Adopting a new student information system (SIS)

Jennifer Hegna

University of Wisconsin - Stout

Abstract

In May 2008, Byron public schools decided to adopt a new student information system called

Infinite Campus. The following research describes the problems and limitations the district's

legacy system and the need for a new system and recounts the steps the district made to make the

decision as it relates to information and communication technology processes in organizations.

Adopting a new student information system

Gladwell (2002) describes the tipping point as "the moment of critical mass, the threshold, the boiling point." (p. 13) In January of 2008, the Byron Public Schools decided to investigate a new student information system (SIS). The district used its legacy SIS to enroll and schedule students in the classrooms, take and record attendance, record contact information, store assessment data, store grade book and transcript information and more recently use it as a communication tool with a parent portal that allowed the web-based viewing of their students' grades. It could be considered a rudimentary version, but it was a beginning.

Problems leading to the adoption of a new SIS

It is hard to pin the actual tipping point for Byron Public Schools decision to investigate a new student information system. The passing of the No Child Left Behind law gave way to data driven decision making in which teachers and administrators needed to pin point specific achievement levels of students in the areas of math, reading, and later science. Teachers needed timely access to test results and also needed to quickly identify classroom tactics to increase their students' scores.   NCLB also encouraged parental involvement and with the public school system so parents knew more about the achievement levels of their students as well as the achievement level of their schools. (US DOE, January 2001)

The state of Minnesota had also developed standardized testing and required districts to act upon the results. "The Minnesota Comprehensive Assessments (MCAs) are the state tests that help districts measure student progress toward Minnesota's academic standards and meet the requirements of No Child Left Behind. The reading and mathematics tests are used to determine whether schools and districts have made adequate yearly progress (AYP) toward all students being proficient in 2014." (Minnesota Dept of Education [MDE], 2002) The district would send these test scores home via postal service several months after the test was taken. Other test information would only be shared at conferences or would be mailed home.

Information communication technology is the computerized hardware and software that can store, process and provide meaningful data while also helping users exchange information over a distance. Byron school district was suffering from "from the DRIP syndrome—Data Rich/Information Poor." (DuFour, 2004) The district was in need of a technology system to share, study, and manipulate assessment data to "work together to improve student achievement… of everyone in the school." (p. 5)

Byron's users were becoming extremely frustrated the legacy SIS and had complained about it for years. Improvements were suggested to the vendor – yet the vendor was unable to perform them.   Problems from a technology perspective included the inability of the system to link its data to other systems. The district was beginning to rely on the contact information from the SIS to keep update other school databases, like the cafeteria's point of sales (POS) and library automation system. The SIS would not allow the district to schedule exports and was not SIF compliant. SIF, which stands for school interoperability framework, allows school personnel, parents, and students to have access to the most current and accurate data available. According to the SIF Association (SIF Association, n.d.):

> "Education is facing a critical challenge in deploying technology due to the challenges raised by a lack of interoperability. Frequently the applications available for primary and secondary (K-12) schools and their districts are either closed systems or

systems that allow customer access only through proprietary interfaces and data formats. To a user, the lack of interoperability means:

- Applications and their data are isolated from one another
- Redundant data entry is common
- Disconnected applications increase support costs
- Data reporting is costly and inefficient
- Data is inaccessible to decision makers and can be inaccurate"

As an example, when a new student comes into the district one would have to enter them into the SIS. The information was also need in the library, cafeteria POS system, active directory, email system, and school emergency notification system, ect… Most of these systems could import a manual export out of the SIS, when this was not prompted manually entered and in many cases there were issues with typos or inconsistent data. The manual export was not able to be schedule and someone was required to remember to do it on a regular basis. The amount of time to manually enter a batch of students and the contact information was also very time consuming.

Scheduling in the high school students was becoming more and more complicated. The database was not able to give a true "best" schedule from the students' course requests. The proposed auto scheduler simply did not work. The counseling staff, along with the principal decided that they would manually schedule their 550 students to get the best possible schedule possible. This would happen over a course of 3-4 week period and was estimated to cost the district $4000-$5000 worth of time in hours. The other issue was that while these individuals were secluded in a room developing a master schedule; the schools students' needs were not being met in the offices.

Another issue was that the legacy system was not web-based and was made up of proprietary databases on separate servers for each building. Administrative applications had to be installed on computers and linked internally to database on a server. Administrators could not access this information off site. As patches were released, technology staff would have to visit every office client in the elementary, middle, and high school. Patches were released approximately 6 times per year due to many bugs and fixes, which could mean visiting 20 to 120 users at any given time.

It was a district expanded management team meeting (a meeting with administrators and managers) that there was a collective decision to investigate what was "out there" for systems. The factors influencing in the adoption was: (Bouman, Van Den Hooff, Van De Wijngaert &, Van Dijk, 2005, p. 15)

- Organizational perspective – Because of NCLB, Byron Public Schools was becoming more data driven and focused on continuous improvement processes. Timely access to assessment data (as well as other student performance) was needed by staff, teachers, parents and students.
- Technological perspective – The legacy system was not flexible, robust, and required much technical support to update patches. Users had to be inside the district to utilize the application. Byron needed a system that was completely web based to support all users that was SIF compliant in order to centralize the databases in the district. With a purely web based system, district users could access the application anytime and anywhere.

- Economic perspective – The legacy system was costing much district time. From tech support to the offices, manual work was being done in lieu of using the SIS. This was also decreasing student/staff face to face time.
- User perspective – The complaints about the SIS were significant. From small problems and lack of user friendliness of the program to large improvements needed and

The adoption process

The district had reached its tipping point. After 13 years with the current legacy system it was time to investigate "what was out there". This could possibly be one of the most influential changes in the district would endure since it would affect every teacher, staff, student, and parent in the district. This could not effectively be chosen by upper management and it was decided that this would be an organizational decision.

A team of 18 people consisting of administrators, secretaries, counselors, technology support, teachers, and parents were asked to participate in interviewing and reviewing the potential SISs. Some of the users were ecstatic. Others were somewhat apprehensive. It was apparent that all issues and problems with the current system needed to be identified before district could effectively make a decision to upgrade to a new system. The decision making process would be based on a problem in three phases: (Bouman et al., 2005, p. 70)

- *Intelligence – identifying and defining the problem*
- *Design – finding possible solutions*
- *Choice – assessing the various possibilities and selecting on of the available alternatives*

Identifying the problem was easier to some and more difficult than others. The district needed to decide how this information was going to be collected. Byron schools also needed to know problem areas in specific areas of the legacy system. All of the information needed to be collected and shared with deciding stakeholders. District employees' knowledge of the legacy system with its challenges needed to be communicated and collaborated at a large scale. Time was an issue so a wiki was developed as a central web based location for the users to jot the primary issues down. A wiki workplace was formed. (Tapscott & Williams, 2008, p. 239-241)

The wiki worked well with this project. District staff needed to identify specific gaps according to their building and their areas of work. (http://bps-sis.wikispaces.com/) Collaboratively this was an excellent tool. As one person would edit a page, another would get the message that the information had been changed. Building to building they were communicating at a very rapid pace. For the district, it was beneficial that all of the knowledge of the users was centrally gathered. Those who were apprehensive would see the "big picture" problems the legacy system was causing district users.

Alternative SISs needed to be identified. After a short *statewide* email poll of district technology coordinators, it was apparent that the two student information systems that were gaining ground in Minnesota was Infinite Campus and PowerSchool. After a report to the administrative team, it was decided that these two systems would be interviewed. Questions were gathered on the wiki and an interview date and time was set!

The SIS team was scheduled to gather on two different dates. The vendors would give an overview and demonstration of their product and then the team would be able to ask more in

depth questions. Results from the wiki were printed so that the staff could be reminded of the current gaps with the legacy system and then also ask specific questions of the new system. Infinite Campus was first.

The entire team was extremely positive. (Even the naysayers) The district was slowly gaining buy-in from the team as this was the first time many of them would be part of a major decision for the district. The presenter did an excellent not only showing a grandiose overall presentation of the product, but also was able to delve into the product so that the users could see specific answers to their questions. The users were also awe struck at the capabilities and flexibility of the Infinite Campus system and even more frustrated with what the legacy system lacked.

In addition to all the required information needs (attendance, grades, schedules, demographics, discipline, family contact information, health, MARRS, standardized tests, teacher portal, parent portal, and transcripts) the SIS team learned that the technology was completely web-based and built on the SQL database. It had the ability to schedule reports and was SIF compliant. Other technical benefits were that it would be backed up off site in another location and would fit nicely in the district's emergency backup plan. The system further accommodated the Cornish's 4th *Supertrend* (2004, p. 25) increasing mobility by adding a cell phone component to the portal. According to their website, "Open standards technologies used by Infinite Campus provides the ability to interoperate on many different platforms such as servers, PCs or Macs, desktop computers, laptop computers, tablet computers, cell phones, PDAs, as well as platforms that haven't been invented yet." (Infinite Campus, 2008). After the presentation, the users were to complete a survey to get their thoughts on the program. User friendliness in core SIS areas, likes and dislikes of each program were also to be identified.

Power School was the following day. Again the users had their wiki information and also notes from the Infinite Campus presentation the day before. Immediately one could recognize that Power School had some catching up to do and that it wasn't near as flexible as the previously viewed system. The presenter kept on saying that "it was in future revs" or that is in "beta" when one asked to see a specific module or task. At the end of the presentation district users were to fill out the same survey. A comparison was then done. Figure 1 is a comparison graph averaging the responses for each question.
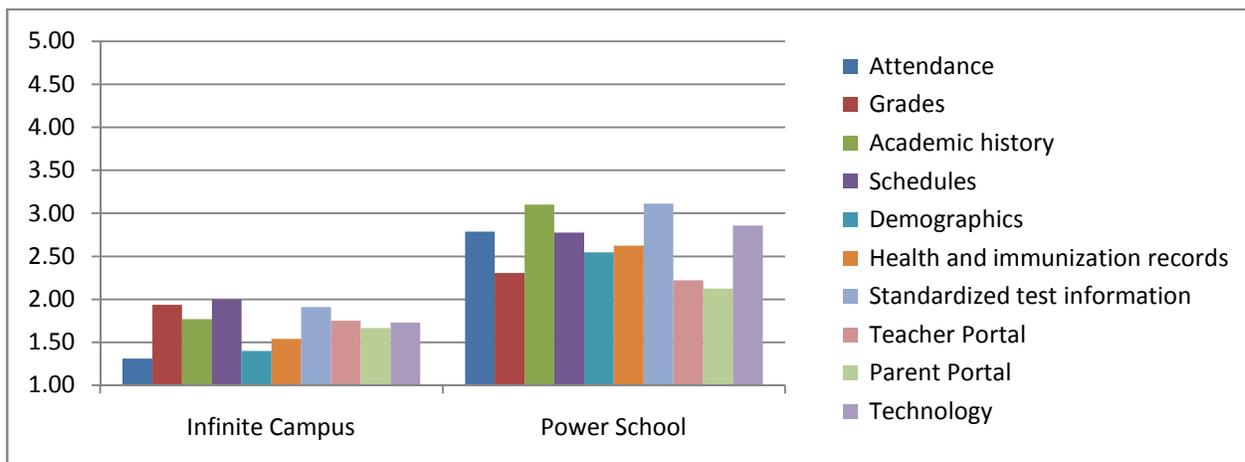

Figure 1 - Please rank the user friendliness of each of the certain areas. (1 -easy, 5-difficult)

Each vendor was asked to quote their product for implementation and for yearly renewals. Infinite campus was more expensive to implement, but was cheaper to maintain after implementation. Power School implementation fees were less expensive; however the yearly maintenance was more costly. When one looked at a 5 year cost analysis of the systems, the difference in cost was minimal. From the economic perspective, (Bouman et al., 2005, p. 18-19) each program was a considerable increase over the legacy system, however the value it would add to the organization would benefit the district considerably.

Each vendor provided the district with a set of references. Each reference was called or emailed and the responding information was summarized and emailed out to the SIS team.   The following questions were emailed to three references from each system:

- How long have you been with Infinite Campus?
- What SIS did you have previously?
- How did the migration/transition go?
- How well did the training prepare you and your school to use IC?
- Successes
- Needs
- Problems
- How has the system improved your communications?
- On a scale of 1-10 (1 low, 10 high) please rank the quality of IC's customer support:

Several weeks had passed and the data had been collected. The district had survey data from the SIS team from the Infinite Campus and Power School demonstrations. Byron also had comparison data between each vendor that included user friendliness and like and dislikes of each program. The Infinite Campus and Power School reference checks were also summarized and given to each person. It was now time to make a decision! Each team member was asked to look at all of the survey data and reference information. They were then asked:

- If the district were to integrate a new student information system, my choice would be?
- Please give at least 5 reasons you chose the system.

Unanimously the team chose Infinite Campus. Since the district was leaning toward Infinite Campus, the last step in the investigation was to do some site visits of districts that used that system. It was important for us to talk to users to discuss their implementation process and also see how "users handle the technology in action".(Bouman et al., 2005, p. `18)

Two schools were chosen – a large district that had been using the program for over 7 years and a smaller school district that had been using the program for two years. A smaller team of seven (high school principal, high school counselor, middle school secretary, elementary school secretary, information systems manager, high school teacher, and the business manager) were to go to these sites, talk to key people and then summarize what they had learned so that it could be shared with the group. If there were any questions or if the SIS team did not see something they wanted, a webinar would be scheduled with Infinite Campus to see more of the in depth uses of the program area. It was noted that the visiting schools did not always utilize *all* the capabilities of the system. The organizational and technological effects the larger "seasoned" district was much more significant than the smaller, newly implemented district. (Bouman et al.,

2005, chap 7) The team agreed, it would take time for the district to fully utilize and implement all the resources available in the system.

All data was summarized and shared at an expended management team meeting. From an organizational perspective (Bouman et al., 2005, p. 15), Infinite Campus meshed with Byron's district goals "Continuous improvement practices will be integrated throughout the Byron School District" and "Working relations and communications will increase and improve with community" because it was completely web based and was also compatible with mobile devices.(Byron Public School, 2008)

From the technological perspective (Bouman et al., 2005, p. 15), "Infinite Campus uses true business logic built upon multiple tier architecture. The separation of business logic from the data and presentation layers ensures system integrity and the security of student data which is vital for today's educators."(Infinite Campus, 2008) The system was also SIF compliant, which would integrate with other school databases instantly. As security was very important to district users it was important to recognize that "…Infinite Campus is a multiple tier system, it employs an advanced object-based security model that is role and function-based. Individual stakeholders are assigned one or more login password identities." (Infinite Campus, 2008) Finally the added benefit of offsite backup was extremely important in the district's emergency data backup plan. Support was also a factor, and Infinite Campus's support plan would fit well with the district.

From the economic perspective (Bouman et al., 2005, p. 15), even though Infinite Campus was more expensive than the current legacy system, the value-added services would save the employees (teachers, offices, and administrators) considerable time thus allowing the district to spend more invaluable time its students.

Finally, from the user perspective (Bouman et al., 2005, p. 15), the core team was on board with the change to switch to Infinite Campus's student information system. Vendor demonstrations, reference interviews and site visits had showed that system would work well in Byron and had worked well in other districts. Improvements over the legacy system were considerable and even thought the learning curve may be large, the end benefit would outweigh the work to convert and implement Campus.

After reviewing the research, the expanded management team decided to adopt Infinite Campus and implement the program in Byron Public Schools.

References

Bouman, H., Van Den Hooff, B., Van De Wijngaert, L., & Van Dijk, J. (2005). *Information and communication technology in organizations*. London: Sage Publications.

Byron Public School (2008, May). *Byron School District: Aims, goals, and measurements.* Retrieved November 3, 2008, from http://www.bears.byron.k12.mn.us/ByronPublicSchools/districtgoals

Cornish, E. (2004). *Futuring: The exploration of the future* (1st ed.). Bethesda, MD: World Future Society.

Devlin, K. (1999). *Infosense: Turning information into knowledge* (1st ed.). New York: W.H. Freeman and Company.

DuFour, R. (2004, May). *What Is a "Professional Learning Community"?*. Retrieved October 12, 2008, from http://schools.fsusd.k12.ca.us/education/PLC/Prof_Lrng_Community.pdf

Gladwell, M. (2002). *The tipping point: How little things can make a big difference* (1st ed.). Boston: Little Brown.

Infinite Campus (2008). *Our technology.* Retrieved November 1, 2008, from http://www.infinitecampus.com/pages/product_menu/our-technology.php

Infinite Campus (2008). *Security: Infinite Campus.* Retrieved November 3, 2008, from http://www.infinitecampus.com/pages/product_menu/our-technology/security.php

Minnesota Dept of Education (). *MCA.* Retrieved October 12, 2008, from http://cfl.state.mn.us/MDE/Accountability_Programs/Assessment_and_Testing/Assessments/MCA/index.html

SIF Association (n.d.). *General Overview.* Retrieved October 12, 2008, from http://www.sifinfo.org/general-overview.asp

Tapscott, D., & Williams, A. (2008). *Wikinomics: How mass collaboration changes everything.*

New York: Penguin Group.

US Department of Education (January 2001). *NCLB: Executive summary.* Retrieved October 12,

2008, from http://www.ed.gov/nclb/overview/intro/execsumm.html