**“Integration of Technology at Rainbow Creek Elementary School”**

**Assignment 2**

**MDDE 630**

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Identifying factors that influence technology use in local schools is a difficult task. With no prior relationship to schools, school officials seem to be leery on what information they are willing give out. To successfully accomplish this case study I went to see three different elementary school systems in the same small town. The town of Chestermere is a lake side community located on the out skirts of Calgary Alberta. According to town all officials the town population is roughly 14,900. There are 6 schools in Chestermere, 4 of them being elementary schools. This would indicate that the demographic for this area are young families. Upon my studies of these three schools I realized that for the most part the elementary schools in Chestermere that are governed by the public education board are run in the same manner. For the purpose of this case study I will use Rainbow Creek Elementary as the local school. Rainbow Creek Elementary is a school for grades K-5. This elementary school brings technology into the classroom to help prepare its students for the 21st Century.

***Synopsis/Executive Summary***:

 The purpose of this case study is to study and learn what factors contributed and helped determine the influence of technology in a local school; Rainbow Creek Elementary. How school boards, principals, teachers, parents and students have responded to ICT integration into the education of elementary students. The 21st Century is a technological place where knowledge of these technologies can make or break an individual. What factors contributed to determining what technologies were used? What facts were considered? What obstacles were overcome and which ones became road blocks?

 Rainbow Creek Elementary is part of the Rockyview School District. This school has an estimated 380 students, 20 teachers, and 13 support staff. Their principal is Laura McArthur the school also has a Vice Principal. The Rainbow Creek is a typical Monday-Friday, 8:45am-3pm school. It is located in the neighborhood of Rainbow Creek. The average family income of students whom attend this school is estimated by the principal to be $100,000. According to the Rockyview School District 16% of students are English Language Learners. There is an ICT program in place which consists of 50 MacBooks which students can load, in class televisions, and internet wi-fi connection throughout the school. The school has a PTA and a general council that meet. There are town council liaisons that work with the school and the school has one RCMP officer that frequents the school and talks to children.

 Some issues that were presented were budgets not being large enough to assist with the schools goals of advancing technologically. The registration at the school increases every year, and the school is beginning to have difficulties accommodating all the students. The MacBooks they have at the school are starting to show wear and tear and the 50 they have for almost 400 students sometimes doesn’t meet requirements. Typically only two classes can use the MacBooks at one time. There is a computer library, however that is for Computer Class which all fourth graders take. Negative feedback from some parents, and some General School Council members indicates that some feel the cost associated with ICT advances in this elementary school are too high, and not a valuable asset for children this young. Several people feel that ICT integration should be focused more on middle or high schools where students can get more learning and use out of the technologies.

***Findings***:

 The research design I used for this case study were both qualitative and quantitative methods. The three data sets compiled were

1. A survey given to teachers of Rainbow Creek Elementary. Of the 20 teachers 14 completed the assignment and returned it to me.
2. Three classroom observations including grades 1, 3 and 5. These classroom studies were during different implementations of technology in the classroom. The Grade One class used a television to watch a video of mammals at a zoo. The grade three class were on a conference call to their French pen pals who reside in Quebec during their French lessons. The grade 5 class were using MacBooks during an entire day of lessons.
3. Interviews with technology leaders, and teachers.

By using Fullan’s (1991) change theory I focused my research questions on four change factors; need, clarity, complexity, and quality and practicality. My research focused around four main questions.

1. Need: What do teachers think a priority need is? Do they think the integration of instructional technology should be a priority?
2. Clarity: What do/should school leaders do to clarify the vision of the integration of technology and instruction?
3. Complexity: Are teachers prepared to undertake the complexity of technology integration?
4. Quality and Practicality: What kind of support do teachers need/have? What resources would help support teachers with the integration of technology into their lesson plans.

 During my research I found four major findings just as Maddin did in 2002 in her case study (Maddin, 2002).

1. Teachers whom have previously used technology extensively for their own work also used computers more often to support student learning.
2. Teachers’ direct experiences with technology played a critical role in the development of their felt need for technology integration.
3. The clarity of technology integration was strengthened through teachers’ involvement in technology planning, lesson invention, peer-to-peer mentoring, and leadership modeling.
4. A majority of teachers did not feel well prepared to design technology-enhanced learning opportunities for students or to assess students’ use of technology.

***Demographic Shifts:***

 There are currently more and more students registering at Rainbow Creek Elementary school. One of the finding was that the ICT program at the school which was implemented three years ago is having difficulties keeping pace with the growing enrollment rates. They have 50 MacBooks available at the school, which can be booked out for classrooms. Currently the class sizes range from 20-30 students. There can never be more than 2 classrooms using the computers at one time, and sometimes there is obviously only enough computers for one classroom. When Laura McArthur first approached the Rockyview District for a budget allowance for an ICT program she was not expecting the school’s enrollment to increase as dramatically as it has. According to the Rockyview School District enrollment at Rainbow Creek Elementary school has increased an average of 15% per year. At this rate the school requires more computers however the Rockyview School District is not providing them the budget to purchase more computers.

***Politics:***

 There seems to be quite a bit of politics involved at this school. The General School Council comprises of town representatives, school board representatives and appointed parents. The School Board feels the school has enough computers, and enough funding in their current ICT program. The rest of the committee and the PTA are pushing for a larger budget. Three years ago the school received funding from the Town Council. The generous donation was met with a lot of controversy as the Mayor two daughters attend this school. As the Rocky View School District have no doubt heard several complaints from other schools in the surrounding area they are reluctant to approve more allocation of budgets to the ICT program. When I was at several of the other schools it seems that there is a general consensus that Rainbow Creek Elementary receives some sort of special treatment from the town. Upon further investigation I learnt that in reality based on the size of the schools each school I visited with had similar ICT programs, and technologies.

 Through the surveys I took I soon discovered that several parents found the choice of MacBooks frustrating. All the computers at the school (in the Computer Lab, and Library) are all PC’s, thus having MacBooks seems to confuse their young children. The parents feel introducing the children to one type of technology would be more productive. According to Fullan (1999) children have the ability to learn and absorb more information at a younger age than they do as adults. Perhaps introducing children to all these different types of technologies better prepares them for the 21st Century. It seems as though Rainbow Creek Elementary is trying to meet their goal to enhance the technological advances of society.

***Complexity***:

 In the United States the National Center for Education Statistics (2000) reported that about one third of K-12 teachers felt that they were well-prepared or very well prepared to use technology for classroom instruction. Several of these teachers indicated that there were professional development activities on a number of technology topics that were available to them. According to the same study conducted by the National Center for Education Statistics (2000) it was reported that participation in said professional teaching developments was high ranging from 75%-83%. One can assume that it should be likely that the same numbers were be similar in Canada.

 When results from my research came it, I found it obvious that there was a correlation between the age of the teacher and their level of comfort with integrating technology in their lesson plans. Teacher who had graduated within 10 years seemed to have the highest positive correlation with the integration of technology and lesson plans. It seems that the more experienced the teacher, typically the more hesitant they were to incorporate technology into their daily lesson plans. One teacher whom wanted to remain anonymous claimed that “students of the 21st century are forgetting how to spell and write, parents aren’t as concerned as they know their child can rely on modern technology to get them through life. It becomes a travesty when students in grade 5 do not know their multiplication table without calculators”. Students need to learn the basics before they can integrate technology into their learning.

***Needs:***

 “Many innovations are attempted without a careful examination of whether or not they address what are perceived to be a priority needs” (Fullan, 1991 p. 69). For a change to take place there has to be a need. There has to be acknowledgement that there is an important problem that requires attention and that the proposed solution will indeed address the current problem. In this case the front line people are the principals and teachers. They have to agree that there is a need for change, there is a situation that needs to be fixed. These front line workers also have to agree and accept the solution as they are the ones that will be implementing change. If a teacher or principal doesn’t agree with the solution they will be reluctant, and not fully integrate the change. In this case the need would be for more technology integration into classrooms. This need is agreed upon by the majority of teachers at Rainbow Creek Elementary school and the Principal Mrs. McArthur.

The integration of technology into lessons plans at this Elementary for the most part have been successful. Some teachers feel that traditional teaching methods are incompatible with methods that promote technology integration. It is important for teachers to be open to change; to provide meaningful technology learning experiences, teachers must also embrace new instructional strategies (Jones, et al, 1996). More experienced teachers at Rainbow Creek feel that traditional teaching strategies and resources have served them well over the years and perceive little value in the new approaches to instruction that technology integration requires.

***Clarity:***

 The integration of technology can be very stressful on some teachers, while seamless on others. It is important to have a clear vision for change and the future goals of the school and of course a proposed plan of action. Teachers need to be aware of what is happening, why it is happening and what they are required to do to implement technologies into lesson plans. Clark (2000) stated the clarity of technology integration is increased when novice technology instructors have opportunities to observe their more experienced colleagues facilitating instruction in a student centered environment.

 Three years ago when technology integration first begun at Rainbow Creek Elementary the change was rapid. Some teachers felt there wasn’t enough time for adjustment, some felt they knew little about what was becoming available to them and how to use it correctly. Principal McArthur states that “looking back I wish I had taken more time to express to the faculty the changes that were coming, what to expect, and ensure all teachers received some form of training”. Over half the teachers felt the change was much to rapid, and clarity was indeed an issue when the school first received MacBooks.

***Quality and Practicality:***

 Quality in this study is defined by the degree of attention and focus directed at the initiative, the amount of resources (human, material and monetary) that will be supplied to aid in the integration of technology. The quality of change is drastically compromised when teachers are expected to implement multiple goals simultaneously (Fullan, 1991). Quality demands focus, teachers need to be focused on the integration of technology. In the elementary school system; teachers tend to be more focused on teaching students the basics and fundamentals.

The quality of the MacBook that were first brought into the school were above par. Now three years later these MacBooks have seen quite the wear and tear after being used by hundreds of students. Updated software is also becoming an issue. The school recently installed wi-fi so all classrooms could connect to a monitored internet location without having to be plugged in. Five of the 14 teachers whom responded to questionnaires felt that more attention needed to be spent on the basics of learning. This would perhaps suggest that K-5 is a little too early for some of the technology integration this school has received.

 When observing a classroom talk to pen-pals in Quebec I saw these students want to learn more, they felt the need to learn as much as they could so they could converse with their friends. French no longer was a language they had to learn in school, it was a language they wanted to learn to meet new friends, learn new things and learn about a culture they had not experienced. Students were engaged, they were learning new words, and actively conversing with a new friend. Not only did this new integrated technology help motivate students to learn, it gave the teacher a new way to teach, and of course taught the students socializing skills.

**Results:**

 One thing I determined from my study was that the faculty at Rainbow Creek for the most part embraced the integration of technology into their lesson plans. They all felt to some degree the technology integration they had experienced in this school setting was successful. Some of the technology was determined by teachers to be too advanced for younger students. Televisions for the classrooms enabled students to watch videos. Some of the MacBooks were used to video-conference pen-pals in Quebec which encouraged the students to learn French. While the integration of technology could have been brought in a little smoother for the most part the faculty, students and teachers felt that the students benefit from the added technology.

Integrating technology into school systems take an enormous amount of funding, it also takes time. It is worth it to have a well thought out plan for this integration so the implementation and fusion of the technology into the new system is as seamless as possible. The integration of technology has several positive benefits for students, the integration must be embraced by the teachers themselves or the integration will likely not be implemented. Technology can not only teach students, it can motivate students to learn as well.

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