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How Teachers Of Predominantly Or Entirely Online Schools Perceive The Possibility Of Online High School For An Entire District

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HOW TEACHERS OF PREDOMINANTLY OR ENTIRELY ONLINE

SCHOOLS PERCEIVE THE POSSIBILITY OF ONLINE HIGH SCHOOL FOR AN

ENTIRE DISTRICT

by

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A capstone submitted in partial fulfillment of the
requirements for the degree of Master of Arts in Education.

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CHAPTER 1

Introduction

Do you like the pay scale of an educator? With the most recent economic slump not helping the situation much, funds are getting ever slimmer for education. During a recent public policy class I was involved with, we were able to see the actual numbers concerning education funding as well as the rest of the moneys the state obtains from various sources and where it is spent. Education is choking the system at the neck. Education already has so much of the state funding and yet it is not enough. Schools need teachers that utilize current research and they need to pay their veterans more and more each year. Also, the money cannot really be pulled from other essential organizations that it is spent on. Schools are freezing pay raise scales for staff and downsizing to as many teachers as barely needed just to keep up, but our population is not shrinking. How will education look in the future? Will there be money for teachers? Will the quality of education decrease? Does our education need to change drastically? I hope to find out what people think about a theory I have come to. I want to ask the question: how do educators who currently teach entirely online perceive the possibility of online high school for an entire school district?

The educational system will never get better without some kind of change. I have always seemed to be in the wrong spot at the wrong time, and change has always been a big part of my life -- first with undergraduate education and now again with graduate

education. The job market has always been changing. As an undergraduate I was looking at a promising career as a computer programmer. I was naturally gifted at mathematics and logic and very much enjoyed working with computers. As the program neared completion I ran into my first wall, called "Y2K". The year 2000 had come upon us and the world was going to explode, or at least that was what some feared. Most computer programs at the time were not designed to handle the change to a new millennium. I could not seem to find a computer programming position anywhere, and in order to have an income I decided to change careers.

As a result I moved into retail management, but my wife and I agreed that the hours were becoming rather troublesome on not only our marriage but also our children. This is when the suggestion was made to me to become a teacher; I liked the idea because I have always had a knack for helping people understand things or explaining things in another light. I began as a substitute in the state of Texas, and then followed that by searching for a teaching job there since it only required a college degree to be an educator. However, with my son quickly moving into school age we realized that we needed to come home to Minnesota for his education and to be closer to his grandparents. This is when I began my graduate degree. Through the Masters of Arts in Teaching program I was able to acquire my graduate degree and teaching license together. Since math teachers were highly sought after it should be easier to find work. However, fate it seems wanted to redirect me yet again. As I neared the end of my Masters program with the completion of this research, we were in a time when schools were realizing that they had over-spent. The state budget was realizing it had no more funds to give, and the teachers were realizing their due track and pay raises were suddenly in question. As I

substitute taught I spoke with the other teachers about their schools' available positions. Teachers were being cut due to funding and when a position opened they would be rehired. This left no room for new teachers. There seemed to be a virtual ceiling that we had come to in our education system where we were not able to fund enough educators.

What was I to do? My wife and I discussed the education system, its limits and its destination. Looking at the state's budget, I could see that most of the money was already going towards education. Another large portion was diverted to the elderly who are living longer than ever. The rest of the funds were relatively small portions, going toward law enforcement and other necessities. The state could come up with more funds for education by inducing more taxes, but how long until we come to the same wall. Should we push the issue on to the next generation? Are we smart enough to deal with the issue now?

Christensen (2005) gave a lecture about the solution to this problem. He said that there is a way to improve the productivity of our teachers by having more students per teacher without impairing outcomes per student. That is a technical impossibility in the classroom since more students directly influence the quality of the education given. Thus, he goes on to talk about online education, where a single teacher could teach more students without lowering the outcome of the student. What if a group of teachers could create a curriculum for our new computer age: a smart program that could make decisions based on student input and answers to teach the necessary content, which could allow for the education of many students all at once? What if there was an association of teachers and programmers that developed a statewide high school online curriculum for students to work on and complete as they finished 8th grade until the point of graduation? Ideally

you would have fewer teachers maintaining and educating the content portion of education for a much lower cost per student. It would free up an enormous amount of education funding to be used on teachers of lower grades and extracurricular activities or educational programs.

This type of education change should allow the proper funding of educators for grades K-8. It would also bring up various challenges as well: educator salaries, special education, students without computers, graduation and delinquency. There would still be educators that need pay. There would still be special education programs which would have to be addressed through traditional education settings. There are people without computer access that would need it for this system to work in either a home computer or a computer lab in which to work. There would also be concerns about participation and graduation criteria. Since I do not have these answers, I intend to ask the advice of educators currently working in online schools. I want to know how they handle these situations and what challenges they face. What do they think of the feasibility of this happening, if not for the state, then for an entire district? How do educators perceive the possibility of their district moving to an entirely online high school system? Maybe this type of change is in our future.

What brought me to look at the future was reflecting on my past experiences and learning. Throughout my life I have bounced from job to job until I found a home in education. Having a computer background gave me a unique perspective on the education system. Looking at how our government funds education and some of the economic hardships in our funding, including school politics, it seems that we are in need of some new ideas that might help to solve the issues of our growing needs while still

maintaining salary growth and a quality education. In my research I will find out how much these ideas of a computer-based education have already been explored. I will need to know how much of it is feasible in our computer age. Through research, I hope to shed light on what might be some challenges and possible solutions to what could be the future of secondary education. So I will be asking how do educators who currently teach entirely online perceive the possibility of online high school for an entire school district?

My life had led me to the education world in a time when funding is limited, and led me to question more cost effective ways to improve our system. In the next chapter I took a look at what research was currently out there for online education. I searched for its benefits and drawbacks, how it was funded, and what kinds of staff are required.

CHAPTER 2

Literary Review

Historical Background

How do educators who teach entirely online perceive the possibility of online high school for an entire district? It is harder than ever to find a job in education with all of the position cuts and even harder to find one that pays what we, as educators, are worth. These experiences have led me to believe that we, as a society, are coming to a ceiling in our ability to fund education. It makes me wonder how our future will look as our population continues to grow. One possible solution would be to move a portion of our education into an online environment in order to reduce the costs per teacher. In this chapter I hope to find out what other research has already been done on the topic or related topics that could influence any conclusions made. First I will discuss some of the terms that will be used followed by reviews of personalized instruction programs.

Definitions

For the purpose of this research I will refer to online high school as any high school in which the classes are taken online or through a computer program in which the teacher is not presently instructing the student. However this does not exclude those that have online programs but also offer classroom situations. The online high school is still in the process of experimentation and as a result many schools use it to supplement their current curriculum. I will be focusing on schools that have become predominantly or entirely online schools whenever possible.

An online educator is going to be defined as someone who sets up the curricula for the students who attend an online school. This would include things such as planning and/or writing the virtual learning environment with which the students interact with to learn the material being taught. In some cases the online educator would interact with students via chat rooms or electronic messaging programs. The school might develop its own software to connect with the students or use products such as Google. Online educators are also responsible for assessing learning after the virtual experience.

The terms virtual world and virtual environment are closely related but also distinctly different. According to Hew & Cheung (2010), Virtual worlds are best used for communication spaces, simulation of space, and experimental space. Belotti (2010) states that virtual environments with educational tasks allow the user to observe an environment defined by the program to learn about various cultural or location specific concepts by performing tasks based on those locations within the program. Belotti described this type of virtual environment by giving an example of a virtual environment of Paris, France. He proposed the student would walk around the virtual environment as an avatar inside the computer system much like a video game. Joined by his or her classmates, they would explore Paris, reading signs and information booths about the sights and sounds that they experience.

One other important aspect within the literature has been the use of digital immigrant and digital native. Livingstone (2009) defined a digital immigrant as generally someone who was not raised within the computer age to whom it feels foreign and obscure. He elaborated that they tend to feel awkward around a computer and will use it to differing extremes at any particular point in time. Conversely Livingstone went

on that a digital native is generally one that has grown up within the age of computers or has a fluent working knowledge of computers, and their use tends to be stable and constant. While Hamuy & Galaz (2010) observed that the introduction of computers to the classroom caused teachers to become erratic while student activity remained the same for the course of its use. Robinson's (2010) study was based on digital immigrants and concluded that it is an individual's background which is the deciding factor on one's location within the scale of digital immigrant to digital native.

Online Education

Detriments

A study by Serhan (2010) asked students what they thought of online learning. Some disadvantages they listed included a lack of immediate feedback or a lack of live interaction and technical problems. Serhan goes on to mention that students felt the loss of eye contact, body language, and voice tones to be a detriment. Kearsley (2000) points out that in terms of costs, the current online learning system requires teacher interaction and requires a certain ratio of students to teachers. This means salaries and benefits for staff as well as technology costs. In order to keep the workload manageable, Kearsley (2000) suggests one teacher can only handle about twenty to thirty students.

In addition to the actual servers, computers and places to put them, staff is also required to set up and maintain the networks. Freitas et. al, (2010) points out that the virtual worlds would require thorough testing, technical support and well-structured sessions. Hamuy & Galaz (2010), point out that a lack of research can lead to a shortage of know-how in fields required to make meaningful experiences. They also point out that there is usually resistance to new changes. Kearsley (2000) states that the success of

administrators in finding money to fund their network activities will affect the viability of their institutions and organizations. Kearsley goes on to point out that, as a result, many current schools and universities look to grants, cuts and the private sector to find funds in order to supplement their program with an online education system.

Benefits

For the students there are many benefits to online learning. It might be the great option for a student who lives too far from the nearest school. Online schooling also offers flexibility of time and space. Students can work when and where you want. Students can even work in marathons or take extra long weekends for other activities. This type of pacing offers the wonderful benefit of convenience. Serhan's research (2010) shows that 34% of students in her study thought that pace was a big advantage of online learning, and if they do not entirely grasp a topic they can either spend more time on it or come back to it later.

Vast amounts of research and other sources of knowledge are at the online learner's fingertips. According to Kearsley (2000), the vast resources of the Internet as well as simulated experiments and hands-on learning lead to more effective learning and teaching. He even goes to say that improved learning and teaching will ultimately mean a better-educated workforce and population, leading to a greater productivity and economic prosperity for the nation as a whole. Hew & Chung (2010) agree that the best use for a virtual world is as a communication space, simulation space or experimental space.

It is no secret that education costs are high. According to Kearsley (2000) while most institutions have accepted network costs into their budget, they still have all of the

other costs of operation and faculty. He goes on to state that an exclusively online school would have only the costs of computing equipment, software, and telecommunications as well as a few teachers, but still have the revenue possibilities of any other school based on enrollment. He even refers to virtual schools as the educational gold rush of the informational age.

Learning in an Online Education

For the most part online education has only supplemented the classroom experience so far, but what if the online learning could take place in 3-D environment? One study (Delgarno & Lee, 2010) points out that in a 3-D environment you can do more with spatial learning, experimentation, and more collaborative learning all with more motivation and engagement than within a 2-D environment. However, Harold (2010) warns that being in a 3-D virtual environment does not suddenly enable learning. He states that it is no different than any other learning environment and should be treated the same which also includes any normal lesson preparations required. Falloon (2010) points out that important elements of virtual environment learning include careful consideration of the question that will be investigated, collaborative group or pair structures for outcome development and software that allows the best opportunity for communication of results. He goes on to state that when executed correctly the virtual environment can have astonishing results. Although Jacobs (1982) warns that success is heavily influenced by student motivation, cognitive style and student achievement. He states that while it is considered one of the most advanced applications of instructional technology, it is not for everybody.

In a study on assessment and higher order inquiry skills within virtual environments Ketelhut et. al, found an "intricate pattern of understanding complicated by the method of assessment" (2010, p. 66). His study found that when the assessment matched the higher order lab reports being done during the virtual learning process, the virtual environment students were able to outperform all other students following traditional lecture methods. However, when filling out a normal test, the virtual environment students did as well or below the control group of lecture taught students.

One group of researches (Freitas et. al, 2010) state that virtual environments would be effective for distance learning, supplemental instruction and community based videoconferencing. Most of the research I have uncovered in online education had to do with virtual environments. However, I did not believe that my findings showed a virtual environment to be a viable solution for online high schools of the future. It would not lower the number of teachers required due to the attention and interactions required by the teacher to make it meaningful and educational. As a result, the cost of such a program may not actually be cheaper since you will have to employ the same teachers with the added technology costs.

Jacobs (1982) reviews another type of instruction called Personalized System of Instruction (PSI) which is said to lead to higher levels of achievement and causes more favorable student attitudes. Caldwell (1985) adds how in PSI students will master concepts to move on and are assessed by a final exam. He goes on to state that communication with the teacher is text based and any personal interaction is done through proctors whom the students are able to ask. In his report, Caldwell described the problem of cheating as an issue with the proctors, but reports that the rewards of the

higher grade far outweighed the possible negative consequences for either the proctor or the student. Howell (2009) reported that cheating has continued to evolve over the years. He states that in order to mitigate cheating behaviors, educators will need to continue to stay current on the latest developments in the field of academic dishonesty. Jacobs (1982) also pointed out that because the system uses a self-pacing feature there were usually high reports of withdrawals and incompletes. He also points out that the system requires proctors that are a crucial component to success.

Today we have a new proctor: the computer. Schools today use a computer-based adaptive learning test in order to understand each student individually called the Measures of Academic Progress or MAP test offered from the Northwestern Evaluation Association (NWEA, 2017). The system uses an adaptive program that can give new questions based on previous answers while also randomizing questions to prevent cheating. While this system will still require proctors, they are only there to monitor cheating and are not influential in the assessment such as in classic PSI. Could this type of adaptive learning program be used to teach? While cheating will still be an issue Caldwell (1985) very clearly stated, every PSI course requires very rigorous checks on assessment.

My hope is that because the programs would adapt to the learning rate and pace of the student, there would be an unparalleled level of differentiation with regard to the abilities of the student. The research (Hambleton et. al, 1998) has shown a clear benefit for PSI in terms of comprehensive learning and possibly the use of evidence and logic. He also explained how the introduction of computers to PSI offered dramatic results, but that the credit should go to the PSI learning methods since, as he illustrates, "computer-

based instruction is known to be less effective than PSI" (1998, p. 200). However, as Hamuy & Galaz (2010) pointed out, learning from a computer based system is dependent on the individual's digital citizenship. As we move into the computer age, this partnership is what I hope to explore as one possibility for the future of education.

Summary

The literature has shown various detriments related to online learning: a lack of immediate feedback, live interaction, technical issues and other costs of maintaining a regular school system as well as an online one. It has also shown numerous benefits: the access to schooling despite location of the school or residence, flexibility of time and space, convenient learning pace is fully customizable and vast internet resources as well as simulated experiments for more effective learning.

The literature also pointed out that there are two main strengths and weaknesses from learning in an online virtual environment. The weakness was that the 3-D environments require too much work and maintenance for larger classroom sizes. The strength was that virtual students who test in similar lab tests provided superior results to other students while still performing normally on standard tests. I have decided to ask educators of entirely online schools what they think of the feasibility of an online high school for an entire district. In the next chapter I will describe the interview and survey collection methods I intend to use to gather this information. I will also talk about how I intend to analyze the data.

CHAPTER 3

Methods

Introduction

Since I am interested in a shift in education as a shift toward an online curriculum, I can conclude that I should be interested in the opinions of those who are already teaching in an online setting. I wanted to know what they think of the feasibility of an online high school for an entire district. Crestwell (2009) defined a qualitative study as one that relies on the researcher to collect the data rather than relying on something that has been developed by someone else. He continued that the researcher will also use multiple forms of data such as interviews and surveys or observations, and most importantly the researcher keeps a focus on learning the meaning of the participants. Therefore, qualitative study appeared to be the most appropriate method for me to analyze the results in order to answer my question.

Participants

The participants for my research were the principals and teachers, collectively referred to as educators of schools that teach predominantly or entirely online. These educators varied in age, sex, race, demographics and cultures. It was for their expertise in the subject of online education that I focused on these educators. The survey was sent through e-mail to the online school teachers, and the interviews were conducted in person or over the phone with the principals. Since the educators taking the survey were anonymous I will refer to them simply as participants. The participating schools were

two of the major online schools that are currently in operation within the state of Minnesota, and each has been in operation for more than five years. The school principals have remained anonymous and their names were changed. I will refer to the first interview completed on November 3, 2016 as Smith. The second interview was completed on December 12, 2016 and will be referred to as Jones. Transcripts of the interviews are included as Appendix C and Appendix D respectively.

Research Methods

The methods of my research will be two-fold. First I will have the principals send the survey to their teaching staff. While I am waiting for responses, I will schedule a time to conduct the interviews with the principals. Crestwell (2009) states that the interviews can be face-to-face or over the phone and should involve unstructured open-ended questions intended to elicit views and opinions from the participants. As such I developed questions that would be open-ended in light of online education. Then I asked a probe question about adaptive programming. In other words, an education program that could adapt its questioning and teaching based on responses of the user. Freitas et. al, (2010) had concerns about the technical side of having well structured online learning. So I included some questions related to the technical side and staffing of current online education. Each interview took place at a place of their choosing or over the phone. Additionally the interviews were recorded via digital recorder technology and lasted between 30 and 40 minutes. The interview questions (Appendix A) establish their current situation in online education and ask my research question along with any other comments or observations on the topic.

Survey questions (Appendix B) were written for the purpose of illuminating my research question from all aspects of my research. Kearsley (2000) pointed out that one teacher should only handle twenty to thirty students. I asked about students per teacher in both the survey and interviews to get a solid understanding of how it is effectively working today. In a recent study (Serhan, 2010) pointed out some detrimental aspects of online learning included things such as loss of eye contact, body language and voice. Some of the survey questions were geared toward these types of concerns and how these schools tackle them in an online environment. I also asked some open ended questions concerning benefits and detriments of online schooling in their own professional opinion. The survey was hosted through Google forms, and a link to the form was distributed via e-mail to all teachers at the schools. The contents of the e-mail included a statement of consent whereby the participant offered consent simply by following the link provided to the survey website. Confidentiality was maintained by having each participant include their initials and favorite number as a unique identification code. Logging into Google was not required in order to maintain that confidentiality. After a set deadline the survey ended and the results were analyzed with respect to the research question.

Data Analysis

Crestwell (2009) defined the method of qualitative data analysis in these steps: organize and prepare, read through the data, begin the coding process, use codes to generate themes for analysis, decide how to represent the themes and interpret the meaning of the data. As Crestwell suggested, I will collect multiple forms of information on the topic and interpret its meaning myself in light of the research question and the participant's meanings. This process requires that the researcher state any background or

specific opinions that may influence the data collection process. As I have stated in chapter one, I have been negatively influenced by education as a whole, coming out of both of my degrees in a difficult job market. This has caused me to search for alternatives within our educational system and to ask why the educational system is so strained. I believe I have found a solution and am enthusiastic about the possibility of change. It is my hope that I present myself as objectively as I can during the surveys and will not attempt to push my views or beliefs upon my participants. It is my goal to find out what these participants think about the topic not to see what they believe will happen with my suggestion. I composed my questions beforehand with this knowledge in mind, and I intended to adhere to them with perhaps a request to continue explaining if they seemed to have more to say on a specific topic question.

Coming from a computer background I might have had a tendency to favor the computer solution to the traditional. I needed to be objective in my questioning as it is imperative that I did not influence the responses of my participants. This was another reason that my questions were prepared beforehand and meant to be followed as a script.

While I did not foresee an issue due to the preparations made before both the interview and survey process, it is necessary to make these issues known as a possible bias to the results.

Benefits and Risks

The interviews and surveys offered a risk-free situation for the participants. The results of the online survey were kept private and were only be seen by me. Any tables that are crafted from survey responses referred to teachers as merely participants. Dialogues from the interviews were transcribed and had names changed for the protection

of the participants, and no information was be shared between interviews. The interviews were in a safe place such as the participant's own office, or they were conducted over the phone. The responses were recorded for the purposes of transcribing only and will not be reproduced in any other media.

The benefits of my research could illuminate the concept of having automated virtual education options which would allow for additional funding within our educational system. It could also assist others in future educational changes should the need arise. As computers become more and more a part of everyday life and are intertwined into nearly every aspect of our society I feel that it is important to ask the questions concerning how they will be involved with our education. I want to know how these online educators feel about having an entirely online high school for a district.

Some forms of bias and limitations could occur through the use of interviews. Crestwell (2009) stated that interviews provide indirect information filtered through the views of the interviewees. Since it is actually my purpose to find out their views for my research question, I do not feel like this will introduce bias. Crestwell also said that the researcher's presence may limit the responses. While this might be an issue, the interviews were still one-on-one in a private location to help reduce this posssibility. If the interviews occurred over the phone then this limitation would be eliminated entirely. The last limitation that Crestwell pointed out is that all people are not equally articulate and perceptive. To combat this I interviewed more than one educator from different schools.

In this chapter I explained how I was able to research the question of how educators who teach entirely online perceive the possibility of online high school for an

entire district? Since integration of technology into classrooms was still a very

experimental idea, I did not have anything in place to study. Instead I looked to the

opinions of professionals in the related fields through interviews and surveys that

incorporate open ended questions. In the next chapter I analyzed those results in a clear

and systematic way with the hope that I would be able to predict the solution to my

research question.

CHAPTER 4

Results

I was recently concerned about the funding devoted towards education, and decided to do my research on other educational options. As the world moves toward a digital age computers can offer more and more. I would like to consider the possibilities of an online education system that could allow teachers to be more efficient by working on a program that does the teaching. This would allow one teacher to teach more students without influencing their learning capabilities through larger class sizes. I want to ask educators who teach predominantly or entirely online how they perceive the possibility of an online-only high school for an entire district. In this chapter I will review the results of those questions and analyze them to see what solution might be synthesized into our future.

Introduction

Throughout the course of this study, data was collected in the forms of two interviews and a survey offered to two major online schools currently in operation within our state. The analysis answered questions about the technological needs of an online educational system and the personnel required to run it. According to Crestwell (2009), the steps of analysis are as follows: organize and prepare, read through the data, begin the coding process, use codes to generate themes for analysis, decide how to represent the themes and interpret the meaning of the data.

Interviews

Both interviews were conducted over the phone and recorded for transcription purposes. Confidentiality was maintained by changing the names of the participants during the transcription process. To avoid bias, my questions were carefully crafted beforehand and read as a script during the interview process. The first interview (Appendix C) was completed with Smith on November 3, 2016, and the second interview (Appendix D) was completed with Jones on December 12, 2016. I chose these two principals because they are the administrators of the two schools that received the survey and distributed it among their teaching staff. In this way I obtained a comprehensive view from both open and closed questions regarding both the teaching staff and administration of these online schools.

The questions included in my interview address the goal of my capstone which is to understand how online education is operating in its current state and to see how that relates to the literary resources. I also wanted to know how these educators perceive the possibility of an online-only high school for an entire district. The results of the interviews are discussed in the following section. I also summarized and combined topics for the sake of understanding the picture they paint. I pointed out similarities and differences between the results of the interviews and addressed how it is relevant to my research.

Question One

Crestwell (2009) stated that an interview should start with an ice-breaker question and then probe into the research questions. I kept this in mind while also trying to think of a question which might positively influence the validity of my interviewees. In

question one, I inquired about each administrator's personal history in teaching. In both cases, they have worked in both roles of teaching staff and administration. I wanted to use this question to find out how much experience they had both in teaching and to what extent in the online education system. Crestwell (2009) stated that the presence of the interviewer might limit responses. By letting them talk about themselves it also helps break down the barriers of opening up to me.

Question Two

I asked each interviewee to describe how online education is working today in their schools. Smith and Jones each mentioned that their staff included teachers and counselors to teach and support students. They each have online software that creates a virtual classroom in which students are able to connect and work with the staff. The room will have a screen that both participants can write on coupled with voice capabilities and chat pods. Smith describes it as nearly the same as sitting at a table with that student one-on-one. These virtual sessions are an optional component that can allow teachers and counselors to interact with the students when they need assistance. While students are not required to participate in virtual classroom activities and tutoring, it is highly encouraged.

In each interview they reported that teachers will often also maintain regular office hours where they might have their virtual classroom open or be available for phone call assistance. Jones mentions that students at her school might be required to attend virtual classrooms when they fall behind or demonstrate trouble with the curriculum. Jones went on to state that "the real live teacher is a real strong component of [the student's] program even though a student can choose not to interact. The vision is to be

more individualized and more of an exploration type of learning." This parallels the statement by Hew & Cheung (2010) that a virtual world is best used as a communication space, simulation space and experimental space. This also couples with Harold's research that simply being in an online environment doesn't suddenly enable learning (2010). He is stating the importance of the teacher aspect of education.

Question Three

Next I focused on the self-sustaining ability of online schooling. That is to say that the class sustains itself without staff to maintain it. I wanted to find out to what extent our current online education schools utilize self-sustaining classes.   Smith clarified that while a self-sustained system is not really an option yet, his school does offer quite a bit of flexibility with a program they call My Pace. He goes on to explain how the My Pace classes allow for students to work through the lessons without teacher supervision at a pace comfortable for them.   However, Smith clarifies that the students are monitored by teachers regularly to see if the students get stuck or need assistance. The teachers then provide tutoring through their virtual classroom or whatever other support the student needs to progress.

In the second interview, Jones echoed the idea that classes are close but not quite self-sustaining, yet. She also mentioned that their elective courses utilize recordings made by the teacher to be used in lieu of the teacher. The students can then watch recordings for the instruction piece whenever they are ready to work on any individual lesson.   These elective courses also might focus on peer discussion groups and online forums which allow for students to speak with the teacher and other classmates on topics by making posts. Jones states that teacher assistance takes the form of e-mails, phone

calls or interactions within a virtual classroom. Jones also added that it is her school's intent that the student work with a live teacher for main content areas. In other words, when the students are working on core subjects they expect teacher-student interaction for the learning process through the tools they have available, such as the virtual classrooms for tutoring and recordings for lectures.

Question Four

I sought to understand how current online schools are tackling the issues of technology. Frietas et. al (2010) stated that for successful online education, there needs to be thorough technical support and well-structured lessons. Hamuy & Galaz (2010) pointed out the pitfalls of Chile's online program due to lack of technology know-how and research. Harold (2010) reminds us that we will still have the same challenges as any other school. I believe the ways in which we handle technology in future endeavors will impact the success of those endeavors.

The two principals had differing views in terms of student technological needs. Smith explained how his school required students to bring their own device, and this provided its own challenges when students do not have the most up-to-date technology. He goes on to state that while his staff can provide some basic technical support, it is primarily the responsibility of the student. He does clarify that they will provide technical support for their own software which allows the students to join and participate in the virtual classrooms, view recordings, and complete assessments.

Jones' school, on the other hand, is an educational management organization (EMO) and doesn't have to provide support. An EMO is a private for-profit company that provides management of the school. This may include development and support for

the software the school uses and other management tasks such as finance accounting.

Other staff that both schools employed included teachers that have a valid state license

for the classes they teach as well as administrative assistants to assist with state reporting

issues such as truancy and maintaining attendance records.

Question Five

I continued the topic of technology and inquired about the technological needs of

the teachers and exactly what kind of technology is required for the school to operate.

Smith explained that since his school requires students to provide their own computer,

they do have some students who work on something as simple as a mobile device. As a

programmer I know that this can cause challenges when developing software that is

compatible with all types of technology.

Additionally both schools implemented a technology training program in which

the staff learned the software offered by the school. They learned what it is like to be a

student in their respective systems as well as some best practices for teaching in an online

setting. Hamuy & Galaz (2010) brought up the importance of research in relation to an

online school's success. Jacobs (1982) had also stated that the staff are the most critical

element in determining the success or failure of the system. Jones explained that the staff

is required to have a certain proficiency level in technological resources including

Microsoft programs and email. This means that they are able to perform using these

programs at an acceptably high level. Jones went on to say that her school used a

technology screening program to test this proficiency in addition to general use of the

English language. They want to make sure that their teachers can compose a well written

letter to the student or parent. She points out, "we do not expect that they will score

100% or even in the nineties. However, if they score under 70% we have moved to a

decision that it may be difficult for them to keep up with the work load."

Question Six

I then asked about the student allocation per teacher by asking about class sizes

and whether or not they would negatively affect student learning. Kearsley (2000)

pointed out that a teacher should only handle twenty to thirty students to be effective.

Both Smith and Jones reported that their schools followed the state-wide standard of forty

students per class. Smith explained that since online schooling inherently allows

flexibility of time and lack of class schedules. He compared his school to a normal high

school setting where each teacher was assigned 6-7 classes of students. Smith stated that

with the forty students per class for 6-7 classes each teacher is assigned roughly 180

students.

Jones limits her staff to under 200 students per teacher. She pointed out that if

they start getting too many students then they would need to hire more teaching staff to

accommodate this limit.   Jones went on to state that because the current teacher-to-

student ratio is always in flux and student needs always vary, teachers may have more or

less students from year to year. She does not feel that large class sizes negatively affect

the student learning since teachers with more students will be expected to put in more

time to service them. She would then balance that by allowing the busy teacher to have a

smaller class size in the following semester or year. However, she admitted that if class

sizes get too large there is simply not enough time for the teachers to work equally with

all students. This means that a large class size could negatively affect student learning.

As Kearsley (2010) pointed out, the current online education model requires teacher interaction to be effective.

Question Seven

I questioned how an online school handled special education and English language learners (ELL). Both Smith and Jones stated that their schools employed a full staff of special education teachers and counselors to assist students in these fields. Through virtual classrooms, the staff were able to work one-on-one with the students concerning all aspects of their education, just as they would if they were in a classic school setting.

Jones said that one reason they receive a large amount of special education students was because parents are looking to keep their students at home with them. She stated that the parents also play a large role in the learning since they are there with the student. Jones continued that parents might also be looking for a more quality service than what they can get at their local school since teachers are available 8 hours a day to work with the student. She said that this allows them to focus on just one student at a time rather than a group. In both schools, a student's individualized education program (IEP) is adapted to the online environment. This is the document that itemizes the special needs of the individual and states how the school can best assist the student. Jones stated that it might incorporate one-on-one virtual classroom time or check-in phone calls. Since there are no classrooms to attend, teachers will often need to call a student to check-in with progress and answer any questions the student might have.

In terms of the ELL students, Jones elaborated that it is a tough situation since most of the online curriculum is reading material. Both Smith and Jones stated that their

schools employ a dedicated ELL teacher to assist those students with the transition to an online setting. However, Jones went on to point out that if the student has a really low level of language mastery they work with the family to move them to a classroom setting where "the student is going to have the ability to learn, not only from the teacher and curriculum, but also from the peers in day to day interactions." Serhan (2010) pointed out the importance of the loss of eye contact, body language and voice tones that comes with an online setting. This loss can apply to the teaching of content, but also to the language that occurs throughout the day for the ELL students.

Although there are disadvantages, Freitas et. al (2010) also pointed to a possible advantage, mentioning that the virtual classroom is ideal for supplemental instruction and communication based video conferencing. I think that as the technology begins to incorporate more eye contact and voice support, it becomes a more viable option in the online setting.

Question Eight

I wanted to find out what it looks like to be a teacher in an online school setting. Smith started by saying that most of their teachers work from home every day. This mirrors what Kearsley (2000) stated about how exclusively online schools would not have the costs associated with maintaining a building. Smith reassured that they have plenty of quality checks embedded into the school's software to evaluate teacher performance and whether or not teachers were meeting their goals and objectives. Jacobs (1982) stated that teacher management is one of the most difficult problems to overcome during implementation. With the introduction of computers, it seems to me that schools

are beginning to have the proper tools to make an effective system such as what Smith describes.

Jones echoed that sentiment with an observation of her own, "I think it took a while for us as a school to understand that typically our full-time home teachers are doing more work than the average office teacher because there is no commute time, and no office distractions." She went on to say that it is important for teachers to maintain a balance in work and life, and they were urged to maintain an eight hour work day where they are available for their students by phone or through the virtual classroom. Jones did not want students to feel they have access to teachers all day, every day. She also admitted that teachers probably spend time outside of work on grading or going above and beyond expectations with a student that might need special attention. This would include things such as staying late hours online to work in a virtual classroom tutoring a student or setting up weekly meetings to work on daily topics.

Question Nine

I asked Smith and Jones if they felt that an adaptive program such as the MAP test could be used for the teaching side of education. Currently these tests use adaptive programming to adjust the question difficulty based on the answers given. I wanted to know if it is possible for this type of adaptive programming to teach students based on what they already know and what they still need to know through a fully sustained computer program. Smith was skeptical based on his experience at his school. He stated that, "the students really need to have interaction in order to be successful and to integrate their learning." Jones explained that for instruction "it would take an enormous amount of curriculum development in order to have it be learning and outcome-based so that it is

advancing as the student is learning." What she meant by learning and outcome-based was that we would need the program to truly understand if learning has occurred and that the desired results have been met before moving on to the next subject.

Self-sustaining adaptive instructional software is a difficult endeavor, and it is one that Hamuy & Galaz (2010) reported to have been the downfall of such an endeavor in Chile. Freitas et. al (2010) stated that thorough testing and well structured lessons were required for such a program. Both Smith and Jones found the idea of a fully sustained adaptive education system intriguing and hoped that education is headed in the direction of computer automated learning support. In her final comments Jones also pointed out, "I think there is still the important component that the teacher provides. So I don't think we'll ever get to the point with the student and the computer solely, but we will continue to see advancements."

Before moving on to the surveys I would like to summarize the views of my interviewees. While Smith and Jones took different approaches on the technology requirements and software, they each still believe that the teacher is the core component involved with student learning. Their school systems mirrored Frietas et. al (2010) and his views that online education is effective for distance learning, supplemental instruction and communication-based video conferencing. Both schools implemented software to enhance these main core concepts through the use of virtual classrooms and frequent phone contact with the students, again leaving us with that core element of the teacher playing a vital role in the learning process. Replacing that vital teacher with a computer would require vast amounts of time and energy put into software development.

Survey

Initial Questions

      The surveys were created through Google forms and sent to the online school administrators who were interviewed to distribute to the teaching staff of their schools. There were twenty-six participants in the survey. The first field of the survey asked for their initials and favorite number, and this was used to create a unique and anonymous identification number for each participant. The purpose of the survey was to understand the role of the teacher within an online education system. Caldwell (2009) stated that one of the drawbacks of using a survey is that they usually lack open-ended questions. After some initial questions I finish my survey with two open-ended questions in which I ask the teachers to explain the benefits and drawbacks of online education from their point of view.

      To analyze the surveys I will be utilizing an approach laid out by Crestwell (2009) to collect and analyze open-ended by looking for themes that surface in the data in the light of my research question. Throughout the analysis process of the open ended questions, I found that five themes each surfaced throughout the results, both in terms of detriments and benefits. In the following sections I will explain the results of the questions and, in greater detail, these ten themes. Figure 1 on the next page includes the questions of the survey for reference.

      The first question was simply a check to make sure that the teachers were teachers of online schools so that I could remove results from anyone taking the survey who did not work at an online school. I also wanted to know how much time they spent between

home and the facility. Some staff work full-time at home while others work full-time in the office, and others are a mix of the two options.

One of the main discoveries I made upon analyzing the data which related to this topic was that at least half of the staff who participated in the survey included elementary, special education and advisory staff. In my research I discovered that while education

Figure 1

Survey

1. Do you work in an
   a. Entirely online school
   b. Predominantly online school
2. How many hours do you work at the facility per week?
   a. 10
   b. 20
   c. 30
   d. 40
3. How many hours do you work at home per week?
   a. 10
   b. 20
   c. 30
   d. 40
4. How many students do you teach per semester?
   a. 150
   b. 200
   c. 250
   d. 300 or more
5. Describe your activities to teach this class on a daily, weekly and monthly basis by filling out the table below? (some topics may change or be added after interviews)
   a. Email students
   b. Email parents
   c. Grade essays
   d. Grade projects
   e. Face to face contact with students
   f. Create supplemental curriculum for the medium
   g. Reviewing student data based on their online work
   h. Extra comments (essay)
6. Does working online constitute more or less work than traditional schooling?
   a. More
   b. Less
   c. Unsure
7. Do you find yourself working more often with other teachers on curriculum development and/or instructional strategies?
   a. Yes
   b. No
   c. Explain (essay)
8. What benefits do you see from online learning? (essay)
9. What drawbacks do you see from online learning? (essay)

might head in the direction of self-sustaining programs, we will always require facilities for elementary, sports, special education needs, counselors and other special topics such as art and music. This is the reason that I focused my question on an online high school. We can also conclude from the responses that working at home seems to be a personal preference.

I also asked how many students each teacher is in charge of and found that over half of the participants had 150 or fewer students. This again relates to the fact that many of the participants are elementary and home room teachers. Elementary teachers for instance will have under 30 students and teach them all subjects just as in a classic school setting, whereas a high school teacher would teach one subject to 6-7 different groups of students. This gives them the larger student rosters while still having them effectively teach the same amount of students as a classic school setting high school teacher.

The next group of questions revolved around daily, weekly and monthly activity and included a short essay for comments. This is important because my research question involves a self-sustaining education system that does not have any teacher interaction. It is important to see how much time teachers are spesnding on these activities with the current online education system. The results are shown in figure 2 on the next page. The findings show that teachers in online schools spend the bulk of their time contacting students and parents as well as grading and reviewing work. They create supplemental materials such as recordings on a weekly basis, which allow students to receive instruction at any time of day. They meet with students on a monthly basis. This relates to the social activities Jones mentions in her interview. However, one teacher commented that face-to-face interaction almost never happens. Another teacher

commented that if the survey question were changed to a voice conversation or meeting in a virtual classroom instead of face-to-face then the answer would change to daily. These two are basically saying that they speak with their students regularly on the phone

Figure 2
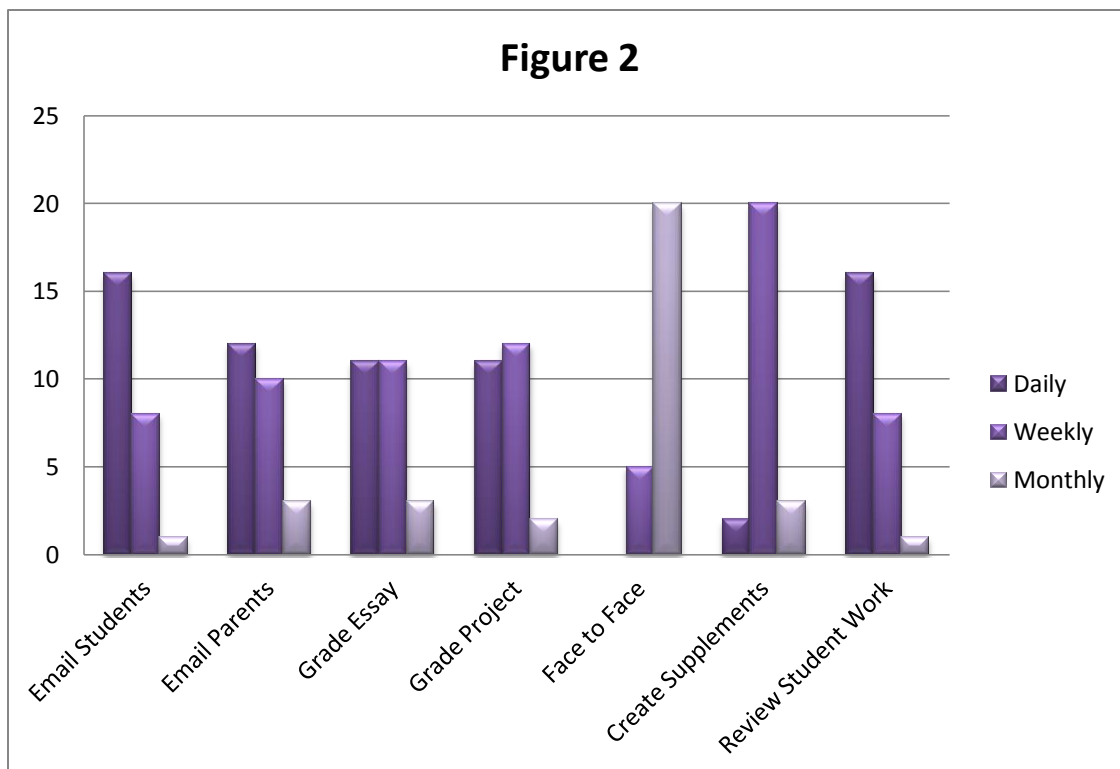
or in virtual classrooms, but barely ever get to meet with their students face-to-face. Serhan (2010) reported that the loss of eye contact, body language and voice tones are one of the main concerns for students of online study.

In the next question I asked if online education was more work than a classic educational setting. This was important to my research because I was interested in whether or not there was increased free time to allow for more collaboration, which was the next question. However, the results were inconclusive since more than half of the

participants were unsure if it was more work or not, and the remainder were split down the middle. One participant stated that there is less work in the online system, but really it is just more manageable because they can create their own schedule. This is because in the online setting the teachers set up time for virtual classroom sessions and are otherwise free to collaborate, call students or plan lessons. Another participant commented that the work is the same in both classical education settings and online education settings, but that it is simply different work.

Due to the flexibility of an online teacher's scheduled virtual classrooms they can utilize the rest of their time to plan weekly meetings to collaborate. Well over half of the participants reported that they are able to spend more time collaborating with their peers. Some participants recall than in an classic educational setting they felt they were basically on their own with a lack of collaboration. One participant worked in an elementary room within their office space where all of the elementary teachers are constantly discussing strategies and ideas. In the classical school setting those elementary teachers would be busy in their rooms and unable to have such constant collaboration. This might also be why many of the elementary teachers seem to work from the office rather than from home.

Kearsley (2000) stated that more resources lead to more effective learning and greater productivity. One participant added that, "because I spend my work days at home, communication is more prevalent; less social and more professional work getting accomplished!" What they mean by this is that teachers at home are less distracted by social nuances of the office and this person is able to message people directly and to the point. This pairs nicely with the comments Jones made in her interview about how

teachers seem to get more work done when they work at home full-time. Conversely, one participant stated that they spend about the same time, and another stated that collaboration is rare compared to traditional schooling. Certainly this participant had a valuable experience in the classic school setting with a school that had a focus on teacher collaboration and training.

The final questions are open ended questions related to the benefits and drawbacks of online schooling from the perspective of the teachers in these schools. This is related to my research question because many of these observances are fully transferable to my research question. Caldwell (2009) described how you can carefully read through your data to find themes that appear in the responses. He said that these themes can then be used to analyze data in light of the research question.

When analyzing my essay questions, I coded each response with themes that surfaced for the topics of drawbacks and benefits. The codes were simply one word descriptors for the themes within each comment made by the participants. For the drawback and benefit essay questions I found 4-5 dominant themes within each topic. In the topic of drawbacks I found that the lack of the social component held great influence, that the ability level of the student to work independently weighed heavily on their success, that contacting the students is quite challenging, that cheating is an ever-present issue and that the structure of the online system creates complications. There were many other themes that appeared in the comments such as less accountability and rewards, but these only appeared in a couple participant comments where as the others had a much more significant presence. On the topic of benefits I found that personalized instruction was greatly valued, many valued the flexibility online education offered them,

distractions are much fewer and far between for both the students and teachers, bullies are much less pronounced, and it creates a safe learning environment for all students. Caldwell (2009) said that these codes will include themes that I expected, themes that might have surprised me during my analysis and themes that are unusual.

Drawbacks and Benefits

In this section there are two topics that were given as essay questions to the teachers of online schools: drawbacks and benefits. While analyzing these open-ended questions many themes developed and some stood out among the rest. I will be analyzing each of these key themes with respect to my research and interviews in order to determine what each might mean for my research. The themes will start with the 5 drawback themes and are as follows: social component, independence, student contact, cheating and plagiarism, and complications of structure. Then I will transition to the topic of benefits and the 4 themes that emerged include the following: personalized instruction, flexible, distractions, bullies and safe environment.

Social component. The most talked about theme in drawbacks was the lack of a social component in the online school setting, preventing students from interacting socially among peers through their school. One participant said that, "the social part of education is vital, and I feel like even with field trips and [virtual classrooms], it is just not the same as making social relationships with your peers like you do in a regular school setting." Another participant explained that parents have to work hard to find local friends and community activities to build in that social aspect. While many of the students are involved with sports, clubs and community organizations, some choose not to participate in these other avenues for social interaction. This means that since they are

not able to have the social piece through school, they will miss out on it entirely. This becomes a bit of a concern for my research, because if the entire district was entirely online it would be up to the students and their families to develop social growth. Serhan (2010) pointed to the loss of social interaction as a huge detriment of online education. Delgarno & Lee (2010) suggested that virtual worlds should encourage collaborative learning. While collaborative learning might be beneficial, we also need to develop socially in order to be a part of our society.

Independence. Many of the participants, teachers in online education, speak about a type of student that is successful within the online educational system. Jacobs (1982) stated that certain student characteristics are necessary for success. He talks about high student involvement, immediate feedback response, and mastery orientation. To use the words of one participant, "In my experience, the model student for an online environment is an independent student that is willing to explore concepts themselves first without fear of either wasting time or doing something incorrectly."

Another participant explained how the parents are not always knowledgeable enough to assist the student with their online curriculum, and without that motivation to seek help from the teacher, the student's experience will suffer without assistance. Hamuy & Galaz (2010) spoke of students who are digital immigrants and are unable to perform in front of a computer. Robbinson (2010) pointed out that a student's background in computers and digital citizenship will greatly influence performance. Another participant pointed out that the teachers have little control over how engaged a student chooses to be, and it is hard to keep students motivated if they are not self-doers. This is because students are free to do their lessons any time of day, any day of the week.

This self-pacing means they can contact their teachers when they want and may or may not pick up the phone when they are called.

Jacobs (1982) reported unusually high numbers of withdrawals and incompletes with this type of self-pacing system. One participant explained that many of the students who want online education the most are the worst online performers because of a lack of motivation to self-sustain. For some reason or another, possibly those listed in the benefits topic below, it seems like these students are attempting to be in an online setting simply to escape classic educational settings.

Student contact. Contact with students that are not in a classic educational classroom can become troublesome when those students are sitting at home and may or may not be working on their schoolwork. Many participants spoke about the difficulties reaching students on the phone or through e-mail stating that "if they do not return my communication, I cannot do much," or that "students can choose to not read emails or answer phone calls." As Kearsley (2000) pointed out, student interaction is an important aspect of online learning today. Smith and Jones also each mentioned in their interviews how importantly vital the teacher aspect is for the success of the students. We also saw earlier in the survey how most of an online teacher's time is spent trying to contact students and families. Thus student contact has become the challenge of the online teacher in their quest to educate. Depending on the family's situation, the entire family might be hard to reach altogether due to location in the state or lack of a phone line or internet connection.

Cheating and plagiarism. Another main concern the participants have with online education is the ability to validate that student learning is occurring. In a classic

educational setting the teacher can approach and work with the student in order to find this information. One participant stated that it is hard to tell sometimes whether or not the work is coming from the student or the parent. Another mentioned how due to the fact that everything is typed or digital it becomes quite hard to monitor and identify cheating and/or plagiarism. A participant stated that in conjunction with the contact piece above they will attempt to reach the student so that they can verify that student learning is taking place.

Also, the participant pointed out that "online students are savvy/crafty enough to post questions and answers online on a regular basis." By having students post answers online it makes it hard to tell whether or not the student is crafting original work. Howell et. al (2009) reported that there are websites dedicated to helping students study by sharing answers, uploading tests and showing step by step solutions to problems. He went on to say that these sites continue to pop up on the internet with new names and even larger subscription rates. Howell concluded his report with the fact that since students are removed from the classroom and in the comfort of their own homes it has become quite the challenge to restrict access to those resources.

Complications of structure. The last common theme on the topic of drawbacks of online education among teachers who participated in the survey was about the structure of the curriculum. They described how it is largely designed by their EMO and "has a long way to go before [the online curriculum] is engaging, rigorous, differentiated, and reliable. Looking at the current science of what good education is, online education falls short." The discouragement comes from the fact that while the school is managed by an EMO, the school does not have any say in the curriculum being delivered to the

students. However, Frietas et. al, (2009) stated that thorough testing and a well-structured session was the key to success. This has limited the teachers to creating supplemental materials in the form of educational recordings for the students to watch and offering assistance in the form of virtual classroom hours and one-on-one tutoring sessions. However, among the clutter of so much information, students can feel overwhelmed and become unable continue forward.

The drawbacks of online education through the eyes of teachers of online schools has brought some about interesting implications. My research question asked about the possibility for an entirely online high school for an entire district. However the drawbacks indicated that it would detrimental toward the student's social wellness. Additionally, it encouraged cheating and plagiarism, while only really being beneficial to the students who are self-motivated and highly functional in an online environment. Are digital natives the only ones who can benefit from online learning? In the next section I will analyze the common themes from the benefits of online education. These themes included the following: personalized instruction, flexibility, distractions, bullies and safe environment.

Personalized instruction. Personalized instruction takes on many forms. One participant described it as the ability to take more time with the content that students struggle with. Another participant refers to the one-on-one or even small group exercises provided by the teachers for struggling students. Students are also able to call anytime during the day for assistance. Smith and Jones also mentioned in their interviews that a teacher plays a vital role in each student's personal education. One participant spoke about how online education could also be more accommodating for proactive students

who are interested in post-secondary enrollment options (PSEO), which allows students to take college level courses. Personalized instruction is a specific type of flexibility, another advantage to online education.

   Flexibility. One major theme echoing throughout all of my sources and the survey responses was the flexibility of online schooling. Serhan (2010) explained that it allowed the students to do their work on their own schedule, at their own pace and in a place that is comfortable for them. What they are saying is that if a student has anxiety issues about social situations they could comfortably work without that in their home. If they are a professional with a rigorous training schedule, then they could work on their schooling when it is most convenient for them. If they live on a farm and need to complete farm work at certain times, then online education could accommodate for that.

   One participant pointed out that as teachers, they are able to work with students no matter where they are in the curriculum. This means that because the students utilized the recordings to learn the material at their own pace, the teacher would have students working in different places within the curriculum at all times. In a classical setting you would have to teach a lesson and expect the entire class to complete that lesson at the same time. The online setting allows for a student to enter a virtual classroom and receive assistance for whichever lesson they are at.   In the interviews Smith and Jones spoke of teachers reaching out to students who are struggling. This was not to tell those students to catch up, but rather to offer assistance to those students with what they are currently working on.

   Distractions. One participant spoke about how the online environment yields many fewer distractions for students. While participants were not specific on those

distractions, I believe this might have included distractions such as classroom behavior, travel within the school and positive and negative social interactions to name a few. This is because these distractions simply do not exist at the home.

Bullies and safe environment. One teacher pointed out that students are not picked on within the online school setting simply because they do not have to interact socially at home; they will simply work on their schoolwork. Another participant stated that by taking out the social bombardment of an offline school system most types of negative interactions can be avoided. She goes on to say that by participating in an online school from the safety of the home, students are also offered their own safe environment that is needed for successful learning. As Smith and Jones stated in their interviews, "there are also staff dedicated to students with special needs which offer safe places for them to converse privately or participate in activities."

Summary

The purpose of this study was to find out what teachers and administrators of online schools think of the possibility of an online high school for an entire district. I followed a qualitative approach laid out in Crestwell (2009) to collect and analyze open-ended questions through the use of surveys and interviews. I analyzed the data according to the surfacing themes in order to answer my question. In the next chapter I will take a deeper look at synthesizing what I have learned and relate my findings to my question.

CHAPTER 5

Conclusion

Introduction

Because of my past, I began to question if there were more efficient ways to teach our youth in terms of teacher-to-student ratio so that there could be more state-wide funding available for education per teacher. My research question asks how teachers of predominantly or entirely online schools perceive the possibility of an online-only high school for an entire district. I sought to have an online adaptive learning program created by teachers and programmers in which those teachers would effectively be able to teach the entire high school through this program. If successful, they could move to teach the whole state or country through their program, greatly increasing that teacher-to-student ratio. This would allow for more funding for non-high schools and other classical facility educators.

While some of my findings support this idea, there were the online education system still has some negative aspects inherent the online setting. For instance, the ability to cheat online and in your home when a teacher is not watching is a very real possibility. Caldwell (1985) talks about cheating as a very serious threat to online learning. Howell (2009) reported that digital cheating was on the rise and included things such as mobile phones, braindump websites, wireless earpieces, and even popular websites such as YouTube and Facebook. The survey participants were also vocal about the difficulty of identifying cheating and plagiarism as students become smarter about

their methods. Livingstone (2009) spoke about how society is moving toward a digital native society in which children learn and operate digitally. My concern is that they will only become more proficient at cheating and plagiarism if the teachers were removed from the mix.

Even though teachers may be able to work with a student anywhere through virtual environments, the lack of social interaction is heavily noted in both the literary research as well as my own research. According to Veletsianos et. al (2010), in an online environment some points of concern include the lack of verbal and non-verbal interactions or visual cues for conversational initiation. Throughout the survey many participants echoed this idea that the lack of a social aspect to online learning can be detrimental to the student's growth. It has become apparent to me that the social aspect of education is equally important within our school systems. Efforts would have to be made to ensure the social growth of our communities if any transition to a digital education were to take place.

The research also points to a few beneficial aspects of current online schooling as it relates to my research question. Freitas et al, (2010) found that video conferencing enhanced learning in virtual environments. I found it very interesting that this is now the main course of action within the current online educational systems. It allows teachers to work with students anywhere through the computer to teach them. However, my research question aims to use an educational software to teach the students and remove that responsibility of the teacher so that they can increase the teacher to students ratio.

Herold (2010) spoke about how being in a virtual world does not suddenly enable learning (p. 797). He stated that learning online is no different than any other learning in

that it should be prepared and delivered properly in order for learning to be accomplished. In both interviews Smith and Jones were adamant that the professional teacher plays a vital role in the learning of the student. One journal (Delgarno & Lee, 2010) stated that if virtual environments are to be used in an online high school, there will have to be more research done on how to effectively use them and when and where to use them. As Jones stated in her interview, "it would just take a lot of curriculum development in order to have it be learning and outcome-based so that it is advancing as a student is learning." My research question is focused on the development of this same software utilizing teachers and programmers to create an adaptive program that could adjust its teaching based on student responses. Once the program is created it could be used to teach many students without the need for teacher interaction.

Despite this fact, I learned that the human element plays such a vital role in the education of future generations. Throughout my research many connections were made to the teacher as a vital element to the success of the student. At Smith's and Jones' schools the teachers were constantly calling students and interacting with them at the student's level. Jacobs (1982) brought up the importance of having quality educators in place to assist the students while they worked. The survey participants stressed the importance of making contact with students, and Jones explained how student contact was such a large part of the teacher workday. Additionally the survey participants pointed out that the motivation of a high school student is rarely high enough for them to be successful in a completely online experience. Jacobs (1982) also reported that high motivation is a necessary component of success in an online self-paced system. Since the

teacher plays such a vital and active role in the successful implementation of education it seems improbable that we will be able to remove that component.

Summary

The online educational systems are constantly changing. They are progressive and open to new research. I agree with Jones in that we will continue to see it evolve over the years at a rapid rate. While it may not take the route I had theorized in the form of an adaptive educational program, I believe that it will include aspects of research. I think future endeavors into the topic might delve more into the idea of virtual worlds as a delivery method for teachers. As technology continues to evolve, so too will the ability to create intellectually stimulating virtual learning environments. More research is necessary on the topic of adding programmers to assist teachers in creating such a virtual learning space. However, since funding is already tight in education, I imagine that this would have to be an endeavor for individuals and private companies to explore. I am excited for the prospective future, and to see the ways in which education evolves through our digital age.

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APPENDIX A

Interview Questionnaire

Interview Questionnaire

1. Have you taught in both online and traditional type schools?

2. Describe the processes involved with online education the way it currently is
   working.

3. Do you have any classes that are self-sustaining or have very little teacher
   involvement? How does it work? (did they mention student contact)

4. How many and what kinds of faculty are required for the school's operation? Does
   that include technical support faculty?

5. What kind of technology is required? What are the requirements for teacher
   knowledge and/or training?

6. How many students per teacher per semester on average? What was your largest
   "class"? Do you feel that larger class sizes negatively impact student learning?

7. How does online education cater to English language learners (ELLs)? Spec. Ed.?

8. Can you work from home? How does teaching in an online setting affect the hours
   that are required both at home and at work?

9. If there was a smart program to teach students based on the answers given (similar to
   the MAP test), how feasible do you feel it would be for an entire district's high
   school system to operate through such a system online?

10. Do you have anything else you'd like to add concerning the future of online
    education?

APPENDIX B

Survey

Survey

1. Do you work in an
    a. Entirely online school
    b. Predominantly online school
2. How many hours do you work at the facility per week?
    a. 10
    b. 20
    c. 30
    d. 40
3. How many hours do you work at home per week?
    a. 10
    b. 20
    c. 30
    d. 40
4. How many students do you teach per semester?
    a. 150
    b. 200
    c. 250
    d. 300 or more
5. Describe your activities to teach this class on a daily, weekly and monthly basis by filling out the table below? (some topics may change or be added after interviews)
    a. Email students
    b. Email parents
    c. Grade essays
    d. Grade projects
    e. Face-to-face contact with students
    f. Create supplemental curriculum for the medium
    g. Reviewing student data based on their online work
    h. Extra comments (essay)
6. Does working online constitute more or less work than traditional schooling?
    a. More
    b. Less
    c. Unsure
7. Do you find yourself working more often with other teachers on curriculum development and/or instructional strategies?
    a. Yes
    b. No
    c. Explain (essay)
8. What benefits do you see from online learning? (essay)
9. What drawbacks do you see from online learning? (essay)

APPENDIX C

Interview with Smith

Interview with Smith, November 3, 2016

Have you taught in both online and traditional type schools?
I have, at my current setting. I've mainly been an administrator working on curriculum. I am a principal, but I have taught here as well.

Describe the processes involved with online education the way it currently is working.
In my school I think we're a little different, but we have a very high level of support as a part of our schools infrastructure. Half of our staff are actually support staff working with students and helping them stay on track. We have a lot of counselors and social workers that will help students dealing with social or emotional issues that might be affecting them outside of school. We serve primarily at-risk students. They are over age/under credit, so that's a big part of that. The teachers work with students on a regular basis. They have live office hours or online sessions. So we regularly get feedback from our parents that there is more communication in online school than in their traditional brick and mortar school.

So it's more like tutoring?
Not quite tutoring. The asynchronous online lessons have all of the components of a brick and mortar class where we have some sort of set up to activate learning or a demonstration. There are opportunities to demonstrate learning, and then they are assessed on their learning. So they have a lot of that. Some students can go through the curriculum and not have to work with the teachers, but if they get stuck they are prompted to contact their teachers and get help. Much like a teacher might go around and sit down and help students. They'll do that, but it's virtually. We have software where we can do screen sharing and have a virtual whiteboard to work on. Essentially they are sitting right across from each other and the teacher can help them like they are right in the classroom.

Do you have any classes that are self-sustaining or have very little teacher involvement? How does it work?
Not really. We do have My Pace classes on our website. They can use a flexible schedule where they can start and end on any given date or time. If a student doesn't have any questions they could do it without having to communicate with the teacher. That being said, our teachers are monitoring their students regularly. If they see that the student is getting stuck they will reach out to their students. We have dashboard tools that provide analytics to our teachers so they know when they should be intervening with students when they get stuck. so we have a lot of tools to make sure if students aren't reaching out, we are. This way they are getting the help they need to progress.

How many and what kinds of faculty are required for the school's operation? Does that include technical support faculty?
All of our staff working with students hold licenses for their specific areas. Most of our staff can provide basic technical support, and an IT staff that can also provide basic technical support. We're a bring-your-own-device program, so the students need to

provide their own equipment and internet connection. In some cases we have provided equipment, but their primarily responsible for maintaining equipment. If it's a software issue, in most cases our staff can provide support.

What kind of technology is required? What are the requirements for teacher knowledge and/or training?
Technology requirements can be a current Windows or Mac system. Tablets do work, but we do not support them. However, we still do have some students who do work on mobile devices. Some of our staff do complete a class for an online teaching certificate, but it's not required by the state. We have a fairly rigorous training for our staff, and so that they can see what it's like to be a student. They are paired up with a mentor staff who works with them and checks up on them on a regular basis. We have some benchmarks to check up on them to make sure that they are progressing and learning the tools, and they are able to do their job effectively when working with students. All of our staff are evaluated three times a year. So they get a lot of feedback. If we see that there is an issue, we can make sure that they are provided with support so that they can overcome any challenges that they have.

How many students per teacher per semester on average? What was your largest "class"? Do you feel that larger class sizes negatively impact student learning?
Size does impact learning and the state dictates 40 per teacher per class, but we look at overall. We make sure that every teacher has less than 180 students, which if you figure 6 classes per day, that equates to about 30 students per class.

How does online education cater to English language learners (ELLs)? Special Ed.?
We have a full special ed. team and in fact, we are slightly higher than the state average for students receiving special ed. services. It can sometimes be challenging depending on the needs of the students. We do occasionally have students come into our location, but most students do work online for those services. And as I mentioned we do have the tools to work with students one-on-one. So a lot of it is just converting a brick and mortar IEP to the IEP and accommodations that would be fitting for our online setting. We have an ELL teacher that works with students and provides classroom support and also does some pull-out support if we have some low English level students.

Can you work from home? How does teaching in an online setting affect the hours that are required both at home and at work?
Yes. Most of our staff works from home every day. We do have almost quarterly on-site trainings and meetings, but almost everything teachers do is from home. They are evaluated fairly regularly throughout the year. In some instances we function more on a get your job done basis. If they are more efficient they might work less than others. We're looking if they are meeting their goals and objectives and to be sure they are reaching out to their and working with their students. That being said, since it's an online school we have a lot of tracking capabilities where we can track their communications and logins and when their working since they are logging into our system to do their work.

If there was a smart program to teach students based on the answers given (similar to the NWEA tests), how feasible do you feel it would be for an entire district's high school system to operate through such a system online?

I think it'd be intriguing. There are software out there that claim to do that already. I would be skeptical relying on a program simply based on what I've seen. The students really need to have interaction in order to be successful and to integrate their learning. It'd be interesting and definitely something we'd consider looking at if there were programs that could do that.

Do you have anything else you'd like to add concerning the future of online education?

Not really, it's a pretty diverse group so I wish you luck in your research. You'll probably see some common themes. For us, working with students one-on-one is really important and building those relationships. That might be different with different programs. It's still pretty cutting edge and changing as the technology changes.

APPENDIX D

Interview with Jones

Interview with Jones, December 12, 2016

Have you taught in both online and traditional type schools?
Yes, I had a variety of teaching experiences. My first job was teaching middle school and high school Spanish, and then I taught eleven years in elementary before jumping into administration. The only teaching experience online was when I started here, and I was an assistant principal. To get a feel for what teachers deal with and because we were short-staffed at the time I taught some math and online PACE classes.

Describe the processes involved with online education the way it currently is working.
The students do have a learning management system that they log into every day, which includes their lessons and a planner to keep them on track for achievement. But a component that we think is important is the live lesson or the live instruction with their teachers that's done through a virtual classroom. For most students that is an optional component. However, sometimes we do require for students that are struggling to come to those live lesson sessions. But the beauty of being online is the flexibility that it allows for a family in terms of schooling. You can have your schooling fit into your individual life. We think that the LL instruction is important, but we do record those sessions, too, so that students can partake in those at a different time if they are not available when they are delivered. And then in addition to that, we are also focused on not only the academics but also the social / emotional component. To address this we do staff school guidance counselors who are available to all of our students, and they do provide various activities throughout the year for students as well as one-on-one and small groups activities. And then the social component can be delivered not only in the LL but also through the field trips that we offer each month. Our philosophy is that the real live teacher is a real strong component of their program even though a student can choose not to interact. The vision is to be more individualized and a more exploration type of learning.

Do you have any classes that are self-sustaining or have very little teacher involvement? How does it work?
Well I think that a lot of the electives are self-sustaining where there is a lot of embedded video in the lesson so that the students can still learn the curriculum without the support of a teacher. But for the main content areas our intent is that the student will work with a live teacher.

For the students that are in those electives, do the teachers work with them or just grade?
It depends on the class, a lot of the electives have the discussions embedded, so they do not have to speak with the teacher, but they do need to talk with their peers. It's probably about 50/50, the students who have been with us and know our system are primarily working independently, but new students or students who struggle or need guidance, those students are probably working with their elective teachers more. And the interaction is more likely to be e-mail based or through phone calls or in a live lesson classroom.

How many and what kinds of faculty are required for the school's operation? Does that include technical support faculty?
As an educational management organization (EMO), our company provides all of the technical support, so locally we are required to hire the certified teachers for the classes we're teaching and then we also have admin assistants to help with state reporting and attendance, as well as a leadership team to support the teachers. That does not include technical support staff, but we do have a staff who volunteers to help with technical issues locally based on his own self-taught knowledge.

What kind of technology is required? What are the requirements for teacher knowledge and/or training?
That's a great question, we've hired both over the years, teachers with limited tech ability and some that are more advanced, and we do have a tech screening as a part of the interview process that goes over some of the basics in terms of how much do they know about Microsoft programs and email. It does also do some testing of the general use of the English language. The screening kind of determines for us whether they will be a good fit. We do not expect that they will score 100% or even in the 90's, however if they do score under a 70% we have moved to a decision that it may be difficult for them to keep up with the work-load because everyone on staff has a strong technology background or the capacity to pick things up and learn it quickly. So yes, the ability to use tech and to come in with that background is important to be successful.

How many students per teacher per semester on average? What was your largest "class"? Do you feel that larger class sizes negatively impact student learning?
That varies every semester. The largest that we've ever seen is usually in our elective courses where the student only has the class once or twice a week. Those teachers could have as many as 400. And then in content areas its more around 225 as a max, but we try to keep teachers under 200. It does depend on the content that their teaching. The areas that are tested tend to get better staffing. But, I think sometimes if we run into issues with staffing we may see numbers creep up to around 250. I would like to think that it doesn't negatively affect learning. Those teachers do allocate more time and we do try to lighten their load the next semester to kind of even things out. I would imagine that it does affect the students that struggle. They would run into issues with larger class sizes. There's just not as much time to get to everybody.

How does online education cater to English language learners (ELLs)? Special Ed.?
Let's talk about ELL first. That's a revolving field. When we first started there we did not see very many ELL's entering online learning, and we were ok with that because our system involves so much reading. So it can be a difficult situation for ELL students if they struggle with the English language. We have definitely evolved over the 10 years we've been open, and we do have a small population of ELL students that work with an ELL teacher. Often times if the student has a really low level of English level proficiency, for example if they are new to the country, the student is welcome to stay, but we'll work hard with the family to get the student into another school environment where the student is going to have the ability to learn, not only from the teacher and

curriculum, but also from the peers from day to day interaction. Just being an observer in a classroom is much better in a face-to-face situation rather than in a virtual one.

Then special ed. is a bit different of a component. We run about 12-14% special ed. in our school which is a bit higher than the average. I think students and parents are looking for a better amount of service than what they can get in their local school, or parents are looking to keep their students at home with them and be a part of the education. So we do see a higher number of special ed. kids.

Do they get more from a virtual environment?
It depends on their disability. Their services are individualized. A student with learning disability is probably more likely to have more one-on-one services with their case manager than they would in a school where there is a resource room and students are grouped together. Students with more profound disabilities that, say, require speech or physical therapy are also one-on-one. So some parents prefer that.

Can you work from home? How does teaching in an online setting affect the hours that are required both at home and at work?
Well, having a healthy work-life balance is something that we're always considering. When we started out as a school we were apprehensive about having teachers work from home full-time, so we initially started with just giving a day or two a week, and then transitioned in to having staff work being able to work from home full-time. I think it took a while for us as a school to understand that typically our full-time home teachers are doing more work than the average office teacher because there is no commute time, and no distractions of the office. One of the benefits of online schooling for our students is the flexibility that it provides, so why not provide that to our teachers as well. We do ask teachers not to do a lot of working with students outside of the typical work day, because that is not what our program is about. We never want our students to feel like they have access to their teachers 24-7. There are some situations maybe at the end of the semester when students are trying to finish up where teachers might go above and beyond the expectation and spend a little more time with students. Certainly teachers spend some time out side of the school day grading or correcting, but we try to keep our teachers to the 8 hour day.

If there was a smart program to teach students based on the answers given (similar to the NWEA tests), how feasible do you feel it would be for an entire district's high school system to operate through such a system online?
I would like to think that it is feasible. NWEA has done it for years in terms of the assessment portion. So it's definitely feasible, but it would just take a lot of curriculum development in order to have it be learning and outcome-based so that it is advancing as a student is learning. I do think it's a possibility; it just hasn't been done it yet. Hopefully that's where we see online education head. How great would it be for a student to earn a semester credit in less than 18 weeks. As long as they're learning the content I say, let them have at it.

Do you have anything else you'd like to add concerning the future of online education?
I think as much as we think of online education as still new, that's one of the exciting things of being in online education, it's a lot more progressive. We don't spend 5-6 years doing the same thing just because that's what we've always done it that way, so the progression moves more quickly. So I do think that we'll see it continue to evolve. There are some states that require as a part of graduation requirements for students to take an online course. As much as I love online education I think there's still the important component that the teacher provides. So I don't think we'll ever get to the point with the student and the computer solely, but we will continue to see advancements.