

Gresham School District Technology One-to-One Initiative

Troy Kuhn

Marian University-Wausau Campus

EDL 725

Summer 2014

Introduction

The Gresham School District mission identifies the needs to “educate members to be productive, self-confident, lifelong learners.” Therefore, the need to increase the school district’s technology to the current and most innovative standards is of utmost priority. To date, Gresham has changed many things throughout its building to meet these needs.

The Gresham School District is a K-12 district (one building) that has an average enrollment of 280 students. According to free and reduced lunch records, over 72% of these students are in poverty. Many of these low income families cannot afford a computer or internet access. The only access to technology is during their classroom activities at Gresham School District.

Gresham technology standards were adopted from the Shawano-Gresham School District, which is aligned with the Wisconsin’s Model Academic Standards for Information and Technology Literacy. The Gresham District has considerable strength in technology. Starting in pre-kindergarten and all the way through graduation, students were required use and learn basic word processing, typing skills, manipulating pictures and media, and creation and presentation of their own content. Within each curriculum content area, teachers were required to have students create and present information using Microsoft Word, Microsoft PowerPoint, Prezi, iMovie, and Adobe Illustrator. In order to do this, elementary teachers had times built into their schedule in which they would use the computer labs. Junior and senior high teachers would work with the elementary teachers to rearrange their schedules to get access to computers.

In 2009, Gresham staff and administration understood there was a definite need to increase the amount of technology within the district. The initial implementation occurred in the special education department. The elementary and secondary special education departments

were outfitted with twenty Apple iPads, two SMART interactive whiteboards, and various Apple computers. Also, a SMART interactive whiteboard was purchased for the head start and pre-K room since many of these students were considered to be high risk.

Although special education students had access to computers, the rest of the school did not. In order for students, teachers, or classes to have access to computers and interactive whiteboards, the computer labs would still have to be checked out for use. Because of complaints by staff members that only special education had access to technology within the district, a technology committee was formed in 2010. The committee consisted of a school board member, business manager, librarian, two elementary staff, two junior high staff, two senior high staff, and two special education staff. The primary objective of this committee was to identify the district problems and needs for improvement within the district. The committee sent out a simple survey that consisted of three questions: 1. What are your concerns? 2. What are your needs? 3. What are your wants/wishes?

Concerns by staff at Gresham were consistent with research done by Adelman, Donnelly, Dove, Tiffany-Morales, Wayne, and Zucker (2002), in that “Teachers report that when computers are in labs, they use technology less often for instruction because of the difficulty of scheduling time in the lab and transporting students there.” Adelman et al. (2002) and Cuban (2001) Sheingold and Hadley (1990) also report that “Limited access is a reason why teachers make limited use of technology with students.” A major wish was to have each student have their own device. Teachers felt like students knew how to use the technology; however, they did not have efficient access or time with it. Penuel, Kim, Michalchik, Lewis, Means, and Murphy (2001) states, “Providing students with a computer with Internet access gives everyone the ability to use up-to-date learning resources.”

Results of this survey also determined that students were not successfully meeting the following Wisconsin State Technology Standards: A.3 Use a computer and productivity software to organize and create information, A.4 Use a computer and communication software to access and transmit information, A.5 Use media and technology to create and present information, and D.1 Participate productively in workgroups or other collaborative learning environments.

Members of the technology committee used these surveys to illustrate to the school board the necessity and wants for technology improvements throughout the district. They used previous month's computer lab sign-up sheets to prove that the labs were overused, and oftentimes unavailable because they were in use. They also used the teacher technology climate survey to show that the staff was not only unhappy with the current technology, but they felt a definite need to improve the technology and availability of technology in the Gresham School District. Finally, the committee used its data to illustrate that many of the Wisconsin Technology Standards were not being met effectively because the lack of access to computers and technology. The committee stated that the need for increasing the technology in the elementary classroom and current computer labs was of priority. Because of this, the school board doubled the technology budget from \$30,000 to \$60,000.

To address the initial needs of technology in the classroom, with direction of the technology committee, it was agreed that there would be a three-year plan to incorporate more technology in the classroom. However, it was also understood that the current computers within the labs would not be replaced in these three years since the money was being allocated for classroom improvements. After the teachers each received new laptops in 2010, the implementation of SMART technology began in the elementary and current computer labs with

the purchase of eight interactive SMART boards and projectors. By the end of the third year (2012), each classroom had its own SMART interactive whiteboard, projector, and DVD/VCR.

The second phase addressed the fact that 280 students were limited to two computer labs, consisting of a total of 60 computers within the whole district. Initially to help solve this problem, a mobile computer cart was purchased with an additional 30 laptops for checkout. However, the primary focus of the second stage was always to get a computer in each student's hands throughout the day.

Background and Demographics

Gresham is a small community just south of the Menominee Reservation in North Central Wisconsin. Over 72% of the people in the community live in poverty. Over 50% of the community is either Stockbridge or Menominee Indian. The community is dominated by three religious groups: Mormon, Catholic, and Lutheran. There is little to no business in the community, just a couple thrift stores, bars, supper clubs, and a convenience store. Much of the business is resultant from the two local casinos, which are both less than ten miles away. The heart and soul of the community is the school. Many of the support staff who work in the school are Gresham community members.

Gresham School District was created in 2004 by seceding from the Shawano-Gresham School District. Although this seemed like a victory for Gresham Community School, it forced the teachers at Gresham to make major decisions. Teacher had to choose to go to the parent district of Shawano, or take their chances with the newly-created Gresham School District. If the district failed financially, staff would lose their jobs.

Four teachers out of thirty stayed with the newly-created Gresham School District. Because of this, essentially a brand-new staff was created in the new district. After three years,

Gresham succeeded and was officially its own district, one that was thriving over neighboring districts in the area. Test scores were high, and it became three-time US News and World Report “Best School District” and has won the School of Recognition award every year since its existence in elementary and junior/senior high.

With an average staff age of 30, the staff, administration, and students all enjoyed their new school. School report cards have always been between 70% and 80%. With a new staff, teachers were very motivated, and everyone seemed to pitch in when needed. Staff, students, community members did whatever was needed to make Gresham the “best” district in the area. The School Board is willing to listen and work openly with the community, administration, and teachers. The new teaching staff has made the Gresham School District a place where everyone wants to go to school and learning is fun.

Philosophical Incorporation

My philosophy is based on two approaches. The behavioral approach is the most widely used. For implementation of Gresham’s One-to-One Technology Initiative, I will use the behavioral approach. I feel that the goals and objectives need to be clearly specified for successful implementation. A three-year plan of implementation will help map out the ideas, and get a clear overview of the scope and sequence.

However, I challenge teachers to focus on the humanistic approach when they develop their new digital curriculum. It should be based on real-world skills, involve cooperation, teamwork, problem solving, and peer review. By having technology devices their hands at all time, students will have access to current research and interactive media. This will motivate them to better apply their knowledge to real-life problems or situations. By having devices, students will be more involved in group activities and communication of knowledge and results.

Support for Gresham One-to-One Initiative

Using International Society for Technology in Education (ISTE) Essential Conditions as a guide, the Gresham Technology committee began its focus on their one-to-on initiative in the Gresham School District. Using ISTE essential conditions, the first objective was to meet the needs of, “Equitable access with connectivity for all students, teachers, staff, and school leaders is an essential condition to effectively leverage technology for learning” (ISTE, 2009).

Research done by Stevenson (1998, 1999) at Beaufort (South Carolina) already indicated that “providing laptops narrowed gaps between student of color and white students and between low-income and more advantage students.” Further analysis by North Carolina Department of Public Instruction (1999) indicated that ” computer proficiency tests administrated by states suggested that home access to computers helped to explain the differences in student performance on those tests.” Both of these studies confirm that the more access students have to computers, the more abilities they have to learn, and regardless of the family income, all students would have access to a computer through a one-to-one initiative. Finally, much research by Roschelle, Penuel, and Abrahmson (2004) shows that “providing students with ubiquitous access to wirelessly connected computers has the potential to transform learning environments and improve student learning outcomes.”

ISTE also states there is a necessity for “a shared vision for educational technology among all education stakeholders, including teachers and support staff, school and district administrators, teacher educators, students, parents, and the community” (ISTE, 2009).

Two computer labs are insufficient in availability and function, according to staff members. Also, to continually meet ISTE recommendations and effectively meet Wisconsin Model Academic Standards for Information and Technology Literacy, the need for a one-to-one

initiative districtwide was necessary. A report titled “What Does the Research Say About School One-to-One Computing Initiatives?” by Nicholas J. Sauers and Scott Mcleod (2012) concludes that there is overwhelming evidence to support one-to-one initiatives in school. This report cites several key studies done by various researchers. Silvernail and Gritter (2007) concluded, “Maine has seen a significant improvement in writing scores with their statewide one-to-one initiatives.” This research also showed a direct correlation: “The more extensively students used their laptops, the better they scored.” Evidence by Lowther, Ross, and Morrison (2003) compared two groups of students in the same school and grade level, one with laptops and one without. They concluded that “those students receiving laptops had superior writing skills.” Shapley, Sheehan, Sturges, Caranikas-Walker, Huntsberger, and Maloney (2006) indicated that “students’ access and use of technology was consistent positive predictor of students’ reading and mathematics scores, with students’ use of their laptop at home as the strongest implementation predictor of reading and math scores.”

Shapley, et al., (2006) also indicated that in Texas middle schools, “students attending one-to-one schools were much more satisfied with school than students in the control group. Second, students at one-to-one schools also were sent to the office less frequently and were suspended less than students from the control schools.” Continued research by Bebell and Kay (2010) in Massachusetts middle schools, indicated that after their one-to-one laptops initiative were in place, “student engagement and student motivation had both increased.”

Finally, Hanover Research Council (2010) has compiled many national case studies of one-to-one laptop initiatives. Each of the case studies has evidence that supports one-to-one initiatives, especially in low socioeconomic backgrounds. Their cases are published in their report, “The Effectiveness of One-to-One Laptop Initiatives in Increasing Student Achievement.”

Local Research

The Gresham Technology Committee determined that a one-to-one technology initiative was necessary with compliance to the mission of the Gresham Community School District. Therefore, our first objective was to learn what other local schools have done or is currently doing. Our focus was to tour schools that had a variety of different types of policies. Our research toured schools that were various platforms (Google, Apple, and Microsoft) and various devices (Chrome books, Laptops, Tablets) and schools in which the district provided devices or students were allowed to bring your own device. When at the various school districts, we met with four very important groups of people: administration, technology directors, teachers, and students.

Administration was very important, since they were able to explain how the devices were funded, controlled, selected, and managed. Technology directors continued to explain device management but also gave insight on what the hardware, server, and personnel needs were for the initiative. Teachers explained how they used each type of device in their respected classrooms, and their classroom objectives with the device. Finally, students gave the positives and negatives of the devices, how they were used, and what could be improved if there were not any limits to the device they could have.

After each tour, the technology committee discussed the positives and negatives of each school district. Also at the same time, the committee began to create its own outline for the Gresham One-to-One initiative. The Three-Year Outline explains the sequence of events and plan for the Gresham One-to-One Initiative.

Action Plan

The research gathered from other schools clearly focused on key aspects of the one-to-one initiative. First and foremost, professional development of your staff is most important. Second, management, coordination, and communication of the team is very important for the success of the initiative. Respect everyone's ideas and opinions, especially the students; they will be using the devices. Finally, make sure your school hardware is equipped to handle the load of so many wireless devices at one time.

First Year of Implementation. The primary object of year one was to update all hardware necessary to run the one-one technology initiative. Second, it was also clear to the Gresham Technology Committee that in order to properly manage student devices and to allow students without internet access to still work on school material, Gresham needed to be a Google School and run Google equipment. It was decided at this time that all focus would now be on the implementation of Google equipment and management systems in Gresham.

First and foremost, a technology director would be appointed to run the Initiative. The technology director would be responsible for working with administration, business administrator, teachers, and other personnel to make the implementation successful. He or she would also be in charge of research of asset software, devices, device management, and all other agenda items. Collectively, the technology committee would initially train other staff members in the district on how to setup and manage their Google accounts and e-mail. However, additional training and professional development would be necessary in the future.

Second Year of Implementation. A pilot group would be selected to initially test the one-to-one initiative. This group would help determine other areas of concern regarding the initiative. These questions are on the Pilot Group Questionnaire.

After the initial pilot group evaluation, the technology committee would be able to gain insight on what the students' and teachers' needs are for full implementation by year three. At this time, the technology committee would decide on the type of device for each grade level. The first consideration of a device must be that it will operate all day on one battery charge, therefore limiting charging stations around the school. Other considerations need to be on the size, cost, and use of the device. Initial ideas are that grades K-3 should have tablets due to their size and touch screen capabilities and 4-12 should have smaller Chrome books that are easier to carry yet offer students everything they need. The technology committee feels that if tablets are the choice of lower level elementary classes that they still need keyboarding and typing time to prepare them for the Smarter Balanced Assessment.

Once devices are chosen, professional development must continue. Teachers and staff will be paid for three technology in-service days that will be instructed by certified Google instructors. These in-service days will not only allow the staff to better familiarize themselves with the functions of Google, but also to begin to create curriculum that they will be able to use.

Summer - Third Year of Implementation. During the summer before full integration, devices must be tagged and tracked in asset management software. This will ensure that each student will be responsible for his or her own device. Also, the technology committee needs to draft a new technology agreement that will include all the new policies associated with the one-to-one initiative. This needs to be done by the end of June, at the beginning of the third year, so it can be submitted to the lawyers and approved by the school board. Mandatory parent/student/teacher meetings will then be held to discuss the new initiatives and the policies that will be associated with it.

Third Year of Implementation. The third year will be full integration of the devices. Every student will be required to have the device daily. Teachers will decide how they will use the device within the curriculum. Some teachers may to fully implement the device and not use textbooks or notebooks, while other teachers may use the device simply to supplement their curriculum. However, one of the goals by the end of the third year is to become paperless and to have a curriculum that does not require a textbook. To help with communication, sharing of idea, and continued success, in-service days need to be set in the schedules so the teachers can help each other in fully integrating the devices into the curriculum. The idea of “think, pair, and share” may be used during in-services. Other ideas may include technology nights in which teachers can share with community members and other teachers how to use various applications in the classroom or at home. Overall, the goal of research-based activities should be the base of the newly created digital curriculum.

Assessment

Assessment of the one-to-one project will be ongoing throughout the three-year implementation. First and foremost, the technology team will assess other schools plans and implementations. Using this evidence, it will create a pilot group that is believed to fit the needs of the Gresham District. The first formal assessment will be the review of the Pilot Questionnaire. At this time, the Technology Committee must reassess its choice of devices, plan professional development, and any other needs or concerns. The final assessment will be after the third year, or full implementation year. Many things will then be assessed. First and foremost, did the devices help student learning and productivity? In order to compare this, teachers will compare (performance, assessments, grades, attendance, and behavior) using the same students from year to year (example, this year’s 8th grade to last year’s 7th grade). This data

will show how the introduction of the devices impacted various statistics. Secondly, did the implementation of devices improve behavior of students? This will be determined by the number and severity of behavior office referrals compared to previous years. Finally, the Implementation Assessment Questions will help the district understand how the devices impacted students, staff, and parents. With all this data, more professional improvement for teachers and parental and/or student training will be provided.

References

- Adelman, N., Donnelly, M.B., Dove, T., Tiffany-Morales, J., Wayne, A., & Zucker, A. A. (2002). *The integrated studies of educational technology: Professional development and teachers' use of technology*. Menlo Park, CA: SRI International.
- Bebell, D., & Kay, R. (2010). One to one computing: A summary of the quantitative results from the Berkshire Wireless Learning Initiative. *Journal of Technology, Learning, and Assessment*, 9(2), 5-57.
- Cuban, L. (2001). *Oversold and underused: Computers in the classroom*. Cambridge, MA: Harvard University Press
- Hanover Research Council – District Administration Practice. (2010). *The Effectiveness of One-to-One Laptop Initiatives in Increasing Student Achievement*. Retrieved from <https://techsvcweb.madison.k12.wi.us/files/techsvc/The%20Effectiveness%20of%20One-to-One%20Laptop%20Initiatives%20in%20Increasing%20Student%20Achievement.pdf>
- International Society for Technology in Education (ISTE). (2009). *Essential Conditions Necessary conditions to effectively leverage technology for learning*: Retrieved from <http://www.iste.org/docs/pdfs/netsessentialconditions.pdf?sfvrsn=2>
- Lowther, D., Ross, S., & Morrison, G. (2003). When each one has one: The influences on teaching strategies and student achievement of using laptops in the Classroom. *Educational Technology Research and Development*, 51(3), 23-44.
- North Carolina Department of Public Instruction. (1999). *1997-98 report of student performance: North Carolina Test of Computer Skills*. Raleigh, NC: North Carolina Department of Public Instruction.

- Penuel, W. R., Kim, D. Y., Michalchik, V., Lewis, S., Means, B., Murphy B. (2001) *Using technology to enhance connections between home and school: A research synthesis*. Menlo Park, CA: SRI International
- Roschelle, J., Penuel, W. R., & Abraham, A. L. (2004). The networked classroom. *Educational Leadership*, 61 (5), 50-54.
- Sauers, N. J., & Mcleod, S. (2012) *What does research say about school one-to-one computing initiatives?* UCEA Center for the Advanced Study of Technology Leadership in Education, University of Kentucky.
- Shapley, K., Sheehan, D., Sturges, K., Caranikas-Walker, F., Huntsberger, B., & Maloney, C. (2006). *Evaluation of the Texas Technology Immersion Pilot*: Texas Center for Educational Research. Retrieved March 5, 2011 from http://www.txtip.info/images/06.05.06_eTxTIP_Year_1_Report.pdf
- Sheingold, K., & Hadley, M. (1990) *Accomplished teachers: Integrating computers into classroom practice*. New York: Center for Technology in Education, Bank Street College of Education.
- Silvernail, D., & Gritter, A. (2007). *Maine's middle school laptop program: creating better writers*: University of Southern Maine. Retrieved from http://usm.maine.edu/cepare//Impact_on_Student_Writing_Brief.pdf
- Stevenson, K. R. (1998). *Evaluation report – Year 2: Middle School Laptop Program, Beaufort County School District*. Beaufort, SC: Beaufort County School District.
- Stevenson, K. R. (1999). *Evaluation report – Year 2: Middle School Laptop Program, Beaufort County School District*. Beaufort, SC: Beaufort County School District.

Gresham One-to-One Technology Initiative - (3 Year Outline)

Year 1

Continue to Tour Schools and Get Research
Purchase Hardware necessary for One-to-One Initiative
Servers – Switches – Routers
Access Point Controller – Access Points
Onsite I Prism Web filter
Onsite Cisco Firewall
Apple – Google – Microsoft
Application to Google School
Technology Committee to Iola Google Training

Year 2 (Fall)

- Create Technology Director Position
- Pilot Group
 - Purchase Laptops – not restricted to Chrome
 - Use Laptops as tool with selected grade of students
 - Assess positives and negatives of device and group
- Google Chrome Training
 - Set up Accounts
 - How to Log On/Out
 - Google Chrome Interface
 - Google Play Store
 - Google Docs Introduction
 - Google Spreadsheet Introduction
 - Google Drive
 - What is the Cloud?
 - Organization, Creation, and Deletion in your drive
 - Transferring current Files into your Google Drive
 - Google Mail
 - Use
 - Transfer old mail into Google Mail

Year 2 (Spring)

- Purchase Asset Manager Program to Track Technology Devices
- Decide on type of Device
 - Purchase or Lease?
 - Insurance
 - Protection (cases and bags)
 - Protection of Equipment
- Construct new technology agreement/policy

Year 3 (Summer)

- Purchases
 - Devices

- Cases
 - Insurance
- 3 Day Google Training
 - Review
 - Google Chrome
 - Google Drive
 - Google Docs
 - Google Spreadsheet
 - New Items (training and work time for each)
 - Google Plus
 - Google Sheets
 - Google Slides
 - Google Calendar
 - Creation of Google Classroom Website
 - What can I use in my classroom?
- Inventory and Asset Tag Devices
- Check Out Devices for Students
- Mandatory Parent Informational Meetings
 - Student responsibility
 - Student/parent costs
 - Device and Management
 - Shift from paper curriculum to paperless curriculum
 - Digital Citizenship
- Create First Day of School Agenda
- Set up Device Organization in Google Management

Year 3 (Fall and Spring)

- First Week of School Student Training
 - Copy Teacher Training from above
- Continued Teacher in services and professional development
- Tech night teacher collaborations
- Assessment
- Remove un-needed textbooks from classrooms

Gresham One-to-One Initiative - Pilot Group Questionnaire

Does the internet web filter offer management yet access to what is needed to effectively teach curriculum?

How did the students manage their time? Would they play games instead of work?

Would there be grades improvement, especially the low income and academically challenged students?

Did the quality of students work improve?

Did the number of late assignment decrease?

Were the students more motivated in class?

Did you like the device, why or why not?

What curriculum changes/difficulties did the teacher have during pilot test group?

Did the teacher have adequate time to create and change lesson plans?

Gresham One-to-One Initiative – Implementation Assessment Questions

Parents (anonymous)

- Did you discuss device use and responsibility with your child?
- Did the students use their devices at home?
 - Doing What?
 - For how long each night?
- Did you find it easier to access your student's homework and grades?
 - How often did you check your child's grades/homework?
- What else would you like to learn about the one-to-one initiative? Or Other Concerns?

Students (anonymous)

- How often did you check your calendar for your assignments?
- Do you find it easier to complete/hand in your assignments using a digital format?
- How often did you check your grades on Skyward?
- How long did you use your device at home for homework?
- How often did you use your device at home for other activities? Doing What?
- Do you like the E-Backpack system of handing in homework? Why or Why Not?
- What did you like about the one-to-one initiative?
- What do you dislike about the one-to-one initiative?
- Is there anything you are uncomfortable with in which you need more training?

Staff

- Do you like putting your lessons on Google Calendar? Did you find it time consuming?
- What other professional development do you recommend for next year?
- What did you like about the one-to-one initiative?
- What do you dislike about the one-to-one initiative?
- Were you able to effectively manage your devices? If not, why?
- How much time (weekly) did you spend on curriculum creation?
- Is there anything you are uncomfortable with in which you need more training?
- Was E-Backpack successful? Why or why not?