Authentic Technology Connections:

Does the Use of Nings Improve Student Performance?

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Abstract

This essay examines the use of Nings as online social networks in student performance using a pre-test versus post-test data analysis. It highlights the benefits of using this type of online resource, especially for students who have proven they cannot do group work in class.

Conversely, it substantiates some of the weariness, hesitation or negativism that users may have. Let this thesis be a warning that educators who use forums and other untested or unproven sites on the internet may have higher-level students demonstrating acquired disinformation. Teachers need to be aware of this fact and prepare for it accordingly.

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CHAPTER 1: Introduction

Dr. Art-ong Jumsai na Ayudhaya, a former Nasa employee, visited Concordian International School (CIS) to make an address about the world's environment. He said that if we don't fix the way we do things then in a couple of years we could be facing total destruction of many of today's most populous cities through world flooding, earthquakes, and extreme changes in weather conditions. He ultimately posited that the earth could be so affected by the melting of the polar ice caps that its weight would be redistributed causing the world to change its axis and possibly cause another ice-age. Attitudes and actions need to change toward our preservation and turn-around of the current state of the environment. What is CIS doing that everyone else is doing to help in this matter and what are we doing or possibly starting to do that everyone else hasn't started to do yet?

Adjacent to these worries, I was to start my course work about research for this Thesis course. I was to create a research question. I needed something that inspired me, something that may be interesting to others. I developed:

Research Question:

Does the use of Nings improve student performance?

"[A] **Ning** is an online platform for people to create their own social networks [that was] launched in October 2005." (Wikipedia, 2009)

The predictions and the forecasts of the doctor are at the heart of this thesis because they tie in with the optimistic side effects of the use of Nings. Foregoing further introspection into environmental causation and havoc wreaked on the planet, this composition will look at another issue that tangent the prognosis of earth. With the advent of Facebook, MySpace, Hi5 and other such social networks making a stronghold in the method of communication for my colleagues, my students, and even my dad, a neo-luddite- technophobe, to me my research question appeared excellent because it posed an already

popular way of contact and interaction. As a teacher however, if I used an Educational Ning in class my colleagues might see it as antiestablishment. Many other teachers are in perpetual surveillance of their classes in the computer labs to make sure students are not ALT TABBING[1] in and out of computer social networks for contact with their friends. The previously mentioned 'multi-tasking' peripheries of social networking while learning are often off-task.

The intent of this thesis was to set out to prove whether one could harness the power of something students seem to enjoy already in order use it as a tool for education. This would be in contradiction to the suggestion that computer social networks are a hindrance to learning. The project will answer - Are Nings making authentic connections as a teaching tool? Is a Ning a tool that is gimmicky or trend following, rather than something that may be applied in everyday practice by many teachers?   These questions became sub-questions of my Research Question, "**Does the use of Nings improve student performance?**"   The particularizing research question derived from the aforementioned is as follows:

Particularizing Question:

What is the impact of computer social networks, specifically Educational Nings on student achievement, that is, student test scores, when used as a teaching tool in grade 6 classes at Concordian International School, in Thailand, in the year 2009?

The advent of Educational Nings has begun. People have been using Nings for teaching and are talking about them through Wikis, Blogs, and other forums. This essay will explore perceptions in Chapter 2. The evidence of a Ning's improving student performance is not there. This is another fundamental reason for this study. One could transfer the findings herein to other settings and possibly alter or argue against them in relevance to different contexts. I contend this formative study will become a stepping-stone for others interested in and perusing the use of Educational Nings.

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[1] "ALT + TAB" – Allows the user to move between open programs. These are combination shortcut keys.

In return to Dr. Art-ong Jumsai na Ayudhaya's sentiments, I posit that the use of Nings and other such tools could also have immediate ramifications ecologically, potentially help with the creation of a near-paperless society in school. This would mean that we, as educators and students are helping the environment in the process of using a Ning. If students presented rough drafts and final drafts of assignments, normally printed on paper and returned them through Nings there would be much less waste. Nings also enable students to upload videos, music and other technology forms. This means that these types of media, which would normally be transferred out of the digital environment to tapes, cassettes, CDs, DVDs and other plastic and metal materials could now be stored digitally and essentially eternally through Ning databases and storage areas. The implications for implementing and normalizing this technology in everyday use for teachers and students who have access to computers and the internet become huge on a two-fold front: better, more exciting, authentic education and also helping to save the world.

This study is going to be strictly about the improvement of education as it relates to Ning usage. One day I hope to find that someone else has done research about the ecological ramifications of the Ning. To me, it just seems obvious that widespread use of computer social networks would mean a cut-down in waste. Below, I will explain some common terms that will appear throughout this study.

Definition of Terms

Find in this section the following explanations of vocabulary as per this thesis: social network, brand and visual design, restriction of membership, real-time activity stream, photos feature and branded photo slideshow, discussion forum, video feature and branded video player, groups, blogs, events calendar, wall, student performance, improve, and use.

What is a social network?   Users in Wikipedia state:

> A **social network** is a social structure made of nodes (which are generally individuals or organizations) that are tied by one or more specific types of interdependency, such as values, visions, ideas, financial exchange, friendship, kinship, dislike, conflict or trade. The resulting graph-based structures are often very complex.
>
> Social network analysis views social relationships in terms of *nodes* and *ties*. Nodes are the individual actors within the networks, and ties are the relationships between the actors. There can be many kinds of ties between the nodes. Research in a number of academic fields has shown that social networks operate on many levels, from families up to the level of nations, and play a critical role in determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals.
>
> In its simplest form, a social network is a map of all of the relevant ties between the nodes being studied. The network can also be used to determine the social capital of individual actors. These concepts are often displayed in a social network diagram, where nodes are the points and ties are the lines. (Wikipedia, 2009)

Figure 1 - Node and tie system example
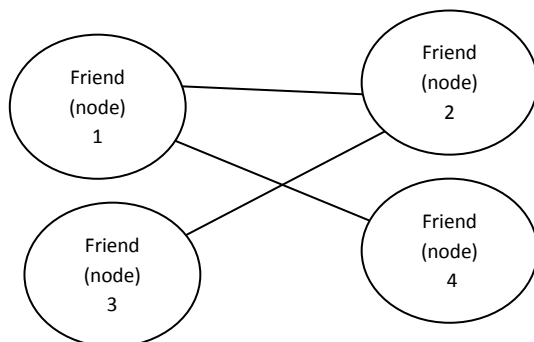
In this example,
Friend 1 knows Friend 2 and Friend 4
Friend 2 knows Friend 1 and Friend 3
Friend 3 knows Friend 2
Friend 4 knows Friend 1

It could also be said,
Node 1 is tied to Node 2 and Node 3
Node 2 is tied to Node 1 and Node 3
Node 3 is tied to Node 2
Node 4 is tied to Node 1

Wikipedia is referring to a physical social network. However, the idea of nodes and ties is present and sometimes even more obvious in the computer realm of a social network. One can look at

friend's lists and see immediately who that particular person is friends with, what groups they belong to, and many other nodes they are tied to. Facebook, MySpace, Hi5 and Ning semblances all demonstrate node and tie systems. In the case of this study, the Ning is the specific social network of examination.

Ning.com says that a Ning allows users to: "[create their] own brand and visual design; [allow and restrict their] own members; [have their] own real-time activity stream; [have their] choice of custom text and widgets; [have their] choice of RSS feeds in and RSS out; [have their] own photos feature and branded photo slideshows; [have their] own discussion forum; [have their] own video feature and branded video players; [have their] own chat; [have their] own groups; [have] blogs for every member; [and have their] own events calendar."

Nings are especially useful because they are modifiable by the client, and in this case, I am the client. Because the CIS Ning is educational, Ning.com removes all external advertising. It is a Web 2.0[2] graphical user interface (GUI) that uses everything mentioned above except: Widgets, RSS Feeds, and Chats. I have disabled these modules in order to keep tighter control, and more restricted research. Read further to understand more about the enabled modules and components. For the following nine terms, I will use Ning.com's explanation first and then expand upon them. Find on page 19 a visual representation correlating to the numbers in parenthesis for the following terms:

(1) Brand and Visual Design – "*Brand your social network on Ning with your own logo and visual design. Choose from one of 50 design themes or create your own design with custom CSS from your Appearance page. Add tabs and sub-tabs to specific pages and external links via the Tab Manager feature.*" (Ning.com, 2009)

The CIS Ning's header[3] is composited in Adobe Photoshop from images. The photos are of the school and current grade six to eleven students. The school logo lies on top of the left side of the header. The color scheme resembles the current CIS website, which uses a blue, orange and beige color

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[2] Web 2.0 applications mean that a user is able to act directly with the internet interface and make changes specific to them. Web technology before this was strictly one way informational.

[3] Top image that is located in a frame on the website.

scheme. The tabs are limited to MAIN, INVITE, MYPAGE, and the links on the site are in a welcome

textbox. They link to the CIS official website, the CIS Wikipedia page and my own technology wiki found

at Wikispaces.com.

There is a disclaimer that states, "Understand this Ning is to be used for educational purposes."

I revised it several times because it had confusing details for the reader. The above statement is a

catchall phrase. Administrators of the Ning are able to see everything that happens through email

notifications.

(2) Restriction of membership – "*Define your own profile questions for incoming members from the Profile Questions page. Approve members before they join…Customize advanced member search based on your network's unique profile questions, including location. Access and export member data directly from your social network."* (Ning.com, 2009)

This feature allows a secure environment that encapsulates grade 5 to 11 students, as well as

some teachers and staff. When a new user joins, administration manages the request.

There are five questions or statement responses asked when a new member would like to join

and they are:

- What do you like to be called?

- Tell about yourself.

- Give your own personal website address if you have one.

- State your gender.

- What grade are you in or are you a teacher or staff?

It is necessary to give an email address upon signup. This has proven excellent from an

administrative point of view for keeping and maintaining current and real contact information for users.

A user must check his or her email for a response link that allows them entry into the Ning.

(3) Real-time activity stream – "*A real-time stream of everything happening across your social network. Put it on the Main page or make it persistent on every network page by adding it to your network's right hand column from the Features page. Choose the activities that are displayed."* (Ning.com, 2009)

In our Educational Ning for example, activities including: new content, profile comments, blogs, discussions and media comments, new members and new events are all streaming in this module. Administrators can add general facts about the Ning's current state. For example, "There are 174 members on the CIS Ning" or "There are 36 forum topics on the CIS Ning". Administrators can also completely generate messages for the Ning community. With this feature, administrators can easily produce quick facts and necessary comments to give to the social community. However, this is not the only way administrators can send messages to the Ning community. They can create discussions, which this thesis will explain in more detail shortly. Group members and administrators can send emails to groups. Quick contact and responses are quite easy through this type of venue.

(4) Photos feature and branded photo slideshows – *"Add your own branded photos feature for your members to upload and share photos. Automatically enables your members to embed your network's branded photo slideshows anywhere on the web and link back to your social network. Choose to moderate photos before they are posted."* (Ning.com, 2009)

The CIS Ning is presently using this feature as a tool that enables immediate understanding of copyright. For example, students appropriate photos and images from other sources without citing where they are from. Administrators are able to view, accept, delete and comment about each image as students post them. This means administrators moderate the photos before learners put them up.

Students are able to understand the difference between referencing, also known as embedding versus uploading. They are able to see the advantages of each because of the feature that allows students to link from other sources back to the Ning and can compare that to a movie they have directly put into the Ning.

(5) Discussion forum – *"Add a rich single or multi-threaded discussion forum with categories, photos and attachments to your social network. Limit forum topic creation to you or open it up to all of your members."* (Ning.com, 2009)

The Ning has both open forums on the main page and forums that are closed, depending upon the group members who have joined. Forums have proven to be useful as ways to establish open

contact with students about specific subjects and are excellent ways to have a class reply to an idea. Students are easily able to comment on peer's work and review one another's ideas. Nings allow teachers to comment quickly and directly about topics, questions and comments by students.

It is through the forums that the lessons were established. There was explanation and retrieval of data from the students. This thesis will explain the details more fully in Chapter 3. With the ability to upload documents as attachments, the forums are able to store files for digital retrieval that students would have needed to print. For example, Microsoft Word documents can be stored on the Ning for use and viewing by anyone, including the teacher. This fact can help lead to a near paperless school environment if it is used properly. Aside from attachments, users can write short text on forum walls through posts. It means someone does not have to open a file to read text or look at small images.

(6) Video feature and branded video players – *"…Automatically enable your members to embed your network's branded video player anywhere on the web and link back to your social network. Choose to moderate videos before they are posted."* (Ning.com, 2009)

Videos are hosted and maintained through the Ning, which means they are not streaming through another video hosting website like *Youtube* or *Google Video*. This is ideal because the videos do not have a watermark[4] on them. The ability to host the videos through the Ning means that students can find embed codes. This means they can create links that go directly to the video. The method allows another site to show the video that the CIS Ning hosts. It proves useful as a teaching tool because students learn how to upload videos using simple uploaders or complex uploaders that allow for multiple video uploads. Administrators regulate videos and users comment upon and rate them. The entire Ning community can now see a video that only a few people would have seen. This is an authenticity audience.

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[4] A watermark is a logo or design, which usually has 40 – 60% opacity and overlays on top of a video or image. It shows copyright or ownership of said material.

(7) Groups – *"Enable groups on your social network with images, membership, comments and a discussion forum. Moderate groups before they are displayed or open it up to all of your members."* (Ning.com, 2009)

In the CIS Ning, I have created a group for teachers and staff. It is a closed group, meaning administration regulates membership. It may prove to act as a forum space for feedback and could be a message and communication device with future use. Other groups for students have been set up by grade level. These groups are open to all members of the Ning. I recommended students join the group for their grade level so they could be a part of the forums. The Methodology section explores the necessitation of groups in this study, as well as what functions and happenings occurred in the treatment and control groups.

(8) Blogs – *"Every member of your social network has both a profile and a blog on your social network. Display everyone's blog posts as a tab or just feature specific blog posts on your network's Main page via our unique Feature displays."* (Ning.com, 2009)

Essentially a blog is a web log. Blogs are an excellent way for students to keep a personal journal, and rather than have students sign up for a website that is just for blogging, the incorporation of them into the Ning has many potential uses. Since Concordian International School is a trilingual school offering Thai, English and Chinese it was important that the Ning is able to support all three languages, which it does. In the study, however, I directed students to respond in English so that I did not need to translate results that could cause bias or inaccuracies in the data. I examine this further in the methodology.

(9) Events calendar – *"You and your members can organize events and keep track of who's attending. Limit event creation to you or open it up to all of your members."* (Ning.com, 2009)

I have enabled this feature. It is open for all members to add events. Since there are quite a few fields, including a picture for the event that are mandatory for a member to fill in and upload to create an event, it has kept events posted by others to a minimum. There have been and I expect there will be little misuse of this part of the application as a fair amount of work is involved in creating an

event and administrators can delete them very easily. In the future, the calendar can have all the school

events posted here. It would be a consolidated area for people to see everything and make comments

about events or show pictures after they have occurred. Presently the school uses other methods.

Wall – "[is] a space on every user's profile page that allows friends to post messages for the user
to see." (Wikipedia, 2009)

The Ning administrators do not use the term "wall" anywhere within their explanation or help

files. However, they do have this type of feature on the main, personal and group pages.

I will also explain *Student Performance*, *Improve*, and *Use* in relative terms of this thesis because

they are a part of my research question, which is, "**Does the use of Nings improve student**

performance?"

Student Performance – This relates directly to test scores. Every day I distributed and collected

pre-tests and post-tests to the students. I referred to the results of these test scores and improvement

or lack thereof as student performance. Chapter 3 explains the use of these tests.

Improve – To make better than before. An online dictionary states, as a "*transitive verb*

[improve is to] to enhance in value or quality**:** [to] make better [as an] *intransitive verb* 1**:** [improve is] to

advance or make progress in what is desirable 2**:** to make useful additions or amendments" (Merriam-

Webster, 2009)

This study notes improvement as a slight or great difference or gain on the post-test results

after I administer the control or treatment. The methodology presents the control and treatment more

fully.

Use – In this study, use means logging in to an account that a user has established, reading the

instructions that I gave through the Ning, following said instructions, replying through the Ning and

responding to peers and discussions using the Ning as a communication tool.

Figure 2 - The Ning Interface

1: Brand and Visual Design

2: Restriction of Membership

3: Real-Time activity Stream

4: Photos feature and branded photo slideshows

5: Discussion Forum

6: Video Feature

7: Groups

8: Blogs

9: Events Calendar

Importance of this Research

There are many reasons this research is important. First, this study has the potential to prove better, more exciting, and authentic education. For teachers trying to implement technology into their classroom, the use of Nings could be an authentic means that many students are adept at using. The scope of possibilities for Nings goes beyond the technology teacher and his or her classroom. Beyond the scope of a single classroom, Nings could prove to be beneficial in other areas. For example, students could use them beyond a closed single school environment, there is the possibility for staff, teachers, and possibly even parents and community members to use Nings as a communication tool.   These are all studies that are beyond the scope of this thesis because of the many variables that users can add and change.

Different schools have used Nings to connect learners from around the world in relation to specific topics of interest.[5] Nings are enabling a new pen pal system and facilitating immediate responses for the users. This creates dialogue from around the world. Understanding is enabled through the Ning which is versatile in its ability to incorporate video and other files that are digital in composition.

For the user, there is intrigue and a voyeuristic quality by seeing what others are up to in your network. The fact that content is user-driven makes the Ning a dynamic site. The ease of use and the ability with which to create, display and respond to one another's creations, displays and responses makes the interface compelling. Good designers utilize distinct attributes to make professional websites. The first of these ideas is the ease of use. The Ning is very intuitive and self-explanatory. It is a non-linear journey because users can choose from different tabs and nodes in order to explore with choices.

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[5] Explored in Chapter 2

The second reason is that people choose one site over another. It could be something as simple as the load-time. The modules in the Ning load faster than most regular HTML since the Ning.com team used PHP and XHTML in its programming methods. Each of the pages and parts of the website appear instantly on a modern internet connection and computer. If the site had long load-times, people would get bored and click to another website out of boredom.

People could also choose one site over another because of the aesthetic. This is something that website designers may overlook. Users understand the CIS site because I chose a color scheme and fonts that are easy to see and read. Images were composited together to make for a professional and seamless GUI and I kept menus in static positions so users knows where to look for certain buttons and functions. This kept continuity and created ease of use for end-users. Nings use Cascading Style Sheets (CSS) to keep fonts, links, and header text stay the same scale, color and style throughout the entire website. These traits add up to a site that is easy to use and easily understood because of presentation. The site does not have non-useful gimmicks, pop-ups, flashing text or unnecessary links to things. Making something concise with edited down features creates a streamline appeal.

Another reason people may use the Ning, which makes this study important is that the site is dynamically changing. The users of the site create their own content using the Web 2.0 interface. This is practical in many senses because information does not come from one source, which could be static or slow to change. Users are able to choose what they would like to see and respond to it, and there are ways to communicate with one, some or many people at the same time.

The practical purposes that are involved in this research go beyond finding out whether a Ning improves student performance. This is just the tip of the iceberg. It delves deeper into ways that educators can use this Ning and others like it in practical ways to inform and engage a participant.

However, a problem is already occurring from students and sometimes colleagues. At present, people are posting messages that are not educational. This is happening two ways. First, there are conversations and forums that stray from an original topic, while some discussions were never about an educational topic to begin with. Second, the language level of communication is often at a very low level, using or digressing to, "Leet Speak". Messages that say, "Hey! How are you doing?" through Leet Speak read, "#ay #0w R U doin". There is a replacement of letters with symbols and alphanumeric, and most often punctuation and grammar is used minimally.

This type of language is forging an appearance I would coin a "digital Ebonics form". It is a language structure that is regressing and it is being reinforced through constant informal use in areas like SMS texting, Emailing, chatting, and now even while using the Ning. If this deterioration of communication is not reflecting upon and pointed out it may continue to become a big problem. I propose the Ning is an excellent arena for education around said topic, but Dr. Ian Russell points out, "Once a rule like this is made, how do you enforce it?" (Russell. 2009)

I contend that with more teachers using the Nings with students and with educators persistent reference to forming grammatically correct sentences with proper spelling, the Ning may prove to be a tool where students are acquiring "proper" knowledge through use rather than learning traditionally through specific grammar and spelling lessons. This ideal notion of authenticity is reiterated by Dr. Stephen Krashen who came to speak at Concordian International School on September 19th and 20th, 2008. He said, "acquisition [is the] subconscious … [or can be described as the] 'picking up' of a language. While it is happening, we are not aware that it is happening [and] once we have acquired something, we are not usually aware that anything has happened." He compared this to "learning [which is] conscious … [It is] the 'rules' and the 'grammar'." He further declared, "Acquisition is what the brain does well and learning is what the brain does poorly." With teacher and colleague help,

students using the Ning could effectually have their writing and conversation style properly reinforced without knowing it or enduring the pain of traditional teaching methods.

Due to time constraints, this study controls away from observations relating to learned grammar and spelling.   The scope of this thesis is limited to the comparison of answers given on a pre-test to those given on a post-test in two situations:

1. Using a Ning for delivery of content, discussion and retrieval of the assignment

2. Not using a Ning for delivery of content, discussion and retrieval of the assignment

The answer choices on the test were multiple-choice in style, as this took the ambiguity out of the responses, leaving less for someone to argue quantitatively. The homeroom teachers and I were going to make the specific questions for the tests for the pilot and the study close to the date of issue. This is so that tests were relevant to the subject matter I taught the day of the lesson. However, details about this changed, and I detail the specifics of the lessons and the tests in the in Chapter 3 and 4.

The population consisted of two grade 6 classes for the primary research, two grade 5 classes for the pilot, and volunteer students from a grade 10 class to trial the tests equivalency. There are a few reasons for these choices. I will start with the choice for the grade 6 classes.   At CIS, in 2009, we have grade levels from Nursery up to grade 11. The school divided Nursery through grade 6 into two classes, however, grade 7 to 11 are not.   For this study, I needed two similar groups to compare to one another. I needed a test and control group that I could easily manage with the time and physical location I have at my use. I chose the grade 6 class as the best-suited students because they were the oldest and therefore I felt they were most mature. I also assumed they could most benefit and utilize a social environment like a Ning.   I would have preferred to use higher-grade levels, but the way the classes and timetables are set restricted me from using them.[6]

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[6] I teach in lower grades and have a conflicting schedule with the upper years. Also the computers labs would be available for lower grades, but not for upper.

My choice for using the grade 5 classes for the pilot and not vice-versa was that I assumed that a grade 5 class would have more issues dealing with the Ning interface compared to the grade 6 class. Therefore, I presumed to find more instances to learn from in preparation for the study itself.

I took volunteers from the grade 10 class to test the equivalency of the tests because I assumed them to have an understanding of 'how to research', which was the subject matter of the tests, without needing to have a lesson through either the control or treatment. Find more details about this in chapter 4.

Potentially with the grade 5 and 6 classes, I saw cheating, talking about the experiment, and especially learning about the order of the testing sequence as validity threats. First, let me explain what I mean about cheating. For all tests (pre and post), there was the possibility for one student to see the answers of another student's and change his or her answers accordingly. This would obviously skew the results one way or another depending upon whether the answer was correct and on which test he or she cheated. To accommodate for this, I made sure that students sat far enough away from their peers.

I accounted for talking as a validity threat during the lesson by giving different but equivalent tests. This way a student who posed queries or results about the pre-test during the lesson would have not effect the post-test. Equivalent tests also meant that students could not learn the order of the questions. I imagined if the pre and post-tests were the same that students, by the second day of testing would learn how to take the test. This is rather than students learning the content through the Ning or Traditional lesson. The pre and post-tests were similar in content, but had reordered and reworded questions. See Appendix D-G

The final issue was the instrumentation. I created the tests. I needed to examine the significant relationship of the tests. They were "equivalent" but not the same. I used volunteers from the Grade 10 population to test the grade six tests before the grade sixes use them. Read more details in Chapter 3.

Bias and limits to research

I am a technology teacher, teaching grades 3 – 11. I have taught grade 1 – 12, and I have taught at other schools.   Presently, I also have the role of the technology coordinator at Concordian International School. When combined, these two roles allowed me the access to facilities that I needed for the experiment. I also had teaching knowledge of the study group as they were and presently are my students. Since I am the teacher, I desired for my students to do well and I wanted the school to look good.

My bias also leant towards seeing the study itself have positive results, which means that Nings do improve student learning, because I personally believe in the use of Nings as a teaching tool. If it did not prove to be a positive tool, I would look at ways to modify the use of a Ning to make use of it constructively. It is because of these factors that I needed to be very careful with how I interacted with the students during the lesson, how I taught during the control versus the Ning and how I interpreted the results. I explain accountability for these aspects in Chapter 3. I recognize there are other variables that are hard to account for. For example, students who are more tech savvy and students who have better typing skills than others are details that are difficult to deal with. I account for them by detailing anomalies in the findings.

I conducted the control class as close as possible to the treatment class, which used the Ning. In the control, I handed out the same instructions on paper that students read on the Ning. When I asked the students to respond in answer form, I had them take action through Microsoft Word. Students found the answers they were looking for using this internet site: www.crlsresearchguide.org. It allowed the students response time to be similar to using a Ning. This was opposed to having student's hand writing responses, which was also a consideration for the traditional method approach.

The second reason for using Microsoft Word was that it allowed plagiarism. I did not condone it. In fact, I wrote that students were to write the responses in their own words. However, as expected,

some students copy and pasted answers into both the Ning response and the Word document. None of the lessons were particularly about plagiarism, so I did not make a point of reminding students to reformat thoughts or cite. I wanted the lessons to be as similar as possible and to allow natural mistakes. In essence, I feel that students were hurting their own chances at getting a higher mark on the post-test by copying and pasting the information into either record, because they were only finding but not really learning the material.

Generalizability

Another limitation to this study is its Generalizability. For example, with the small size of the population and the fact that the classes are not random, it makes this study specific to these particular classes. The results and findings may not be transferrable to other classes or groups. I do not know if this group is representative of a larger population without further inquiry because the study group is limited. This study, on the other hand, is not worthless, as it does contribute as a formative example of a certain population. Another examiner could correlate with or refer against this study. The findings themselves, the process to determine these findings, the anomalies may all represent a piece of data that functions very perceptively for someone else.

Personally, this study will help me determine whether strategies that I am using currently are working or whether I need to rethink them. Immediate people who are benefitting from this study are the students for whom I teach. In the next chapter, I am going to look at how other educators and non-educators are using Nings in and out of education. I determine whether and how they feel they are beneficial to their students and colleagues. In the following chapter, I also look at evidence from the contrasting point of view, which states that social networks may be detrimental to learning. Finally, I demonstrate areas of education and technology that seem non-corresponding to the use of Nings, but correlate these responses to methodology, the results, or the interpretation of this thesis. Conceptually,

I may find something that is truly abstract and may leave it for you, the reader, to determine your own

conclusions.

CHAPTER 2: Literature Review

This literature review will examine empirical evidence and relevant research surrounding social networking. It will observe the history of Nings and computer social networks, including incidences and protocols leading up to the development of these devices. This literature review will continue to delve into points of view that agree with and promote the use of Nings, digital technologies, gadgets and new educational procedures, as well as how educators are using Nings. Adversely, it presents discourses of apprehension and disagreement with the use of the Ning. Although some of these items may seem adjacent to the use of Nings, this study will not look at cyber bulling, child's online safety[7], and ways for improvement of language abilities specifically, as these are all studies in themselves. Before stepping too far into this chapter, I will remind you, "Does the use of Nings improve student performance?" is the research question that I will continue to reflect upon with the literature I selected.

Empirical Evidence and Relevant Research

While it was hard to find much empirical evidence and famous research pertaining to the use of Nings and social networks, I did find relevant statistics and key figures in educational theory and theory of socialization in general that correspond with or was relevant to the direction of this thesis. The first statistics I found were as follows:

> *"35 Million: Number of Unique visitors to Facebook in December 2007*
> *6: Facebook's ranking on a list of the countries[8] most-trafficked websites…*
> *$15 Billion: Current estimate of Facebook's value…"* (Publishers Weekly, 2008, p. 16).

These magazine facts about Facebook were important because I consider Facebook a similar computer social network to the Ning. The difference is that Facebook is open to the public and the CIS

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[7] While this study will not look at Child's Online Safety, I will cover the **Protection of Human Subjects** in the Methodology of Chapter 3

[8] United States

Ning is open only to students and staff at the school. I draw attention to these figures because most

people who described how the Ning works, what it does, or what it is like, usually respond with an

answer along the lines of, "It's like a 'Facebook'". The reason these facts are relevant is that Facebook is

becoming more popular.[9] I recognized this magnetism potential with the Ning. Essentially, this meant

the Ning was a medium to elicit and keep the attention of students.

Conversely, one of the main reasons that I looked for this type of conduit was because of a

YouTube video called, "Pay Attention" that quoted a student saying, "When I go to school I have to

'power down'". In the same movie, shortly before that thought another powerful quote from Lee Rainie,

the director at Pew Internet and American Life Project, who stated, "These teens were born into a digital

world where they expect to be able to create, consume, remix, and share materials with each other".

Since watching the short video clip, these messages have rung through my mind as a technology teacher

and have shaped the way that I think. I knew I needed to captivate my audience (students). Using a

Ning seemed like it might be one of the powerful tools to use in my repertoire.

"During the early 1950's, John and Beatrice Whitiing led an extensive field study of early socialization practices in six different societies… All of these societies shared in common the fact that they were relatively homogeneous culturally. Two general conclusions emerged from this study. First, socialization practices varied markedly from society to society. Second, the socialization practices were generally similar among people of the same society." (Dennis O'Neil, 2009)

The potential for opening up new dialogues between groups who might not necessarily have

conversed otherwise was fantastic in the Ning. The different nodes, which I mentioned in the previous

chapter, meant that people would have facets of interest to explore with one another. Without this

type of interface, exploration and bonding between people or groups with common interests was not as

easy. The natural creation of common interest groups was not the only potential I speculated was

possible from the Ning. Empowered feedback or an insight from students who may have kept to

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[9] "Facebook is the newcomer as far as the Australian market is concerned and it is threatening MySpace's
dominant position." (Turtle, Michael. ABC.net, 2007)

themselves was also a possibility. This was an optimistic probability that I was looking forward to exploring.

"The terms *introversion* and *extraversion* were first popularized by Carl Jung." (Wikipedia, 2009) Introverted people needed an outlet. Users of Wikipedia also stated that, "Introverts tend to be more reserved and less assertive in social situations. They often take pleasure in solitary activities such as reading, writing, drawing, and using computers." The last word in this sentence captured my attention. Introverted student opinions are mute because they lack physical social communication skills. The Ning's capabilities to open up communication for the introverted student meant enabling. It also meant there was possibly more dialogue occurring, because everyone would be able to pose responses in a forum setting. This essay will now examine the history surrounding Ning technology and lead up to Social Networking.

History of Nings and Computer Social Networks

"I will read 8 books this year and 2300 web pages and 1281 Facebook profiles" were statistics presented in a video called, "A vision of students today" (Michael Wesch. 2007) . An even more powerful message came from the same video stating, "I Facebook through most of my classes." With an educational Ning, teachers are not trying to prevent the use of something that many students *want* to do. If educators harness the power of student's interests, we open ourselves to new richness.

"We can't solve problems using the same kind of thinking we used when we created them."

(Albert Einstein n.d., as cited by Kevin Harris 1995)

As a teacher, I should not take this quote lightly. Adults may have learned through certain methods, but this does not mean we should carry on teaching way. When I grew up in school, teachers taught through rote learning. I memorized facts. There was a top-down approach where teachers gave lectures. This even occurred in my early school years when my attention span was not ready. Hence, I

was fidgety.   I got into trouble for disturbing the class. This turned me off many subjects, but I am beginning to grow interest in these subjects once again. I am able to look at facts the way I want. This part of the chapter is going to look at how Nings and Social Networks came about.

The top down approach by my earlier teachers helps to define what people coined as the approach of the web in its induction. The Webmaster created the content that was available. An audience who interacted viewed the content by reading it. There was no more. This was how websites operated. Webmasters had the task of constantly creating new content to continue to pull viewers to their website. This world knew this as the internet or the world-wide-web until Marketers[10] began to call it Web 1.0.

Figure 3 - Web 1.0 representation

Web Designer

Website

Information Direction
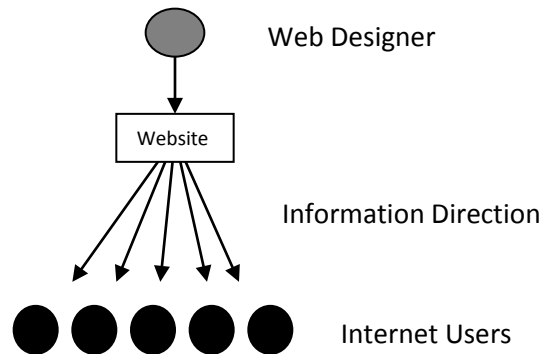
Internet Users

This figure demonstrates the web designer creating the knowledge and the internet user receiving the information in only one direction. This movement is very similar to rote learning. Today, however, many teachers use a new model for teaching. If this idea of the *teachers and learning metaphor* was continued in order to represent the internet like it has evolved, we would understand this representation as an *inquiry approach to learning*. The teacher sets the guidelines for projects, and the students are able to search out their own understandings, contributing and expressing these in their own way. This is similar to Web 2.0. A webmaster facilitates an area for knowledge exploration through

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[10] In 2007, Eric Schmidt from Google mentions marketing people in his address coined the terms web 1.0 and 2.0 after the fact.

Web 2.0 representation   28

an interactive site and then internet users "share the responsibility for keeping the content engaging"

(Oikos Community Console, 2007). A graphic representation might look something like this:
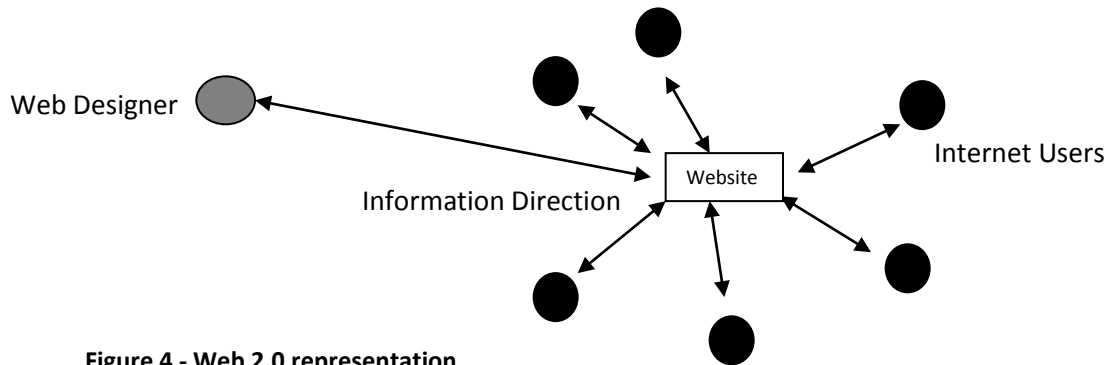
Figure 4 - Web 2.0 representation

In this example, the Web Designer set the stage by creating the original website structure. He or

she gives and receives information along with the internet users who are giving and receiving the

information they are creating collectively. Another set of examples of how technologies have evolved

comes from Tim O'Reilly's list seen below.

Figure 5 - Web evolution

Web 1.0	**Web 2.0**
DoubleClick ⟶	Google AdSense
Ofoto ⟶	Flickr
Akamai ⟶	BitTorrent
mp3.com ⟶	Napster
Britannica ⟶	Wikipedia
Online personal websites ⟶	Blogging [NING]
evite ⟶	upcoming.org and EVDB
domain name speculation ⟶	search engine optimization
page views ⟶	cost per click
screen scraping ⟶	web services
publishing ⟶	participation
content management systems ⟶	wikis
directories (taxonomy) ⟶	tagging ("folksonomy")
stickiness ⟶	syndication

Figure 5 exhibits **Web Designer created** on the left and **User created and shared** on the right. O'Reilly made his list without the inclusion of the Ning, but I have included it on this list in the *Web 2.0* side next to *Blogging.* It transcends from *Online personal websites*.

With Web 2.0, there are immense amounts of information people are generating because of the open platform and interactive concept. This creates a problem. Content created by users is sometimes contradictory to the intent of the website. In addition, user's content may be of low quality. For example, people use forums as chat areas with comments back and forth about personal subject matter that has nothing to do with the topic of discussion. In a *Web 1.0 vs Web 2.0* discussion forum, *JohnB* writes the reply:

> *Some days are diamonds; some days are stones.*
> *I was originally going to suggest: Web 1.0 was didactic; Web 2.0 is diarrhea.*
> *I softened it to Web 1.0 was discovery; Web 2.0 is drivel. But that was too flacid.*
> *I settled on Web 1.0 was fact; Web 2.0 is facile. But that really didn't make my point. Neal's comment, which would never have made Web 1.0, was sufficiently facile that it stood as a stirling example of what wasn't before but is now.*
> *And, yes: my comments are all Web 2.0 (but at least I recognize that).*

In order to keep Web 2.0 content didactic, discovery-based and high level, as *JohnB* speaks of Web 1.0, someone needs to monitor and manage the content. These managers may be the original web designer(s), the forum creator(s), or administrators of accounts. However, with over-management of content sharing, diverse opinions and the ability to show expressive work can be stifled. If web content managers find themselves short on time, energy, and full of grief, I suggest they create a website that is a Web 1.0 construct.

On the other hand, if people aid one another in creating high quality forums, users would possibly keep to those standards to be on par with the predecessor's entries. I liken this to the theory below:

Take, for example, the so-called "broken window" hypothesis that has been used around the country as the justification for cracking down on "quality of life" crimes like public urination and drinking. In a famous experiment conducted twenty-seven years ago by the Stanford University psychologist Philip Zimbardo, a car was parked on a street in Palo Alto, where it sat untouched for a week. At the same time, Zimbardo had an identical car parked in a roughly comparable neighborhood in the Bronx, only in this case the license plates were removed and the hood was propped open. Within a day, it was stripped. Then, in a final twist, Zimbardo smashed one of the Palo Alto car's windows with a sledgehammer. Within a few hours, that car, too, was destroyed. Zimbardo's point was that disorder invites even more disorder-that a small deviation from the norm can set into motion a cascade of vandalism and criminality. (Gladwell, 1996)

Teachers using a Web forum like an Educational Ning would be 'cleaning up the streets' so to speak. They lead by example by creating higher intellectual conversations. This elevated level would possibly transmit to areas beyond the Educational Ning, like chats, blogs, and forums where students are frequenting and anonymity is available to them. Continued viewing and use of the Educational Ning by the students would invariably lead to a betterment of the use of Web 2.0 technologies all together, thus creating a more sophisticated internet experience for all.

Since Nings and social networks are Web 2.0 technologies, the content is rich for two reasons. One reason is that multiple people are generating it and therefore users approach with different viewpoints and many angles for a problem or solution. The other reason is that there are many ways to respond using Web 2.0. Users could respond to someone's argument simply by posting a reply. They may generate a new forum topic, or form videos, music or other Medias to share. People are able to express themselves how they feel comfortable, and users can view or hear the messages easily. Finally, participants are enabled because of the two-way platform. In the next section of this chapter, I will itemize what made this possible.

Incidence and protocols leading to the development of Nings

Using Wikipedia first and then Slideshare.net, a Web 2.0 communication and upload website, I

Web History leading to Nings

was able to find a PowerPoint presentation by Richard Akerman that examined part of a timeline of the

technical events leading to the development of Nings. This is a consolidated summary of the findings:

1960 Packet Switching – MIT
1969 Arpanet – Link between UCLA and Stanford University
1974 Public Access through X.25
1995 Amazon
1998 Google
1999 CISTI Web – Blogs
2001 Wikipedia
2004 Facebook   Web 2.0
2005 YouTube & NINGs
2006 Twitter
2007 FriendFeed
2008 CGPedia

In 1995, Web 2.0 became possible because of a programming language called JAVA[11].

Programmers made it simpler using the language structure to create Ajax[12] and Javascript[13],

which are more simple programming languages. Formerly HTML[14] was the language web

designers were using to write and create the static web pages, but programmers created XML

to work within this structure along with Ajax and Javascript to "retrieve data from a server

asynchronously". (Wikipedia, 2009)

The modification and addition to pre-existing computer-programming languages made it easier

and easier for people to develop Web 2.0 applications. Leading up to 2005, people observed Facebook's

structure and created an interface that others could adapt on their own to create a GUI, which would be

---

[11] **Java** is a programming language which derived much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of computer architecture. (Wikipedia, 2009)

[12] **Ajax**, or **AJAX** (Asynchronous JavaScript and XML), is a group of interrelated web development techniques used to create interactive web applications or rich Internet applications. (Wikipedia, 2009)

[13] **JavaScript** is a scripting language widely used for client-side web development. (Wikipedia, 2009)

[14] **HTML** is an acronym for Hypertext Markup Language. It is simple programming used to create websites.

user-friendly, but was user-designed. Welcome to the advent of the Ning. Eventually, teachers and

educators looked at the design of the Nings and adapted the specifics of the user interface for students

to have an educational dialogue.   Educators have been using them for a short amount of time though,

and therefore there has been a lot of speculation about Nings in Education. I reiterate this is the reason

for this study and that is to research the question, **"Does the use of Nings improve student**

performance?"   In the next section of this chapter, I demonstrate what other educators and non-

educators are doing with Nings and what positive things people are saying about Nings and their use.

Agreement with the Use and Promotion of the Ning in and out of Education

> *"Facebook is probably better than your company intranet at bringing your employees together, and your blog and free Twitter account may do a better job reaching customers than does your high-powered marketing campaign."* (bMighty.com, 2008)

 Jason Krottke (as cited in The Critic, Michael Hirschorn, 2007) said, "In competitive markets,

open and messy trumps closed and controlled in the long run."   This excerpt restates my sentiments

about both inquiry-based learning and Web 2.0 applications, the Educational Ning included. The path to

understanding may not seem straightforward and sometimes situations are more like controlled chaos,

but many people agree with the Chinese Proverb, "*Tell Me, I'll Forget, Show Me, I'll Remember, Involve*

me, I'll Understand". The following section reports about others who have the same attitude about the

use of Nings in Education.   It is a discussion thread, which answers the question, "What do people think

of Nings for students?"

> **Pete Whitefield on June 10, 2007 at 10:35pm**
>
> *We use Moodle and I've tried to set it up in a social way, in that there are informal areas for general chat and news and networking. But Moodle doesn't have anything like the Ning interface with it's personalised 'my page' which promotes ownership of each individual's contribution to the network (or at least I don't think so). And the integration of media is very neat too (audio, video and images) - like a tasteful myspace. I wonder if Steve has payed extra for those snazzy features or are they standard in the ning set-up? I could see ning being a snazzy front-end, with a click-through to Moodle (oh no, 2 sign-ins!).*

Lisa Parisi on June 30, 2007 at 6:54pm

I love the idea of using a social network with kids! I teach 5th graders, Kevin, and noticed that one of the first things the students did on their blog site was create their "page". I can imagine how much they would love to create a full "myspace" type page and then interact with other students. Imagine a place where all the students we meet in blogsites can join in almost realtime discussions in a place like this. You have to let me follow along with your testing Kevin. I would love to try it out myself.

DDeubel on July 2, 2007 at 4:55pm

I like Ning precisely because as mentioned, students see the possibilities of friends/connecting. This is vital to any successful student centered site. I also think it is a good way to get students mixing with a new crowd and maybe seeing things in their classmates that they wouldn't otherwise, without this environment. There are safety/privacy concerns but I think there are enough moderating features to get around this.

Kevin H. on July 2, 2007 at 4:57am

I agree -- the multimodal elements of expression open up a whole range of doors for our students, along with the social networking aspects of these sites (Ning is just one, of course).
Good luck with your venture.

These were all entries from a discussion forum at Classroom20.com. There were many more, and all the ideas about the Ning were not positive. This essay explores negative comments in the following section. Extracting some of the main points from the comments above, *communication, networking, moderation for safety concerns, interaction, real-time,* and *snazzy* are descriptors words and reasons that people may enjoy Nings. *Adaptable, informative, structured* and *well-thought out* are other descriptors and reasons people might choose a Ning as a platform for discovery and communication.

Educators are using a plethora of Ning sites in education already. There are specific sites for subjects, like *International School of Beijing's Fine Arts Ning*, or the *International School of Bangkok's Internet Radio Ning*. There are also online learning Nings like the *DLeanring Ning*. There are collaborative Nings, named the *ISTEC Ning*, for technology coordinators and teachers. There are Nings about *Nings in Education*, and there are schools who are inviting other schools to join their Ning making

a globally connected educational experience, like the Iroquois High School in Kentucky's Ning called,

Teen Connections on Issues that Matter – A Portal for Youth Connection both in and out of the classroom.

Executing a Boolean search for a specific subject matter and added Ning to the query generates many

results. The availability of information about specific subjects through Nings, the periphery ideas

existing, plus the immediacy for feedback are astonishing. *Think.com*, a site similar to a Ning, says this

about its benefits:

> *Participants develop 21st century skills such as critical thinking, teamwork, communications, creativity, technology, self direction, and cross cultural understanding.*

Doug Asher (personal communication, 2008) mentioned in conversation that, "We have come

from an industrial age to a computer age, to an information age, but now we are beyond that. We have

moved into the social age." If this is the case, which I believe it is; we, as educators need to be keeping

our students up to par with learning and we need to reflect on the quote by Albert Einstein, *"We can't*

solve problems using the same kind of thinking we used when we created them." As teachers, we are

required to be at the forefront of knowledge. In this case our problem is knowledge sharing. We

cannot be "Late Adopters" or even "General Adopters". We need to be the "Early Adopters" of change

and readiness. To be at the forefront of knowledge sharing, we need to try new things and if they do

not work well, we need to learn from our mistakes. If we teach how we have always been teaching and

what we have always been teaching we become complacent. With that thought in mind, we need to

make educated decisions, and so I will take us to the next part of this chapter, which looks at the

adverse notion of the use of Nings or Web 2.0 in a classroom.

Apprehension and Disagreement of Ning or their periphery

This section examines unfavorable reactions to Nings, other similar technologies and their use.

My research question asks, **"Does the use of Nings Improve student performance?"** It may, but there

are pitfalls to avoid and things to consider. Some of the responses you will read could be foreshadowing

or warnings of yet to come. The first quote pertains to the newness of this product/solution:

> *"Web 2.0 Warnings:*
> *They're new, so no one knows what they're talking about*
> *They're new, so no one knows the business model*
> *We have short novelty spans"* (Akerman, 2008)

Akerman is correct when he states that we do not know what we are talking about yet. The fact

that we do not know what kind of business model to apply is also accurate. However, if we do not

attempt, how will we answer the question? Akerman is also precise when he speaks of short novelty

spans. Look at how quickly fads last; a season, at best? In the case of this declaration, I posit our short-

lived novelty spans are actually an understatement, especially because Nings are a technological novelty.

With all of the competition and the like-products, it amazes me that anything has 'staying power'

beyond a season. Some do. There are some things that one has an innate sense of staying power. I

believe that Facebook and possibly even the Ning will prove its worth beyond novelty. I mentioned

earlier many of the positive things that people had to say in the forum about Nings, which answered the

question, "What do people think of Nings for students?" There were also some insights to the

challenges we may incur:

Connie Weber on July 6, 2007 at 3:35am

Not sure why it happened, but when we added on Gaggle the thoughtfulness of students' communications eroded dramatically. Moodle was going strong, then putting on Gaggle just took over things. Kids became exclusive and catty; an underground network of negativity developed. Administrators over the account had their hands full. (Gaggle was added it on for 3rd to 8th graders.)

Moodle had an entirely different feel. Now that I think about it, Moodle had a "context" of class work and assignments, kids responding to and setting up forums, kids having fun with profiles and blogs. Also, classes and students who learned Moodle first went around to teach other teachers and students, so that may have given it a good, connected spirit. When Gaggle got added, the "context" of a school community got lost, and kids were swimming in random cyberspace, unguided, unlinked. It eroded Moodle, too.

Kevin H. on July 6, 2007 at 4:07am

Interesting, Connie.

Maybe it was the difference between a classroom setting and a social setting -- which is something we need to find ways to bridge between, I think, if we want to be effective. Keeping the "school community" feeling is important.

Thanks for sharing about your experience.

Kevin

These occurances may have had little to do with the applications, and everything to do with how they were presented.   Just some thoughts.

People should not ignore Connie and Kevin's responses about social networks. Social Networks can open up the ability for a forum of disrespect. Kids can be cruel. However, with moderation; with the ability to wipe clean any of the offending comments; with the ability to ban members; and with the ability to respond to infractions, educators and administrators have new authentic tools at our disposal. Adults need to lead by example, not only in the real world, but also in cyber-world.   We can hide behind the fact that since we are stepping into unknown territory. We may be stepping into a minefield, but Concordian International School is an IBO school. It asks the students to be risk-takers. It asks the students to be caring. Combining these two qualities, students are asked to become responsible risk-taker. In the next chapter, I explain how I became a responsible risk-taker and how I explored the Ning's effectiveness.

CHAPTER 3: Methodology

This chapter will examine the rationale for the thesis, the design of the study, including the timeline of events, the pilot, the protection of the human subjects, and my hypothesis of the outcomes. In the previous chapter, I examined responsible risk-taking. I mentioned teachers, along with students need to be stepping forth into unknown territory in order that they may better themselves and possibly learn from their mistakes and findings. Educators need to make educated decisions and in the following section, I will talk about the types of educated decisions that teachers need to be making.

Rationale

"The first question I ask any teacher is: **'What do you want students to learn?'** The second question is **'What's your idea to get there?'"** (Utecht, 2009)

These are the main epistemological questions that teachers need to reflect upon when deciding the best possible tools to use and be teaching with to aid students in their exploration of a subject. For example, teachers say to me, "I want my students to learn Microsoft PowerPoint." This should not solely be up to the classroom teacher. As the technology teacher I ask, "Is the use of this tool authentic?" If there are discrete subjects for technology set aside in a school's timetable and PowerPoint is part of the curriculum at that specific occasion in time, then the subject matter should be PowerPoint. However, if the classroom teacher's *Unit of Inquiry*[15] is about something else, for example 'Horses', then the use of PowerPoint as a tool shouldn't necessarily be directed or scheduled by the classroom teacher. Both teachers need to agree upon the tool that is most beneficial for the student.

We should assume nonetheless that students, if they are paying attention[16] in any class will learn new knowledge, but the question, "How is knowledge acquired more efficiently and properly?"

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[15] This is an International Baccalaureate Organizational term

[16] This phrase is up for debate. I use it loosely.

should be at the forefront of our thoughts. The rationale for this study is that Nings may prove to be a

powerful teaching tool.

Teachers should not turn to Nings, as the only discussion forum unless it they observe that it

would be most suitable for the students at that particular moment in time, even given a discovery of

their use in education. A Ning is a tool. Using a Ning all the time or without thought as to what a teacher

wants their students to learn and how to get there would be 'putting the cart before the horse' in terms

of practice. To explain further, if Nings do prove to be worthwhile in educational practice they should

be used effectively within the curriculum along with other practices. Essentially what I am saying is that

I don't want someone to read this study if the research question, "**Does the use of Nings improve**

student performance?" proves positive and then use Nings solely as the provider for discussions, forums,

blogging, posting images and videos, or otherwise. There is such a wide variety of computer tools

accessible that an educator who limits their students could possibly do more harm than good.

Another reason for this undertaking is that this study is formative in the research specifically

about the use of Nings in education. As Akerman warned us, "*They're new, so no one knows what*

they're talking about". This is why we need to examine, scrutinize and build results around what is

possibly excellent for use in education. Teachers do not need to ask or prompt students to use Ning.[17]

Because of this, I speculate that students have a sense of efficacy and empowerment through the Ning

due to enabling areas within it like blogs, forums and personal spaces. Students do have other forums

like Hi5[18], Club Penguin[19] and such, but these do not encompass all of the school from grade 5 up and

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[17] I have noted this observation since the Ning's inception. Students post comments and replies at all hours of the day and teachers have not asked for them. See Appendix B for details

[18] "Hi5 is an international social network with a local flavor. It enables members to stay connected, share their lives, and learn what's happening around them." (Hi5, 2009)

[19] Club Penguin is a snow-covered, virtual world where children play games and interact with friends in the guise of colorful penguin avatars. (Club Penguin, 2009)

therefore these particular students have a different audience, possibly one that is anonymous. Consequently, I further this conjecture by stating that students have an automatic sense of belonging in the CIS Ning because I have asked them to join.

My task now, as the technology director and creator of the Concordian International School educational Ning was to prove this cyberspace home was making authentic educational connections as well as giving students another forum to communicate with one another. In possibly another study, I might examine how a Ning could be used more effectively in education. Good policy I would model derives from Michael Umphrey's response on December 19, 2008 at 7:21am in a forum about moderating teenagers on a Ning. Umphrey's policy states:

1. The school standards of language and conduct apply to this forum.
2. Respect- We are polite, kind and appropriate at all times. Remember that many students and Mr. Umphrey[20] will view your comments.
3. Inclusion- Anyone is welcome to comment or join a discussion as long as they are respectful.
4. a. Learning (in this forum)- It's okay to have fun in this space, but if others are having a learning conversation either add to it positively or make your comments in a new post.
5. b. Learning (in class dialogues and blogs)- These are places to reflect and learn. You are encouraged to: Ask questions; Answer questions; Share your learning; Synthesize ideas; Plan projects or assignments, and Reflect on the process of learning.
6. Safety-In general, be reserved about revealing private details on web sites. You don't need to use your full name, but use enough of it so that everyone in English 11[4] will know who you are. Though this is a password-protected site, it is digital information that anyone could copy, forward, save to hard drive etc. Anything you type into a digital forum may last forever, so respect your own and others' privacy.
7. Decorating your personal space. Arrange your personal site to your taste, but keep it wholesome. It may be your choice to walk on the dark side, but one of the purposes of this site is to add to the world's light. Please, no gross, disgusting, immoral or irreverent photographs. Also, don't put up a background that makes your text hard to read. Communication is a primary purpose of this site, and design should enhance rather than obstruct communication.[21]
8. Formality. The level of usage here is "informal standard English"--which is what is used in business, government and education for everyday work. No texting abbreviations. Complete sentences. Standard spelling.

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[20] To be changed with permission

[21] This would not be applicable with the Concordian International School educational Ning as personal spaces cannot and probably will not b alterable.

9. People will be banned who ignore these rules. When a person is banned, the program deletes all his/her content and it cannot be recovered.

10. Every Student must add a comment to this post. Your Comment text will say, "I have read and I understand the basic rules to posting in the social forum.". You can say more than this if you wish.

I feel this is an excellent Acceptable User Policy and will possibly be adapted and applied to the Concordian International School education Ning after this thesis has taken place. I plan to implement this through total shutdown and restart of the Ning. It would mean that everyone would have to register again and read the policy, as well as comment specifically to Umphrey's point 10. However, due to time restrictions the institution of this policy did not take place. I extrapolated point 8 for incorporation into the teacher's instructions during the testing of the Ning. This thesis explains further in the following section of this chapter.

Design Overview

The design overview initiates with the protection of human subjects, moving on to specifics of the research question, and then it examines particulars of the lessons. The overview demonstrates how the lessons fit together structurally and in a timeline. It explains how I set up the pilot, as well as presenting details about the population. It also details possible external influencing factors. The overview demonstrates the methods for Data Analysis and the patterns I looked for. The methodology encompasses my **hypothesis**. Below, I explore the creation of safeguards for the student subjects of this study.

Protection of Human Subjects

I derived the following ideas in part from Dr. Tarek Razik's Protection of Human Subjects (n.d.) section. All students and parents were informed via letter of the nature of the research, the risks involved and the amount of time and effort asked from them (Appendix A and B). I

informed all participants via the informed consent forms of how I protect their anonymity. This included plans for ensuring confidentiality of data by the creation of a coding system for all schools and corresponding school leaders. All subjects were given pseudonyms for computer input and data processing. All statistics were coded through this pseudonym and the Student Pseudonym List will be kept separate from the Thesis, kept in a drawer in the researcher's home. The only people with access to this information will be Dr. Tarek Razik, Dr. Bill Parker and I. One year after this study takes place, I will destroy the Student Pseudonym List.

Before the testing took place, all participants returned a signed consent form from their Guardian indicating their and their Guardian's understanding of the research process. I informed student participants and Guardians that they could discontinue participation at any time.

Furthermore, I informed participants about potential risks and how I would apply the study. I used the study in part to satisfy the requirements of a Masters degree at Buffalo State, State University of New York. Potential risks to the subjects were limited because of the coding and confidentiality afforded all students. Finally, I offered all participants access to the final dissertation, which I will exhibit on location in the Concordian International School library.

For review, I refer to some items from the first chapter where I mentioned:

- Through the forums I established most of the lesson in the class, through explanation and retrieval of data from the students;

- In my research I only allowed the students to respond in English as I did not want to have to have the results translated, which could have caused bias or inaccuracies in the data;

- **Student Performance** – This relates directly to test scores. Every day I collected the data there was a pre-test and post-test given. The results of these test scores and improvement or lack thereof is what I called student performance;

- The *traditional method* will be fully explained;

- The answer choices on the test were multiple-choice in style, as this took more ambiguity out of the responses, leaving less to be argued from a quantitative point of view;

- The specific questions for the pre-test for both the pilot and the study were formulated close to the date of issue, because they were directly related to the subject matter being taught the day of the lesson;

- I will detail more fully the specifics of the lesson and the tests;

- Since, I am their teacher, I want my students to do well and I want the school to look good. I also want the study itself to have positive results: It is because of these two factors that I needed to be very careful with how I interacted with the students during the lesson, how I taught during the control versus the Ning and how I interpreted the results. I factor accountability for the aforementioned.

In this section of the chapter, I detail these explanations. Systematically, I will break apart the research question, "**Does the use of Nings improve student performance?**" in order to answer it fully. The first subsets of questions that I derive are:

1. What do people know?[22]

2. How is knowledge acquired?[22]

The first question, "What do people know?" needs to be particularized into two questions, "What do students know already?" and after the treatment has occurred, the following question is, "What do students know now?"

The second question, "How is knowledge acquired?" also will be particularized to, "How is knowledge acquired more efficiently and properly?" I examine these questions in the hypothesis section. In order for me to answer, there needed to be a scientific *control* and a *treatment* where I

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[22] Two questions derived from Epistemology (Wikipedia, 2009)

could compare the results. In the case of this study, the treatment was using a Ning and the control was

the traditional method of teaching. Find details below about these methods.

Ning Method

The Ning had the following options made available:

Front-page[23]	Personal Pages[24]	Group Pages *(Find Following)*
A wall	Latest Activity	Discussion Forum
A forum	Profile Information	Comment Wall
Groups	Text Box	
Events	My Photos	
Videos	My Discussions	
Pictures	My Friends	
Blog Posts	My Videos	
Welcome Message	My Blog	
Birthdays		

Table 1 - Options made available in the Ning

The Front-page is the main page that students see when they sign in to the Ning. Students are

able to navigate from here to Personal Pages and Group Pages. For this lesson, I asked them to navigate

directly to the Group pages because this is where the brunt of the lesson took place. Following, I

described with a figure the Group page that students are asked to navigate to.

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[23] Front-page items were detailed in the first chapter

[24] Personal Pages were not detailed because teacher instructions asked students not to use these pages for the purpose of this study

Figure 6 - Details the Group Page

The **Text Box** is maintained by the teacher and was where the instructions for the assignment were placed. Because HTML is possible, direct links to websites were placed in here. Images or other forms of media can be embedded but were not.

The **Discussion Topic** was created by the teacher. Students were asked to respond to topics within here. Students could create links to website or add imagery in here for others to see.

The **Comment Wall** is an open area where anyone in the group could make general comments, add HTML, links, and imagery.

Listed below are the instructions for use of the Ning method. They were printed, shown and read to the students.

1. Students were asked not to talk with friends and stay in their seats for the duration of this class. They were reminded of this instruction, as it was requires.

2. After the written Pre-test which was in the PYP computer lab at Concordian International School, students were asked to log on to an assigned computer

3. Students signed in to the Ning using their User Id and Password[25]

4. Students were guided by me (using an LCD Projection of the Ning) to go to the pertinent Group (Grade 5 or Grade 6 depending)

5. Students were asked to read instructions and follow links that were located within the Text Box of the Group

6. Instructions informed the student to find specific knowledge significant to the lesson being taught that day[26]

7. I could interrupt the lesson at any time to point out specific examples or answer class questions about particular problems

8. Students were guided to post responses in English Only and in their own words in the discussion forum

9. Students were guided to read everyone's responses and to continue to post other responses to the conversation being generated[27]

10. When the set time was up[28], students were asked to log off the Ning, turn off their computers, and return to the area they took the pre-test, in order to take the post-test

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[25] Students have already created accounts and were assumed to be aware of the structure of the Ning

[26] I formulated specific questions and answers for the pre-test and post-test prior to the lessons that I directly extracted from the website I asked the students to use.

[27] I showed an example of posting a good and bad response during this lesson

[28] This was determined during the Pilot

Traditional Method - Control

The traditional method followed the pattern for the instructional method of using the Ning as a teaching tool. These instructions were printed and used during the lesson. Instruction for use of the Traditional method told students:

1. Students **could** talk with friends and **get out of their seats with permission** during this class. They were reminded of this instruction, as it was required.

2. After the written Pre-test which was taken in the PYP computer lab at Concordian International School, students were asked to log on to an assigned computer

3. Students were to read the printed handout which gave them instructions[29] about what to do and also instructed them towards certain links

4. Instructions informed the student to find specific knowledge significant to the lesson being taught that day[30]

5. I could interrupt the lesson at any time to point out specific examples or answer class questions about particular problems

6. Students were guided to post responses in their own words in a Microsoft Word document[31][32]

7. Students were also guided to talk about responses through verbal discussion done in English Only.

8. When the set time was up[33], students were asked to save their documents[34], turn off their computers, and return to the area they took the pre-test, in order to take the post-test

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[29] Instructions on the printed handout were identical to the instructions given from the Ning

[30] I formulated the questions and answers for the pre-test and post-test prior to these lessons that were directly extracted from the websites students were asked to peruse

[31] A Microsoft Word document was chosen over a hand written response, because this would allow students the chance to copy and paste information, even though they were instructed not to do so. This created a parallel, legitimate and authentic response to using the Ning to post

[32] It was not necessary to print the document during the lesson, because it would have taken extra time from the lesson, which would sway the results

[33] This was determined during the Pilot

[34] Students may save on the network Server. If the network were down, they would have saved locally, on to the desktop of the particular computer. This was never the case.

Structurally, the following diagrams describe what the testing looked like.

Table 2 - Testing outline: Day 1

Day 1

Class A	Class B	
Pre-test A	Pre-test A	
Traditional method (Control)	**Ning (Treatment)**	80 minute class
Post-test A	Post-test A	

Day 2

Class A	Class B	
Pre-test B	Pre-test B	
Ning (Treatment) ⟷	**Traditional method (Control)**	80 minute class
Post-test B	Post-test B	
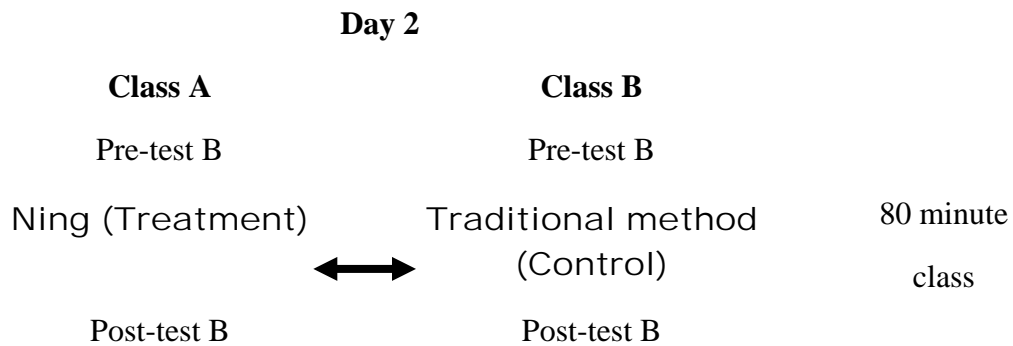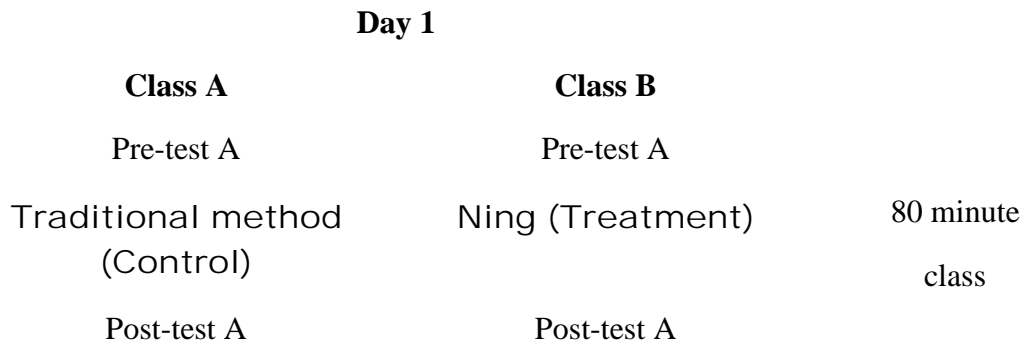
Table 3 - Testing outline: Day 2

Note that on day two, the format of the class is the same with the only difference being the switch of the control and treatment. The Pre-test and Post-test A are different or not equivalent to Pre-test and Post-test B, as these were tests specific to different lessons. The next section explains more about these tests and the implementation.

Instrumentation

The tests themselves were determined during the planning times allotted in the following timeline. They were multiple-choice in style and had five answer choices each. Five choices aided in diminishing guessing versus three or four choices. The tests followed these rules derived from Dr. Dewey:

- Avoid "all of these" or "none of these" or "both a & b" type answers

- Use quotation marks and scientific sounding jargon in wrong answers, just as often as in correct answers. So these are not effective cues

- Construct plausible sounding alternatives which are supposed to be clearly wrong...but which might **sound** right to a poorly prepared student.

- Do an item analysis at the end of the term and delete questions which are missed by top-level students. If for some reason a question is inscrutable to the top students in the class, then either there is something wrong with the question or the level of difficulty is unreasonable, or the material is not being explained very well. In any event, the question should go.

- Make sure the longest answer is right about a fifth of the time

- Sometimes offer opposites when neither is correct.

- Make sure 'always' or 'never' answers are correct about a fifth of the time

- Sometimes make the simple, obvious answer the correct one.

- When drawing up distracters (wrong answers) use terminology from the same area of the text as the right answer, but in distracters use those words incorrectly so the wrong answers are definitely wrong.

The classroom teachers both told me they did not know what they would be teaching on the specific days of the classes for study. The plan was to have the tests follow an outline for subject matter from the classroom teachers. This changed and I explain it further in the Findings. (Appendix D-G) In order to ensure the significance of the treatment tests, I used volunteers from a grade 10 class. I originally was going to use grade 5 students, but I explain more details about this in the Findings. I took the answers from the 'equivalent' tests and performed a **Pearson's correlation test.** I extracted the following information about the Pearson's correlation test (Simon, 2005) from Laurent Goetschmann's Thesis Study from 2006.   Goetschmann explains, "The Pearson's test is a test which calculates the degree to which two variables are related. To be able to quantify the relationship, this study will choose the following benchmarks in order to evaluate the level of correlation, if any, that two variables have together:

- ➢ -1.0 to -0.7 strong negative relationship
- ➢ -0.7 to -0.3 weak negative relationship
- ➢ -0.3 to +0.3 little or no relationship
- ➢ +0.3 to +0.7 weak positive relationship
- ➢ +0.7 to +1.0 strong positive relationship"

I used the same relationship scale, using only the strong positive relationship factor test as a viable

test to use for the Study. I have included a small example of the Pearson's test results below:

Table 4 - 1st example student pre and post-test data

Student	Pre-Test	Post-Test
1	56	55
2	76	78
3	87	88
4	57	57

Table 5 - 1st Pearson test results: strong positive relationship

	Variable 1	Variable 2
Mean	69	69.5
Variance	228.6666667	260.3333333
Observations	4	4
Pearson Correlation	0.998687932	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0.774596669	
P(T<=t) one-tail	0.247512673	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.495025346	
t Critical two-tail	3.182446305	

Strong Positive Relationship:

I would use these tests because they are equivalent to one another.

Table 6 - 2nd example student pre and post-test data

Student	Pre-Test	Post-Test
1	56	90
2	76	54
3	87	34
4	57	100

Table 7 - 2nd Pearson test results: strong negative relationship

t-Test: Paired Two Sample for Means

	Variable 1	Variable 2
Mean	69	69.5
Variance	228.6666667	950.3333333
Observations	4	4
Pearson Correlation	-0.98677564	
Hypothesized Mean Difference	0	
df	3	
t Stat	-0.021826987	
P(T<=t) one-tail	0.491978284	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.983956567	
t Critical two-tail	3.182446305	

Strong Negative Relationship:

I would need to remake these tests. There is no equivalency.
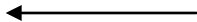
The cycle for the testing to take place for each grade is 4 days because Class A and Class B have classes on different days in both grade 5 (Pilot Group) and grade 6 (Study Group). It worked out with both teachers that each day was alternating and in the same week, except for one day during the study which was moved because of unforeseen circumstances.[35] (i.e. Class A, then Class B, then Class A, then class B) The following timeline demonstrates the macrostructure of the thesis:

Figure 7 - Timeline
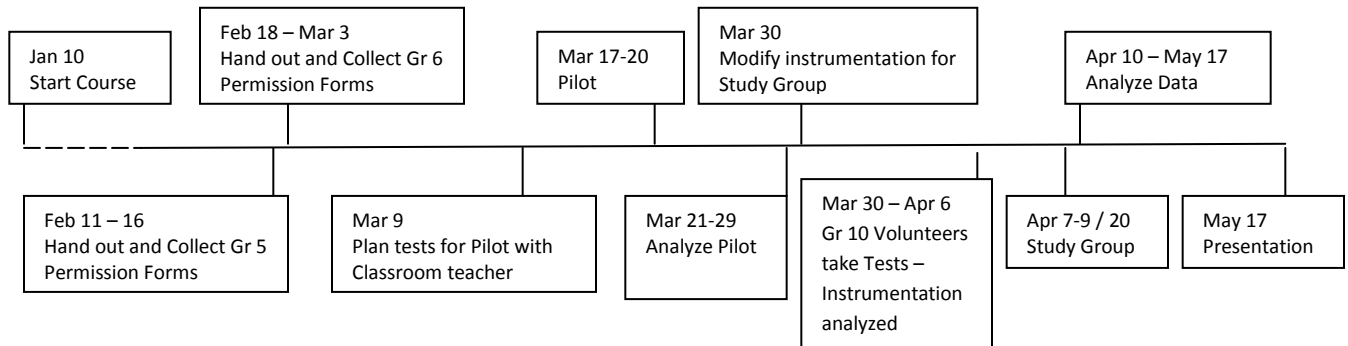
Examples of the permission forms are found as Appendix A and B. I described these in the Protection of Human Subjects section of the Methodology.

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[35] Friday, April 10th was moved to Monday, April 20th because the school was closed unexpectedly, due to the Prime Minister ordering a national holiday.

Note: I planned on March 9 for the Pilot and the Study one week prior to the Pilot testing of the students. This time allotment was decided on because it was close enough to the lessons so that both the grade 5 teacher and I knew specifically what subject matter she was teaching. In the timeline, I did not account for a Baseline Behavior.

The Baseline Behavior observation is the behavior of students under normal conditions without the testing, or use of Nings or Traditional Methods. A Baseline Behavior was decided against for both the *Pilot class* and the *Study class*. I did not take video because these I deemed it irrelevant for the data that I was analyzing. An assessment of the Baseline Behavior or video with the proper tools in the timeline that I had was not possible. This qualitative observation might prove to be very useful in further studies. However, I would consider the pre-test as a form of Baseline Behavior collection. In this case, I am able to gauge the student's awareness of the subject matter before testing through the Control or Treatment. In this sense, the use of Baseline Behavior is the primary tool.

The dates and the times for the study were as follows:

Dates and Times for the Pilot
Tue, Mar 17   8:00am – 9:20am
Wed, Mar 18   1:00pm – 2:20pm
Thu, Mar 19   1:00pm – 2:20pm
Fri, Mar 20   1:00pm – 2:20pm

I would have preferred to have all classes this week take place starting at 1:00pm, but this did not work out with the booking of the labs. It was also because I had another class to teach at the same time. This variance could possibly skew the results because the time of day affects both my teaching style and the student's alertness.[36]

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[36] Dunn and Dunn learned that student energy is highest right after lunch. However, teacher energy is lowest after lunch. This combination results in active students with tired teachers.

Dates and Times for the Study

Tues, Apr 7   9:25am – 10:45am

Wed, Apr 8   8:00am – 9:00am

Thurs, Apr 9   8:00am – 9:00am

Mon, Apr 20   8:00am – 9:00am

I would have preferred to have all classes start at the same time and be in the same week since this is the Study Group. This did not work out with the booking of the labs and due to the fact that the grade six classes are on rotating schedules throughout the day. In Footnote 35, I detail why the classes were not in the same week. This could possibly skew the results because the time of day affects both my teaching style and also the student's alertness and readiness to learn.[37] In the following section, I explain how the testing of the study took place.

Pilot

I used grade 5 classes at Concordian International School as the pilot classes for this study. The class studies helped to determine the number of questions in the Pre and Post-test. I speculated that I would ask between 10 and 25 multiple-choice questions at the student's grade level of understanding and it would be the correct amount to use, as the majority of students in the groups are English Language Learner (ELL) students. This was the case. I detail the amount used in the Findings.   I posed 30 questions. My hypothesis for 10-25 questions gave the students 36 seconds to 1 minute to answer each question. The tests needed to be finished in approximately 10 – 15 minutes, leaving 50 – 60

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[37]

- 30% of the population learns best in the morning hours. These people are the ones that wake up and are ready to absorb new information.
- 30% of the population learns best in the afternoon. They come to life after lunch.
- 30% of the population learns best in the evening. We refer to them as "night owls."
- 10% show no preference. They seem to learn whenever it is necessary to learn. (Pytel, 2008)

minutes left of class teaching time in an 80-minute period. By looking at the amount of answered or

unanswered questions at the end of 10 – 15 minutes, I was be able to judge the quantifiable amount of

questions that should be used for the grade 6 Study group. If all or a majority of the students seemed to

be done the question after 10 minutes during the pre-test, the lesson would initiate and I would alter

the amount of questions for the Study group. Find further introspection in the Findings.

Along with the quantifiable amount of questions determined by the Pilot group, they also

helped to establish where any glitches in the Ning design or teacher explanation may occur. If there

were multiple misunderstandings or many people did the same thing wrong, I recognized and took note

of this particular situation in order to correct it for the Study group. I chose a younger group, because I

found they need a greater degree of detailed explanations given to them. They are more likely to make

common mistakes.

After all four testing days took place; I asked the Pilot group to make general comments about

the testing. This was an informal survey and I asked no specific questions. I observed common

comments and took note of these for revision of the Study group. It is at this time that I was going to

ask volunteers to help me with the grade 6 instrumentation validity. I did not and I explain this in the

Findings.

The volunteers from grade 10 did the testing at another time that is convenient for both

students and me. This took place before the Study Class took their tests. The Pearson's Correlation Test

was not difficult to implement. I did the Pearson's Correlation Test the same day the grade 10s took the

test.

Population

The total population could be any student who taught using a Ning. I see this study as formative

in nature, as further studies need to build upon these statistics. The actual population was limited to 24

Grade 6 students at Concordian International School. There were 8 Females and 16 males. Guardian's approval determined the Sample group size, which was actually 20 students in total: 14 male and 6 female. I recognize the population is not ideal due to its size, specificness and limited age range, rendering a validity issue. For greater Generalizability, I should have selected random students from a larger pool in and outside of Concordian International School students and above and below grade 6. However, this population was determined because no other grade levels at Concordian International School above grade 6 were split into two classes. This detail meant that time and facilities issues would not allow for a Test and a Control group. The students in the population are mostly Thai as a first language. The majority had fair to excellent typing skills[38]. No students were brand new to the computer environment and all had a Ning account and were familiar with the Ning layout. In the following section, I feature irregularities and possible occurrences that may have taken take place, which could skew the results.

Threats to Validity

The factors that I foresee influencing the data are the time of the class, and the student's ability to use a computer and to type well. Another threat relevant to this study, is the "Instrumentation Threat - This only operates in the pretest-posttest situation. What if the change from pretest to posttest is due not to your [humanities] program but rather to a change in the test that was used?" (Trochim, 2006)

For other threats to validity, I am the student's teacher and therefore I desire to see students do well. I want to school to look good. To account for this I made sure that I followed the lesson plan precisely and gave the same directions in both classes. In order to do so, I took notes during and after each class. I planned to have the classroom teachers in the lessons with me, but the classroom teachers and I changed this prior to the Pilot.

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[38] As noted by me, the student's technology teacher.

I want the study to do well, and to account for this I needed to consider my tone and my clarity of instructions during the Control compared to the Treatment. It necessitated that I gave the same types of instruction on both days. This variable could be the most ambiguous. I account for some of this in the Findings.

The final threat to validity was the choice and design of the tests given to the students to measure formative and attained knowledge. I was planning to use different Pilot and Treatment tests, but I decided against this. I needed permission from the sixth grade teacher to teach the same subject matter in order to use the same test. He granted this permission, stating it was wise to review research skills with the students at almost any level. The study would have been more valid had I been able to use empirically proven tests for the study. I developed equivalent tests following Dr. Dewey's guidelines. In the following section, I explain details about how I handled the data.

Methods for Data Analysis

After compositing the data in to a table similar to Table 9 and Table 10, I looked for positive or negative outliers, speculating their occurrences to determine if they were because of "errors in the data, or arising from the inherent variability of the data." (Osborne and Overbay, 2009) If they were errors in data or the outliers are illegitimate, I would reformulate the data. For all other outliers I removed them because Osborne and Overbay state:

> Although some authors argue that removal of extreme scores produces undesirable outcomes, they are in the minority, especially when the outliers are illegitimate. When the data points are suspected of being legitimate, some authors (e.g., Orr, Sackett, & DuBois, 1991) argue that data are more likely to be representative of the population as a whole if outliers are not removed.
>
> Conceptually, there are strong arguments for removal or alteration of outliers. The analyses reported in this paper also empirically demonstrate the benefits of outlier removal. Both correlations and t-tests tended to show significant changes in statistics as a function of removal of outliers, and in the overwhelming majority of analyses

accuracy of estimates were enhanced. In most cases errors of inference were significantly reduced, a prime argument for screening and removal of outliers.

I would speculate upon the following questions: What could be possible reasons for outliers? Does this amount of outliers prove anything in regards to the variation of learning styles? What are possible insinuations, considering Gardner's "Multiple intelligences" and differentiated instruction? These questions would be a part of the report.

In my proposal, I stated that after analyzing the data sets as a whole, I would cut the data in order to look at it based upon gender to see if any patterns emerged between Control and Treatment. However, due to intensity of this project and small timeline of events, as well as such a small sample population I feel the results and validity forthcoming would not be worth examining. I attempt a deeper understanding of the results as a whole, given the duration for this project. Now I restate my research question, also stating my objectives and hypotheses.

Research Question – Does the use of Nings improve student performance?

Research Objective – To test whether Nings improve student performance

Hypotheses

1. Students will improve in Post-test score results compared to Pre-test scores for Control

2. Students will improve in Post-test score results compared to Pre-test scores for Treatment

3. Students will have greater improvement in test scores of Treatment versus Control

4. Smaller Standard Deviation will occur in Treatment's Post-test

If Hypothesis 3 is correct, this meant **the use of Nings improves student performance**. In order to prove my hypothesis, I created the instrumentation and used two forms of data collection. The data collection categories were *Student Pseudonym List and Thesis Data*.

The *Student Pseudonym List* is a Microsoft Word document that separates the students into class A and B. It describes corresponding number and pseudonyms to the student's first and last name. It also states if the student is participating in the study, and it gives the birthdates and the student's gender. See example below.

Table 8 - Student pseudonym list example

Number	Pseudonym	First Name	Last Name	Birthdates	Gender	Participation	Class A/B
1	Red Dog	John	Smith	18/04.96	M	Y	A

I will keep it separately from this *Thesis data* and *Thesis Data Collection*. The only people to see these sheets will be my thesis advisors and professors. I have explained more about this in the protection of the human subjects.

The *Thesis Data* is a Microsoft Excel spreadsheet. See a generated test table in Microsoft Excel below. The numbers and data in the following table are fictitious.

Table 9 - Example of data for the control

Class A					
No Ning CONTROL					
Pseudonym	Students	Gender	Pre-test (Possible 100)	Post-test (Possible 100)	
Cat	1	m	45	65	
Dog	2	m	43	60	
…					
Elephant	12	f	0	70	
Lizard	13	f	100	100	
			615	877	Sum
			47.30769231	67.46153846	Mean
			26.41459387	19.81840636	Standard Dev

Table 10 - Example of data for the treatment

Pseudonym	Students	Gender	Pre-test (Possible 100)	Post-test (Possible 100)	
Class A					
Ning TREATMENT					
Cat	1	m	43	54	
Dog	2	m	45	56	
…					
Elephant	12	f	92	45	
Lizard	13	f	34	45	
			837	801	Sum
			64.38461538	90.61538462	Mean
			18.1775432	15.60736184	Standard Dev

In order to formulate the date analysis, I used tables such as the ones above along with tables that specifically itemized the answers per question. I calculated the Sum, Mean and Standard Deviation along with other variables. I detail more below and in the Findings.

I took the difference between the Mean scores of the Pre-test and Post-test score. Assuming there is an increase in Post-test scores for both the Control and Treatment, I look for the difference between these results. The following example uses the sample data from table 10:

Control Mean Difference = 67.46153846 – 47.30769231

= 20.25384615

- This result exhibits an increase in test scores using the traditional way of teaching. This would prove my first hypothesis was correct.

Treatment Mean Difference = 90.61538462 – 64.38461538

= 26.23076924

- This result presents an increase in test scores using the traditional way of teaching. This would prove my second hypothesis was correct.

- Following these results, I will take the Treatment Mean Difference and subtract the Control Mean Difference from it. If the result is a positive number, my third hypothesis is correct.

I am able to take the data contained in the four charts (Class A Treatment, Class A Control, Class B Treatment, Class B Control) that was similar to Table 9 and Table 10 in order to see if patterns occurred in both classes because they will be tested as the Control and the Treatment. This correlation meant the data set is more reliable.

I found the difference between the results in both the Control and Treatment in the Standard Deviation (Sd) that was calculated. Knowing that the smaller the Sd the more precise and the larger the Sd the less precise, the accuracy was accounted for if my standard deviation rate of decrease was smaller for my Treatment than my Control. The fact that the Standard Deviation was getting smaller suggested that findings were more homogenous. This meant that not just one student or a few students were getting better because of the treatment, but the whole class was performing better due to the treatment. If the mean increased and there were small Standard Deviations then there was strong correlation. For example, if the test scores all increased and there was small Standard Deviation (i.e. All the tests seemed to increase around the same percentage) then there was strong correlation.

Figure 8 - Standard Deviation chart example
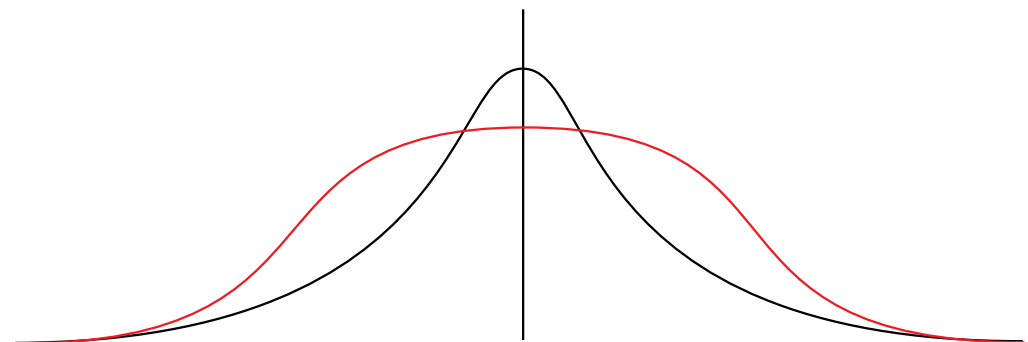
"The Black Curve represents small scatter and a smaller standard deviation.
The Red Curve represents larger scatter and a larger standard deviation.
Both have the same Mean -Vertical Line" (Carlton Comprehensive Highschool, 2009)

Figure 9 - Standard Deviation shift chart example
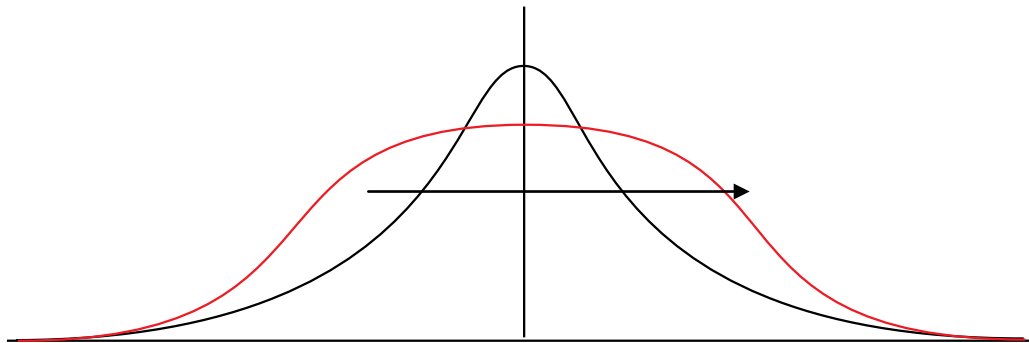
If the Mean shifts right, it indicates better test scores. These are my first and second hypothesis.

Smaller scatter or smaller Sd indicates precision. If this occurs more in the treatment than the control, this indicates the treatment is more of a factor in influencing the higher test results. This will prove my fourth hypothesis.

If I prove hypotheses 2 – 4 are correct, this indicates that Nings improve student performance and they are a stronger influencing factor for all students to make gains versus using the traditional way of teaching. Hence, my question, "How is knowledge acquired more efficiently and properly?" will have been answered. By instituting the Pre and Post-tests I will have answered the questions, "What do students know already?" and "What do students know now?" Therefore, I will have demonstrated the sub-questions of my research question, which is, "Does the use of Nings improve student performance. In the next section, I plan to carry out these tests in order to retrieve data, calculate the data and make some analysis.

CHAPTER 4: Findings

The purpose of this study was to examine whether student performance improved with the use of Nings as a teaching tool in the classroom. Using pre-tests and post-tests to calculate results, I analyzed two grade six classes from Concordian International School for the study.

Research questions

The primary research question was, "Does the use of Nings improve student performance?" The subset questions were as follows:

1. Will students improve in Post-test score results compared to Pre-test scores for Control?

2. Will students improve in Post-test score results compared to Pre-test scores for Treatment?

3. Will students have greater improvement in test scores of Treatment versus Control?

4. Will smaller Standard Deviation occur in Treatment's Post-test?

The study answers the subset questions and the research question. Through doing this, I observe and respond to anomalies that occurred. This chapter displays the results for the test equivalency, the pilot and the study.

Test Equivalency

In this section, find the interpretation of the correlation between the pre-tests and the post-tests. Originally, I planned for the grade 5 classes to take the tests for the correlation, but determined it would be more efficient to use volunteers from grade 10. I assumed they would not need a lesson in order to answer questions on the test. I presupposed this idea because the tests were pertaining to 'how to research'. Details of the tests involved the following components: topics, key words, overviews, source cards, brainstorming, note cards, thesis statements, outlines, works cited, introductions, conclusions, and title pages, all of which should be familiar to grade 10 students.   The tests are located in Appendix D-G.

The pre-tests both consisted of thirty multiple-choice questions with five choices for answers. There were two separate pre-tests, corresponding to two individual lessons. In order to formulate the related post-test, I reordered the questions and the selection order within the multiple-choice. The following is an example of this reordering:

Table 11 - Pre and post-test reordering example

Pre-tests	Post-tests
1. a.	2. b.
b.	a.
c.	d.
d.	c.
e.	e.
2. a.	1. d.
b.	b.
c.	c.
d.	a.
e.	e.
3. a.	3. a.
b.	e.
c.	c.
d.	d.
e.	b.

Questions re-ordered

Choices re-ordered

NOTE: The exact reordering and corollary questions are examined in the Pilot.

After creating the four tests, I asked for 6 volunteers to take two tests each, which enabled each test to be assessed three times. The students took the tests blind, which meant they were not prepared, did not study, and I did not allow them research answers to any of the questions. As is custom in most testing situations, I asked students to move away from one another and not to talk during the examination period. I gave different tests to people who were sitting next to one another, in order to

assure students did not look off one another. Cody, Marcie and Lance took tests for day 1. Javier, Allie, and Amie took tests for day 2. Below, find the table results for the equivalency test data.

Table 12 - Grade 10 test equivalency

Grade 10 Test Equivalency					
Pseudonym	Gender	Pre-test (Possible 30)	Post-test (Possible 30)		
Marcie	m	5	9		
Allie	m	19	19		
Javier	f	22	23		
Lance	m	24	24		
Amie	m	24	24		
Cody	f	26	27		Difference
		120	126	Sum	6
		20	21	Mean	1
		7.72010363	6.41872261	Standard Dev	-1.301381
		Pearson Coefficient		0.99287223	

This data demonstrated similar scores on the pre and post-tests. When I ran the Pearson statistical analysis on the tests as a whole, the results were .99. Referring to the equivalence table below, we see that .99 represents a strong positive relationship. This translated to almost exact equivalence.

➢ -1.0 to -0.7 strong negative relationship
➢ -0.7 to -0.3 weak negative relationship
➢ -0.3 to +0.3 little or no relationship
➢ +0.3 to +0.7 weak positive relationship
➢ +0.7 to +1.0 strong positive relationship

The largest variance is on Marcie's scores, which exhibit a 4-question difference. I posit his scores vary because he was guessing for the questions. The reason I deem this is that both of his test results were very low. He falls far below the statistical norm of the class on both the pre and post-tests. Given that my sample was very small, these numbers are not ideal. However, Figure 10 and Figure 11 illustrate the beginning of a bell curve, representing the normal distribution for grade 10.

Figure 10 - Grade 10 normal distribution in pre-test

Grade 10 Normal Distribution Pre-test

Number of Students vs *Test score range (Test out of 30)*
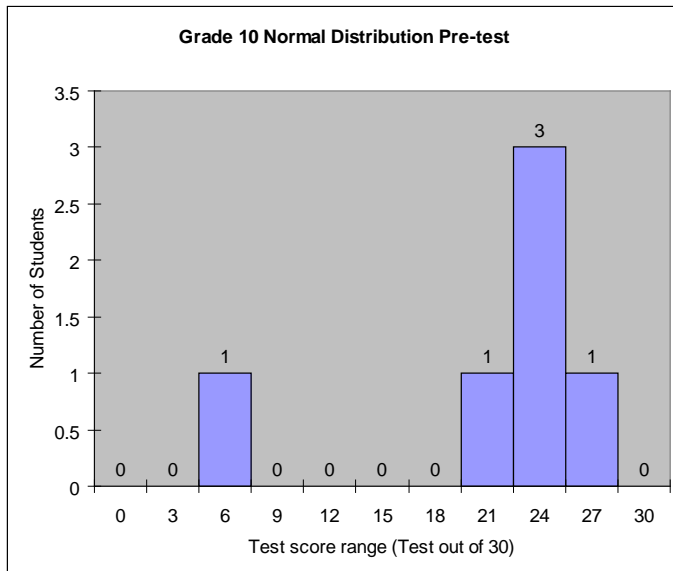
Figure 11 - Grade 10 normal distribution in post-test

Grade 10 Normal Distribution Post-test

Number of Students vs *Test score range (Test out of 30)*
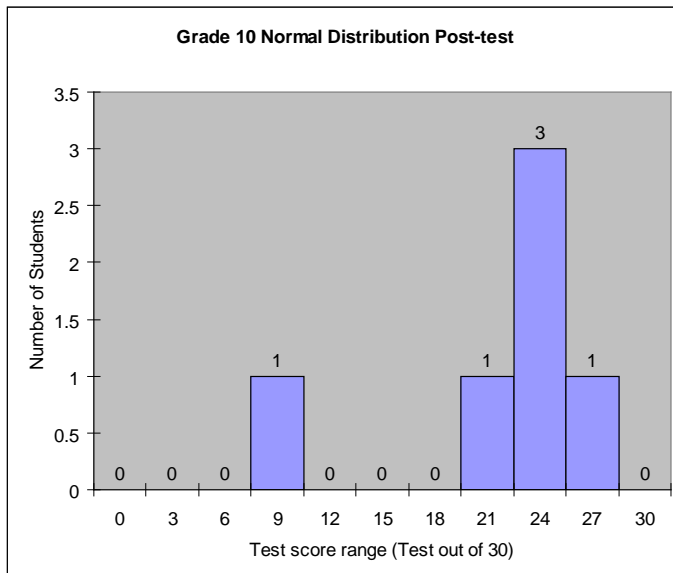
> Discounting Marcie's outlier, the shift of both bell curves past half, leads me to believe the students understood the questions, making educated decisions with their choices.

In figure 10, Marcie's scores lay four bins away from the rest of the class. He made a slight improvement figure 11, represented in the second test where he shifted one bin range higher. The possible reasons for such low-test scores for Marcie could be that he did not understand the questions, he has never been privy to learning about research, or he has forgotten most information he did learn.

In any of the cases, he falls within Bernoulli's Binomial Distribution range for the tests as if he were

guessing.

Figure 12 - Bernoulli's binomial distribution reporting guesses: multiple-choice test with 5 questions
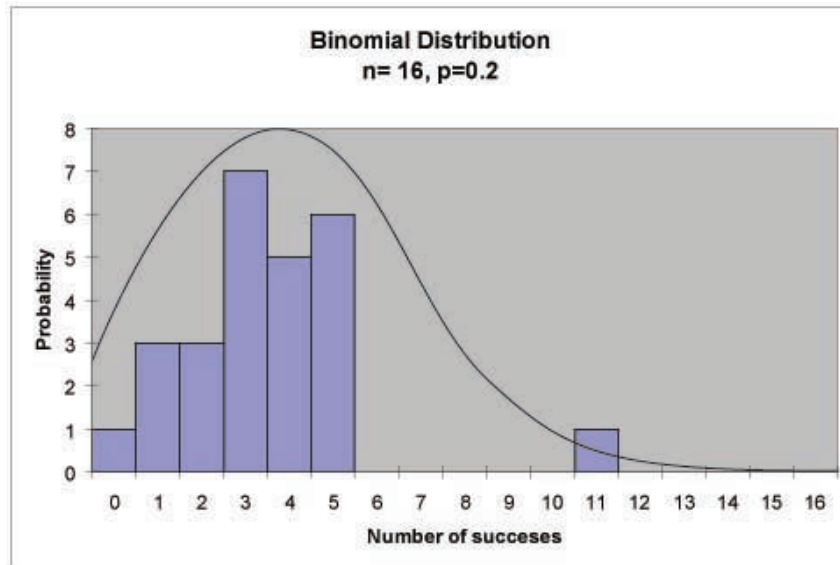
The chart above demonstrates the expected curve (distribution) for random guessing for 16

questions with 5 choices. n is the number of questions and p is the probability. A 1 in 5 chance is 20%

or 0.2. This is a binomial distribution because there is a success or failure with an attempt at the right or

wrong answer. The data is skewed to the left of half, which indicates a normal rate of failure. The

Central Tendency is 3.2, which I derived from 20% of 16. This also indicates the greatest number of

people will be failing through the guessing method if 8 or 50% is the failure cutoff. The chart could be

considered a Poisson distribution because there are zeros represented and it is skewed as is it. This

chart will be compared to later in this chapter, in order to demonstrate the likelihood of random chance

versus educated guessing or attainment of knowledge.

Figure 13 - Grade 10 pre vs. post-test equivalency with trend line
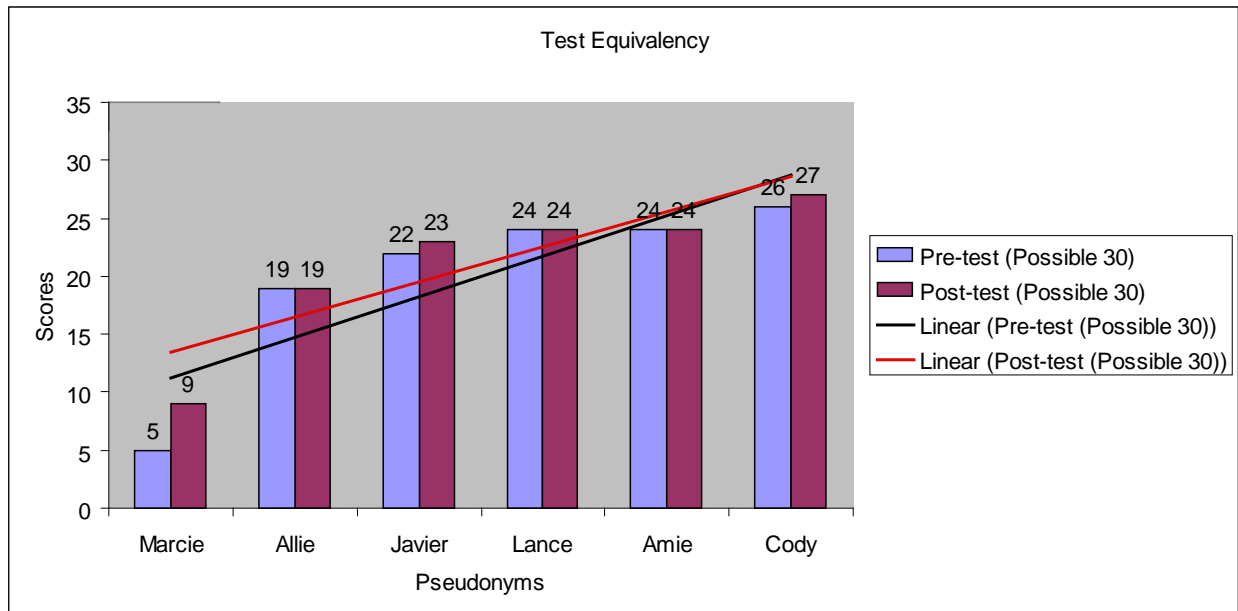
The chart in figure 12 reveals a juxtaposed bar graph analysis of the pre and post-tests.   The

trend lines are nearly overlapping. This fact reinforces the equivalency of all of the tests.

"Trend lines represent the regression analysis. The linear regression represents the line with the best fit for all points [in this case, tips of the bar graphs]. It means that we can look at any of the points to compare how far below or above they are from the best fit." (Clarkson, 2007)

Figure 14 - Grade 10 scatter chart showing test equivalency

Grade 10 Test Equivalency
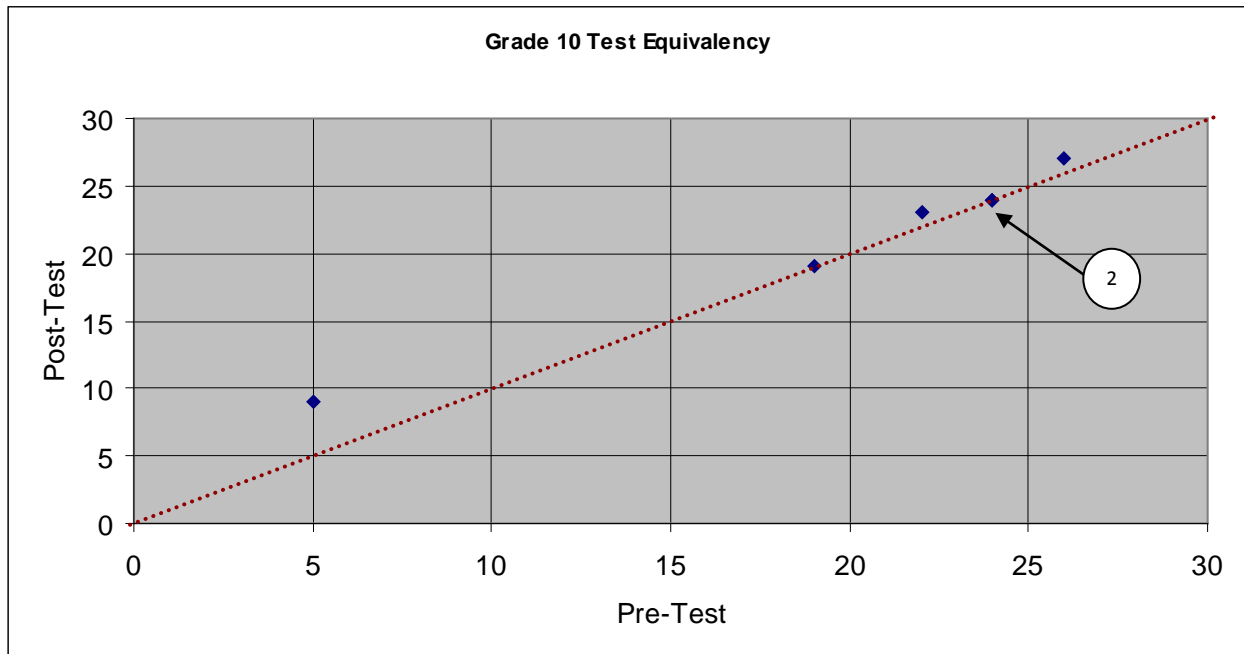
In figure 13, the dotted line running diagonally through the scatter plot represents exact equivalency. Greater point distance from the line represents less significance. The "2" pointing to one of the points, characterizes two points on the same coordinate. Therefore, this graph shows three students scoring directly on the line, two scoring very near and the outlier still scoring relatively close to the line. In summary, these findings represented strong correlation, which meant I was able to use the tests for the study.

Pilot

The pilot had three purposes: to practice the lessons for the study, to determine where students might misinterpret or misunderstand instructions, and to validate questions on the test. I followed the plan I stated in the Methodology closely, making only a few changes before the pilot. The grade 5 classroom teacher and I decided not involve her at all. Another person present would add one more variable to the testing. The cons against this idea were that I would be the only one to monitor the

results. However, the likelihood of a classroom teacher adding to the variability seemed to outweigh this fact.

Planning for the pilot, I intended to model the homeroom teacher's curriculum, modifying my lessons to suit her prospectus. She was not restricted through subject matter. This meant that we had many choices from which to decide. The lessons we settled upon were about research skills. The rationale was students should have some formal training in this or have proper habits reinforced. From the homeroom teacher's informal observations, no teacher had taught this to the students previously.

After exploration of the topic, I decided to restrict the areas of research to one website. This was because many students could get off topic while searching through various sources. Websites the students may find on their own could be conflicting with one another, could present inaccurate facts, or could be inadequate for a number of other reasons. I found a site that catered to the lesson objectives and encompassed an excellent body of knowledge about research. It was suitable for this age range and the English Language ability of the students. The aforementioned website is www.crlsresearchguide.org.

After listening to my opinions about the lesson objectives, plans and testing, the grade 6 teacher decided I should teach his students research skills as well. He also presumed teachers from years before did not teach the students this skill set. This discovery and his agreement for comparable lessons meant that I was able to use the same lessons and tests for the study that I did for the pilot. This tightened up my control of the variables. It also meant that if conditions went well with the pilot, I would not have to make too many changes before the study. I would only make slight variations.

Practicing the lessons for the study

Following, I list the adjustments I made due to practicing during the pilot assessment. I noticed five variations. The first thing I recognized from the pilot was that some students would forget their password to log into the Ning. I was ready because of this to show them quickly how to retrieve the

password, by identifying a button aptly named, "Retrieve Password". The website link led the students through a quick process, which asked for their email address. It sent an email to this address to reset the password through a link. The students logged in to their particular email client, opened the email, clicked on the link and their password was reset.

Second, I found that students needed time and instructions to prepare for the lessons. For time, they needed about five extra minutes to gather their belongings and make their way to the computer lab. I also instructed them to bring more than one writing utensil in case their original broke or ran dull. In preparation, I asked students to use the toilet before the lesson started so they did not miss any specific teaching or advice.[39] It also meant they were in the lesson the same amount of time as everyone else, limiting their ability to cheat.

During pilot processing of tests, I learned better organization. I asked students to help label the tests differently by adding the words: NING or CONTROL to the front page, depending upon which test they were taking. This aided me in the sorting and organization process of the tests thereafter.

Fourth, I learned about the pacing of the tests. Students grew weary of the exams and the process quickly. For most students, 15 minutes seemed more than enough time. I encountered a few students in the pilot asking me if they could play on the internet or do something else after they finished. I decided against students moving from their seats or engaging in other activity. I instructed them to place their heads down during the study in order to relax. During the study, I mentioned this process before the testing started. The reason that I didn't shorten the time, even though I recognized most students were able to finish during the allotted time was that I wanted to allow nearly all the students uninterrupted time to try to finish the results, therefore gathering the most data possible, in a reasonable timeframe.

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[39] No students needed to go to the bathroom during the study because of this preparation

Lastly, I added more instructions for the students. The original instructions for the Ning

(Treatment) were as follows:

1. I asked students not to talk with friends and stay in their seats for the duration of this class. They were reminded of this instruction, as it was requires.

2. After the written Pre-test, which was in the PYP computer lab at Concordian International School, I asked students to log on to an assigned computer.

3. Students signed in to the Ning using their User Id and Password.

4. Students were guided by me (using an LCD Projection of the Ning) to go to the pertinent Group (Grade 5 or Grade 6 depending).

5. I asked students to read instructions and follow links that were located within the Text Box of the Group.

6. Instructions informed the student to find specific knowledge significant to the lesson I taught that day.

7. I could interrupt the lesson at any time to point out specific examples or answer class questions about particular problems.

8. I guided students to post responses in English only and in their own words in the discussion forum.

9. I guided students to read everyone's responses and to continue to post other responses to the conversation generated.

10. When the set time was up, students were asked to log off the Ning, turn off their computers, and return to the area they took the pre-test, in order to take the post-test.

The instructions that I added for the Ning are following. I projected them for the students to see

using an LCD projector. I read over each one, using a red laser-pointer as an aid to show students where

I was reading:

Additional instruction derived from the Pilot for the Ning

- Make sure you have gotten water and have gone to the bathroom before you start. You will not be able to during the testing.

- Turn on your computer and see that Internet Explorer works

- Put your name on both pages of the test

- Make sure it says PRETEST DAY1

> I changed these variables depending upon the tests and times I was presenting.

- 1:05 - 1:20 Pretest
  1:20 - 2:05 Control
  2:05 - 2:20 Posttest

- You will probably not understand the test questions YET.

- You will understand more after you do the class assignment.

- Read the questions. Skip the ones you do not understand and come back to them. Guess if you do not know.

- You can Check, Color in, or put an X through the boxes.

- You put a BIG X through a question that you marked incorrectly and cannot erase.

- You may not finish the tests or the class assignment.

> I omitted these instructions for the study.

- I am trying to find out how well you do and how much you can get done.

(Hand out assignment during test)

> I placed this order for myself in the instructions to remind me.

- Go to: www.concordian.ning.com

- Go to: G5 Tech

> I changed this to G6 Tech for the study.

- MAKE SURE YOU JOIN THE GROUP if you have not done so already.

- Go to: Day 2 (In the Discussion Forum)

> I changed this variable depending upon the day.

- You might want to copy a couple questions into the reply first and answer them then reply. You will see other people's answers. Do not copy theirs.

- Open the Research Link in a New Tab

The traditional method followed the pattern the Ning instructional method of using the Ning as a teaching tool. These instructions were printed and used during the lesson. Instruction for use of the Traditional method told students:

1. Students **could** talk with friends and **get out of their seats with permission** during this class. I reminded them of this instruction, as it was required.

2. After the written Pre-test, which they took in the PYP computer lab at Concordian International School, I asked students to log on to an assigned computer.

3. Students were to read the instructions about what to do and I instructed them towards certain links.

4. Instructions informed the student to find specific knowledge significant to the lesson I taught that day.

5. I could interrupt the lesson at any time to point out specific examples or answer class questions about particular problems.

6. I guided students to post responses in their own words in a Microsoft Word document.

7. I guided students to talk about responses through verbal discussion in English Only.

8. When the time was up, students were asked to save their documents, turn off their computers, and return to the area they took the pre-test, in order to take the post-test.

The instructions that I added are following. I projected them for the students to see using an LCD projector. I read over each one, using a red laser-pointer as an aid to show students where I was reading:

Additional instruction derived from the Pilot for the Traditional Class

- Make sure you have gotten water and have gone to the bathroom before you start. You will not be able to during the testing.

- Turn on your computer and see that Internet Explorer works

- Put your name on both pages of the test

- Make sure it says PRETEST DAY1

> I changed these variables depending upon the tests and times I was presenting.

- 1:05 - 1:20 Pretest
  1:20 - 2:05 Control
  2:05 - 2:20 Posttest

- You will probably not understand the test questions YET.

- You will understand more after you do the class assignment.

- Read the questions. Skip the ones you do not understand and come back to them. Guess if you do not know.

- You can Check, Color in, or put an X through the boxes.

- You put a BIG X through a question that you marked incorrectly and cannot erase.

- You may not finish the tests or the class assignment.

> I omitted these instructions for the study.

- I am trying to find out how well you do and how much you can finish.
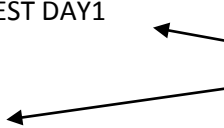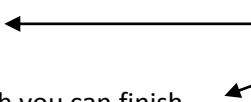
(Hand out assignment during test)

> I placed this order for myself in the instructions to remind me.

- Go to: www.crlsresearchguide.org

- Open Microsoft Word.

- You might want to number the questions first.

- You can click on the links and then go back to be at the first page.

- If there are questions that you do not seem to understand, you can ask for some help for specific questions to your friends.

- SAVE AS Research*YOURNAME* in the ICT folder

Misinterpretations and misunderstandings of instructions by students

There were very few mistakes made by the students in the pilot because I had very explicit directions for the students and showed them examples of how I wanted them to post responses. One error I noticed was if students did the traditional class first, they were likely to post their responses in a Microsoft Word document for the second lesson.   This was an oversight on the student's part because I instructed them to write their responses in the Ning forum both verbally and in writing. I expect the reason this occurred was due to student's poor listening skills, their lack of understanding, and/or their over-confidence for the lesson objectives, because the students assumed they had done this lesson already. I made a point of showing this example error transpiring during the study because of this problem occurring in the pilot. No students in the study made this error.

Test question validation

Using Carnet's test analysis equation seen below, I organized the results of the pilot tests into results that allowed for calculation. I named the tests, "Test A", "Test B", "Test C", and "Test D". I gave all four tests two times, using them as both the treatment and control. The tests acted as pre and post-tests and both classes tested through them.

Carnet Test Analysis

Easiness = total number of correct answers / number of students who took the test
Difficulty = 1 – easiness

Generally acceptable difficulty level is from 0.3 to 0.7. Questions below 0.3 are too difficult, while questions above 0.7 are too easy.

(wwww.Carnet.hr, n.d.)

In my initial examination, I calculated totals for the tests. By comparing these, I was able to see which tests students got most questions right versus which they got most questions wrong. The test results demonstrated that Test D was the easiest with 221 correct answers out of a possible 510 answers. Test C followed closely with 213 correct answers, then Test A with 181 correct answers, coming last with Test B, which exhibited students getting only 171 correct answers.

I used the Carnet's formula with 17 students as the steady variable and accrued the answers for the tests to determine the questions difficulty. (See Appendix J-M) After sorting the values for each of the tests in an ascending order, I was able to determine which and how many questions I could apply from each test. The results were as follows:

Test A: 16 questions fell within the acceptable difficulty range of 0.3 to 0.7: 2 below and 12 above

Test B: 17 questions fell within the acceptable difficulty range of 0.3 to 0.7: 13 above

Test C: 24 questions fell within the acceptable difficulty range of 0.3 to 0.7: 6 above

Test D: 19 questions fell within the acceptable difficulty range of 0.3 to 0.7: 3 below and 8 above

My lowest number of usable questions was 16. This fell within the range that I set to use for my results. I needed to simplify the process of test correlation so I made all tests the same number of questions and since 16 was my lowest number of acceptable; I chose 16 of the best questions from each test. With a choice of five questions and one choice being correct, that meant that I had four distracters. Cartne states, "The best Multiple Choice questions with 4 distracters have 0.63 difficulty level" (wwww.Cartnet.hr, n.d.). I worked upward from 0.3 in the lower range to remove the questions from

Test B, C and D since the range was 0.3 – 0.7 and 0.63 was the ideal. I correlated the pilot questions with the study tests in order to delete those questions that fell outside of the range of acceptability.[40]

Study

I executed the study as planned, with the only glitch being the movement of the final day within the week to day after a weeklong break. I do not think it made a difference in the results. However, I will account for this later. After I gave the tests and consolidated the results, I split the data into histograms per class (Appendix N-U) to examine dispersion of grades, central tendency and skewness or shifting per test and to validate the use of the t-test. I examined the macrostructure data in table form, where I proved or disproved the hypotheses along with t-tests to attest to the significance level. I summarize the findings and make conclusions and recommendations in the final chapter.

Variables not studied

The study does not does not compare age groups, race or nationality, nor does it look at the gender or the correlation between the pre and post-tests versus the right or wrong answers given through the control or treatment. It does not corroborate pre-tests and post-tests to answers given during the treatment or control.

Age

The study does not compare age because the sample was from all the same grade and therefore the there was insufficient variation of the data in this variable.

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[40] I did not have time to change the pilot tests before I gave them to the study group. The grade 6 students did all 30 questions, but I disregarded the invalid questions for data analysis after the fact.

Race or nationality

The population was mostly Thai students, which meant there was little variance of either race or nationality. I assume theses findings, because I have heard statistics that the population of the school is more than 90% Thai locals. Concrete data is required to back these facts.

Gender

A lack of time was the rationale behind not separating the findings further in order to determine if there were noticeable differences between male and female outcomes. Another contributing factor for me not to separate the data further was that my population size was too small to begin with.

Correlation between the pre and post-tests versus the right or wrong answers

I could not correlate pre-test questions with rearranged post-test questions properly because I separated the 16 valid test questions from the original 30 after I gave the tests to the study group. There were a few questions, which still correlated. However, the number was so low the statistics would have been nearly invalid. Proper test preparation from me would have alleviated this affect.

Corroboration of treatment or control answers with pre and post-tests

Although this would have been relevant to study, I did not have time. These results could demonstrate why post-test anomalies occurred the way they did. Given more time, this would be the next thing I would inspect.

Examination of distribution through Histograms

I needed to confirm that a t-test would be valid before use in this study since I was going to use it to compare the before and after results, or pre-test versus post-test. In order to do so, either I needed more than 30 samples from a select group or if there were less than this, I needed to confirm

that each sample was a normal distribution. I gauged normal distribution by creating histograms to look

for the general bell shape. The following graphs allowed me to observe the standard deviation or

dispersion, the central tendency and the symmetry of results.

Figure 15 - Grade 6S control histogram: pre-test
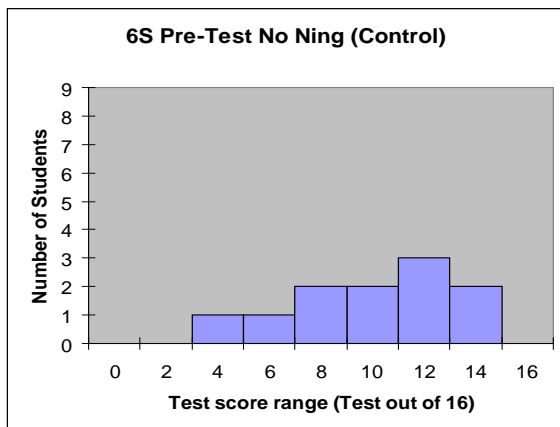
Figure 19 - Grade 6W control histogram: pre-test
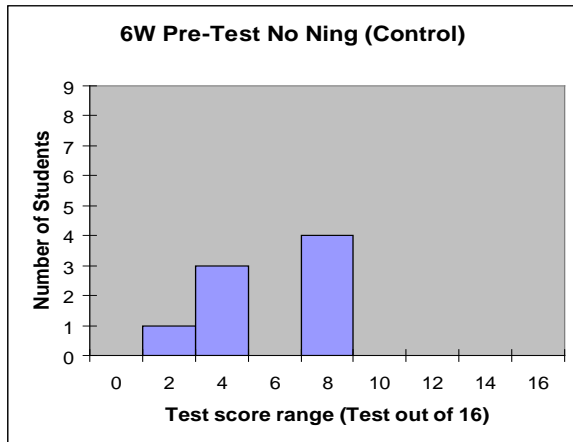
gotten better because the post-test results show general shifting of the symmetry to the right. However, the data sets of the Treatment do not seem to demonstrate the similar movement of values. In both pretest versus posttest data sets there is a widening of the dispersion. The central tendency in Figure 19 is bin 8 and it shifts left to bin 4 in Figure 20, which demonstrates most of the data is tending to show lower results. Figure 21 and 22 demonstrate the central tendency shifting right from bin 4 to bin 8, which could mean students are doing better. Generally, this data is peculiar. I analyze it more fully with number sets and speculate as to why or how the anomalies could be occurring as they are.

Summary and Comparison of findings

The summary findings exhibit normal distribution for all 8 charts meaning the employment of the t-test comparison with a small sample size would still have relevant results. If this were not the case, meaning I had uneven distribution, I would need to look for confounding factors.

The results for the 6W class are similar to the 6S class above. However, comparison of total results demonstrates the 6W class has a lower total overall. 6S has a general shift demonstrating learning. Conversely, the trends shown in 6W are not quite so prevalent. I will delve further into the results with facts in the following sections.

Proving and Disproving Hypotheses

I chose to use a two-tailed to test result because I was looking for significance in either tail of the bell curves that I have already proven all data sets to have.

Figure 23 - Bell Curve representing two-tailed significance

(Clarkson, 2007)
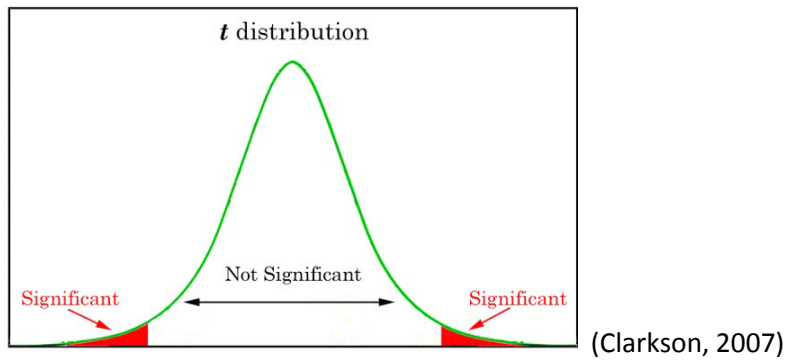
I selected a paired t-test because I was performing a before and after analysis, using the pre-test versus the post-test. The data results I presented are in tables, which also examine the total sum, mean, and standard deviation. Below each table, I comment according to my hypotheses and present the t-test results and their meaning. Following that, I compare differences in sums, means and standard deviations of the four tables.

Table 13 - Grade 6S treatment: pre vs. post-test

6S Ning TREATMENT Pre vs Post-Test Scores					
Pseudonyms	Gender	Pre-test (Possible 16)	Post-test (Possible 16)	Gain	
Pearlie	m	7	12	5	
Darryl	f	8	13	5	
Margery	f	10	11	1	
Roslyn	f	10	12	2	
Carmella	f	11	14	3	
Clinton	f	11	14	3	
Darren	m	12	14	2	
Jamie	f	12	15	3	
Penelope	m	12	14	2	
Christian	m	13	14	1	
Erik	m	13	13	0	
Maricela	f	15	14	-1	Difference
		134	160	Sum	26
		11.16666667	13.33333333	Mean	2.166666667
		2.208797836	1.154700538	Standard Dev	-1.054097297

The mean for the pre-test was $\overline{X}$= 11.2 with a range from 7 – 15 = 8. This is important as the pre-tests generated a medium range that is somewhat evenly distributed. There were no tests acting as outliers skewing the results.

The mean for the post-test was $\overline{X}$= 13.3 with a range from 11 – 15 = 4. This was important as the post-tests generated a tighter range that was evenly distributed. There were no tests reporting extreme numbers that would skew the average test score. However, there were the best gains from the students Pearlie and Darryl, who were in the lowest quadrant of the class. This is a central idea because it means they may be benefitting quite a lot from a Ning experience.

The gain range is from -1 – 5 = 6. The negative gain (loss) is a key finding in this thesis as it could mean that Maricela was making educated decisions or good choices in the pre-test. However, on the post-test she either chose wrong, learned disinformation, or did possibly not complete the post-test. Confirming her outcomes with her results (See Appendix U), she did complete the test, so I assume it was one of the prior reasons. Maricela was near the top results for both tests, with only one error on the pre-test. With two errors on the parallel test, she demonstrated that she might not benefit from the use of Nings. This could be because the answers, which students posted on the forum, were communal. She may not have found all of the correct answers from the website source, which she was instructed to do, but rather her colleagues may have generated wrong answers, which she took as right, and carried this learned knowledge over to the post-test, resulting in a lower grade.

6S Treatment Mean Difference for Table 13   = 13.33333333 – 11.16666667

= 2.166666667

- This result exhibits a general increase in test scores using the traditional way of teaching. This proves prove my first hypothesis was correct for class 6S using the Ning.

"The t-test tests the assumption there is no difference between the [pre-test and post-test]. The number generated is the probability that there is no difference between the [pre-test and post-test]." (Clarkson, 2007)

t-test for 6S Ning
0.001567496

The t-test results presented throughout are actually p results for probability

I am looking for a .05 value or less to determine my null hypothesis. This value means that either my treatment or my control is having an effect on the post-test outcomes. With a .0 demonstrated, we assume the Ning is the determining factor. These results are not accidental, or a random chance.

Table 14 - Grade 6S control: pre vs. post-test

6S No Ning CONTROL Pre vs Post-Test Scores					
Pseudonyms	Gender	Pre-test (Possible 16)	Post-test (Possible 16)	Gain	
Carmella	f	4	13	9	
Pearlie	m	5	6	1	
Penelope	m	8	11	3	
Roslyn	f	8	12	4	
Jamie	f	10	12	2	
Margery	f	10	11	1	
Christian	m	11	13	2	
Clinton	f	12	14	2	
Darren	m	12	16	4	
Maricela	f	13	14	1	
Erik	m	14	13	-1	
Darryl	f				Difference
		107	135	Sum	28
		9.727272727	12.27272727	Mean	2.545454545
		3.196589091	2.533413077	Standard Dev	-0.663176014

The mean for the pre-test was $\overline{x}$= 9.7 with a range from 4 – 14 = 10. This is important as the pre-tests generated the widest range that is still evenly distributed. There are no individual tests acting as outliers skewing the results.

The mean for the post-test was $\overline{x}$= 12.3 with a range from 6 – 16 = 10. This was important because it demonstrates a consistent wide range that should have tightened up. It meant there were

possible anomalies to look for. Pearlie's test results show consistent gains with the rest of his class, within the range of 1 – 4. However, Carmella had a gain of 9, which was far beyond the rest of her class. Comparing the results to the treatment, I noticed she had a gain of 5, which was also the largest in her class, with Darryl making the same gain. Carmella has consistently demonstrated that she seems to be benefitting from the lessons, which could mean she had no prior knowledge of the subject material. I will not be discounting Carmella's results in the findings because of her consistency, but I will pay particular attention to her in the conclusion.

The gain range is from -1 – 9 = 10. The second negative gain (loss) is another key finding in this thesis as it could mean that Erik was making educated decisions or good choices in the pre-test. However, on the post-test he either chose wrong, learned disinformation, or did possibly not complete the post-test. Confirming his results (See Appendix Q), he did complete the test, so I assume it was one of the prior reasons. Erik was near the top results for both tests, with only two errors on the pre-test. With three errors on the parallel test, he demonstrated that he might not benefit from the use of Nings. This could be because the answers, which students posted on the forum, were communal. He may not have found all of the correct answers from the website source, which he was instructed to do, but rather her colleagues may have generated wrong answers, which he took as right, and carried this learned knowledge over to the post-test, resulting in a lower grade.

6S Control Mean Difference for Table 14   = 12.27272727– 9.727272727

                            = 2.545454545

- This result presents a general increase in test scores using the traditional way of teaching. This proves my second hypothesis was correct for class 6S using the Traditional method.

| t-test for 6S |
| No Ning |
| 0.008455859 |

With a .0 demonstrated, we assume the Control is the determining factor. These results are not accidental, or a random chance.

Following these results, I took the Treatment mean difference and subtracted the Control mean difference from it. I the result is a positive number, my third hypothesis is correct.

6S Treatment mean difference - 6S Control mean difference

2.166666667 - 2.545454545 = -0.3787878

- This proves my third hypothesis was incorrect for class 6S.

Table 15 - Grade 6W control: pre vs. post-test

6W No Ning CONTROL Pre vs Post-Test Scores					
Pseudonyms	Gender	Pre-test (Possible 16)	Post-test (Possible 16)	Gain	
Lorraine	m	2	4	2	
Dona	m	4	5	1	
Kurt	m	4	4	0	
Nita	m	4	1	-3	
Elnora	m	7	4	-3	
Tameka	m	7	7	0	
Tyrone	m	7	9	2	
Allen	m	8	8	0	
Rae	m				Difference
		43	42	Sum	-1
		5.375	5.25	Mean	-0.125
		2.133909892	2.604940361	Standard Dev	0.471030469

The mean for the pre-test was $\bar{X}$ = 5.4 with a range from 2 – 8 = 6. This is important as the pre-tests generated a medium range that is somewhat evenly distributed. There were no tests acting as outliers skewing the results. Every test score except Allen's falls within the failing rate, which is also the rate of probability for guessing. Allen's score was an exact pass at 50%.

The mean for the post-test was $\overline{x}$ = 5.3 with a range from 1 – 9 = 8. This was significant because the test scores generally went down. The range grew, which was also unexpected. I attribute this to students guessing on the post-test. The range for 5 out of 8 of the students still falls within Bernoulli's binomial distribution reporting guesses on a multiple choice test for 5 questions. It would seem like these students did not learn much at all during the lesson. I attribute this to the fact that many of the students seemed off-task during the traditional method of teaching, which allowed them to work in groups to come up with answers. Many of the times, I walked around to see if the students were working on the assignment they responded they were. However, the test results indicate they generally did not learn the set objectives.

The gain range was from -3 – 2 = 5. Tyrone made gains and passed on the post-test, which indicates he may work well in a group setting. Lorainne and Dona also made slight gains, but their post-test results still fall within the general distribution of guessing, which means these gains could be meaningless. Nita and Elnora did worse on the post-test and Kurt, Tameka and Allen had no change whatsoever.

Figure 24 - Bernoulli's binomial distribution reporting guesses: multiple-choice test with 5 questions reference
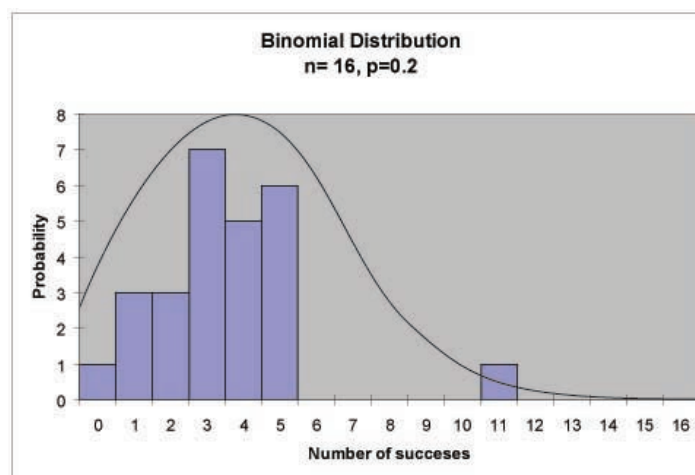
Control Mean Difference for Table 15   = 5.25 – 5.375

$$= -0.125$$

- This result exhibits a general decrease in test scores using the traditional way of teaching. This proves my first hypothesis was incorrect for 6W using the Traditional method of teaching.

My general observation for this class would be that a group setting does not work for such a low class, because the students seem to be off-task and hindering one another's performance.

t-test for 6W No Ning
0.861920893

This value means that my control is not having an effect on the post-test outcomes. With a .9 demonstrated, we assume the control is not the determining factor. These results are determined by factors that are random chance.

Table 16 - Grade 6W treatment: pre vs. post-test (NOT USED)[42]

6W Ning TREATMENT Pre vs Post-Test Scores						
Pseudonyms	Gender	Pre-test (Possible 16)	Post-test (Possible 16)	Gain		
Lorraine	m	3	5	2		
Nita	m	3	3	0		
Kurt	m	4	8	4		
Tyrone	m	5	8	3		
Allen	m	6	6	0		
Rae	m	7	2	-5		
Tameka	m	7	8	1		
Elnora	m	10	10	0		
Dona	m					Difference
		45	50	Sum		5
		5.625	6.25	Mean		0.625
		2.386719207	2.764571783	Standard Dev		0.377852576

The mean for the pre-test was $\overline{x}$ = 5.6 with a range from 3 – 10 = 7. This is important as the pre-tests generated a medium range that is somewhat evenly distributed. There were no tests acting as

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[42] Did not use this table as Rae's resulting outliers needed to be stricken

outliers skewing the results. Every test score except Elnora's falls within the failing rate, which is also

the rate of probability for guessing. Elnora was the only student to pass the pre-test.

The mean for the post-test was $\overline{x}$= 6.3 with a range from 2 – 10 = 8. This was important as the

post-tests generated a range grew, but was evenly distributed. There was a test reporting extreme

numbers that skewed the average test score. The growth in range I attribute to guessing on both the

pre and post-test, which demonstrates Rae failing with a near pass, but failing again with a 2 out of 16

on the second test. I may have attributed this to guessing, but referring back to his test, I notice that he

quit after a few questions. On the pre-test, he demonstrated he was able to finish within the allotted

time, which meant that he became frustrated, bored or lazy by the second test.[43] For any of these

reasons, Rae was an outlier. I needed to delete him from the statistics to make them more reliable.

Table 17 - Grade 6W treatment: pre vs. post-test (Recalculated)

This table represents the results of 6W without Rae's test findings included.

6W Ning TREATMENT Pre vs Post-Test Scores (Recalculated without Rae who was an outlier)					
Pseudonyms	Gender	Pre-test (Possible 16)	Post-test (Possible 16)	Gain	
Lorraine	m	3	5	2	
Nita	m	3	3	0	
Kurt	m	4	8	4	
Tyrone	m	5	8	3	
Allen	m	6	6	0	
Tameka	m	7	8	1	
Elnora	m	10	10	0	
Dona	m				Difference
		38	48	Sum	10
		5.42857	6.857142857	Mean	1.4285714
		2.50713	2.340126167	Standard Dev	-0.167007

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[43] It is interesting to note that Rae came to school for the second testing day. However, upon realizing there was another testing situation, he had the excuse that he could not join the class because he *hurt his neck* and had to see the nurse. This trend of not finishing the assignments and then possibly fabricating a story to get out of work demonstrate possible cunning that a teacher needs to keep an eye out for.

Recalculated, the mean for the pre-test was $\overline{X}$= 5.4 with a range from 3 − 10 = 7. This is important as the pre-tests generated a medium range that is somewhat evenly distributed. There were no tests acting as outliers skewing the results. Every test score except Elnora's falls within the failing rate, which is also the rate of probability for guessing. Elnora was the only student to pass the pre-test.

The mean for the post-test was $\overline{X}$= 6.9 with a range from 3 − 10 = 7. This was important as the ranges now stayed the same, and were evenly distributed. There were no tests reporting extreme numbers that skewed the average test score. The fact there was no change in range demonstrated there were still high and low students in the class, with some of the low students making little or no gains, which would tighten the results.

The gain range was from 0 − 4 = 4. This was all positive because it meant that students were either doing better or making no change at all. Lorraine, Nita and Allen still failed. However, Lorraine's scores did get better on the post-test. This could be because she learned new knowledge, or I could attribute this to the fact that she guessed better. Refer to Figure 24.

Treatment Mean Difference for Table 17   = 6.857142857 − 5.42857

                                                                          = 1.4285714

- This result presents a general increase in test scores using the treatment (Ning) way of teaching. This proves my second hypothesis was correct for 6W using the Ning.

t-test
0.058201341

I am looking for a .05 value or less to determine my null hypothesis. This is very near .05, which could mean the Ning determines the results. However, because the results are slightly higher than the cutoff number, this value means that other factors could also be attributing to the effect.

Following these results, I took the Treatment mean difference and subtracted the Control mean

difference. If the result was a positive number, my third hypothesis was correct.

6W Treatment mean difference – 6W Control mean difference

1.4285714 – (-0.125) = 1.4285714 + 0.125 = 1.5535714

- This proves my third hypothesis was correct for class 6W.

Summary and comparison of pivot-table findings for the study

Here I compare the differences in sums, means and standard deviations from all four findings.

Table 18 - Difference comparison of Std for study: pre vs. post-test

	Difference between pre-test and post-test Std			
	6S Ning Treatment	6S Traditional Control	6W Ning Treatment	6W Traditional Control
	-1.054097297 Tighter	-0.663176014 Tighter	-0.167007 Tighter	0.471030469 Wider
Standard Dev	More tightening of Std in Treatment		More tightening of Std in Treatment	

The fact that the Standard Deviation was smaller in both of the results suggested that findings

were more homogenous. This meant that not just one student or a few students were getting better

because of the treatment, but the whole class was performing better due to the treatment.

Table 19 Difference comparison of Sum for study: pre vs. post-test

	Sum difference between pre-test and post-test			
	6S Ning Treatment	6W Ning Treatment	6S Traditional Control	6W Traditional Control
Sum	26	10	28	-1
	Total gain in sum for Treatment 36		Total gain in sum for Control 27	

The overall totals of sums exhibit the best results for the students using the Ning, since this total

number is higher than the Traditional way of teaching.

Hypotheses confirmed or denied

Table 20 - Hypotheses confirmed or denied

		Confirmed	Overall confirmed
1ˢᵗ Hypothesis	6S Traditional	Yes	Yes
Students improve in Post-test score results compared to Pre-test scores for Control	6W Traditional	No	
2ⁿᵈ Hypothesis	6S Ning	Yes	Yes
Students improve in Post-test score results compared to Pre-test scores for Treatment	6W Ning	Yes	
3ʳᵈ Hypothesis	6S	No	Yes
Students have greater improvement in test scores of Treatment versus Control	6W	Yes	
4ᵗʰ Hypothesis	6S	Yes	Yes
Smaller Standard Deviation occur in Treatment's Post-test	6W	Yes	

Since I have proven hypotheses 2 – 4 are correct, this indicates that Nings improve student performance and they are a stronger influencing factor for all students to make gains versus using the traditional way of teaching. Hence, my question, "How is knowledge acquired more efficiently and properly?" has been answered. By instituting the Pre and Post-tests I have answered the questions, "What do students know already?" and "What do students know now?" Therefore, I have demonstrated the sub-questions of my research question, which is, "Does the use of Nings improve student performance?"

The answer is: YES

CHAPTER 5: Conclusions

I articulate my answer from chapter 4, since the response to my overall thesis question; "Does the use of Nings improve student performance?" is yes. The overall findings point to yes, however, there are factors, which also contribute to the opposite result. In this chapter, I delve into the overall answer. I itemize actions that I will take, and I explore the Ning's possible applications to other disciplines. Finally, I give further recommendations.

Problem statement and Implications

The study examined the Ning's improvement of student performance. In particular, the study answered four subset questions determined by the hypotheses. However, there were components in those questions that dictated supplementary inspection. For example, two hypothesis results were inconsistent with one another, the first and the third. I will explore those herein.

Reflecting on the first hypothesis, which stated, students will improve in post-test score results compared to pre-test scores for the Control situation, I found the hypothesis to be proven and disproven by different classes. *(Refer to Table 20)* 6W generally tested lower on the results of the post-test versus 6S who tested better. Overarching reasons for the 6S outcome could have been the content matter was too hard for the students. If they could not grasp simple concepts, the students may have shut down, which resulted in them guessing through the second assessment.

Another possibility could have been that the lesson was uninteresting to the students. If I did not connect with them, making the content engaging and relevant, this may have inhibited their learning. Students would not have found a need to learn the subject matter. I would not have made the lesson authentic for them.

In a response to apathy, "You can only judge what you see…What you see is them…not paying attention. What you don't see is outside factors (reading disabilities, no parents at home, jobs to support their families, abuse, etc...)" (D. Carolyn, 2008)

These outside factors are worth noting. However, I tested against this factor with the pre-test from the same day, which proved they had some form of vigor. The circumstances had not changed, which meant I could rule D. Carolyn's reasons away.

During the lesson, if I tried to, "build a relationship with the students by taking an interest in them to find out what is at the bottom of their perceived apathy" (Coopers, 2006) I might have had different outcomes. Cooper also writes, I could "promote good will [with the students by] letting them know when they have done well". (Coopers, 2006)

I may have influenced the findings with a group of students by disengaging too much from them in order to give a regulated lesson. The lesson I presented was clinical and to the point. My intention to keep the lessons parallel may have backfired because I was not connecting individually with students. A strategy that worked well with some students did not work well with others. Of Howard Gardner's, "Multiple Intelligences – Visual/Spatial, Bodily/Kinesthetic, Musical, Linguistic, Logical/Mathematical, Naturalist, Interpersonal and Intrapersonal" (Gardner, 2000) I focus on the last two.

> **Interpersonal** - understanding, interacting with others. These students learn through interaction. They have many friends, empathy for others, street smarts. They can be taught through group activities, seminars, dialogues. Tools include the telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.

> **Intrapersonal** - understanding one's own interests, goals. These learners tend to shy away from others. They're in tune with their inner feelings; they have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. They can be taught through independent study and introspection. Tools include books, creative materials, diaries, privacy and time. They are the most independent of the learners. (Lane, n.d.)

Initially, the 6W class seemed to be interacting with one another doing group work in person and enjoying the Interpersonal experience. They were *acting* as if they were on task. However, they proved through their results, they necessitated some other form of interpersonal interaction if dialogue

with friends was to take place. In the case of these students, the Ning established a forum that naturally

set limits. Because a forum, such as the Ning enables students to post comments or discussions live,

this enabled me to view the entire discussion as it was taking place. It meant I could determine whether

the conversation was digressing to something that it should not be in order to rectify it at once. In the

case of this study, I did not interact with the discussion of either class to point out specific mistakes. In a

non-testing situation, I would have. However, I did make blanket statements to both classes pointing

out that I noticed some of the information students were posting was wrong and that individuals

needed to verify the answers.

Gardner's Intrapersonal way of knowing seemed to be how the higher-level students in this

study perform best. Reflecting on the third hypothesis, which contained another inconsistency in

results *(refer to Table 20)*, it stated, students would have greater improvement in test scores of

treatment versus control. In the case of this study, the highest-level students, Maricela and Erik were

the outliers. For these students it was important to have them validate answers. Validating is applicable

to anyone who finds information on a community forum or through any other unregulated source on

the internet. It is a fact that internet users putting unsupported facts on the internet is customary today.

(Sherman, 2002; Net Industries, 2009; Mintz, 2002) Many people write untruths unbeknown to them

and there are those who create and fabricate lies to support the efforts of disinformation. People may

have humorous, defiling or denouncing agendas. As teachers, we need to help our students sort

through this information in order to ensure accuracy.

In response to Carmella's big gain in the Control and natural gain using the Ning, she has proven

to be an intrapersonal learner who also benefitted from the online interpersonal findings of her friends.

The fact that she was in the 6S class might have aided in her test scores while using the Ning because

the other students were posting legitimate answers. I need further study to assess how she would react

with lower students in her class. The results could authenticate whether she was acting interpersonally,

relying on her friends to find the answers, which she may have gleaned. In either case, she has proven

to be a learner.

Actions taken:

The actions I will take in response to these assessment results include:

1. Reporting the results of these findings with others in my discipline through tech committee meetings, online forums, and conferences like EARCOS;

2. Reporting the results to the Faculty at Concordian International School;

3. Tracking student scores, comparing results using other methods of teaching;

4. Exploring different variations of the Ning, including and discluding certain widgets, modules or gadgets;

5. Exploring the Ning with other grades, in order to examine the effectiveness in higher levels;

6. Continuing to read documentation about and pertaining to the use of Nings in Education;

7. Posting this thesis, in the Concordian International School library.

Possible Applications to Other Disciplines

The administering of Nings is applicable to all disciplines. The Ning is a useful tool for

interpersonal users to interact with one another. Educators or administrators can develop forums,

groups and other areas for response to and receipt of materials they cover in a course.   Teachers need

to consider changes to the interface in order to best suit the specific course needs. For example, a

language class teacher may want to install the chat feature to allow real-time conversations to take

place. "The fact that students can communicate with students of similar age with minimal time lag

allows for opportunities of collaboration…This will also open up additional courses to those in rural

communities with little options for electives due to staff constraints." (Grigsby, 2000)

The collaboration of students is not limited to the boundaries of the classroom. Geography,

sociology, and current affairs lessons can take place in real-time with students around the world. With

inclusion of students or other members using the Ning from outside the classroom, lessons like the aforementioned have added authenticity given to them. For example, a lesson taught in an Asian school about South Africa could invite South African students to join the Ning. Students acknowledge real-world knowledge directly from the source. The learning taking place is not unidirectional either. The only limitations are access to computers and the internet.

Art teachers might examine ways to mount graphics components and third-party widgets that facilitate student's work within the confines of the Ning. There are gallery features, which enable online portfolios, with the ability to post critiques of work. Traditional portfolios containing, photos, drawings, paintings and picture examples of sculptures are the beginnings of an online collection. New media, including programming and non-linear interactive pieces can easily be included. Sound and video files can also be a part of the collected works.

Music teachers might use the Ning to embed songs they want for a lesson using their own personal page, or they might administer the Ning to allow students to use the widget that does this. The music teacher could have students respond and reply to videos users embed, reflecting upon musical scores to movies, sound effects applied to commercials, or music videos found online.

All teachers can use the Ning as a teaching device for reinforcing proper use of Copyright and *Creative Commons*[44] special use for images, video, and sound and text files. Teachers can post an immediate response in an open forum as an infraction occurs. This allows students to learn from the actions of their peers in a completely authentic environment.

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[44] "A Creative Commons license is based on copyright. So they apply to all works that are protected by copyright law. The kinds of works that are protected by copyright law are books, websites, blogs, photographs, films, videos, songs and other audio & visual recordings, for example… Creative Commons licenses give you the ability to dictate how others may exercise your copyright rights—such as the right of others to copy your work, make derivative works or adaptations of your work, to distribute your work and/or make money from your work." (Creative Commons, 2009)

Administrators of a school and technology coordinators can harness the power of the Ning by using its online features, including real-time calendars of events, closed forum areas for staff updates of announcements, and areas for discussion and posting of queries. This opportunity allows for venting of grief by staff or administrators in a medium which some people may feel more comfortable. It would be up to the wishes of the administrator of the school as to whether they allow a potentially negative area to ensue. Administrators and other teachers can turn negative meeting grounds in to positive situations. Administrators could read opposition, in order to respond to it. Other teachers and staff could realize a problem they would not have been privy to, and they could help in alleviating it. Administration does not necessarily have to carry the burden because problems become public knowledge. In a professional environment, the forum could thrive. A negative forum can be turned to create a synergistic effort for change. "When rectification has taken place, this also becomes public knowledge, which helps to strengthen the credibility of those who aided the matter." (Beal, 2007)

Ultimately, administrators have the ability to delete posts or close discussions if they became too disorderly or slandering. There can be control in allowing chaos. Nings are limited only to the imagination of the user. In the final section of this thesis, I provide supplementary suggestions for research.

Further recommendations

This study makes seven recommendations for further research. My first recommendation is to widen the array of students studied to older groups. I presume they would probably be more adept to learning through an online environment like a Ning. Using a Ning for the age range I chose would actually be illegal in the United States as per COPPA regulations. However, "COPPA does not explicitly purport to apply to website operators based outside the United States, but exists to protect underage U.S. consumers." (Westby, pp.129, n.d.) For this reason, the findings in this study are limited to international, non-U.S. users of such websites.

A second recommendation for further research is adapted from Dr. Razik's recommendation in his dissertation. It would be to widen the array of the students studied to a random sample set within multiple schools, in different countries and using different languages. I can specify the findings to grade 6 Thai students at Concordian International School. How would data from other schools compare to the data collected in this study? It would be intriguing and informative to teachers to identify how universal the complexity of using Nings in a classroom is throughout the world. Perhaps students in other sample sets are more or less proficient at using a Ning for learning. (Razik, pp. 186, n.d.)

A third recommendation for further research would be to demonstrate variance across the genders. With the results of this survey and more time spent on the analysis, someone could easily do this. However, a study containing separation of classes into homogonous gender groups could elicit different results. Are girls or boys more adept interpersonally when using a Ning? Do grouping same-sexed students generate different types of conversations worthwhile to the learning process? Which gender seems to enjoy the experience more?

A fourth recommendation for further research would be to observe pre-test versus post-test responses in order to demonstrate trends. This inspection could allow someone to speculate other reasons student scored the way they did. Were there anomalies within the tests that I should have accounted for? Would retesting under different circumstances present all new data sets? The new findings could possibly present a new perspective from which to interpolate.

A fifth recommendation would be to apply different types of learning objectives. Using Gardner's MI, I could diversify lessons dependant upon specific ways of learning. For example, linguistic lessons could be the focus versus a lesson that a teacher used for mathematics. Researchers could test combined strategies to examine best practice.

A sixth recommendation is to use a different format than pretest and posttest. I recommend observations, interviews, or focus groups. This would expand and solidify the findings to create greater substantiation and Generalizability. At present, an educator can use this study as a formative stepping-stone to expand on the knowledge of the use of Nings in education.

My final recommendation is for a practitioner to apply a study like this with the focus on connecting with the students individually. My overall reflection of this examination led me to believe this study would aid teachers to help their students in the future. However, my sample group may have unduly suffered because of my setup of the observations. I reflect upon what was best for the students involved, and the approach I used was probably not in the individual student's best interest. For example, I did not take time to bond with the individual learner. I did not look at each student's needs, and adjust my lesson accordingly. In fact, I almost did the opposite. I was extremely clinical in my approach disengaged, in order to retain similar results from both classes. People have written books and books about nurturing relationships with students, but this thought was not at the forefront of my mind when I was applying the techniques in order to collect my data. For this, I apologize to the students, and hope they recognize my intention was for the greater good.

If Dr. Art-ong Jumsai na Ayudhaya revisited Concordian International School he wouldn't forecast that the end of earth was near. He would demonstrate to us that it could be near, and that many things need to done about the environmental change now, so that these prophecies do not happen. Now that I recognize Nings are a step in the right direction educationally, I want to explore other possible benefits. Nings for use in education is still a formative study. Therefore, using one is still 'thinking outside the box' for many educators. If teachers want to promote academic excellence this is a tool. It can also benefit the earth because of the reduction in waste. By using Nings, we are not only helping our children and future generations to live in a better world, but in the process, we are allowing them to "create, consume, remix, and share". (Pay Attention, 200). By using Nings, they are "rethinking,

organizing, changing, 'Digging', and understanding". (Information R/evolution, 2007). They are also

"communicating, collaborating and contributing". (Tailcast, 2008). This is good.

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dynAMc8MYBQY&hl=th&ei=-
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Appendix A – Grade 5 and 6 Letter of Permission

Authentic Technology Connections:

Social Networking as a better possible teaching tool

Research Description

Your son or daughter is invited to participate in an exciting study that will help determine what the impact of social networking when used as a teaching tool is in grade 5 and 6 classes at Concordian International School, in Thailand. This study will not affect the curriculum being taught to your son or daughter. For example, your son or daughter will be learning the same things they would in a traditional class, only the method of delivery will be using newer technological tools. As a part of the data collection phase of this Master's thesis study, your son or daughter will be asked to participate in a 4-class study in Humanities where a pre-test and post-test will be administered to help determine the effects of using a Social Network for the dissemination and collection of data, as well as using it for group and peer discussion. The classes will be conducted during Humanities class times, in the computer lab. These tasks will subsist of a total of 320 minutes (80 minutes x 4 times).

If you agree, I will administer tests to your son or daughter related to the subject knowledge before and after every class to recognize differences in findings. I will assign a pseudonym to your son or daughter's results to protect his or her identity. The data collected from the pre and post test will be kept in a file in my home for one year from the date of issuing. The data will be reviewed by myself, Dr. Tarek Razik, Dr. Bill Parker my thesis sponsors. The evaluation of the data will be reviewed by my cohort from the State University of New York, Buffalo State.

The potential risks associated with the study are minimal. The benefits of the study will further the knowledge in the field of technologies use in education. With your permission, your son or daughter will be contributing to a greater understanding of computer social networking in an educational setting and for educational use.

PARTICIPANT and PARENT'S RIGHTS

Your son or daughter's participation is voluntary and you or they have the right to withdraw consent or discontinue participation at any time without consequence. Your son or daughter has the right to opt out of the pre or post tests before or during the tests. Your son or daughters confidentiality will be maintained in all published and written documents resulting from the study.

If you have any questions regarding the study, please contact the researcher Thomas Johnson by email at Tom@Concordian.ac.th

I have read and discussed the Research Description and my questions have been answered to my satisfaction.

___ I agree to let my son or daughter participate in the study described above

___ I do not agree to let my son or daughter to participate in the study described above

Son or Daughter's Name: _____

Parent or Guardian's Name (Print): _____

Parent or Guardian's Signature: _____

Date: _____

Appendix B – Grade 10 Letter of Permission

Authentic Technology Connections:

Social Networking as a better possible teaching tool

Research Description

Your son or daughter is invited to participate in an exciting study involving grade 10 students that will help determine what the impact of social networking when used as a teaching tool is in grade 5 and 6 classes at Concordian International School, in Thailand. Your son or daughter will be asked to take 2 tests that are 'supposed' to be equivalent, in order that the results may be correlated against one another. This study will not affect the curriculum being taught to your son or daughter. For example, your son or daughter will be learning the same things they would in a traditional class, only they will be taking these tests as extra assignment, not worth any credit.

I will assign a pseudonym to your son or daughter's results to protect his or her identity. The data collected from the pre and post test will be kept in a file in my home for one year from the date of issuing. The data will be reviewed by myself, Dr. Tarek Razik, Dr. Bill Parker my thesis sponsors. The evaluation of the data will be reviewed by my cohort from the State University of New York, Buffalo State.

The potential risks associated with the study are minimal. The benefits of the study will further the knowledge in the field of technologies use in education. With your permission, your son or daughter will be contributing to a greater understanding of computer social networking in an educational setting and for educational use.

PARTICIPANT and PARENT'S RIGHTS

Your son or daughter's participation is voluntary and you or they have the right to withdraw consent or discontinue participation at any time without consequence. Your son or daughter has the right to opt out of the pre or post tests before or during the tests. Your son or daughters confidentiality will be maintained in all published and written documents resulting from the study.

If you have any questions regarding the study, please contact the researcher Thomas Johnson by email at Tom@Concordian.ac.th

I have read and discussed the Research Description and my questions have been answered to my satisfaction.

___ I agree to let my son or daughter participate in the study described above

___ I do not agree to let my son or daughter to participate in the study described above

Son or Daughter's Name: _____

Parent or Guardian's Name (Print): _____

Parent or Guardian's Signature: _____

Date: _____

Appendix C – Ning administrator email notices about occurrences on the Ning

Appendix D – Test A

<table>
<tr><td>Name:</td></tr>
<tr><td>Grade:</td></tr>
</table>
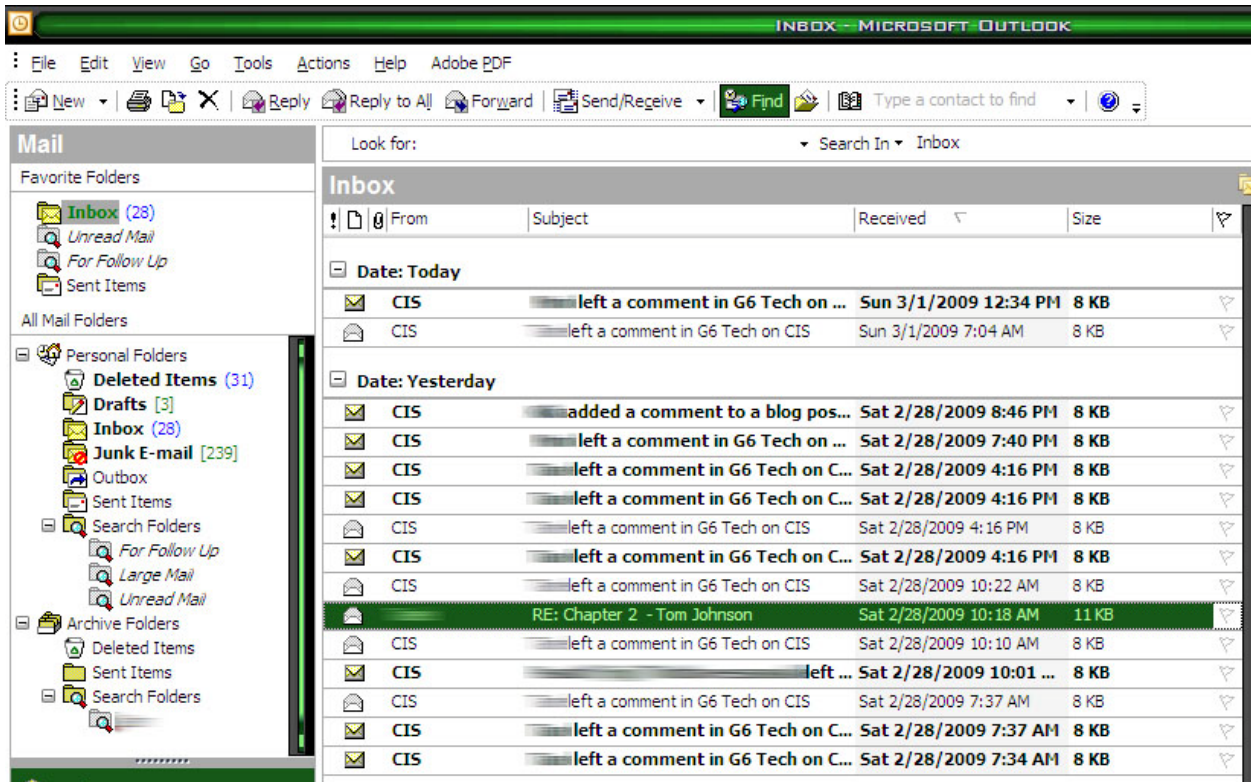
1. Usually the <u>first step</u> in research would be:
- ☐ Evaluate Work
- ☐ Select a Topic
- ☐ Cite Sources
- ☐ Make an outline
- ☐ Find Sources

2. To obtain a topic, it is <u>not ideal</u> to:
- ☐ Be guided by your teacher
- ☐ Create it yourself on your own
- ☐ Be given the topic from teacher
- ☐ Delay or Procrastinate
- ☐ Brainstorm ideas

3. <u>Key words</u> in research help:
- ☐ To unlock the door that will lead to useful information
- ☐ To index sources to make questions difficult
- ☐ Because they are long sentences
- ☐ With examples from Google
- ☐ Because they are in order

4. To get Key Words you should <u>not</u>:
- ☐ Brainstorm
- ☐ Write a sentence – underline key words
- ☐ Write the research
- ☐ Add synonyms to other words
- ☐ Make a list

5. An Overview:
- ☐ Is a photograph
- ☐ Gives a very detailed understanding
- ☐ Tells "who", "what", "where", "when", and "why" and "how" in detail
- ☐ Tells "who", "what", "where", "when", and "why" and "how" a little
- ☐ Is a view from on top of something

6. An Overview does <u>not</u>:
- ☐ Begin to tell what kind of subtopics are within the general topic
- ☐ Help us ask questions that will be answered later in the research process
- ☐ Give a general understanding of the topic
- ☐ Help focus the topic
- ☐ Conclude the research

7. Resources that <u>don't help</u> with Overviews are:
- ☐ All websites
- ☐ Print Encyclopedias
- ☐ Online Encyclopedias
- ☐ Evaluated websites
- ☐ Short Stories

8. When is the best time to brainstorm research questions?
- ☐ Before starting the whole project
- ☐ After the Statement of Purpose has been written
- ☐ When Summarizing
- ☐ After the Conclusion has been made about the research
- ☐ Before the Statement of Purpose has been written

Pre-Test Day 1

9. A Statement of Purpose
- [ ] Concludes the research
- [ ] Is a sentence that gives details about when the project will be completed
- [ ] Is a sentence about what you want to learn in the research project
- [ ] Summarizes the findings of the research
- [ ] Does not usually guide the work

10. What is <u>not</u> a reason to write a Statement of Purpose?
- [ ] You will be more interested
- [ ] A Statement of Purpose will keep you from being overwhelmed
- [ ] A Statement of Purpose will inform your bibliography
- [ ] A Statement of Purpose will help you develop a Thesis Statement
- [ ] It will save you time and effort

11. Which is not a Statement of Purpose?
- [ ] I want to find out some ways to stop teen gang activity.
- [ ] I desire to learn about what has influenced the music of 50 cent.
- [ ] I wish to know why Christians and Muslims fought so hard with each other during the Middle Ages.
- [ ] I want to know how close we are to a cure for AIDS.
- [ ] I have all of the facts that I need to make bread.

12. A Thesis Statement is <u>not</u>:
- [ ] A strong statement you can prove with evidence.
- [ ] Not simply a statement of facts.
- [ ] A sentence made after doing some research.
- [ ] The main idea of the entire project.
- [ ] A sentence made before doing any research.

13. A Thesis Statement is found:
- [ ] In the Body of the assignment
- [ ] In the Introduction only
- [ ] In the Bibliography and Introduction
- [ ] In the Chapter Review
- [ ] In the Introduction and restated in the Conclusion

14. The example below is a Thesis Statement:
- [ ] I want to know how close we are to a cure for AIDS.
- [ ] How many people are in a family?
- [ ] After years of research, scientists are on the verge of discovering a cure for the AIDS virus.
- [ ] I want to find out some ways to stop teen gang activity.
- [ ] What is the total number of cars in India?

15. The example below is a Thesis Statement:
- [ ] How do you like your coffee in the morning?
- [ ] Once upon a time…
- [ ] I want to know why clocks tick.
- [ ] Teenage gang activity can only be stopped with early education in the public school systems.
- [ ] I want to know why Christians and Muslims fought so hard with each other during the Middle Ages.

16. Note cards are excellent to:
- [ ] Change the order of your notes and group them together.
- [ ] Play music
- [ ] Pass to one another in class.
- [ ] Write all of the points on one card
- [ ] Trade and play against with your friends

Pre-Test Day 1

17. Note cards should be:
- [ ] Large
- [ ] Put at the end of your Thesis
- [ ] On A3 paper
- [ ] On small cards
- [ ] Difficult to read

18. Note cards do not:
- [ ] Have only one point on each card
- [ ] Have abbreviated or shortened words or ideas
- [ ] Have the page number of the source written on them after the note
- [ ] Use the word, "OVER" to indicate there is more information on the back
- [ ] Have the whole essay written on them

19. Subtopic headings:
- [ ] Should not be used early on in the paper because they are distracting
- [ ] Help you organize your paper, write an outline and take notes
- [ ] Are placed at the end of the paper
- [ ] Can be found in the bibliography
- [ ] Explain the Thesis

20. Subtopic headings are:
- [ ] Phrases to summarize the introduction
- [ ] The Thesis Statement
- [ ] Phrases that identify the sections of your paper or project.
- [ ] Not useful
- [ ] Found in the Bibliography

21. To Focus a Research Topic:
- [ ] Pick a topic that is too narrow
- [ ] Revisit the topic idea a couple of times
- [ ] Pick a topic that is too big
- [ ] Choose anything that comes to mind
- [ ] Choose something that your friend is doing

22. Focusing a Research Topic is not:
- [ ] Including enough important details
- [ ] Narrowing (or broadening) a topic to demonstrate good understanding of it.
- [ ] Including enough examples
- [ ] Helping to satisfy yourself and your teacher to prove you know what you are talking about
- [ ] Creating a large list of items that are not related to one another in order to prove a Thesis Statement

23. Sources or Source cards should not have:
- [ ] Editor
- [ ] Author
- [ ] Title of Book or Article
- [ ] Date
- [ ] URL (if it is a website)

24. A good Statement of Purpose is specific, so the best choice is:
- [ ] I want to learn about the Dalai Lama.
- [ ] I want to learn about 50 cent, LL Cool J, Madonna, Britney Spears, and Michael Jackson.
- [ ] I want to learn about AIDS and dogs because I like them both.
- [ ] I want to know what role the Dalai Lama plays as the spiritual leader of the Tibetan people.
- [ ] I want to know about pro basketball.

Name:

Grade:

Pre-Test Day 1

25. A good Statement of Purpose is specific, so a <u>bad</u> choice is:
- [ ] I want to know what role the Dalai Lama plays as the spiritual leader of the Tibetan people.
- [ ] I want to learn about 50 cent.
- [ ] I want to find out some ways to stop teen gang activity.
- [ ] I want to learn about what has influenced the music of 50 cent.
- [ ] I want to know how teenage pregnancy affects young fathers and young mothers differently.

26. To write a Statement of Purpose, don't:
- [ ] Ask yourself, "What is my real personal interest in the topic?"
- [ ] Be Specific about your topic.
- [ ] Ask yourself, "What do I specifically want to learn about my topic?"
- [ ] Write a sentence that says what you want to learn about a topic.
- [ ] Ever change it because it should lead you from then on.

27. The biggest problem when selecting a research topic:
- [ ] Is not having it focused well.
- [ ] Is starting with the Bibliography first.
- [ ] Is being specific.
- [ ] Is creating an overview.
- [ ] Is not listing the author's name.

28. Types of interpretive Questions do not include:
- [ ] Hypothetical and Judgment
- [ ] Prediction and Solution
- [ ] Solution and Hypothetical
- [ ] Comparison or Analogy
- [ ] Factual and Non-biased

29. Which is <u>not</u> a Hypothetical question?
- [ ] How would our lives be different today if I was brought up in slavery?
- [ ] What would it be like if we had one more finger on each hand?
- [ ] What would I be like if my parents were from Africa?
- [ ] How many grown men can fit in a telephone booth?
- [ ] What would Thailand be like if it were Communist?

30. A "Solution" type of question is:
- [ ] How could global warming be stopped?
- [ ] What is the difference in performance between a Porsche and a Lamborghini?
- [ ] How does tobacco advertising affect teen cigarette smoking?
- [ ] What will happen to Bangkok if the polar caps melt significantly?
- [ ] What would it be like if we had one more finger on each hand?

Appendix E – Test B

1. **You can think of an Outline as:**
☐ Something for the summary
☐ A thesis Statement of your work
☐ A "roadmap" of the journey towards making a final product
☐ A way to select a general topic
☐ Source Cards

Name:
Grade:

2. **What is a reason that you should <u>not</u> do an Outline:**
☐ It helps you stay on course and not get off-track when you put your final product together
☐ It helps you figure out the order in which your subtopics will appear in your final product.
☐ It helps you see if you have enough material to support your Thesis Statement.
☐ It helps you select the general topic.
☐ It helps you see if you have too much material to support your Thesis Statement.

3. **A Popular Outline would be:**
☐ Introduction → Background → Thesis Statement → Topics → Conclusion
☐ Introduction → Thesis Statement → Background → Topics → Conclusion
☐ Thesis Statement → Introduction → Background → Topics → Conclusion
☐ Introduction → Topics → Background → Thesis Statement → Conclusion
☐ Background → Introduction → Thesis Statement → Topics → Conclusion

4. **Writing the Body of your paper is:**
☐ Creating a Thesis Statement
☐ Helping to make an Outline of the Project.
☐ Putting all of your research together in a format that you can present to people.
☐ Creating a Statement of my work.
☐ Making note cards.

5. **To begin to write the body of research, do everything <u>except</u>:**
☐ Refer to your Outline and note Cards.
☐ Write your first paragraph about your first subtopic in your outline.
☐ Put your Note Cards and Materials in order.
☐ Write your introduction first.
☐ Always remember to cite all borrowed materials immediately after use.

6. **Citing sources can also be called:**
☐ Thesis
☐ Conclusion
☐ Statement of Purpose
☐ Conclusive Apparatus
☐ Parenthetical Documentation

7. **You should cite because:**
☐ It is a way to let people know where your information comes from.
☐ It shows that you know what you are talking about.
☐ It documents your knowledge.
☐ It helps you acquire images from the internet.
☐ It helps you come up with a topic.

8. **Plagiarism is <u>not</u>:**
☐ An unlawful act.
☐ Citing Sources
☐ Something to avoid.
☐ Something that can get you in big trouble.
☐ Calling something someone else has done as your own.

Pre-Test Day 2

9. The only time <u>not</u> to cite sources would if the material was:
☐ Direct quotations whether in written or oral formats (includes stories, speeches, fiction and nonfiction)
☐ Paraphrased quotations (these are quotes whose words you have changed somewhat)
☐ Original ideas that are your own (these are ideas you came up with yourself)
☐ Statistical Data (numbers about things) and/or Song lyrics
☐ Original ideas that are attributed to someone else, even if you put them in your own words

10. You don't need to cite images from someone else that are:
☐ Cartoons
☐ Photos or computer graphics
☐ Clipart
☐ Maps
☐ Artwork

11. A cited source looks like this:
☐ Tuchman said, "She looks angry."
☐ They walked on the beach is what Tuchman said.
☐ Nigel from "The Nation" likens this to what a boat was like in 1834.
☐ (323) is how many times we used a source that was our own.
☐ "No nation in the world has so many drastic problems." (Tuchman 123).

12. A cited source could also look like this:
☐ Once upon a time…
☐ Tuchman said, "She looks angry."
☐ Christopher cited a very bad source.
☐ "The three of us will." (1984)
☐ Barbara Tuchman said, "No nation in the world has so many drastic problems" (123).

13. Work Cited will go:
☐ After the Thesis Statement
☐ After the Table of Contents
☐ Before the Table of Contents
☐ In the Middle of the Body of Work
☐ At the end of your work

14. Quotes are placed in:
☐ Square Brackets
☐ Parenthesis
☐ Quotation Marks
☐ Quotation Brackets
☐ The Thesis only

15. If you have not mentioned it before the quote, this needs to be placed in parenthesis after a quote:
☐ Author's full name and the page number of the book cited in the Bibliography
☐ Author's first name and the page number of the book cited in the Bibliography
☐ Authors last name
☐ Author's last name and the page number of the book cited in the Bibliography
☐ The page number of the book cited in the Bibliography

16. If you paraphrase someone else you:
☐ Don't have to use Quotation Marks
☐ Need to use Quotation Marks
☐ Need to use square brackets to indicate the paraphrase
☐ Don't need to mention this in the Thesis Statement
☐ Need to put the full author's name before the paraphrase

Pre-Test Day 2

17. To help you with Quoting:
- [ ] Copy the quotes from a source you know
- [ ] Read resources from anywhere on the internet
- [ ] Make things up as you go
- [ ] Read resources about MLA or ask a librarian
- [ ] Read resources about SPCA or ask a librarian

18. An Introduction:
- [ ] Is near the end of the Body of Work
- [ ] Should always contain a quote
- [ ] Should never contain a quote
- [ ] Is usually very easy to write
- [ ] Has a general introduction about the topic you will be discussing and has the thesis statement

19. An Introduction would not be:
- [ ] The first thing you say in an oral presentation.
- [ ] The first thing you create when you sit down to write
- [ ] The first thing people see in your project.
- [ ] The first paragraph of a written research paper.
- [ ] The first thing people hear, or experience about your project.

20. Without an introduction:
- [ ] Examples are usually better.
- [ ] There is no place to put quotations.
- [ ] It is sometimes very difficult for your audience to figure out what you are trying to say.
- [ ] It is sometimes easier for your audience to figure out what you are trying to say.
- [ ] You have no place to put your bibliography.

21. The reason you might write your introduction last is because:
- [ ] It is always done this way.
- [ ] This makes you introduce what you are actually going to say.
- [ ] It goes at the end of your Body of Work.
- [ ] This way it ties in to your Bibliography.
- [ ] It should always be done at the same time as your conclusion.

22. If you have written a good outline and you stick to it:
- [ ] Then you will have many quotes in your Body of Work.
- [ ] Then it will be very difficult for you to write the document.
- [ ] Then your Thesis Statement can be put in the Bibliography.
- [ ] Then you should not quote anyone else.
- [ ] Then it is fine to write your introduction first.

23. In your introduction you should not:
- [ ] Give too much detailed information; save this for the body of your work.
- [ ] Start with a couple sentences that introduce the topic to the reader.
- [ ] Make sentences as interesting as you can.
- [ ] Hook the reader to get them interested in the line of thinking you are going to develop.
- [ ] State your Thesis.

24. After the Introduction you would not:
- [ ] Give more background details.
- [ ] Continue with the Thesis argument you have set up for your reader.
- [ ] Put a quotation because this would be unorthodox in writing.
- [ ] State your Thesis.
- [ ] Give more supporting evidence for your Thesis.

25. A Conclusion:
- ☐ Should never contain a quote.
- ☐ Restates your Thesis and summarizes your main points of evidence for the reader.
- ☐ Goes after the Bibliography.
- ☐ Should not restate the Thesis.
- ☐ Usually goes at the beginning of the Body of Work.

26. A Conclusion is not:
- ☐ The last paragraph in your research paper.
- ☐ The last part in a presentation of a song.
- ☐ The last part in a PowerPoint.
- ☐ Something that makes the listener or reader feel like the piece is complete and well done.
- ☐ Always the last thing that is written in a document.

27. Works Cited:
- ☐ Is an alphabetical list of the sources (also called "works") you used in the body of your project.
- ☐ Goes near the beginning of the Body of the Work.
- ☐ Starts with the Authors First Name.
- ☐ Is numbered.
- ☐ Is an alphabetical list of the Thesis Statements (called Bibliography) you used in the project.

28. Work Cited:
- ☐ Goes near the beginning.
- ☐ Should be placed in the middle of the Body of Evidence.
- ☐ Goes directly after the Thesis.
- ☐ Should be placed on the Title Page.
- ☐ Should be the last page in your project.

29. What should not be on a Title Page:
- ☐ Your name and the Title of your project
- ☐ Your homeroom
- ☐ Date you turn in the project
- ☐ Your work cited
- ☐ Your teacher's name

30. You should not do this when you evaluate your work:
- ☐ Write your Thesis Statement now.
- ☐ Be the first one to evaluate your own work.
- ☐ Go back and review the assignment sheet.
- ☐ Check for spelling, overall neatness, parts in logical order, borrowed materials properly cited.
- ☐ Check Thesis statements or arguments have been supported with evidence.

Appendix F – Test D

<table>
<tr><td>Name:</td></tr>
<tr><td>Grade:</td></tr>
</table>

1. An Overview:
- ☐ Is a photograph
- ☐ Gives a very detailed understanding
- ☐ Tells "who", "what", "where", "when", and "why" and "how" in detail
- ☐ Tells "who", "what", "where", "when", and "why" and "how" a little
- ☐ Is a view from on top of something.

2. A Statement of Purpose
- ☐ Does not usually guide the work
- ☐ Summarizes the findings of the research
- ☐ Is a sentence about what you want to learn in the research project
- ☐ Is a sentence that gives details about when the project will be completed.
- ☐ Concludes the research

3. The example below is a Thesis Statement:
- ☐ Teenage gang activity can only be stopped with early education in the public school systems.
- ☐ I want to know why clocks tick.
- ☐ Once upon a time…
- ☐ How do you like your coffee in the morning?
- ☐ I want to know why Christians and Muslims fought so hard with each other during the Middle Ages

4. Which is not a Statement of Purpose?
- ☐ I wish to know why Christians and Muslims fought so hard with each other during the Middle Ages.
- ☐ I desire to learn about what has influenced the music of 50 cent.
- ☐ I want to find out some ways to stop teen gang activity.
- ☐ I have all of the facts that I need to make bread.
- ☐ I want to know how close we are to a cure for AIDS.

5. Usually the first step in research would be:
- ☐ Select a Topic
- ☐ Evaluate Work
- ☐ Find Sources
- ☐ Make an outline
- ☐ Cite Sources

6. A Thesis Statement is not:
- ☐ Not simply a statement of facts.
- ☐ A sentence made after doing some research.
- ☐ The main idea of the entire project.
- ☐ A sentence made before doing any research.
- ☐ A strong statement you can prove with evidence.

7. The example below is a Thesis Statement:
- ☐ How many people are in a family?
- ☐ After years of research, scientists are on the verge of discovering a cure for the AIDS virus.
- ☐ I want to find out some ways to stop teen gang activity.
- ☐ I want to know how close we are to a cure for AIDS.
- ☐ What is the total number of cars in India?

8. To obtain a topic, it is not ideal to:
- ☐ Create it yourself on your own
- ☐ Be given the topic from teacher
- ☐ Be guided by your teacher
- ☐ Brainstorm ideas
- ☐ Delay or Procrastinate

Post-Test Day 1

9. Subtopic headings:
- [ ] Help you organize your paper, write an outline and take notes
- [ ] Should not be used early on in the paper because they are distracting
- [ ] Explain the Thesis
- [ ] Can be found in the bibliography
- [ ] Are placed at the end of the paper

10. To Focus a Research Topic:
- [ ] Pick a topic that is too narrow
- [ ] Choose something that your friend is doing
- [ ] Choose anything that comes to mind
- [ ] Pick a topic that is too big
- [ ] Revisit the topic idea a couple of times

11. Key words in research help:
- [ ] To index sources to make questions difficult
- [ ] With examples from Google
- [ ] Because they are in order
- [ ] Because they are long sentences
- [ ] To unlock the door that will lead to useful information

12. Note cards should be:
- [ ] On small cards
- [ ] Put at the end of your Thesis
- [ ] On A3 paper
- [ ] Large
- [ ] Difficult to read

13. To get Key Words you should not:
- [ ] Add synonyms to other words
- [ ] Write a sentence – underline key words
- [ ] Brainstorm
- [ ] Write the research
- [ ] Make a list

14. Focusing a Research Topic is not:
- [ ] Including enough important details
- [ ] Narrowing (or broadening) a topic to demonstrate good understanding of it.
- [ ] Helping to satisfy yourself and your teacher to prove you know what you are talking about
- [ ] Creating a large list of items that are not related to one another in order to prove a Thesis Statement
- [ ] Including enough examples

15. To write a Statement of Purpose, don't:
- [ ] Be Specific about your topic.
- [ ] Ask yourself, "What is my real personal interest in the topic?"
- [ ] Ask yourself, "What do I specifically want to learn about my topic?"
- [ ] Write a sentence that says what you want to learn about a topic.
- [ ] Ever change it because it should lead you from then on.

16. Note cards are excellent to:
- [ ] Change the order of your notes and group them together.
- [ ] Pass to one another in class.
- [ ] Trade and play against with your friends
- [ ] Write all of the points on one card
- [ ] Play music

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Post-Test Day 1

Name:

Grade:

17. An Overview does not:
- ☐ Conclude the research
- ☐ Begin to tell what kind of subtopics are within the general topic
- ☐ Help focus the topic
- ☐ Give a general understanding of the topic
- ☐ Help us ask questions that will be answered later in the research process

18. Sources or Source cards should not have:
- ☐ Date
- ☐ URL (if it is a website)
- ☐ Editor
- ☐ Title of Book or Article
- ☐ Author

19. The biggest problem when selecting a research topic:
- ☐ Is being specific.
- ☐ Is creating an overview.
- ☐ Is not listing the author's name
- ☐ Is starting with the Bibliography first.
- ☐ Is not having it focused well.

20. Resources that don't help with Overviews are:
- ☐ Print Encyclopedias
- ☐ Online Encyclopedias
- ☐ Evaluated websites
- ☐ All websites
- ☐ Short Stories

21. Subtopic headings are:
- ☐ Phrases that identify the sections of your paper or project.
- ☐ The Thesis Statement
- ☐ Phrases to summarize the introduction
- ☐ Not useful
- ☐ Found in the Bibliography

22. Types of interpretive Questions do not include:
- ☐ Prediction and Solution
- ☐ Hypothetical and Judgment
- ☐ Solution and Hypothetical
- ☐ Comparison or Analogy
- ☐ Factual and Non-biased

23. When is the best time to brainstorm research questions?
- ☐ Before starting the whole project
- ☐ Before the Statement of Purpose has been written
- ☐ After the Statement of Purpose has been written
- ☐ When Summarizing
- ☐ After the Conclusion has been made about the research

24. What is not a reason to write a Statement of Purpose?
- ☐ It will save you time and effort
- ☐ A Statement of Purpose will help you develop a Thesis Statement
- ☐ You will be more interested
- ☐ A Statement of Purpose will keep you from being overwhelmed
- ☐ A Statement of Purpose will inform your bibliography

Post-Test Day 1

25. A good Statement of Purpose is specific, so the best choice is:
- [ ] I want to know what role the Dalai Lama plays as the spiritual leader of the Tibetan people.
- [ ] I want to learn about AIDS and dogs because I like them both.
- [ ] I want to know about pro basketball.
- [ ] I want to learn about the Dalai Lama.
- [ ] I want to learn about 50 cent, LL Cool J, Madonna, Britney Spears, and Michael Jackson.

26. A good Statement of Purpose is specific, so a bad choice is:
- [ ] I want to learn about what has influenced the music of 50 cent.
- [ ] I want to find out some ways to stop teen gang activity.
- [ ] I want to learn about 50 cent.
- [ ] I want to know what role the Dalai Lama plays as the spiritual leader of the Tibetan people.
- [ ] I want to know how teenage pregnancy affects young fathers and young mothers differently.

27. Which is not a Hypothetical question?
- [ ] What would I be like if my parents were from Africa?
- [ ] What would it be like if we had one more finger on each hand?
- [ ] How would our lives be different today if I was brought up in slavery?
- [ ] What would Thailand be like if it were Communist?
- [ ] How many grown men can fit in a telephone booth?

28. A Thesis Statement is found:
- [ ] In the Introduction only
- [ ] In the Body of the assignment
- [ ] In the Introduction and restated in the Conclusion
- [ ] In the Chapter Review
- [ ] In the Bibliography and Introduction

29. A Solution type of question is:
- [ ] How could global warming be stopped?
- [ ] What would it be like if we had one more finger on each hand?
- [ ] What will happen to Bangkok if the polar caps melt significantly?
- [ ] How does tobacco advertising affect teen cigarette smoking?
- [ ] What is the difference in performance between a Porsche and a Lamborghini?

30. Note cards do not:
- [ ] Have the whole essay written on them
- [ ] Use the word, "OVER" to indicate there is more information on the back.
- [ ] Have the page number of the source written on them after the note.
- [ ] Have abbreviated or shortened words or ideas.
- [ ] Have only one point on each card.

Post-Test Day 1

Appendix G – Test C

> Name:
> Grade:

1. **To begin to write the body of research, do everything <u>except</u>:**
   - ☐ Always remember to cite all borrowed materials immediately after use.
   - ☐ Write your introduction first.
   - ☐ Put your Note Cards and Materials in order.
   - ☐ Write your first paragraph about your first subtopic in your outline.
   - ☐ Refer to your Outline and note Cards.

2. **The only time <u>not</u> to cite sources would if the material was:**
   - ☐ Statistical Data (numbers about things) and/or Song lyrics
   - ☐ Original ideas that are your own (these are ideas you came up with yourself)
   - ☐ Paraphrased quotations (these are quotes whose words you have changed somewhat)
   - ☐ Direct quotations whether in written or oral formats (includes stories, speeches, fiction and nonfiction)
   - ☐ Original ideas that are attributed to someone else, even if you put them in your own words.

3. **If you have not mentioned it before the quote, this needs to be placed in parenthesis after a quote:**
   - ☐ Authors last name
   - ☐ Author's first name and the page number of the book cited in the Bibliography
   - ☐ Author's full name and the page number of the book cited in the Bibliography
   - ☐ The page number of the book cited in the Bibliography
   - ☐ Author's last name and the page number of the book cited in the Bibliography

4. **A cited source looks like this:**
   - ☐ They walked on the beach is what Tuchman said.
   - ☐ Tuchman said, "She looks angry."
   - ☐ "No nation in the world has so many drastic problems." (Tuchman 123).
   - ☐ (323) is how many times we used a source that was our own.
   - ☐ Nigel from "The Nation" likens this to what a boat was like in 1834.

5. **You can think of an Outline as:**
   - ☐ Something for the summary
   - ☐ A thesis Statement of your work
   - ☐ A "roadmap" of the journey towards making a final product
   - ☐ A way to select a general topic
   - ☐ Source Cards

6. **A cited source could also look like this:**
   - ☐ Tuchman said, "She looks angry."
   - ☐ Christopher cited a very bad source.
   - ☐ "The three of us will." (1984)
   - ☐ Barbara Tuchman said, "No nation in the world has so many drastic problems" (123).
   - ☐ Once upon a time…

7. **Quotes are placed in:**
   - ☐ Parenthesis
   - ☐ Quotation Marks
   - ☐ Quotation Brackets
   - ☐ Square Brackets
   - ☐ The Thesis only

8. **What is a reason that you should <u>not</u> do an Outline:**
   - ☐ It helps you figure out the order in which your subtopics will appear in your final product.
   - ☐ It helps you see if you have enough material to support your Thesis Statement.
   - ☐ It helps you stay on course and not get off-track when you put your final product together
   - ☐ It helps you see if you have too much material to support your Thesis Statement.
   - ☐ It helps you select the general topic.

> Post-Test Day 2

9. An Introduction would not be:
☐ The first thing you create when you sit down to write
☐ The first thing you say in an oral presentation.
☐ The first thing people hear, or experience about your project.
☐ The first paragraph of a written research paper.
☐ The first thing people see in your project.

10. The reason you might write your introduction last is because:
☐ It is always done this way.
☐ It should always be done at the same time as your conclusion.
☐ This way it ties in to your Bibliography.
☐ This makes you introduce what you are actually going to say.
☐ It goes at the end of your Body of Work.

11. A Popular Outline would be:
☐ Introduction → Thesis Statement → Background → Topics → Conclusion
☐ Introduction → Topics → Background → Thesis Statement → Conclusion
☐ Background → Introduction → Thesis Statement → Topics → Conclusion
☐ Thesis Statement → Introduction → Background → Topics → Conclusion
☐ Introduction → Background → Thesis Statement → Topics → Conclusion

12. To help you with Quoting:
☐ Read resources about MLA or ask a librarian
☐ Read resources from anywhere on the internet
☐ Make things up as you go
☐ Copy the quotes from a source you know
☐ Read resources about SPCA or ask a librarian

13. Writing the Body of your paper is:
☐ Creating a Statement of my work.
☐ Helping to make an Outline of the Project.
☐ Creating a Thesis Statement
☐ Putting all of your research together in a format that you can present to people.
☐ Making note cards.

14. If you have written a good outline and you stick to it:
☐ Then you will have many quotes in your Body of Work.
☐ Then it will be very difficult for you to write the document.
☐ Then you should not quote anyone else.
☐ Then it is fine to write your introduction first.
☐ Then your Thesis Statement can be put in the Bibliography.

15. A Conclusion is not:
☐ The last part in a presentation of a song.
☐ The last paragraph in your research paper.
☐ The last part in a PowerPoint.
☐ Something that makes the listener or reader feel like the piece is complete and well done.
☐ Always the last thing that is written in a document.

16. If you paraphrase someone else you:
☐ Don't have to use Quotation Marks
☐ Need to use square brackets to indicate the paraphrase
☐ Need to put the full author's name before the paraphrase
☐ Don't need to mention this in the Thesis Statement
☐ Need to use Quotation Marks

Post-Test Day 2

17. Citing sources can also be called:
☐ Parenthetical Documentation
☐ Thesis
☐ Conclusive Apparatus
☐ Statement of Purpose
☐ Conclusion

18. In your introduction you <u>should not</u>:
☐ Hook the reader to get them interested in the line of thinking you are going to develop.
☐ State your Thesis.
☐ Give too much detailed information; save this for the body of your work.
☐ Make sentences as interesting as you can.
☐ Start with a couple sentences that introduce the topic to the reader.

19. Works Cited:
☐ Starts with the Authors First Name.
☐ Is numbered.
☐ Is an alphabetical list of the Thesis Statements (called Bibliography) you used in the project.
☐ Goes near the beginning of the Body of the Work.
☐ Is an alphabetical list of the sources (also called "works") you used in the body of your project.

20. You should cite because:
☐ It shows that you know what you are talking about.
☐ It documents your knowledge.
☐ It helps you acquire images from the internet.
☐ It is a way to let people know where your information comes from.
☐ It helps you come up with a topic.

21. Without an introduction:
☐ It is sometimes very difficult for your audience to figure out what you are trying to say.
☐ There is no place to put quotations.
☐ Examples are usually better.
☐ It is sometimes easier for your audience to figure out what you are trying to say.
☐ You have no place to put your bibliography.

22. Work Cited:
☐ Should be placed in the middle of the Body of Evidence.
☐ Goes near the beginning.
☐ Goes directly after the Thesis.
☐ Should be placed on the Title Page.
☐ Should be the last page in your project.

23. Plagiarism is <u>not</u>:
☐ An unlawful act.
☐ Calling something someone else has done as your own.
☐ Citing Sources
☐ Something to avoid.
☐ Something that can get you in big trouble.

Post-Test Day 2

23. You don't need to cite images from someone else that are:

☐ Artwork
☐ Maps
☐ Clipart
☐ Photos or computer graphics
☐ Cartoons

25. After the Introduction you would not:

☐ Give more supporting evidence for your Thesis.
☐ Put a quotation because this would be unorthodox in writing.
☐ State your Thesis.
☐ Give more background details.
☐ Continue with the Thesis argument you have set up for your reader.

26. A Conclusion:

☐ Should not restate the Thesis.
☐ Goes after the Bibliography.
☐ Restates your Thesis and summarizes your main points of evidence for the reader.
☐ Should never contain a quote.
☐ Usually goes at the beginning of the Body of Work.

27. What should <u>not</u> be on a Title Page?

☐ Date you turn in the project
☐ Your homeroom
☐ Your name and the Title of your project
☐ Your teacher's name
☐ Your work cited

28. Work Cited will go:

☐ After the Table of Contents
☐ After the Thesis Statement
☐ At the end of your work
☐ In the Middle of the Body of Work
☐ Before the Table of Contents

29. You should not do this when you evaluate your work:

☐ Write your Thesis Statement now.
☐ Check Thesis statements or arguments have been supported with evidence.
☐ Check for spelling, overall neatness, parts in logical order, borrowed materials properly cited.
☐ Go back and review the assignment sheet.
☐ Be the first one to evaluate your own work.

30. An Introduction:

☐ Has a general introduction about the topic you will be discussing and has the thesis statement
☐ Is usually very easy to write
☐ Should never contain a quote
☐ Should always contain a quote
☐ Is near the end of the Body of Work

Post-Test Day 2

Appendix H - Printed Word Instructions for Control: Questions 1 - 14

In sections 1 - 14 you will find the answers to the following questions at this website:
www.crlsresearchguide.org/00_basic_steps.asp
Put answers into your own words AND save them in a Word Document

LOOK AT LINK PAGE
1. What is your first step in research?

GENERAL TOPICS:
2. What are 3 ways to get a topic?

KEY WORDS:
3. What do Key Words in research do?
4. What should you do to get Key Words?

GET AN OVERVIEW:
5. What kinds of questions does an overview ask?
6. What does an overview show you?
7. What resources help with Overviews?

SOURCE CARDS:
8. What information is found on Source cards?

FOCUS THE TOPIC:
9. In your own words, what does it mean to focus a research topic?
10. What is the biggest problem when selecting a research topic?
11. Under "Why should you do it" what are things you might do to focus a research topic?

WRITE A STATEMENT OF PURPOSE:
12. In your own words, what is a Statement of Purpose?
13. What does a Statement of Purpose help you do?
14. What does a Statement of Purpose sentence look like?
15. What does a poorly written Statement of Purpose look like?
16. What information should someone consider when they are writing a statement of purpose?

BRAINSTORM QUESTIONS:
17. When is best time to brainstorm research questions?
18. What are types of Interpretive Questions?
19. Give your own example of each Interpretive Question.

GROUP QUESTIONS:
20. Why use Subtopic Headings?
21. What are Subtopic Headings?

MAKING NOTECARDS:
22. Note cards can help you do what?
23. Note cards are sometimes on what size of paper? Is this small or large?
24. What should be on a note card?

THESIS STATEMENT:
25. In your own words, what is a Thesis Statement?
26. Where can a Thesis Statement be found in your work?
27. Write a couple of your own examples of Thesis statements.

Appendix I – Printed Word Instructions for Control: Questions 15 -22

In sections 15 - 22 you will find the answers to the following questions at this website:
www.crlsresearchguide.org/00_basic_steps.asp
Put answers into your own words AND save them in a Word Document

MAKE AN OUTLINE:
1. In your own words, what is an outline?
2. What is a reason you might do an outline?
3. How would a popular outline format look?

WRITE THE BODY OF YOUR PAPER:
4. In your own words, what does it mean to "Write the Body of your Paper"?
5. To begin writing the body of research, what should you do?

PARENTHETICAL CITATIONS:
6. What can you also call Citing Sources?
7. Why should you cite sources?
8. What is plagiarism?
9. List when you would cite sources.
10. When is the only time you don't need to cite an image?
11. Give your own example of what a cited source could look like.
12. Give a different example of what a cited source could look like.
13. Where should you put the Works Cited?
14. What kind of punctuation do you put around quotations?
15. If you have not mentioned it before, what goes in the parenthesis (brackets) after a quote?
16. If you paraphrase someone (put their idea into your own words), do you need to put quotes around it?
17. Where are some sources you can go to find out more about quoting?

INTRODUCTION:
18. What is generally in the introduction?
19. What is an introduction?
20. How does an introduction help with the Body of Work?
21. Why might you write your introduction last?
22. When is it okay to write your introduction first?
23. In your introduction, you should do these things. List 4.
24. What comes after the introduction?

CONCLUSION:
25. In your own words, what is a conclusion?

WORKS CITED:
26. In your own words, what is Works Cited?
27. Where will you find the Works Cited?

TITLE PAGE:
28. What do you generally you put on a Title Page?

EVALUATE:
29. What should you do when you evaluate your work?

Appendix J – Test A: Grade 5 Results

5A Pre-Test Control (Traditional) TEST A

	Odessa	Althea	Sofia	Lakisha	Alana	Ashlee	Julio	Lonnie	Serena	Pre Total	Difficulty
3	1	1	1	0	1	1	1	1	1	8	0.1
1	1	1	1	1	0	1	1	1	1	8	0.1
11	1	1	0	1	1	1	1	1	1	8	0.1
2	1	1	1	0	1	1	0	1	0	6	0.3
14	1	0	1	0	1	1	1	1	0	6	0.3
16	1	0	0	0	0	1	0	1	1	4	0.6
17	1	1	0	0	1	1	1	0	0	5	0.4
9	1	1	0	1	0	1	1	1	0	6	0.3
15	1	1	1	0	0	1	1	1	1	7	0.2
19	1	0	1	0	0	1	1	1	0	5	0.4
18	1	1	0	0	0	1	1	0	0	4	0.6
21	1	0	0	0	0	1	1	1	0	4	0.6
5	1	0	0	0	0	1	1	1	0	4	0.6
6	1	0	0	0	0	0	1	1	0	3	0.7
24	1	0	0	0	0	1	1	1	0	4	0.6
4	1	0	0	1	0	0	0	1	0	3	0.7
8	1	0	0	0	0	1	1	0	0	3	0.7
23	1	0	1	0	0	0	1	0	0	3	0.7
25	1	0	0	0	0	1	1	1	0	4	0.6
20	1	0	0	0	0	1	1	1	0	4	0.6
27	1	0	0	0	0	1	0	0	0	2	0.8
30	1	0	0	0	0	1	1	1	0	4	0.6
10	1	0	0	0	0	0	1	0	0	2	0.8
12	1	0	0	0	0	1	1	0	0	3	0.7
22	0	0	0	0	0	1	1	0	0	2	0.8
29	0	0	0	0	0	1	1	1	0	3	0.7
26	1	0	0	0	0	0	1	0	0	2	0.8
28	0	0	0	0	0	1	0	1	0	2	0.8
7	0	1	0	0	0	0	0	0	0	1	0.9
13	0	0	0	0	0	0	1	0	0	1	0.9
	25	9	7	4	5	23	24	19	5	121	

5B Pre-Test Treatment (Ning) TEST A

	Ted	Neil	Clare	Max	Kelly	Saundra	Pre Total	Difficulty		TOTAL	Total Difficulty	
3	1	1	1	1	1	1	6	0.0		14	0.2	1
1	1	1	1	1	0	1	5	0.2		13	0.2	2
11	1	1	1	1	0	0	4	0.3		12	0.3	1
2	1	0	0	1	0	1	3	0.5		9	0.5	2
14	1	0	1	0	0	1	3	0.5		9	0.5	3
16	1	0	1	1	1	1	5	0.2		9	0.5	4
17	0	1	1	0	1	1	4	0.3		9	0.5	5
9	1	0	1	0	0	0	2	0.7		8	0.5	6
15	1	0	0	0	0	0	1	0.8		8	0.5	7
19	0	1	1	0	1	0	3	0.5		8	0.5	8
18	0	1	1	0	0	1	3	0.5		7	0.6	9
21	0	0	1	0	1	1	3	0.5		7	0.6	10
5	1	0	0	1	0	0	2	0.7		6	0.6	11
6	0	0	1	1	0	1	3	0.5		6	0.6	12
24	1	0	0	0	0	1	2	0.7		6	0.6	13
4	1	0	0	0	0	1	2	0.7		5	0.7	14
8	1	1	0	0	0	0	2	0.7		5	0.7	15
23	1	0	0	0	1	0	2	0.7		5	0.7	16
25	0	0	0	0	0	1	1	0.8		5	0.7	1
20	0	0	0	0	0	0	0	1.0		4	0.8	2
27	0	0	1	0	1	0	2	0.7		4	0.8	3
30	0	0	0	0	0	0	0	1.0		4	0.8	4
10	0	0	1	0	0	0	1	0.8		3	0.8	5
12	0	0	0	0	0	0	0	1.0		3	0.8	6
22	0	0	0	0	0	1	1	0.8		3	0.8	7
29	0	0	0	0	0	0	0	1.0		3	0.8	8
26	0	0	0	0	0	0	0	1.0		2	0.9	9
28	0	0	0	0	0	0	0	1.0		2	0.9	10
7	0	0	0	0	0	0	0	1.0		1	0.9	11
13	0	0	0	0	0	0	0	1.0		1	0.9	12
	13	7	13	7	7	13	60			181		

Appendix K – Test B: Grade 5 Results

5A Pre-Test Treatment (Ning) TEST B

	Odessa	Althea	Sofia	Lakisha	Alana	Ashlee	Julio	Lonnie	Serena	Pre Total	Difficulty
23	1	1	1	0	0	1	1	1	1	7	0.2
8	1	0	1	0	1	1	1	1	1	7	0.2
28	1	0	1	0	0	1	1	1	1	6	0.3
7	1	0	0	0	0	1	1	1	1	5	0.4
12	1	0	0	1	0	1	1	1	1	6	0.3
18	1	1	0	0	1	1	0	1	1	6	0.3
20	1	0	0	0	0	1	1	1	1	5	0.4
25	1	0	1	0	0	1	1	1	1	6	0.3
1	1	0	1	1	0	1	1	1	1	7	0.2
6	1	1	0	1	0	1	1	0	0	5	0.4
13	1	0	0	1	0	1	1	1	1	6	0.3
21	0	0	0	0	0	1	1	0	1	3	0.7
29	1	0	0	0	0	1	1	1	1	5	0.4
14	1	0	0	0	0	1	1	1	1	5	0.4
22	1	0	0	0	0	1	1	1	1	5	0.4
4	1	1	0	0	0	1	1	0	1	5	0.4
24	0	0	1	0	0	1	1	0	0	3	0.7
10	0	0	0	0	1	1	0	0	0	2	0.8
15	0	0	0	0	0	1	0	1	0	2	0.8
16	1	0	0	0	0	0	1	0	0	2	0.8
17	0	0	0	0	0	0	1	0	1	2	0.8
30	1	0	0	0	0	1	0	1	0	3	0.7
9	1	0	0	0	0	1	0	0	0	2	0.8
11	0	0	0	0	0	0	0	0	0	0	1.0
19	1	0	0	1	0	0	0	0	0	2	0.8
27	1	0	0	0	0	0	0	1	0	2	0.8
3	0	0	0	0	0	0	0	1	0	1	0.9
26	0	0	1	0	0	0	0	0	0	1	0.9
2	0	0	0	0	0	0	0	0	0	0	1.0
5	0	0	0	0	0	0	0	0	0	0	1.0
	20	4	7	5	3	21	18	17	16	111	

5B Pre-Test Control (Traditional) TEST B

	Ted	Neil	Clare	Max	Kelly	Saundra	Pre Total	Difficulty		TOTAL	Total Difficulty	
23	1	1	1	0	1	0	4	0.3		11	0.4	1
8	1	0	0	1	1	0	3	0.5		10	0.4	2
28	1	1	1	0	0	1	4	0.3		10	0.4	3
7	1	1	0	1	1	0	4	0.3		9	0.5	4
12	1	1	0	1	0	0	3	0.5		9	0.5	5
18	1	0	0	1	1	0	3	0.5		9	0.5	6
20	1	1	1	0	0	0	4	0.3		9	0.5	7
25	1	1	0	0	1	0	3	0.5		9	0.5	8
1	0	0	0	0	1	0	1	0.8		8	0.5	9
6	1	1	1	0	0	0	3	0.5		8	0.5	10
13	0	0	0	0	1	1	2	0.7		8	0.5	11
21	1	1	1	0	1	0	4	0.3		7	0.6	12
29	1	0	0	0	1	0	2	0.7		7	0.6	13
14	0	1	0	0	0	0	1	0.8		6	0.6	14
22	1	0	0	0	0	0	1	0.8		6	0.6	15
4	0	0	0	0	0	0	0	1.0		5	0.7	16
24	1	0	0	0	0	1	2	0.7		5	0.7	17
10	1	1	0	0	0	0	2	0.7		4	0.8	1
15	0	0	0	0	1	1	2	0.7		4	0.8	2
16	1	0	1	0	0	0	2	0.7		4	0.8	3
17	1	1	0	0	0	0	2	0.7		4	0.8	4
30	0	1	0	0	0	0	1	0.8		4	0.8	5
9	0	1	0	0	0	0	1	0.8		3	0.8	6
11	1	1	0	1	0	0	3	0.5		3	0.8	7
19	0	0	0	0	0	1	1	0.8		3	0.8	8
27	0	0	0	0	0	1	1	0.8		3	0.8	9
3	0	0	0	0	0	1	1	0.8		2	0.9	10
26	0	0	0	0	0	0	0	1.0		1	0.9	11
2	0	0	0	0	0	0	0	1.0		0	1.0	12
5	0	0	0	0	0	0	0	1.0		0	1.0	13
	17	14	6	5	11	7	60			171		

Appendix L – Test C: Grade 5 Results

5A Post-Test Treatment (Ning) TEST C

	Odessa	Althea	Sofia	Lakisha	Alana	Ashlee	Julio	Lonnie	Serena	Post Total	Difficulty
1	1	1	1	1	1	1	1	1	1	9	0.0
12	1	1	1	1	0	1	1	1	1	8	0.1
6	1	0	1	0	1	1	1	1	1	7	0.2
4	1	0	1	0	1	1	1	1	1	7	0.2
20	1	1	1	0	1	1	1	1	1	8	0.1
7	1	0	0	1	1	1	1	1	1	7	0.2
11	1	0	1	0	0	1	1	1	1	6	0.3
13	0	1	1	1	0	1	1	1	1	7	0.2
23	1	1	0	0	0	1	1	1	1	6	0.3
25	1	0	0	1	0	1	1	1	1	6	0.3
2	1	1	0	0	0	1	1	1	0	5	0.4
10	0	1	0	0	1	1	1	1	1	6	0.3
21	0	0	0	1	0	1	1	1	1	5	0.4
8	1	0	1	0	0	1	1	1	1	6	0.3
9	1	0	0	0	0	1	1	0	1	4	0.6
14	1	0	0	0	0	1	1	1	0	4	0.6
19	1	1	0	0	0	0	1	0	1	4	0.6
22	1	0	1	0	1	1	0	1	1	6	0.3
28	0	1	0	1	0	1	1	1	1	6	0.3
17	0	0	1	1	0	0	1	1	1	5	0.4
26	0	1	0	0	0	0	1	1	0	3	0.7
29	1	0	0	0	0	1	1	1	1	5	0.4
30	1	0	1	0	0	1	0	1	1	5	0.4
18	0	1	0	0	0	0	0	1	1	3	0.7
15	1	0	0	0	0	1	0	0	1	3	0.7
24	0	0	1	0	0	1	0	0	0	2	0.8
27	0	0	0	0	0	0	1	1	0	2	0.8
16	1	0	0	0	0	0	0	0	0	1	0.9
3	0	0	0	0	1	0	0	0	0	1	0.9
5	1	0	0	0	0	0	0	0	0	1	0.9
	20	11	12	8	8	22	22	23	22	148	

5B Post-Test Control (Traditional) TEST C

	Ted	Neil	Clare	Max	Kelly	Saundra	Post Total	Difficulty		TOTAL	Total Difficulty	
1	1	1	0	0	1	0	3	0.5		12	0.3	1
12	1	1	0	1	0	1	4	0.3		12	0.3	2
6	1	0	0	1	1	1	4	0.3		11	0.4	3
4	1	1	0	1	0	0	3	0.5		10	0.4	4
20	1	0	0	0	1	0	2	0.7		10	0.4	5
7	1	0	0	0	1	0	2	0.7		9	0.5	6
11	1	1	0	0	0	1	3	0.5		9	0.5	7
13	0	0	1	1	0	0	2	0.7		9	0.5	8
23	1	0	0	1	1	0	3	0.5		9	0.5	9
25	1	0	0	0	1	1	3	0.5		9	0.5	10
2	0	1	1	1	0	0	3	0.5		8	0.5	11
10	1	0	1	0	0	0	2	0.7		8	0.5	12
21	1	1	0	0	1	0	3	0.5		8	0.5	13
8	1	0	0	0	0	0	1	0.8		7	0.6	14
9	1	1	0	0	0	1	3	0.5		7	0.6	15
14	1	1	1	0	0	0	3	0.5		7	0.6	16
19	0	0	1	0	1	1	3	0.5		7	0.6	17
22	1	0	0	0	0	0	1	0.8		7	0.6	18
28	1	0	0	0	0	0	1	0.8		7	0.6	19
17	1	0	0	0	0	0	1	0.8		6	0.6	20
26	1	0	0	0	1	1	3	0.5		6	0.6	21
29	0	0	1	0	0	0	1	0.8		6	0.6	22
30	0	0	0	0	0	1	1	0.8		6	0.6	23
18	0	0	0	1	1	0	2	0.7		5	0.7	24
15	0	0	0	1	0	0	1	0.8		4	0.8	1
24	0	0	0	1	0	1	2	0.7		4	0.8	2
27	1	0	0	0	1	0	2	0.7		4	0.8	3
16	1	0	0	0	0	1	2	0.7		3	0.8	4
3	0	0	1	0	0	0	1	0.8		2	0.9	5
5	0	0	0	0	0	0	0	1.0		1	0.9	6
	20	8	7	9	11	10	65			213		

Appendix M – Test D: Grade 5 Results

5A Post-Test Control (Traditional) TEST D

	Odessa	Althea	Sofia	Lakisha	Alana	Ashlee	Julio	Lonnie	Serena	Post Total	Difficulty
19	1	1	1	1	1	1	1	1	1	9	0.0
1	1	1	1	1	1	1	1	1	1	9	0.0
17	1	1	1	0	1	1	1	1	1	8	0.1
3	1	1	1	1	0	1	1	1	0	7	0.2
21	1	0	0	1	1	1	1	1	1	7	0.2
27	1	1	1	0	0	1	1	1	1	7	0.2
2	0	1	1	1	1	1	0	1	1	7	0.2
4	1	0	1	0	1	0	1	1	1	6	0.3
9	1	1	1	0	0	1	1	1	1	7	0.2
11	1	1	1	0	0	1	1	1	0	6	0.3
5	1	0	1	0	0	1	1	1	0	5	0.4
6	1	1	0	0	0	0	1	1	1	5	0.4
14	1	0	0	0	1	1	1	1	0	5	0.4
23	0	0	1	0	0	1	1	1	0	4	0.6
16	1	0	0	1	1	1	0	1	1	6	0.3
18	0	1	1	0	0	1	1	1	0	5	0.4
30	1	1	1	0	0	1	1	1	0	6	0.3
20	1	0	0	0	0	1	1	1	0	4	0.6
24	1	0	1	0	0	1	1	1	0	5	0.4
22	1	0	0	0	0	1	1	1	0	4	0.6
25	1	0	1	0	0	0	1	1	0	4	0.6
26	0	1	0	0	0	0	0	0	0	1	0.9
15	1	0	0	0	0	0	1	1	0	3	0.7
7	0	1	1	0	0	0	0	0	0	2	0.8
8	0	0	0	0	0	1	1	0	0	2	0.8
10	1	0	0	0	0	0	1	1	0	3	0.7
28	0	0	0	0	0	1	1	1	0	3	0.7
29	0	1	0	0	0	1	0	1	0	3	0.7
13	0	0	0	0	0	1	1	0	0	2	0.8
12	0	0	0	0	0	0	0	0	0	0	1.0
	20	14	16	6	8	22	24	25	10	145	

5B Post-Test Treatment (Ning) TEST D

	Ted	Neil	Clare	Max	Kelly	Saundra	Post Total	Difficulty		TOTAL	Total Difficulty	
19	1	1	1	1	1	1	6	0.0		15	0.1	1
1	1	1	0	1	1	1	5	0.2		14	0.2	2
17	1	1	1	1	1	1	6	0.0		14	0.2	3
3	1	1	1	1	1	0	5	0.2		12	0.3	1
21	1	1	1	1	1	0	5	0.2		12	0.3	2
27	1	0	1	1	1	1	5	0.2		12	0.3	3
2	1	1	1	1	0	0	4	0.3		11	0.4	4
4	1	1	1	1	0	1	5	0.2		11	0.4	5
9	1	0	0	1	0	0	2	0.7		9	0.5	6
11	1	1	0	1	0	0	3	0.5		9	0.5	7
5	1	0	1	1	0	0	3	0.5		8	0.5	8
6	0	1	1	1	0	0	3	0.5		8	0.5	9
14	1	0	1	0	0	1	3	0.5		8	0.5	10
23	1	1	0	1	1	0	4	0.3		8	0.5	11
16	0	0	0	1	0	0	1	0.8		7	0.6	12
18	0	0	1	0	1	0	2	0.7		7	0.6	13
30	1	0	0	0	0	0	1	0.8		7	0.6	14
20	1	0	0	0	1	0	2	0.7		6	0.6	15
24	1	0	0	0	0	0	1	0.8		6	0.6	16
22	0	0	0	1	0	0	1	0.8		5	0.7	17
25	1	0	0	0	0	0	1	0.8		5	0.7	18
26	1	1	0	1	1	0	4	0.3		5	0.7	19
15	1	0	0	0	0	0	1	0.8		4	0.8	1
7	0	1	0	0	0	0	1	0.8		3	0.8	2
8	1	0	0	0	0	0	1	0.8		3	0.8	3
10	0	0	0	0	0	0	0	1.0		3	0.8	4
28	0	0	0	0	0	0	0	1.0		3	0.8	5
29	0	0	0	0	0	0	0	1.0		3	0.8	6
13	0	0	0	0	0	0	0	1.0		2	0.9	7
12	1	0	0	0	0	0	1	0.8		1	0.9	8
	21	12	11	16	10	6	76			221		

Appendix N - Grade 6W control: pre-test test question data

	Rae	Dona	Nita	Lorraine	Elnora	Kurt	Tameka	Allen	Tyrone	Pre Total	Average
6W Pre-Test Control (Traditional) TEST B											
1		1	0	0	0	0	0	0	0	1	13%
4		0	1	0	0	1	1	0	1	4	50%
6		0	1	0	1	0	1	0	0	3	38%
7		1	0	0	1	0	1	1	0	4	50%
8		0	0	0	1	0	0	1	1	3	38%
12		1	1	0	1	0	1	1	1	6	75%
13		1	0	1	1	0	1	1	0	5	63%
14		0	0	1	0	0	1	0	0	2	25%
18		0	1	0	0	0	0	0	1	2	25%
20		0	0	0	1	1	0	1	0	3	38%
21		0	0	0	1	0	0	1	0	2	25%
22		0	0	0	0	0	0	1	0	1	13%
24		0	0	0	0	0	0	0	1	1	13%
25		0	0	0	0	1	0	0	1	2	25%
28		0	0	0	0	0	1	1	1	3	38%
29		0	0	0	0	1	0	0	0	1	13%
		4	4	2	7	4	7	8	7	43	5.38

Appendix O - Grade 6W control: post-test test question data

	Rae	Dona	Nita	Lorraine	Elnora	Kurt	Tameka	Allen	Tyrone	Post Total	Average
6W Post-Test Control (Traditional) TEST C											
2		1	0	0	1	0	0	1	1	4	50%
8		0	0	1	0	0	1	0	0	2	25%
9		0	0	0	0	0	0	0	1	1	13%
10		0	0	0	1	1	0	1	1	4	50%
14		1	0	0	1	0	1	1	1	5	63%
17		1	1	0	0	0	1	1	0	4	50%
18		0	0	1	0	0	1	1	1	4	50%
19		0	0	0	0	0	0	0	0	0	0%
21		1	0	0	0	0	1	0	0	2	25%
22		0	0	0	0	0	1	1	0	2	25%
23		0	0	0	0	1	0	0	1	2	25%
25		0	0	1	1	0	0	0	0	2	25%
26		0	0	0	0	0	0	0	1	1	13%
28		0	0	1	0	0	0	1	0	2	25%
29		0	0	0	0	1	1	0	1	3	38%
30		1	0	0	0	1	0	1	1	4	50%
		5	1	4	4	4	7	8	9	42	5.25

Appendix P - Grade 6S control: pre-test test question data

	Darryl	Christian	Pearlie	Penelope	Jamie	Maricela	Margery	Clinton	Erik	Darren	Carmella	Roslyn	Pre Total	Average
						6S Pre-Test Control (Traditional) TEST A								
2		1	0	0	0	0	0	0	1	1	0	0	3	27%
4		1	0	0	1	0	1	0	1	1	0	0	5	45%
5		1	0	0	1	1	0	1	1	1	1	0	7	64%
6		1	0	0	1	1	1	1	1	0	1	1	8	73%
8		0	0	0	1	1	0	0	1	1	0	0	4	36%
9		1	0	1	1	1	1	1	1	0	1	1	9	82%
11		1	1	1	1	1	1	1	1	1	1	0	10	91%
14		0	1	0	1	1	1	1	1	1	0	0	7	64%
15		0	1	0	1	1	1	1	1	1	0	1	8	73%
16		1	1	1	0	0	0	0	1	0	0	0	4	36%
17		1	0	1	1	1	1	1	1	1	0	1	9	82%
18		1	0	1	1	1	1	1	0	0	0	1	7	64%
19		0	0	1	0	1	1	1	0	1	0	0	5	45%
21		1	1	1	0	1	1	1	1	1	0	1	9	82%
23		0	0	0	0	1	0	1	1	1	0	1	5	45%
24		1	0	1	0	1	0	1	1	1	0	1	7	64%
		11	5	8	10	13	10	12	14	12	4	8	107	9.73

Appendix Q - Grade 6S control: post-test test question data

	Darryl	Christian	Pearlie	Penelope	Jamie	Maricela	Margery	Clinton	Erik	Darren	Carmella	Roslyn	Post Total	Average
						6S Post-Test Control (Traditional) TEST D								
2		1	0	1	1	1	1	1	1	1	1	1	10	91%
4		1	1	1	1	1	0	1	0	1	1	1	9	82%
5		1	0	0	1	1	0	1	0	1	1	0	6	55%
6		1	1	1	0	1	1	1	1	1	1	1	10	91%
9		1	1	1	1	0	1	0	1	1	1	1	9	82%
11		1	0	0	1	1	0	1	1	1	0	1	7	64%
14		1	1	1	0	1	1	1	1	1	1	1	10	91%
16		1	1	1	0	1	1	1	1	1	1	1	10	91%
18		0	0	1	1	1	1	1	1	1	1	0	8	73%
20		1	0	0	1	1	1	1	1	1	1	1	9	82%
22		0	0	0	0	0	0	1	1	1	1	0	4	36%
23		1	0	1	1	1	1	1	1	1	0	1	9	82%
24		1	0	1	1	1	1	1	1	1	1	1	10	91%
25		1	0	1	1	1	0	1	0	1	1	0	7	64%
26		1	1	1	1	1	1	1	1	1	1	1	11	100%
30		0	0	0	1	1	1	0	1	1	0	1	6	55%
		13	6	11	12	14	11	14	13	16	13	12	135	12.27

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Appendix R - Grade 6W treatment: pre-test test question data

6W Pre-Test Treatment (Ning) TEST A											
Questions	Dona	Nita	Lorraine	Elnora	Kurt	Tameka	Allen	Rae	Tyrone	Pre Total	Average
2		0	0	1	0	0	0	0	0	1	13%
4		0	0	0	0	1	0	0	0	1	13%
5		0	0	1	0	1	0	0	0	2	25%
6		0	0	0	0	1	0	1	0	2	25%
8		0	0	0	0	0	0	0	0	0	0%
9		0	0	0	0	0	0	1	0	1	13%
11		0	1	1	0	0	0	1	0	3	38%
14		1	1	1	0	1	1	1	1	7	88%
15		0	1	0	0	0	0	0	1	2	25%
16		0	0	0	1	1	1	1	1	5	63%
17		0	0	1	1	0	1	0	0	3	38%
18		1	0	1	0	1	1	1	0	5	63%
19		0	0	1	0	1	0	0	1	3	38%
21		0	0	1	0	0	1	1	1	4	50%
23		1	0	1	1	0	1	0	0	4	50%
24		0	0	1	1	0	0	0	0	2	25%
		3	3	10	4	7	6	7	5	45	5.63

Appendix S - Grade 6W treatment: post-test test question data

6W Post-Test Treatment (Ning) TEST D											
	Dona	Nita	Lorraine	Elnora	Kurt	Tameka	Allen	Rae	Tyrone	Post Total	Average
2		0	1	1	1	1	1	0	1	6	75%
4		1	0	1	1	1	0	0	0	4	50%
5		0	0	1	0	0	0	0	0	1	13%
6		1	1	1	1	0	1	0	1	6	75%
9		0	0	0	0	0	1	0	1	2	25%
11		0	1	1	1	0	0	0	1	4	50%
14		0	0	0	0	1	0	0	1	2	25%
16		1	1	1	1	1	0	0	1	6	75%
18		0	0	0	0	1	0	0	0	1	13%
20		0	0	1	1	1	1	1	0	5	63%
22		0	0	0	0	0	0	0	0	0	0%
23		0	0	1	0	0	0	0	0	1	13%
24		0	0	0	0	0	1	1	1	3	38%
25		0	0	0	0	0	0	0	0	0	0%
26		0	1	1	1	1	0	0	0	4	50%
30		0	0	1	1	1	1	0	1	5	63%
		3	5	10	8	8	6	2	8	50	6.25

Appendix T - Grade 6S treatment: pre-test test question data

	Darryl	Christian	Pearlie	Penelope	Jamie	Maricela	Margery	Clinton	Erik	Darren	Carmella	Roslyn	Pre Total	Average
1	0	1	1	0	0	1	1	0	1	0	1	0	6	50%
4	1	0	0	0	1	1	0	0	0	0	1	1	5	42%
6	0	1	0	1	0	1	1	1	1	1	1	1	9	75%
7	1	1	1	1	1	1	1	1	1	1	1	1	12	100%
8	0	1	0	1	1	1	1	1	1	1	1	1	10	83%
12	1	0	0	1	1	1	1	0	1	0	0	1	7	58%
13	1	1	1	1	1	1	1	1	1	1	0	1	11	92%
14	1	1	0	1	1	1	1	0	1	1	1	0	9	75%
18	1	1	1	1	1	1	1	1	1	1	1	1	12	100%
20	0	1	1	1	1	1	0	1	1	1	1	1	10	83%
21	0	1	0	0	0	1	0	1	1	1	0	0	5	42%
22	1	1	0	0	1	1	0	1	0	1	1	0	7	58%
24	0	0	0	1	1	0	0	0	0	0	0	0	2	17%
25	1	1	0	1	1	1	0	1	1	1	1	1	10	83%
28	0	1	1	1	1	1	1	1	1	1	1	1	11	92%
29	0	1	1	1	0	1	1	1	1	1	0	0	8	67%
	8	13	7	12	12	15	10	11	13	12	11	10	134	11.17

Appendix U - Grade 6S treatment: post-test test question data

	Darryl	Christian	Pearlie	Penelope	Jamie	Maricela	Margery	Clinton	Erik	Darren	Carmella	Roslyn	Post Total	Average
2	1	1	1	1	1	1	0	1	1	1	1	0	10	83%
8	1	1	1	1	1	1	1	1	1	1	0	1	11	92%
9	1	0	0	1	1	1	0	1	0	1	1	1	8	67%
10	1	1	1	1	1	1	1	1	1	1	1	1	12	100%
14	1	1	1	1	1	1	1	1	0	1	1	1	11	92%
17	1	1	1	1	1	1	1	0	1	1	1	1	11	92%
18	1	1	1	1	1	1	1	1	0	1	1	0	10	83%
19	1	1	1	1	1	1	1	1	1	1	1	1	12	100%
21	1	1	1	1	1	1	1	1	1	1	1	1	12	100%
22	1	1	1	1	1	1	1	1	1	1	1	1	12	100%
23	0	1	1	0	1	0	0	1	1	1	1	0	7	58%
25	1	1	0	1	1	1	1	1	1	1	1	1	11	92%
26	0	0	0	0	0	0	0	0	1	0	0	0	1	8%
28	0	1	1	1	1	1	0	1	1	1	1	1	10	83%
29	1	1	1	1	1	1	1	1	1	0	1	1	11	92%
30	1	1	0	1	1	1	1	1	1	1	1	1	11	92%
	13	14	12	14	15	14	11	14	13	14	14	12	160	13.33

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