynchronous discussion, student motivation, and sense of community.

Participants

This study will be conducted at Commonwealth Academy in Alexandria, VA. Commonwealth is a private, co-educational 3rd – 12th grade school that serves students with mild to moderate learning disabilities. While the school is located in Alexandria, VA, students come from all over northern Virginia, Washington DC, and southern Maryland to attend the school. Enrollment for the 2010-2011 school year was 115 students. The majority of the students were personally funded with the exception of seven students who were funded by their local public school system. Therefore, most come from middle to upper class families. The study was completed with two 10th grade level Introductory Biology courses with a total of 17 students. The demographics of the classes are detailed in Table 1. There is a wide variety of learning disabilities within the two classes. However, the predominant disability and the one that impacts success in

Biology the most is language based with students struggling with reading comprehension,

receptive language, expressive language, and short and long term memory.

Table 1
Student Demographics

# of Students	Female	Male	Caucasian	African-American	Asian-American	Latino
17	4	13	13	1	1	2

Intervention

As previously stated, the goal of this project was to integrate social media into the

classroom because of its ability to foster discussion and sense of community in daily life.

By incorporating it into the classroom, it was hoped that those same benefits could

transfer into the academic realm.

After outlining the scope and goals of the project, the first step was to choose a

social networking platform that would achieve the intended goals of the project. Several

factors went into the choice; ease of use, customizability, and appeal. After researching

and factoring in those considerations, the social media platform selected was a Ning

network. It provided many of the features needed to carry out this project and seemed to

be the best option.

There were two main drawbacks with its selection. One, in the process of

research and selection, Ning was going through the process of turning all their free pages

into paid pages. However, aside from the new cost, being a paid page allowed for more

customizability of the site making it better for educational use. The second potential

problem was with the busyness of the site. Similar to non-educational social networks,

Ning networks have many features and can have a lot going on at once. This could make

it difficult for a student to complete the desired assignment or use it effectively.

However, with the ability to remove ads and streamline its features, much of this concern

was eliminated with the switch to paid pages. Also, with the population that I'm working

with, many of whom are ADD/ADHD, having a lot going on is sometimes preferred

because of many student's strong abilities to multi-task. The task will be to monitor

whether the additional features are detracting from a student's ability to complete the

required assignments.

In setting up the site, several aspects were taken into consideration. While the

focus on this site was strictly educational and meant to promote discussion, collaboration,

and a sense of community with my Biology students, it was clear that the social aspect of

social networking was a key part to the success of those sites. Therefore the created Ning

site incorporated both the necessary educational features in conjunction with some purely

social features. The only part of the page that was not customizable was the profile

information on the right panel. This provided current login status and general profile

information of the signed in user. The remainder of the site was customized in the

following ways. In the center of the page when students log on were the discussion

forums section and the blog section. There were centrally located so that they were easy

to find and use. On the right panel below the profile information was the recent activity

box. This provided users with a quick overview of the most recent activity on the site

allowing them to see what was going on without going into each site component

individually looking for updates. On the left panel were a news box, photo box, and a

video box. The news portion provided users with topical information that might be of

interest to them. It was placed on the top left so that users would see it every time they

logged in. The other two boxes on the left panel allowed users to share photos and video

with others. These features were incorporated because they were similar to popular

social networking sites and it was hoped they would engage users in the site. Along the

top were tabs for each of the features identified. In addition, there was a tab to access

member pages. In the member tab, users were able to view and comment on the profiles

of other users. Through the use of the features identified, the Ning site contained both

purely social features and features, such as discussions and blogs, which could be used

for educational purposes.

Aside from the features, another important aspect of the Ning site formation was

the privacy and monitoring settings. The site was set to private and could only be joined

by invitation. This prevented unwanted people from attempting to join the site and

protected the privacy of the users. Prior to creating any new content, users were required

to enter a Captcha as an extra security measure to protect users of the site. At the start of

the treatment period, all content monitoring was enabled. All blogs, photos, and videos

required approval prior to being displayed on the site. Eventually content monitoring was

removed and user created content was posted immediately as it was created.

Users were able to customize their own profile pages including uploading a

picture, adding text boxes, and establishing privacy and notification settings. Students

were required to set high privacy settings making their profiles visible only to other

members and limiting the personal information they were able to share via their profile.

They had the initial option to set their own notification settings. Eventually, students

were encouraged to turn on e-mail notifications for certain features.

The site was used in the classroom to promote discussion, communication, and

community. Previously, asynchronous discussion was completed on the school host site,

Edline. Through that site, discussions could be set up, assignments could be submitted,

and questions could be asked via e-mail. However, these features were all in different

locations and were often not ideal for their purpose. The discussion feature made it

difficult to respond to other students and track conversations. This made it difficult to

engage students in ongoing discussions and did not appear to promote asynchronous

learning. As in the past, this site was used at the start of the year as the platform for

discussion and online collaborative learning.

In the second semester, students were introduced to the new Ning platform. Their

initial assignments were geared towards learning the functionality of the site and were not

content based. They had practice time in class in order to become familiar with the

various features available. They were each assessed regarding their understanding of its

functions and were able to demonstrate knowledge of its use before it was utilized fully

in the classroom. Starting in the third quarter (mid-January), students utilized the Ning

site to interact online completing assignments similar to those completed on the Edline

platform.

<div align="center">Data Collection</div>

The data collection techniques are outlined in the Data Triangulation Matrix in

Table 2. Prior to treatment, three student surveys were conducted to establish a baseline.

The first survey (Appendix A) examined the student's current use of social networking

and media sites. To address the secondary question regarding participation in discussion,

a survey (Appendix B) regarding pre-treatment levels of discussion participation and

attitudes toward discussion forums was conducted. This established a baseline for

student views towards asynchronous discussion and highlighted problems, if any, that

they experienced in its use. Also, quantity and quality of responses were recorded in the

first semester as a pre-treatment baseline. Quality of responses was assessed through the

use of a discussion rubric (Appendix J). The final pre-treatment survey (Appendix D)

established student views towards a sense of community created in their science class.

Creating a community of learners in which the students feel encouraged and empowered

to share was one of the secondary focuses on this study. Establishing their pre-treatment

perception of that topic was paramount to assessing the effectiveness of the site in

achieving that goal.

During treatment, quality and quantity of discussion responses were recorded for

the Ning site. Quality was assessed using the same rubric used for pre-treatment

discussion responses and follow-up responses (Appendix J). Number of responses was

recorded only beyond the initial response required by the assignment. One of the

concerns of the previously used platform was that follow-up responses were not easy to

track and therefore did not often happen. These were compared to the pre-treatment

values to determine if student discussion responses increased. Also during the treatment,

teacher observations were recorded in a journal using the observation guidelines outline

(Appendix H). These observations were focused on community building behaviors both

in class and out and changes in discussion posting habits. Students also responded to

journal prompts 1-2 times a week during their warm-up time regarding the use of the site.

Journal questions (Appendix F & G) were geared at gauging their overall views of the

Ning site and were graded only on the basis of completion.

Following the treatment period, similar attitude surveys were given regarding

views toward discussion (Appendix C) and community (Appendix E). These were

compared to pre-treatment surveys to gauge the impact of the study. Finally, selected

student interviews were conducted to determine views on the impact of the study. Three

students from each class were selected to interview. Several factors went into

consideration when choosing the interview subjects; performance, gender, and

predominant learning disability. These three criteria were utilized so that the individuals

selected were representative of the total population and not just a portion. Student

accommodations were utilized in the interview process to ensure that all interviewees

were able to produce responses to the best of their ability.

Table 2
Data Triangulation Matrix

Focus Question: What are the impacts of using social networking media in the secondary science classroom?				
Secondary Questions	Data Source 1	Data Source 2	Data Source 3	Data Source 4
Does student participation in asynchronous discussion change with the use of social networking media?	Compare Fall 2010 discussion participation and response qualities to Spring 2010 (treatment) participation and quality	Pre and post-treatment attitude surveys	Student journals	Post-treatment student interviews
Does the use of social networking media foster a sense of	Instructor observations and journaling	Pre and post-treatment attitude surveys	Student Journals	Post-treatment student interviews

| community?				

DATA AND ANALYSIS

As previously stated, this study took place during the third quarter of study and was aimed at gauging the impacts and overall effectiveness of using social networking in the classroom as a tool to promote asynchronous discussion and foster community. Within the two classes, one student decided not to participate but did not make that decision until after initial surveying was completed. Therefore, there were eighteen students surveyed in the social networking use and pre-treatment surveys and only seventeen surveyed in the post-treatment surveys. Because the surveys were online and anonymous, the information of the student who opted out was not able to be extracted from the pre-treatment data.

Prior to introducing the Biology students to the Ning site, the CAtalyst, students completed a survey to gauge their prior participation in and familiarity with social networking. All eighteen students indicated an awareness of modern social networking sites and all students had an account with at least one of these sites. This laid the groundwork for the state of their understanding of social media and its functionality. Several students had accounts with the major networking sites including Facebook, MySpace, Twitter, and YouTube as well as sites such as Aion, Tumblr, FanFiction, and Flickr. All but one, 96.6%, of the students had a Facebook account at the time of the survey and 72.2% expressed that they interact on their Facebook account most often.

These results matched previous discussions and observations of student site usage. It was

this preference and interest in Facebook that led to the creation of a site that had features

that modeled popular Facebook features. The Ning site also has the ability to link to

Facebook features. During school, students were unable to access these capabilities due

to site blockage. However, they were able to use them at home. This enabled them to

link their Facebook site with their Ning and post updates on both simultaneously. One

student cited that she "liked being able to update in both places and use the like button. It

made me want to use it more." Ease of use and comfort with the features was a key

component to this study. Prior to the study, most students, 83.4%, found social

networking to be either very or somewhat accessible with only one person indicating sites

to be very inaccessible. The few students who utilize social networking infrequently

cited use confusion, privacy concerns, and lack of time as their main reasons for lack of

use.

Students were surveyed on what features they utilize on networking sites. Their

preferences, shown in Figure 1, indicated a strong preference for public commenting,

media sharing, and chatting.
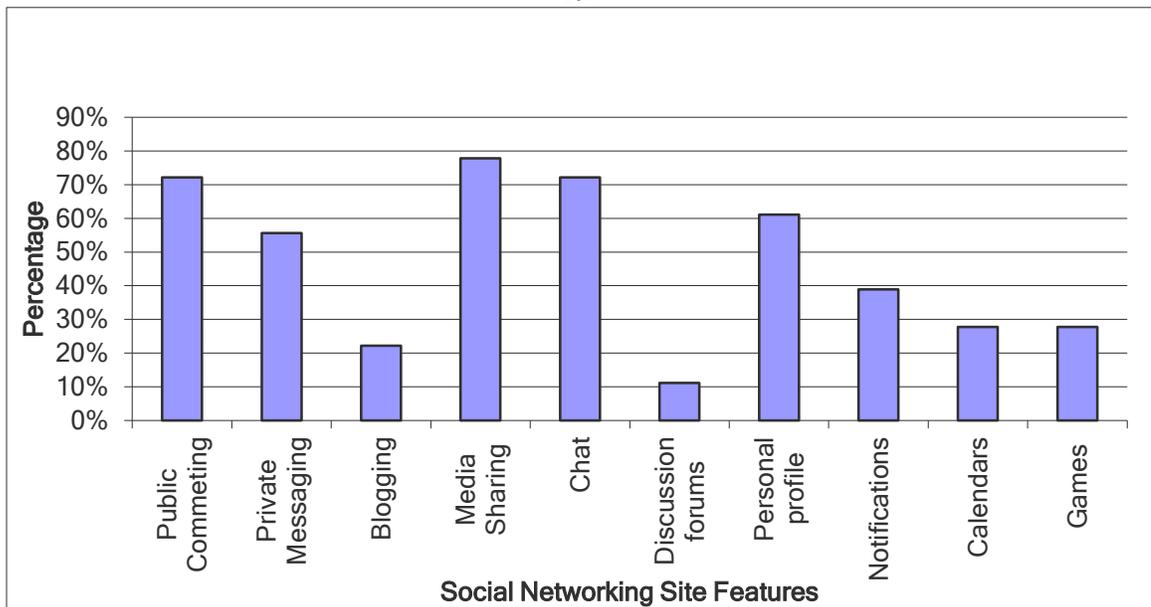
Figure 1. Percentage of Social Networking Site Feature Use.

Also, several students, over 50%, enjoyed having access to private messaging and the

creation of personal profiles. These features were used in an attempt to engage the

students in the site and encourage them to take a more active role in the community. On

the first day of use, students were very eager to create their page. They personalized their

profile with pictures and information about themselves. Many posted profile messages

for others and sent free red ribbon online gifts. While these features served a purely

social role, they seemed to help, especially initially, garner interest in the site and its use.

In a pre-treatment survey, 66.7% of students felt that purely social aspects were necessary

for an online community and it rose to 88.2% following the treatment period. When

asked why, one of the students stated, "there has to be the aspect of being able to see

what your friends are up to on a site like Facebook where you can see what they are up to

and what is going on in their lives." Students expressed that they liked the ability to

personalize it. For one she said that definitely played a role in her usage. She said," I

used it more because I like to personalize things. I put up pictures because I like to have

it there for me so I was on more doing that than I would have been." Another student felt

that the most attractive features were "the way we could post pictures and it was almost

like Facebook. It made it more fun instead of just going in and doing work." Some

students felt though that the social aspects were not necessary for the functioning of the

site and that they took away from the focus of it which was school work. One student

said, "I would post some links but I felt it was more for learning and that it was more

serious. The social aspect was nice for getting information about assignments but more

social interactions weren't really necessary to have there." Additionally, those students

felt that the fact that it was highly monitored and made private took away a lot of the

social aspect appeal. "It was almost Facebook but you couldn't put up what you wanted

to put up. When I went on no one else was on so there's not an incentive to go on. Even

for social purposes." However, in the end, several students cited many of the social

features as the ones they liked best. One student said I liked "the whole profile part;

pictures, videos. It was a lot like Facebook in layout which made it easier to use."

On the other end when examining Figure 1, students showed the least use of

discussion forums and blogs. Those two features are not present in many modern social

networking sites. Based on the high familiarity with the common social networking site

features, I was able to move past some of the basic tutorials as students were already well

versed in there use and placed my focus on features that they did not utilize as frequently

and therefore had less familiarity with such as blogging and discussion forums.

There were many features that could be used for educational purposes on the site

but for this study focus was placed on the forum feature. As Bikowski and Kessler

(2002) stated, a "discussion board allows learners to take control of their own learning in a supportive and collaborative environment" (pg. 28). As indicated, students were already familiar with discussion boards through previous school and personal experiences. When asked what they liked about using discussion boards for school use, one student indicated that "it's a 21st century learning experience, by not bringing hard weight books home, instead answering a question through the keyboards of a computer" while another commented on the added pressure "that everyone can read mine which makes me feel like I have to do it well." A few felt that using message boards for school use was "boring", "a waste of their time", and "a lot of work." However, the overall sentiment appeared to be a positive one regarding the usefulness of discussion boards. Students were also questioned about aspects of school discussion boards that they dislike and several indicated logistical problems such as the site timing out, lack of spell check, and difficulty posting multiple times. These hindrances could cause students to put up barriers to discussion participation.

The use of the Ning site was aimed at promoting better, more consistent discussion by emulating media networks that students were already interacting on frequently with 61.1% reporting routine personal use of message boards and forums. One student indicated that they liked using message boards for personal use because they "can write anything and everyone will read what I write." Others indicated that they liked the ability to interact and communicate about topics they have an interest in and "find out about other's opinions on things." Students like to be heard but sometimes might feel uncomfortable sharing in the classroom or in traditional academic settings.

In looking at the set-up of the discussion forum, it was important to understand how students were using them and what they indicated was valuable. Students were surveyed about certain features that are often part of discussion forums; simple, streamlined appearance, anonymous posting, single sign-on, threaded discussion, comment approval, posting statistics, and activity notifications. Of those, students found simple, streamlined appearance, threaded discussion, and activity notifications most important to their use and comment approval and anonymous posting the least important. This information allowed for tailoring of the Ning boards to cater to features that the students valued.

After the initial surveys were conducted, students were introduced to the CAtalyst. They completed a few assignments to learn about features of the site and practice appropriate use of those features. Most of this practice time was completed in class in order to closely monitor progress and provide necessary assistance. Students showed the most difficulty with blogging and discussion comments. Blogging is not a tool that many of them expressed using frequently (Figure 1) and thus there was a small learning curve with its capabilities. However, students picked it up quickly. In terms of discussion comments, students had a little difficulty transitioning to the format because it was different than Edline where students had previously interacted. While many of the features on the CAtalyst eventually made commenting simpler and more streamlined, there was an initial learning curve that was unexpected. One student cited, "we are so used to Edline that it's hard to change."

Pre-treatment students participated in discussions via Edline and their discussion board feature. Students were familiar with its usage as it is utilized throughout the school

as a part of the school's online platform with 61.1% of them indicating they post one to

five times per week for school use and 22.2% indicating they post five to ten times per

week for school use. While used infrequently in Biology in the past, the students

participated in five pre-treatment forums through Edline. One of the forum results was

removed due to an event preventing over half the students from participating. All

discussion posts and follow-up posts, pre-treatment and treatment, were scored using the

discussion post rubric (Appendix J). This scoring matrix was made available and

discussed with the students prior to completion of posts in the hopes that the expectations

for initial and follow-up posts would be clear.

During the pre-treatment period, students earned an average score of 6.4 points

out of a possible ten on their initial response to the prompt. There were eight posts,

11.7% during the pre-treatment discussions that earned a zero due to non-completion. Of

those eight incompletes, six of them, 75%, were on the final discussion board which

occurred near the end of the quarter. The zeros were factored out in order to see the

actual performance average for the pre-treatment comments. With the incompletes

removed, the true performance average was 7.25 out of a possible ten. While, on

average, students were earning passing scores, many were still leaving out key

components of a good discussion post. The most common issue was lack of support for

their statements and failure to address the question being asked. Figure 2 shows

examples of posts making those errors. During this time, the students were watching the

film *Lorenzo's Oil* and were asked to respond to the following prompt.

During this section there's a big struggle between the idealistic desire to save

Lorenzo and all people with rare diseases and the realistic problems associated

with doing that (cost, time, resources, etc. that will only help a small group of

people).What are your thoughts on this dilemma? Can you see both sides?

"I think that the oil that the family is using will eventually cure Lorenzo. I believe that in the end they will find a cure for all the boys with ALD and the family has done the right thing in being doctors themselves in trying to find a cure for their boy."

"Yes I can see both sides but I would like to side with the idealist because their more optimistic and more willing to help in the cure."

Figure 2. Examples of Low Pre-Treatment Discussion Posts

During the treatment period, students participated in six graded discussions. They

were scored using the same scoring rubric as the pre-treatment discussions. Overall,

students averaged a score of 7.05 out of a possible ten. As with the pre-treatment

responses, there were a handful of zeros due to students that did not post. These nine

posts, 9.8%, were factored out to obtain an actual performance average of 7.8. This

showed there was an increase in the quality of responses, but some students still struggled

to support their statements and provide enough information. When comparing the pre-

treatment and post-treatment scores summarized in Table 3, there was an increase in the

overall score from 6.4 to 7.05 ($p = 0.1376$) that was not statistically significant.

Table 3

Initial Discussion Scores for the Pre-Treatment and Treatment Periods

	Overall Average (with zero's)	Performance Average (without zero's)
Pre-Treatment	6.4	7.05
Treatment	7.25	7.8

However, the actual performance average with zeros removed showed an increase from 7.05 to 7.8 ($p = 0.0356$). This increase was considered statistically significant and showed an improvement in the overall quality of student responses. While some students still struggled to provide responses that included enough detail and supported their statements, several students showed improvement in their discussion posts. Figure 3 below shows a response from the same student who posted one of the pre-treatment responses in Figure 2. The students were in the process of a modern genetics unit and were asked to watch a BBC documentary about "designer" babies and express their views on the ideas presented in the clip. The treatment response, while brief, answered the question and provided support for claims made.


Reply by [   ] on March 17, 2011 at 12:42am

I feel like children should not be genetically engineered. It wouldn't be fair to place that kind of "I'm not good enough" and attitudes on children and feel like they can't do something who are not genetically engineered. Children will always be jealous of their genetically enhanced siblings.

"I feel like children should not be genetically engineered. It wouldn't be fair to place that kind of 'I'm not good enough' and attitudes on children and feel like they can't do something who are not genetically engineered. Children will always be jealous of their genetically enhanced siblings."

Figure 3. Example of Improved Treatment Discussion Post

While initial responses to the prompt on a discussion board are vital, quality follow-up posts are what will keep the discussion progressing. Prior to the treatment

period, students were asked about their performing of common discussion board actions

for both school use and personal use. The actions were commenting on other posts,

revisiting a discussion, reading other comments, and commenting multiple times or more

than the assignment requires. Figure 4 shows the frequency of use of those actions. For

both school use and personal students indicated they were more likely to read other

student's posts and are least likely to revisit a discussion on which they already

commented. However, values for personal use were higher for every action. This

indicated that students were more likely to participate actively in discussions outside of

school than they were for school assignments.
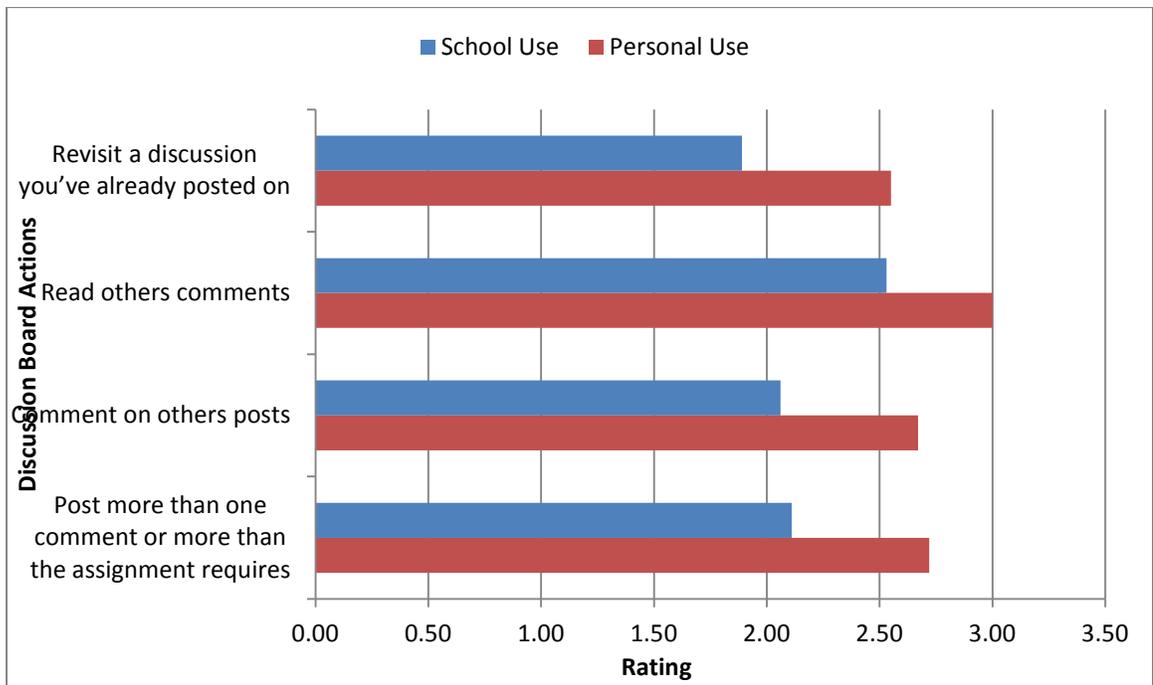
Figure 4. Average Performance of Common Discussion Board Actions for School use
and Personal Use (Pre-Treatment)
Note. 4 = Always, 3 = Often, 2 = Sometimes, 1 = Never

During the pre-treatment phase, discussion follow-up scores were recorded for

posts that students made in addition to their initial response. Students were scored on a

five point scale using the discussion rubric (Appendix J). The overall average for the pre-treatment phase was 1.32. Unlike their initial response to the discussion prompt, students were far less likely to post any follow-up or respond to their classmates despite being assigned to do so. The low average was largely to a lack of responses with 57.3% of the scores being zero due to no participation. When those values were removed, the actual performance average was 3.10. Under the rubric, this average falls under lacking two of the necessary components. The component most left out was "sparking further discussion." While students posted follow-up comments that were clear and original, they did not spur their classmates to continue the discussion. Figure 5 shows an example of the typical response that students posted as pre-treatment replies. While this student provided support for his agreement, he did not spark further discussion. The majority of the responses followed this similar pattern of restating points from the original post and not adding any novel information that would incite continued debate.

i agree, it think that they should make a donation to theys kids, becasue they need the much help for a cure, for this rare desease.

"I agree, it think that they should make a donation to theys kids, because they need the much help for a cure, for this rare desease."

Figure 5. Example of Pre-Treatment Follow-Up Post

During the treatment phase, scores were calculated in the same manner as the pre-treatment. The overall average for the treatment phase was 1.41. As with the pre-treatment phase, several students did not follow-up with the discussion after their initial response and 57.6% of the scores were zero. When those values were removed, the actual performance average was 3.33. When comparing the pre-treatment and treatment scores, summarized in Table 4, there was an increase in the overall score from 1.32 to

1.41 (p = 0.7563) that was not statistically significant. The actual performance average

with zeros removed showed an increase of 3.10 to 3.33 (p = 0.4774) and was also

considered not statistically significant.

Table 4

Follow-up Discussion Scores for the Pre-Treatment and Treatment Periods

	Overall Average (with zero's)	Performance Average (without zero's)
Pre-Treatment	1.32	3.10
Treatment	1.41	3.33

While there was not statistical variance in the discussion follow-up scores

between the pre-treatment and treatments phases, this could have been due to the low

sample size which made it difficult for the threshold of statistical significance to be

reached. Despite the lack of statistical significance, the ability of students to use follow-

up comments to spark further discussion improved during the treatment phase. Students

not only posted comments that were well written and thoughtful, they incited their

classmates to post more by asking additional questions or raising new points. Figure 6

shows two examples of student responses during the treatment phase. Both responses

were during a discussion on nature versus nurture. These responses were representative

of the type of follow-ups produced during the treatment period. Students more frequently

sought clarification and asked questions that kept the discussion going.

⊷ Reply by ▭ on February 24, 2011 at 5:12pm

I agree ▭, but I have one question. What if you for example grew up by yourself, no parents, no one to tell you right from wrong. Who do you think you would be? Would your environment shape you? Or would other people have a bigger influence on you?

"I agree, but I have one question. What if you for example grew up by yourself, no parents, no one to tell you right from wrong? Who do think you would be? Would your environment shape you? Or would other people have a bigger influence on you?

⊷ Reply by ▭ on February 27, 2011 at 10:51am

thats actually a really good thought. but could you elaborate as to why you think weather and landscape can effect someone mentally?

That's actually a really good thought but could you elaborate as to why you think weather and landscape can effect someone mentally

Figure 6. Examples of Treatment Follow-Up Posts

Another area examined in the follow-up of the discussions was the amount of posts students made. During the pre-treatment phase, no student made more than one follow-up response. While the quality of the responses was decent, average 3.10, they did not lead to further discussion. Students did not check back and respond to others beyond the one follow-up that was often required by the assignment. This could be attributed to several factors including the substance of the response. As previously mentioned, the follow-up comments made during the pre-treatment phase did not often have components that prompted others to continue to the discussion. It could also be attributed to the format of the Edline discussion boards that were used. Comments in the Edline format are not threaded and therefore comments can be hard to track. There are not notifications to let students know their content has been commented on making it easy to forget to check back. During the treatment phase, 64.7% of the students responded more than once to each other with some students posting as many as six times on a forum ($p = 0.0114$) which is considered to be statistically significant. This means

that several students participated more frequently during the treatment phase using the

Ning site.

On the post-treatment survey regarding discussion participation, students were

asked the same question about discussion board actions as in the pre-treatment survey.

This was an attempt to gauge whether students felt their frequency of completing certain

actions changed. The results from this survey were compared to the school use results

from the pre-treatment survey and are displayed in Figure 7. The results showed an

increase in all four actions. Students felt that they read more of their classmate's

comments and responded to them to continue the discussion. They also felt they were

more likely to revisit a discussion they already commented on. For many this was due to

the e-mail notifications that Ning sent when people commented on their content. One

student indicated, "I strongly dislike the e-mail notifications but I left them on because

they were useful" as they reminded students to check back on the forums.
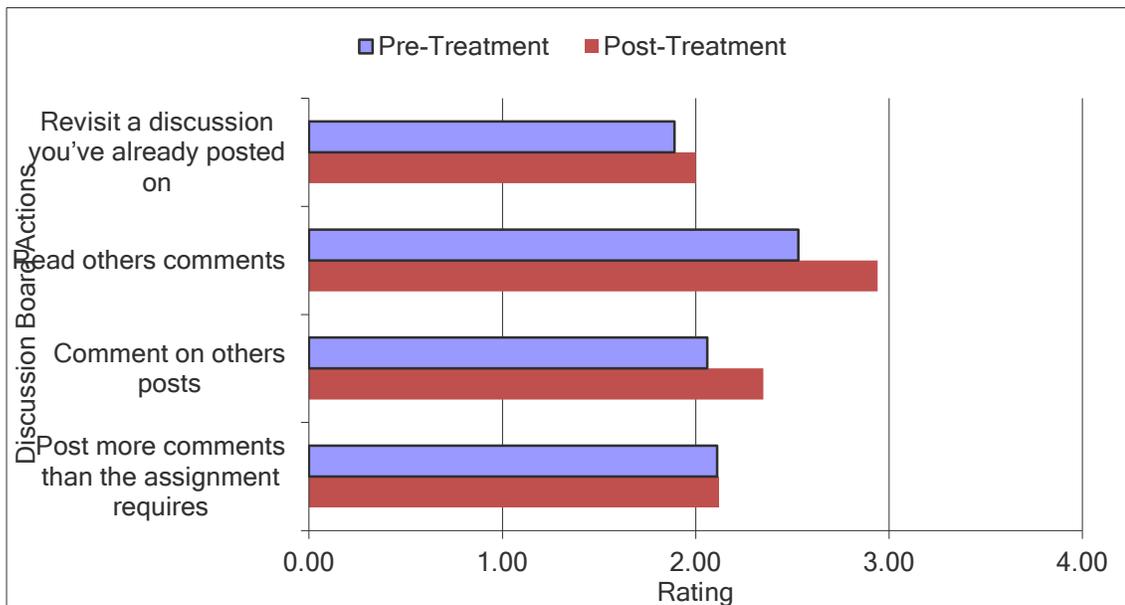
Figure 7. Average Performance of Common Discussion Board Actions for Pre-Treatment
and Post-Treatment School Use
Note. 4 = Always, 3 = Often, 2 = Sometimes, 1 = Never

This study also examined the impact of social networking on community. At the core of social media is the idea of community building and fostering a place where individuals feel comfortable and willing to interact with others. If they do not feel that sense of community, they are going to be less likely to interact. Teachers work hard to build a community within their classrooms that promotes learning but could a community online foster that same learning.

Students were asked to provide words to describe our classroom community prior to the study. Figure 8 shows a word cloud of their responses. The most popular term to describe the classroom community was fun. However, several students also found the community boring. In examining the other terms, students had widely varying views on the state of the classroom community from angering and annoying to peaceful and awesome. Most of the words they expressed are not ones that would necessarily promote learning or positive feelings. However, there are a few words, such as cooperative, energetic, and safe. Those qualities in a community are ones that would describe a positive, well functioning community.

Figure 8. Word Cloud to Describe Classroom Community Pre-Treatment

When asked the same question post-treatment, to list words that would describe our classroom community, some similar sentiments came through. Figure 9 shows a word cloud that summarizes the terms that they articulated after the treatment period.

Figure 9. Word Cloud to Describe Classroom Community Post-Treatment

As with the pre-treatment responses, many students indicated that they felt the classroom community was fun. While a happy sentiment, not necessarily one that promotes learning. In addition, many students felt that the community had become annoying. As one student stated, this was because he was "always receiving notifications about posts and people were always bugging (him) on Ning." The expected vast array of conflicting terms, from energetic to boring and interesting to humorless was also present in the post treatment responses. However, one term that was present with high frequency that was unique to the post-treatment responses was the word "active." This is a term that did not even show up in the pre-treatment answers. Several students felt that the classroom community was now more active. Not only were they engaging with their classmates during class, but they were also regularly interacting with them outside of

school in an asynchronous learning environment. This sentiment corresponded to the increased participation in discussions particularly in response to others' initial posts.

For this study, the value in building a thriving community lied in its ability to promote learning. In an educational setting, it is believed that "social software technologies can work together to support learning and foster community and interaction in the online and blended classroom" (Baird & Fisher, 2006, p.24). Prior to the treatment period most of the students, 88.9%, felt that building a community promoted learning while 100% supported that statement after the study was complete. This change could be due to them experiencing throughout the study the ways in which a community can promote learning. According to one student this was because "everyone knows their own information and to have interaction with other people makes your learn about things that you may not have ever heard about." Another student felt that "when you are in a place where other people want to learn, it kind of gets people in the mood to learn." A third student said, "when you are a part of a community, you work together to learn how to do things and learn about things." Therefore, instead of completing their homework in isolation and learning alone, they were learning with their classmates. Many of them had expressed earlier in the year that they get on Skype or on Facebook to help each other with homework and discuss their work. This site gave them a central place to do that in a setting that was safe and geared towards learning. Interacting with other students outside of the classroom made them feel like they were part of a community just as they are in class allowing them to interact positively with their classmates.

Aside from just saying it, students showed throughout the treatment period ways that utilizing a community promoted their learning. Early in the treatment period, a student came in to class following a night with a Ning assignment and was asking another student about one of their posts and wanted more information even citing they had done a little additional research at home the previous night. It also seemed to promote learning through giving students access to students they do not normally interact with. There are two Biology classes and therefore, students do not always get to hear the thoughts and opinions of students in the opposite class. Creating an online community allowed them to "read other people's profile. You could hear your classmates opinions without being in class with them." which contributed to their overall learning in a way not possible in the traditional classroom. Additionally, it promoted learning by giving students a model for their own content. One student stated, "I find when people have already posted on the message board, it gives me a thought of what I should post on it too, especially if I don't understand the question." It was clear through her posts that she was using the community to her benefit and it improved her overall contributions. While, many expressed and showed that the online community helped promote learning, a couple still did express that "you don't need others to learn" and that they prefer to learn on their own.

Another common theme that came out of the data centered on comfortableness. At some point or another, either in a survey, journal, or interview question, 76.4% of the students made comments about being comfortable through the use of the CAtalyst. One student even said, "when you're in a community there is a feeling of comfort that arrives" and that "it is easier to learn when you feel comfortable in your surroundings." Another

student stated that, "If other people are on the site to share views and work, it makes you more comfortable to do the same thing." A lot of this comfort appeared to emanate from time afforded. Just like with regular homework assignments, students had time to formulate their answers and provide their best possible response. It allowed students who might not traditionally feel comfortable participating in discussions or making comments to share their thoughts and opinions. One student, who is often hesitant to participate in class expressed, "I'm a little shy in the classroom but I can read other comments and use theirs as a sample for writing my own. I do well with models of what I should write. I could also compose my thoughts and write what I wanted whereas I get flustered or confused in class." Another student, who is often willing to speak but needs extra processing time stated, "I didn't have to speak out loud in front of others. I could compose my thoughts and not be interrupted. I am sometimes hesitant because I don't want others to disagree. It destroyed tension." Thirdly, a male who sometimes has difficulty engaging in class without getting frustrated with others expressed, "In an online space, no one gets in an argument or it can be handled in a way. It's easier to control. I feel like I talk differently online because I can compose my answers. I knew I wouldn't sound stupid and it gave me time to edit my thoughts before sharing." Particularly when working with students with learning disabilities, finding ways that to ensure that everyone has the *opportunity* to participate at the same level is very important. As students expressed, online forums allowed them to discuss and engage and interact in a way that was on their terms and more comfortable for them. This also seemed to give some of them more confidence which transferred over to the classroom community.

While discussion forums and student contributed content was one of the focuses of the study, the students also had opportunities to generate their own content throughout the treatment period. They created a few assigned blog posts but then were able create blog posts and discussion prompts of their own later in the treatment whenever they desired. While it was thought prior to the study that being able to create their own content would cause them to engage more thoroughly, all six students that were interviewed indicated they preferred being a content contributor over a content creator. One student answered that "it's hard for (her) to make a discussion because finding topics that are engaging is hard. Also, if it's not assigned, people contribute less. If I posted something and no one was required to respond, they wouldn't. It's easier to go along with the discussion than to make one." A second student felt "it took less time. Blogging takes longer and writing my own content takes longer." A third student preferred to be a content contributor because things had already been made and (he) didn't need to bring up a new subject. That would have opened (him) up to people disagreeing with (him)."

INTERPRETATION AND CONCLUSION

Social networking has clearly had a huge impact worldwide in the last decade. It has allowed people everywhere to connect, it has opened new avenues for campaigning and fundraising, and it has become incorporated into modern vernacular. Many of my students admit to spending hours a night interacting with their friends on Facebook or Twitter or YouTube. This study set out to determine if the obsession with social media

could be captured and incorporated in to an educational setting. Can modern social media be emulated in an educational setting to engage students?

This study showed that in many ways that can be achieved. Students enjoyed the "Facebook-esque" qualities that the Ning site had. Being able to create a profile and personalize your page drew them into using the site. A handful regularly posted pictures and updated their Ning status. However, for some, that lost its appeal over time and some students saw it more as a homework completion site and less as a social networking opportunity. This could be for several reasons. One, the small size of participating students makes socialization more difficult. The site was exclusive to Biology students and this limited the interactions they could have to a small number and to a group of people they may not traditionally socialize with outside of school. This was an unfortunate side effect of the need to provide safety by making the site private and exclusive. Also, this could indicate that part of the appeal to sites like Facebook or Twitter for students may be in their lack of educational connections. It is a place where they can turn off the thinking and just be social. However, in a National Board Survey (2007), many students indicated that they discuss school and education on sites such as Facebook and Twitter regularly. With continued use, a handful of students found that the social and educational became so intertwined that eventually they did not see a distinction. One student cited that they sometimes forgot they were getting on to do homework. However, the number of students who expressed those sentiments was small. Therefore, part of the key to the social aspect may lie in integrating it so fully and making it such a part of their daily lives that they begin to use it out of habit and practice. Ultimately, while some found harmony in the merger of education and socialization, the

Ning sites true benefit seemed to be more in its useful features, engaging appearance, and community building capabilities, than in its purely social endeavors.

While they were not visiting the site as often as their other social sites, students did engage in the class forums. Over the course of the treatment, student response quality improved and students were better able to express themselves and carry on a meaningful discussion with their fellow classmates. They also produced better responses to their classmates. While it was not reflected in their scores, they were formulating better follow-up responses which sparked further discussion which ultimately is the crux of a good discussion. Amount of responses also improved. This, I believe, is due partly to the set-up of the Ning discussion forums. Being able to post your response without the site "timing out" and having it show up threaded below the initial post made it more user friendly for students and easier for them to do.

Establishing a community outside our classroom community was also a positive impact of this study. Students felt comfortable using the site and interacting with their classmates. Because they were interacting asynchronously, they were able to take time to formulate their thoughts, interact with classmates they might not normally, and network in ways that are not afforded in the classroom. For the students who have difficulty contributing in class because of their learning disability, this leveled the playing field. They could take time to process, edit their remarks, get feedback, and contribute at a time that was convenient for them. This created a strong community online and promoted further learning through collaborative interactions. They were able to learn from each other around the clock if they wanted.

The completion of this project and the entire MSSE program has had an impact on both the way I see my students and the way I see myself as a teacher. Completing this project allowed me to get a better look at who my students really are and what they value in their education. I think sometimes I'm too quick to discount their thoughts. If I want to implement something, I'm going to do it because I, as the teacher, know what's best for them. However, going through this process and reading their journal, survey, and interview responses reminded me what a strong voice they have. They know themselves pretty well and can speak to what works for them. Gathering information from them on a more routine basis will help me more routinely shift to best serve them. I plan to continue having them journal periodically about what is working for them in my class and what is not. This will allow them to have a voice and I can act on their responses accordingly.

For me personally, this project has reminded me of the importance of change. Curriculum should never be a static entity and should always be evolving. While this is something that I knew before, I do not think I put it into practice because I did not have the tools to do so. Now I have the ability to implement small and large scale changes and assess their effectiveness in my classroom.

Going forward, I plan to build off of this project and continue using the Ning site and incorporate it into my other science classes. This would be one way to address the small numbers issue. I could set up discussions or topics for all classes to engage in and

could host all my classes on one platform making separate groups for each course. This would allow for more discussion and socialization along with providing opportunities for students to interact with people they may not normally be with in class. I would also like to use it more for collaboration between students; on projects and assignments. Having a set place where students could collaborate, get feedback, share ideas, and ultimately produce a final project would be a great avenue to explore. I do a Chemistry and Biology unit on Forensics each year that culminates in a joint mock crime scene investigation with all those students. It is often difficult for them to share their information and collaborate because their classes meet at different times. Using the Ning site would allow them to work together on the investigation and provide an ongoing log of their progress. Overall, the site has proven to be a great platform for discussion and content engagement and I am excited to explore other ways to use it and other technology in the classroom.

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APPENDICES

APPENDIX A

SOCIAL NETWORKING/MEDIA USE SURVEY

Appendix A
Social Networking/Media Use Survey

1. Have you heard of social networking and media sites (ex: Facebook, MySpace, Twitter)?

- ● Yes
- ● No

2. Do you have an account on any social networking or media sites?

- ● Yes
- ● No

3. What sites do you have an account with? (check all that apply)

- ☐ Facebook
- ☐ MySpace
- ☐ Ning
- ☐ YouTube
- ☐ Twitter
- ☐ I don't use social networking sites
- ☐ Other (please specify)

[   ]

4. Which one do you use most often?

- ● MySpace
- ● Twitter
- ● Facebook
- ● Ning
- ● YouTube
- ● I don't use social networking sites
- ● Other (please specify)

[   ]

5. On average, how many hours per week do you spend on social networking sites?

- ● 1-5 hours
- ● 5-10 hours
- ● 10-15 hours
- ● 15-20 hours
- ● 20+ hours
- ● I don't use social networking sites

6. How accessible do you find social networking sites in general?

- ● Very accessible
- ● Somewhat accessible
- ● Somewhat inaccessible
- ● Very inaccessible
- ● I don't use social networking sites

7. What features do you utilize on social networking and media sites? (check all that apply)

- ☐ Public Messaging (commenting)
- ☐ Private Messaging
- ☐ Search features
- ☐ Blogging
- ☐ Media Sharing (videos, photos, etc.)
- ☐ Chat (instant messaging)
- ☐ Discussion forums
- ☐ Personal profile (profile picture, interests, etc.)
- ☐ Notifications
- ☐ Calendars (birthdays, events, etc.)
- ☐ Quizzes or Polls
- ☐ Games (Farmville, Mafia Wars, etc.)
- ☐ I don't use social networking or media sites

8. If you don't use social networking sites, why not? (check all that apply)

☐ Not enough time

☐ Too confusing

☐ Worried about privacy

☐ Irregular computer and/or internet access

☐ Other (please specify)

[   ]

APPENDIX B

DISCUSSION BOARD USE SURVEY (PRE-TREATMENT)

Appendix B
Discussion Board Use Survey (Pre-Treatment)

1. How do you use discussion or message boards?

● Personal use

● School use

● Both

● I don't use discussion or message boards

2. On average, how many times a week do you post on discussion or message boards for school use?

● 1-5 times

● 5-10 times

● 10-15 times

● 15-20 times

● 20+ times

● I don't post on discussion or message boards for school use

3. On average, how many times a week do you post on discussion or message boards for personal use?

● 1-5 times

● 5-10 times

● 10-15 times

● 15-20 times

● 20+ times

● I don't post on discussion or message boards for personal use

4. When using discussion boards for school use (Edline), rate how often you perform the following actions.

	Always	Often	Sometimes	Never	N/A
Post more comments than the assignment requires	●	●	●	●	●
Comment on others posts	●	●	●	●	●
Read others comments	●	●	●	●	●
Revisit a discussion you've already posted on	●	●	●	●	●

5. When using discussion boards for personal use, rate how often you perform the following actions.

	Always	Often	Sometimes	Never	N/A
Post more than one comment	●	●	●	●	●
Comment on others posts	●	●	●	●	●
Read others comments	●	●	●	●	●
Revisit a discussion you've already posted on	●	●	●	●	●

6. When posting on discussion or message boards, rate the importance of the following features.

	Important	Somewhat Important	Somewhat Not Important	Not Important	N/A
Simple, Streamlined Appearance	●	●	●	●	●
Anonymous Posting	●	●	●	●	●
Single Sign on	●	●	●	●	●
Privacy Settings	●	●	●	●	●
Threaded Discussion (comment goes underneath the post its commenting on)	●	●	●	●	●
Comment Approval	●	●	●	●	●
Posting Statistics	●	●	●	●	●
Activity Notifications	●	●	●	●	●

7. When posting on discussion or message boards for school use, what do you like or find beneficial?

8. When posting on discussion or message boards for personal use, what do you like or find beneficial?

9. When posting on discussion or message boards for school use, what do you dislike or what problems have you encountered?

10. When posting on discussion or message boards for personal use, what do you dislike or what problems have you encountered?

APPENDIX C

DISCUSSION BOARD USE SURVEY (POST-TREATMENT)

Appendix C
Discussion Board Use Survey (Post-Treatment)

1. When using the Ning discussion forums, rate how often you perform the following actions.

	Always	Often	Sometimes	Never	N/A
Post more comments than the assignment requires	●	●	●	●	●
Comment on others posts	●	●	●	●	●
Read others comments	●	●	●	●	●
Revisit a discussion you've already posted on	●	●	●	●	●

2. When posting on discussion or message boards, rate the importance of the following features.

	Important	Somewhat Important	Somewhat Not Important	Not Important	N/A
Appearance	●	●	●	●	●
Anonymous Posting	●	●	●	●	●
Single Sign-in	●	●	●	●	●
Privacy Settings	●	●	●	●	●
Threaded Discussion (comment goes underneath the post its commenting on)	●	●	●	●	●
Comment Approval	●	●	●	●	●
Posting Statistics	●	●	●	●	●
E-mail Notifications	●	●	●	●	●

3. When posting on the Ning discussion forum, what do you dislike or what problems have you encountered?

4. When posting on the Ning discussion forums, what do you like or find beneficial?

5. Describe the differences between your discussions in the Ning community versus the Edline forums. To what do you attribute the differences?

APPENDIX D

SENSE OF COMMUNITY SURVEY (PRE-TREATMENT)

Appendix D
Sense of Community Survey (Pre-Treatment)

1. List the words that come to mind when you hear the word community?

[text box]

2. What is needed to create a community of learners?

[text box]

3. What adjectives would you use to describe our current classroom learning community?

[text box]

4. Do you feel that being a part of a community promotes learning?

⬤ Yes

⬤ No

5. Explain your answer to #4.

[text box]

6. If you are part of a social networking community (ie: Facebook), what adjectives would you use to describe that community? (If you are not a part of a social networking community, indicate that in the box.)

[text box]
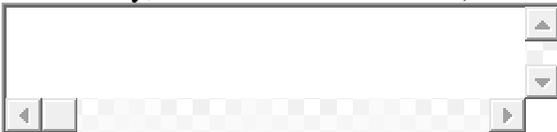
7. For an online community to be effective does there need to be a social aspect?

⬤ Yes

⬤ No

8. Explain your answer to #8.

[text input box]

9. Rate the following features based on they contribute to a sense of community.

	Strongly encourage	Somewhat encourage	Somewhat discourage	Strongly discourage	N/A
Public Messaging (commenting)	●	●	●	●	●
Private Messaging	●	●	●	●	●
Search features	●	●	●	●	●
Blogging	●	●	●	●	●
Media Sharing (videos, photos, etc.)	●	●	●	●	●
Chat (instant messaging)	●	●	●	●	●
Discussion forums	●	●	●	●	●
Personal profile (profile picture, interests, etc.)	●	●	●	●	●
Notifications	●	●	●	●	●
Calendars (birthdays, events, etc.)	●	●	●	●	●
Quizzes or Polls	●	●	●	●	●
Games (Farmville, Mafia Wars, etc.)	●	●	●	●	●

APPENDIX E

SENSE OF COMMUNITY SURVEY (POST-TREATMENT)

Appendix E
Sense of Community Survey (Post-Treatment)

1. List the words that come to mind when you hear the word community?

2. What adjectives would you use to describe our current learning community?

3. Based on your experience, do you feel it's possible to form an online community of learners?
- Yes
- No

4. Explain your answer to #3.
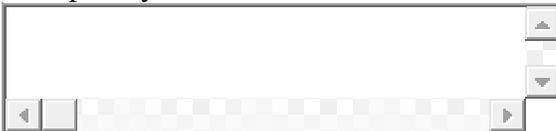
5. Do you feel that being a part of a community promotes learning?
- Yes
- No

6. Explain your answer to #5.
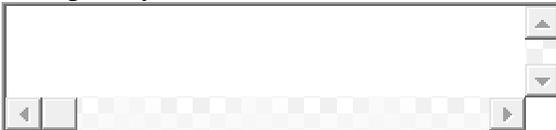
7. If you are part of a social networking community (ie: Facebook), what adjectives would you use to describe that community? (If you are not a part of a social networking community, indicate that in the box.)

8. For an online community to be effective does there need to be a social aspect?

● Yes

● No

9. Explain your answer to #8.

[text input box]

10. Rate the following features based on they contribute to a sense of community.

	Strongly encourage	Somewhat encourage	Somewhat discourage	Strongly discourage	N/A
Public Messaging (commenting)	●	●	●	●	●
Private Messaging	●	●	●	●	●
Search features	●	●	●	●	●
Blogging	●	●	●	●	●
Media Sharing (videos, photos, etc.)	●	●	●	●	●
Chat (instant messaging)	●	●	●	●	●
Discussion forums	●	●	●	●	●
Personal profile (profile picture, interests, etc.)	●	●	●	●	●
Notifications	●	●	●	●	●
Calendars (birthdays, events, etc.)	●	●	●	●	●
Quizzes or Polls	●	●	●	●	●
Games (Farmville, Mafia Wars, etc.)	●	●	●	●	●

APPENDIX F

DISCUSSION JOURNAL QUESTIONS

Appendix F
Discussion Journal Questions

Week 1
Describe your current participation in classroom discussions? In classroom discussions what helps you to be open to discussion and what hinders your discussion participation?

Week 2
How did the proper use assignments from Week 1 influence your usage of the site? Do you think it hindered or aided your participation?

Week 3
If you could change anything about of the site, what you change? How would that change impact your participation?

Week 4
After using it for 3 weeks, describe your current participation in online discussions? In online discussions what helps you to be open to discussion and what hinders your discussion participation?

Week 5
Did your level of participation change this week? Did the removal of comment screening impact that level? Explain.

Week 6
Did your level of participation change this week? Did the requirement of e-mail notifications impact that level of participation? Explain.

Week 7
Do you feel that you were more engaged in discussion this quarter? To what do you attribute your level of participation?

Week 8
Did you find it more enjoyable generating your own content? Did this impact your level of engagement? Elaborate.

Week 9
List ways in which the use of social networking has impacted your engagement this quarter? If it hasn't, explain why. Regardless of your level of engagement, what changes would you suggest to create an optimal online learning environment?

APPENDIX G

SENSE OF COMMUNITY JOURNAL QUESTIONS

Appendix G
Sense of Community Journal Questions

Week 2
Do you feel that we currently have a community of learners? Explain.

Week 4
After using the site for 3 weeks, how do you feel an online community differs from a classroom community? Explain.

Week 6
In which type of community (online or classroom) do you feel most comfortable? Explain.

Week 8
Nearing the conclusion of this project, do you feel that an online community of learners has been established? Explain. What changes would you make to enhance community in an online learning environment?

APPENDIX H

OUTLINE TO GUIDE TEACHER OBSERVATIONS AND JOURNALING

Appendix H
Outline to Guide Teacher Observations and Journaling

1. Weekly Usage Statistics

2. Weekly Example Comments (addressing quality)

3. Weekly Classroom Comments (unsolicited)

4. Additional Observations
   - Week 4
     o Observations related to changes in posting that could be attributed to lack of comment moderation

   - Week 5
     o Observations related to changes in posting that could be attributed to lack of comment moderation
     o Observations related to changes in posting that could be attributed to the use of required e-mail notifications

   - Week 6
     o Observations related to changes in posting that could be attributed to the use of required e-mail notifications

   - Week 8
     o Observations related to changes in posting that could be attributed to the introduction of required student generated content

   - Week 9
     o Observations related to changes in posting that could be attributed to the voluntary student generated content

<u>APPENDIX I</u>

POST-TREATMENT STUDENT INTERVIEW QUESTIONS

Appendix I
Post-Treatment Student Interview Questions

1. What do you think were the objectives of this project?

2. Based on that, do you think the project was successful?

3. Do you think this will change your future online participation and in what ways?

4. What features of the online network did you like the best?

5. What features of the online network provided the best learning opportunities?

6. Did our classroom community change due the incorporation of an online learning community and in what ways?

7. Having experienced both, which do you prefer; an online community or a classroom community? Explain.

8. Did the purely social aspects of the site impact your usage? If so, in what ways?

9. What do you believe had a greater impact on your participation on the site; interest in content or features on the site?

10. Were you more engaged as a content contributor or a content creator? Explain

11. Were you more comfortable participating as a content contributor or a content creator? Explain.

APPENDIX J

DISCUSSION POST RUBRIC

Appendix J
Discussion Post Rubric

Discussion Board Initial Post				
9-10	7-8	5-6	3-4	1-2
The following components make up an excellent discussion post 1. On topic 2. Accurate 3. Original 4. Clear 5. Contains examples or support 6. Sparks further discussion	The comment lacks at least two of the required components	The comment lacks at least three of the required components	The comment lacks at least four of the required components	The comment presents little or no new information. However, one point comments may provide important social presence and contribute to a sense of class community.

Discussion Board Follow-Up Comments				
5	4	3	2	1
The following components make up an excellent discussion response 1. On topic 2. Accurate 3. Original 4. Clear 5. Sparks further discussion	The comment lacks at least one of the required qualities.	The comment lacks at least two of the required qualities.	The comment lacks at least three of the required qualities	The comment presents little or no new information. However, one point comments may provide important social presence and contribute to a sense of class community.