



Campbell River School District 72 Educational Technology Roadmap



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1. Introduction

There's a dark little joke exchanged by educators with a dissident streak: Rip Van Winkle awakens in the 21st century after a hundred-year snooze and is, of course, utterly bewildered by what he sees. Men and women dash about, talking to small metal devices pinned to their ears. Young people sit at home on sofas, moving miniature athletes around on electronic screens. Older folk defy death and disability with metronomes in their chests and with hips made of metal and plastic. Airports, hospitals, shopping malls-- every place Rip goes just baffles him. But when he finally walks into a schoolroom, the old man knows exactly where he is. "This is a school," he declares. "We used to have these back in 1906. Only now the blackboards are green"

"How To Bring U.S. Schools Out Of the 20th Century", Time Magazine, December 18, 2006

"In the digital age, how can we expect schools to improve student achievement—the most important outcome of education—without taking full advantage of technology to support students, teachers and administrators? No other leading industry would try to position itself for success today without using technology comprehensively and purposefully to achieve its goals."

Don Knezek, CEO of ISTE (International Society for Technology in Education)

Background and External Reviews

Professional Development

The process of the development of this Educational Technology Roadmap began in 2008, when the Campbell River School District 72 (SD72) Technology Planning Committee began to examine its current practices around providing professional development and support to its teachers.

While numerous examples of excellent technology integration into the teaching and learning process have been occurring throughout the district, there was a developing need to examine current practices around the delivery of professional development.

To that end, IBM Canada K-12 Division was asked to perform a Professional Development and Educational Technology Assessment Workshop.

As SD 72 has made a significant investment in educational technology, especially in the area of infrastructure, District leaders and the Technology Planning Committee wanted to ensure that going forward, these resources are being used as effectively as possible in support of the district goals.

The objective of this workshop was to:

- examine the effectiveness of SD 72's current Professional Development in optimizing the use of their existing Educational Technology (ET) to improve student achievement
- recommend improvements to the PD model to maximize the current investment in ET in terms of its impact on student achievement.
- design a long term, optimal PD model

This workshop process was conducted for SD72 between November 19, 2008 and January 16, 2009. During this time IBM K-12 consultants immersed themselves in the District to

review related internal documents, conduct on-line surveys, face to face interviews and focus groups with various stakeholders.

An important component of this workshop was the completion of an online survey by teachers. The survey was made available to all teachers and provided an opportunity for feedback on a variety of technology related topics, including professional development.

Analysis of this survey can be found in Appendix A.

While key elements of the resulting short and long term Pro-D plans have already been initiated within the district, the details of these plans are included in the Professional Development section of this document.

Why Technology

The SD72 Technology Planning Committee strongly believes that in order to effectively use educational technology, a district must have a clear understanding of the overall reason for the utilization of technology within the district.

One of the outcomes of the Professional Development and Technology Assessment Workshop was the discovery that, while SD72 stakeholders were able to list how technology was being used throughout the district, there was a lack of a unified understanding as to why we were investing in technology.

While SD72 has made a significant investment in educational technology in recent years, this lack of clarity of purpose has lead to some inequities related to technology and its use throughout the district.

In order to move to the level of planning that has been carried out in the preparation of this plan, the decision was made to pursue the development of such a “Why Technology” statement.

As a result of that decision, in May 2009, SD72 carried out a 2 day workshop facilitated by an IBM Educational Consultant, designed to develop a clear statement as to why we are buying technology within this district.

The objectives of the WHY Technology Workshop were to:

- facilitate the development of a district statement which clearly and succinctly describes WHT SD72 is buying and using technology
- ensure the WHY statement is aligned with the educational priorities of SD72
- ensure the WHY statement is aligned with educational technology best practices

This workshop was also one of the first steps toward this development of a comprehensive technology integration plan designed around a clearly articulated reason for the utilization of technology within the district.

The following WHY statement serves as the foundation for the development of the entire plan, and for the use of technology throughout the district

“We integrate technology into our educational practices to support and enhance the development of all learners in an evolving world”

All future plans, purchases and applications of technology are then evaluated through the WHY statement to help SD72 ensure that the investment in Educational Technology is maximized and aligned to district priorities.

Leveraging Best Practices

The final phase leading up to the development of this SD72 Educational Technology Roadmap, was the completion of the Strategic Planning Workshop which took place September 29 through October 1, 2009.

The Technology Planning Committee members identified in this document participated in this three day workshop which was facilitated by two IBM K-12 consultants.

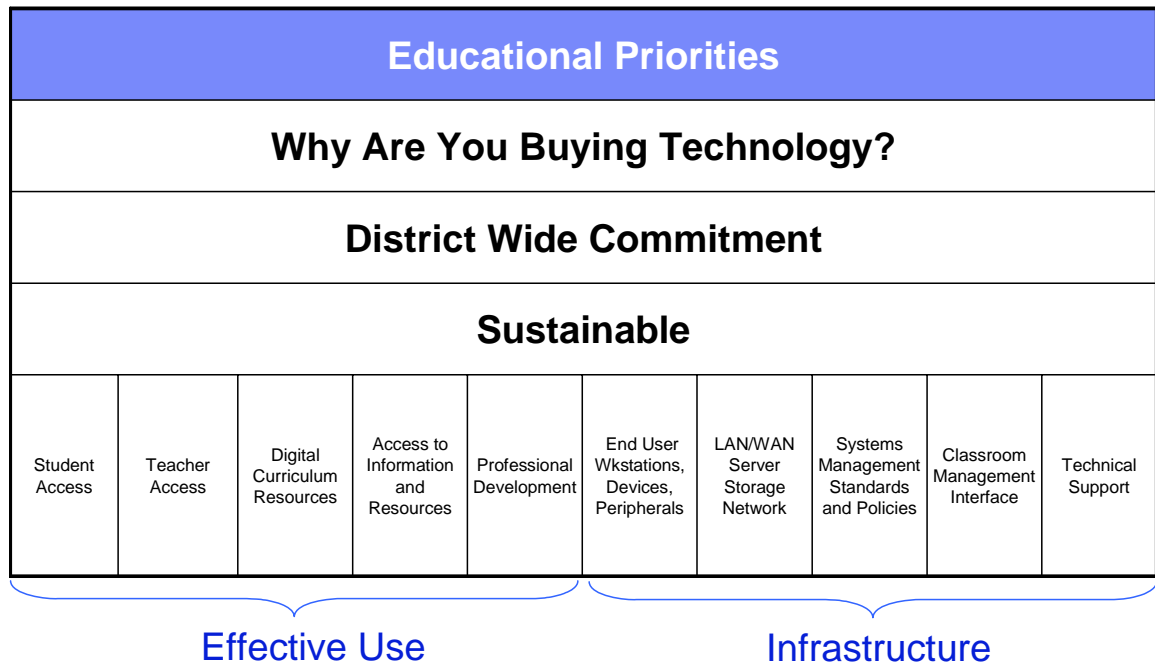
This document represents the culmination of the Strategic Planning Workshop, whose objective was to develop a strategic plan for the effective use of technology within SD72 that will:

1. Be aligned to the district Why Technology statement
2. Be aligned with the Pro-D long term plan
3. Be aligned with the district's educational priorities
4. Achieve these objectives at the lowest possible total cost

During the external review processes as well as throughout the Strategic Planning Workshop, a series of common priorities and approaches were identified that characterize successful technology integration in schools, by being both effective in terms of positively impacting student achievement, and in being cost efficient. These commonalities constitute a "best practices" approach to technology implementations.

To apply these best practices to the development of this plan, the SD72 Technology Planning Committee adopted the following Educational Technology Framework which has been developed by the IBM K-12 Educational Team and is based on current research as well as years of experience in working with districts across Canada.

IBM Educational Technology Effectiveness Framework



Within this framework, the top layers reflect the overall vision of the district and the supporting pillars represent the key areas of focus for the effective use of technology and the infrastructure required to support that use. Each of the layers and pillars of the framework have associated best practices.

The entire framework is then directed by the Educational Priorities of SD72, which include the development of:

1. Literacy
2. Numeracy
3. Social Responsibility
4. Transitions

Beginning with a clear understanding of why SD72 is investing in technology, and with the belief that educational technology is a tool which must support the educational priorities of the district to deliver 21st century learning opportunities, the best practices associated with both effective use and infrastructure formed the basis upon which this 5 year Educational Technology Roadmap was developed.

2. The IBM Strategic Planning Workshop Focus Group

The following staff members participated in the three day Strategic Planning Workshop that was conducted September 29 through October 1, 2009. The result of that workshop is the development of this Educational Technology Roadmap for SD72.

a) 2008-2009 Technology Planning Committee Members:

Nevenka Fair	Director of Instructional Programs
Geoff Wilson	Manager of IT
Greg Haines	Principal, Quadra Elementary School
Phil Cassidy	Teacher, Secondary School
Adrienne Davis	Special Education
Vince Sequeira	Music Teacher, Elementary
Shannon Hagen	Secondary TIST
Kathy Babchuk	Middle School TIST
Drew Williams	Pro-D
Rob Hatfield	Middle School TIST
Ruth Kine	Teacher Librarian
Barbara Drake	IT Department
Tracy Kennedy	Principal, Ecole Middle School

Wade Major	Teacher, Middle School Teacher Leader and TIST
Sylvan Chabot	Secondary TIST
Kai Taylor	Secondary TIST
Mary Kretlow	Elementary Instructional Support Team
Sean Toal	Robron Center Principal

IBM Consulting Team	
David Ell	K-12 Educational Consultant
Jason Dunk	K-12 Solutions Specialist

It is recommended that the School District rename the Technology Planning Committee to the Technology Roadmap Implementation Working Group, and that this group adds at least one elementary teacher to the group.

This working group will meet three times a year with the purpose of ensuring the effective implementation of this Technology Roadmap using the AFL framework to monitor and adjust its implementation.

3. Success Highlights

Areas Where SD 72's Current Practice Is Exemplary

During the Professional Development Workshop, the IBM consultants identified many areas where SD 72's current practices are exemplary – where SD 72 meets or exceeds best practices in the industry.

Some of the areas where SD 72's current practices are exemplar, and are well above the average in the industry are:

- ☑ *There is strong evidence that SD 72 is firmly committed to a single vision and capable of strong and effective communications. No matter who we talked to, all stakeholders in the District could clearly articulate the educational goals of the District.*
- ☑ The Technology Planning Committee believes that the educational needs of the District should drive technology. The IT Manager, a member of Technology Planning Committee, stated that he looks to Instructional Programs for his department's directions.
- ☑ There were numerous examples of excellent teaching practices integrating technology being displayed, particularly in the two middle schools. In the middle/secondary school student focus group, the secondary students commented on how much more advanced the middle schools use of technology is now compared to when they were at those schools four years ago.
- ☑ SD72 is to commended for recognizing the importance of job embedded support for building instructional capacity through the positions of Elementary Instructional Support Teachers, Middle and Secondary Teacher Leaders (0.5 per school) and the two blocks of Technology Instructional Support Teachers (TIST). These 'point of instruction' supports for teachers are tightly aligned with educational best practices and have the greatest impact on developing teacher capacity which ultimately impacts student achievement.
- ☑ SD 72 has a strong belief and active participation in mentoring. This is evidenced by the CIT grants, Collaboration for Growth grants and the Teacher Leader program. In addition, we heard many examples of informal mentoring amongst the principals and vice principals.
- ☑ The online PD calendar available through the District intranet provides teachers the ability to browse the available face to face sessions that are offered and select sessions that meet their needs in terms of content and schedule.
- ☑ Many participants of our focus groups commended the work that the IT department is doing and in most cases, the uptime for the technology in the schools was reported as very high.
- ☑ Lab uptime is 99.9%
- ☑ SD 72 has made a major commitment to teacher productivity and skill development by providing a desktop computer to every teacher.

- An extremely high degree of collegiality was seen at all levels of stakeholders in SD 72.

4. Vision for Effective Integration into Instruction and Learning

Given the reason why SD72 invests in technology:

“We integrate technology into our educational practices to support and enhance the development of all learners in an evolving world”

This Educational Technology Roadmap has been developed based on the district's vision of what the effective integration of technology into our educational practices as well as into administrative and business functions will look like within the schools of SD72.

The effective integration of technology, as described in this document, has the required technology infrastructure and management systems, and uses it as a tool to achieve the learning outcomes of the British Columbia Curriculum. These systems also allow schools and district staff to function effectively and efficiently by facilitating communication, instructional leadership and the required business functions.

A primary goal of this plan is, therefore, is to positively impact the development of all learners.

Supporting learning and instruction in the technology enhanced classrooms of SD72 will be evidenced by:

Students

- Differentiated learning
- Engaged, active, and interactive learners
- Culture of learning via technology
- Enhanced communication
- Active collaboration with peers through Web 2.0 tools
- Student demonstrated learning using technology when appropriate
- Ready access to technology at the point of instruction
- Development of Higher Order Thinking Skills
- Use of student-owned devices
- Socially responsible use of technology
- Balancing technology with healthy, active, and emotional well being
- Having a positive orientation to the future

Teachers

Teachers will go beyond teaching about technology, to teaching with technology as evidenced by:

- Differentiated instruction
- Using technology to target different learning styles
- Integrating technology into assessment practices and tracking student progress
- Guiding the learning process
- Using technology to positively affect student attitudes toward learning
- Using technology to engage learners
- Collaboration with colleagues and school administration
- Enhanced communication with parents
- Accessing online resources
- A wide variety of instructional strategies
- Engaging in Professional Development to improve skills

Administrative Practices

- Enhanced communication with stakeholders
- Standardization of access and use
- Equity of access to technology
- Transparency of policies and processes
- Sustainability

"It is change, continuing change, inevitable change, that is the dominant factor in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be."

Isaac Asimov

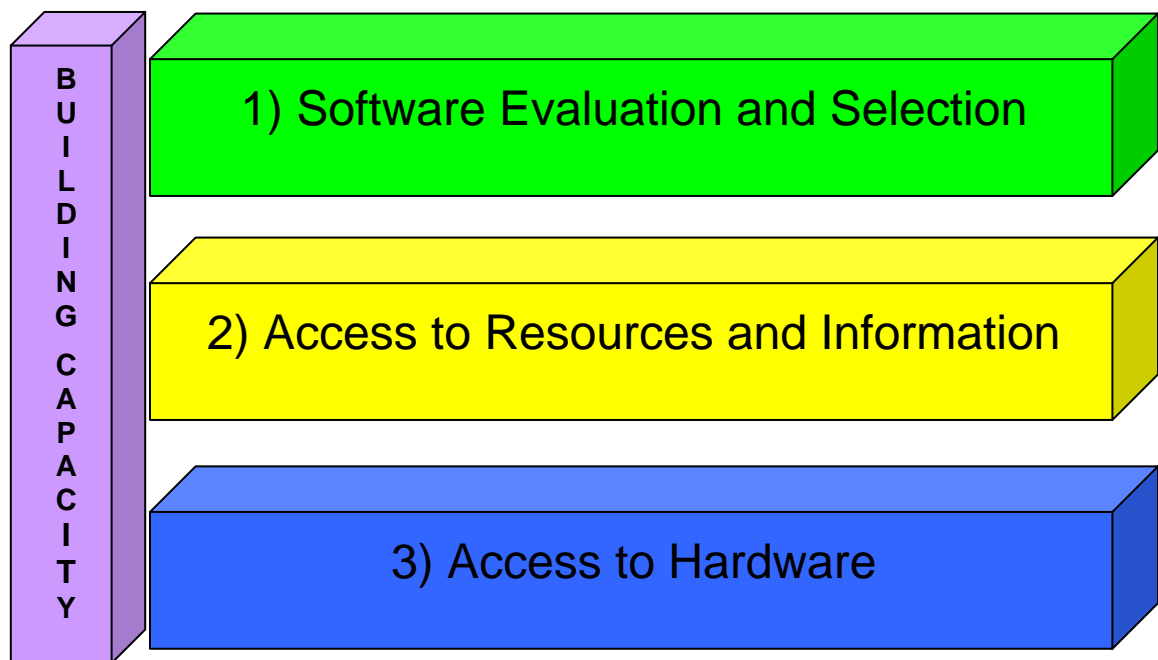
5. Plan Overview and Priorities

Building on the vision for the effective integration of technology into instruction and learning, a number of items have been identified as areas to be addressed in order to deliver this vision.

While access to hardware and software will both be addressed, this plan is not primarily about the hardware. This is a plan for the delivery of quality instruction and learning opportunities to meet the diverse needs of our students in a 21st century fashion. We do not want our students “powering down” when they enter our classrooms, we seek to engage them as active learners using current tools and resources.

To that end, a key element of this plan is the ongoing task of continuing to build capacity within our teaching and business staff, in order to better meet the need of our students.

While the following chart outlines the three main priorities of this plan, it is important to note that the glue that binds it all together is the training and support our staff requires to build the desired capacity for effective integration of technology through collaboration.



Each of the priorities identified above will be discussed in further detail throughout this document.

6. Building Capacity – Professional Development *and Instructional Support*

While many of the aspects of this 5 year Educational Technology Roadmap will be realized in phases over the course of the five years of the plan, the building of capacity is one element that can be started immediately.

Research and best practices indicate that teachers must receive professional development on how technology is related to the educational priorities that it has been purchased to address. This professional development should be provided in a variety of ways: face to face, in-school coaching and mentoring, web-based supports. All professional development that is related to literacy and numeracy should include a component on how the technology resources available can be embedded into specific units and lessons and how they support different instructional strategies.

SD72 teachers have cited several key challenges to effective PD, which included:

- Time to attend PD as well as time to work with software following PD sessions.
- Access to technology that is working reliably and is running the same software used in the PD session. There are challenges associated with the fact that the teacher desktop computers in classrooms are not running the same software as the computers in the Linux labs.
- All PD sessions need to have relevance to teaching assignments and the curriculum. They cannot be perceived as technology for the sake of technology.
- Ongoing support is very important to the overall success of PD. Without it, much of the learning is lost when teachers return to their classrooms.
- It is important that PD sessions be geared to the various skill levels of the teachers

This roadmap will address each of these teacher concerns with an initial focus on using the technology resources that are currently in place which may not be currently used to maximum potential.

We recommend that the most effective way to address this area is to develop closer alignment between the various support structures that already exists in the district, specifically between Pro-D and the district's Instructional Support Team K-12.

Capacity Building Model

SD 72 has developed a blended PD model that is aligned to District priorities and targets increased integration of technology into the teaching and learning process through face to face, coaching/mentoring and online professional development

Goals of both Professional development and the Instructional support in SD 72 will include:

- Maximizing the current investment in technology and its impact on student achievement

- Use of technology to support District priorities
- Improved teaching practices using 21st Century tools
- An increase in utilization and effectiveness of school technology

A key focus of the PD and Instructional model is to align all of the currently available teacher support resources through the formulation of an Educational Support Team under the leadership of the Director of Instructional Programs

Membership of this team includes:

- Pro-D Coordinator
- District Teacher Librarian
- K-6 Special Ed Support Teachers (1 representative)
- One Teacher Leader from each of Middle and Secondary schools (One Teacher Leader representative from each school)
- One TIST from each of Elementary/Middle and Secondary schools
- K-6 Instructional Support Teachers (1 representative)
- Manager Information Technology

The purpose of this team is to align and connect the various departments and roles currently existing within the District, in order to unify and support educational priorities in the district.

Given that the top two district educational priorities are literacy and numeracy the Educational Support Team will use *these* two priorities as the focal point of technology integrated PD.

Capacity Building Approach

In order to ensure that PD and Instructional Support are focused on the educational priorities of the District, the intention is that all PD will be provided under the direction of the Director of Instructional Programs, using the following approach:

Key strategies will include:

- A model that capitalizes on existing strengths with an emphasis on face to face in school coaching and mentoring. The role that technology might play will be considered when designing supports to improve student learning and build instructional capacity.
- For the most part, Instructional Support will take place during the instructional hours of the day to foster in-classroom support. This does not mean that teachers will be pulled from their classrooms to receive PD, but rather it will allow for teacher and student in-class support from the various support resources identified in the Education Support Team.

It is important to note that without the instructional positions that are currently in place, which include the Elementary Instructional Support Teachers, the Middle and Secondary Teacher Leaders (.5 per school), and the two blocks of Technology Instructional Support Teachers (TIST) at each

Middle and Secondary school, the cost of this RoadMap would be much greater for Professional Development. This model is tightly aligned with current, effective Pro-D best practices.

- With regards to PD:
 - PD will target good instruction using technology, not technology itself
 - PD will be workshop based as much as possible with the idea of teachers developing a product such as lesson plans during the PD session
 - In the workshops an instructional strategy will be introduced and modelled. Narrow the initial focus to one or two strategies
 - After the workshops, individual teacher classroom support and 'hand holding' coaching and mentoring will be provided using the various support resources identified
 - Online support will be developed through the District portal in the form of discussion/chat groups, FAQs, a resource repository of best practices and lesson plans
- Where appropriate in-service delivered is to have a technology integration component
- While the Educational Support Team will be delivering the educationally focused PD, the IT staff will deliver the "how to use" training when appropriate, particularly in the Middle and Secondary schools as the IT staff are stationed in schools for the better part of the day.

Education Support Team Initial Tasks

1. Introducing new strategies and resources (available technology and non-technology resources will be identified that align with the selected strategies) using a strategic and incremental approach. (e.g. By subject, by grade, or by topic)
2. Significant focus will be placed on providing necessary training and support for teachers who are currently using interactive technologies. (e.g. SMART Boards, tablets, etc.)
3. Support for teachers and their use of existing network software will also be provided
4. All Instructional Support Teachers (K-12) will become comfortable in using the identified resources.
5. Sample lessons will be prepared to model to teachers in the selected grades
 - a. Lesson modeling will be differentiated with respect to the way the resources are used in classrooms based on the current skill/comfort levels of the teachers
6. Assessment plans to accompany the instructional strategies and resources will be developed and made available to teachers
7. The AFL process will be used for the implementation of the SD 72 Technology Roadmap

8. A communication plan will be developed so that teachers and administrators throughout the District are familiar with the SD 72 Technology Roadmap, as well as how it will affect their teaching.

Education Support Team Long Term Tasks

1. Continue to use/refine our Instructional Support Model (K-12) including the TIST to provide ongoing in-class and out of class support as needed.
2. Make use of the District intranet by creating a repository containing model lessons, discussion areas, FAQs, and best practices
3. Use the internet to deliver PD sessions through webinars to target larger audiences
4. Promote school and district Professional Learning Communities (PLCs) where teachers work together to measure progress and assess, then communicate needs.
5. Develop tools to measuring success with respect to pro-d/instructional support
6. Continuously improve the PD/Instructional support plan by making adjustments based on feedback.
7. Communicate the adjusted plan often.

7. Software Evaluation and Selection

Following the theme of first optimizing the use of current resources, the first overall priority of this Educational Technology Roadmap is to examine software carrying out the following tasks:

1. Evaluating existing software resources to determine if they are aligned with district priorities and warrant continued use, and further technical and educational support, with the goal of establishing a standard list of software at each of the elementary, middle, and secondary schools
 - a. Key criteria that will be used to evaluate software include:
 - i. Alignment to B.C. Curriculum
 1. Examine ERAC software and provincial license agreements
 - ii. Supporting district educational priorities
 - iii. Support differentiated instruction
 - iv. Support 21st century instruction
2. Explore additional software titles to address gaps that may become identified as a result of the evaluation of existing software
 - a. A priority is to focus on web based software to reduce IT support issues
 - b. A secondary priority is to explore free software to whatever extend possible
3. As the long-term vision of the district is to advance the use of interactive technologies, a priority is placed on the following tasks:
 - a. online resources that make sound instructional use of these technologies will be reviewed for curricular alignment, and suitable resources used to further build teacher capacity in this area
4. This software review will not only produce a set of resources that will become the standard, supported list of technical instructional resources, but will also cause us to continue to examine the pros and cons of operating systems currently in use.
5. Develop a clearly articulated software acquisition process which defines how and when new software resources are added to the computer networks

Much of the evaluation of these resources will be conducted by the Software Focus Group lead by the District Teacher-Librarian.

To whatever extent is deemed necessary, business applications will be reviewed in the same manner as educational applications.

As the technical support of the software resources is a vital component to the overall successful integration of the software, the IT department will be kept current with the findings of the software focus groups, and will then have the opportunity to test the proposed software resources in the district network environment to determine functional and support requirements.

After educational or business requirements are satisfied, and the IT department has developed a method to provide access to the resource, staff training will be addressed using the method described in the Capacity Building section of this roadmap.

8. Access to Digital Resources and Information

The second priority of this Educational Technology Roadmap is to develop a standardized tool, with a single point of access, through which all SD72 stakeholders have access to user-appropriate resources and information.

While elements of this type of tool currently exist within SD72, they are not in a district standard format, and therefore there is a need to further expand and develop these capabilities within a portal environment that is standardized, sustainable, and supportable.

The key elements of effective portals include:

- Access of different stakeholders to information that is relevant and necessary to their role
- Consideration to both the type of information that is available and whether or not it has been vetted and aligned to educational and priorities
- Standardized access to Web 2.0 tools
- Easy access to appropriate resources and information
- Takes the place of school and classroom web pages with greater ease of use
- Digital Curriculum Management Systems (DCMS) which:
 - generates a participatory environment that allows students, teachers, principals, board office staff and parents to communicate, share information, solicit input and gain access to the latest digital tools
 - provides an avenue for curriculum delivery, collaboration, content creation, assessment management tools and instruction
- A personalized view of appropriate resources and information

Tasks that will be carried out as SD72 moves to the development of a standardized portal include:

1. Review examples of portals and classroom management systems that are currently in use in other school districts
2. Develop a needs based list of the access to resources and information that is required
3. Select a product and develop an implementation strategy

Interactive Technologies

While SD72 has already begun to use new and innovative interactive technologies such as SmartBoard interactive whiteboards, and will continue to expand their use throughout the district, an emerging methodology for delivering instructional content involves the use of video conferencing.

Video conferencing provides the ability to deliver instructional content from a single source to one or multiple other remote sites at the same time. This can be done in either a synchronous, real time manner, or through asynchronous delivery.

Given the distances between some schools in the district, SD72 will explore the use of video conferencing as a means of reducing those distances for the delivery of instructional content.

9. Access to Technology

Current access to technology is for the most part, limited to computers in labs. Elementary students have access in computer labs and the library. In middle schools, there are a limited number of laptops but the majority of student access takes place in the library or labs. In secondary schools, the majority of student access takes place in computer labs and the library as well as through carts of laptops that facilitate the movement of the technology to the point of instruction.

In order to address the district's priorities and to use the technology to support these priorities, best practices state that the technology must be placed at the point of instruction.

If the majority of instruction for literacy and numeracy takes place in the classroom, than this is where the technology must be placed. Placing it in a lab introduces a number of barriers to use including time and distance, both of which will weaken the ability of the teacher and student to use it effectively.

While the specific implementation timelines are addressed in Section 10 of this document, by the completion of fifth year of this plan, the following standardized access to hardware will be realized in all schools:

Elementary School Hardware Access

Elementary School Hardware Access
Computer Location/Use
K-3 Classrooms: 3 Desktop computers
4-6 Classrooms: 5 Desktop computers
1 Mobile cart of 15 Laptops/small school
2 Mobile carts of 15 Laptops/large school
Library: 15 Desktop computers, 1 Circulation & 1 Catalogue desktop
Library: 1 mounted IWB, projector, speakers
Learning Assistance Rm: 3 desktop computer, 2 loaner laptops, 1 desktop/ teacher, connected to mounted data projector & IWB, speakers, mic, wireless keyboard
1 desktop computer & printer in teacher work area
Principal/V.P. 1:1 laptop, dual screens, Blackberry, access to printer
Office staff: 1:1 desktop, print/copy/fax
Printers: office, library, maintain student access printer ratio, LA room

Middle School Hardware Access

Middle School Hardware Access	
Computer Location/Use	
All core Classrooms:	3 to 5 Desktop computers, data projector, , speakers
1 teaching lab of 30 desktop,	mounted data projector and IWB, speakers
2 cross curricular labs of 30 desktops,	mounted data projector and IWB, speakers
2 Mobile carts of 15 Laptops	
Library:	30 Desktop computers, 1 Circulation & 1 Catalogue desktop,
Library:	mounted data projector and IWB, speakers
Learning Assistance, SDC, and Special Needs Room have some combination of :	3 desktop computer, 2 loaner laptops, 1 desktop/teacher, connected to mounted data projector & IWB, speakers, mic, wireless keyboard
1 desktop computer & printer	in teacher work area
Principal/V.P.	1:1 laptop, dual screens, Blackberry, access to printer
Office staff:	1:1 desktop, print/copy/fax
Printers:	office, library, maintain student access printer ratio,

Secondary School Hardware Access

Given the two secondary schools have different physical layouts, but similar student populations, the plan targets 205 student access computers with numbers and placement of desktops and laptops varying to some degree between the two schools.

Secondary School Hardware Access	
Computer Location/Use	
4 labs of 30 computers (mix of desktops/laptops depending on physical layout of building)	
85 computers distributed as desktops to core Classrooms and mobile carts of laptops	
Core classrooms: data projector, IWB, speakers	
Library: 30 Desktop computers, 1 Circulation & 1 Catalogue desktop	
Library: mounted data projector and IWB, speakers	
Learning Assistance Rm: 5 desktop computer, 1 IWB, projector, speakers	
1 desktop/ teacher, connected to mounted data projector & IWB, speakers, mic, wireless keyboard	
1 desktop computer & printer in teacher work area	
Principal/V.P. 1:1 laptop, dual screens, Blackberry, access to printer	
Office staff: 1:1 desktop, print/copy/fax	
Printers: office, library, maintain student access printer ratio, LA room	
Facilities manager: Maintain current access level	

10. Implementation Strategy/Timelines

While the actual location of computers is fundamental to the overall successful integration of technology, so too is the management of the life cycle of the hardware. Just as replacing hardware before its usefulness has expired results in unnecessary expenditures, delaying replacement too long may also result in greater monetary outlays through increased support requirements. The challenge is finding the optimum time for replacement. The difficulty is that there is no definitive rule for identifying the proper replacement period, as there are a great number of variables that may impact the process.

In an effort make the most of our hardware, SD72 will work to strategically replace the oldest hardware first, with the goal of having the majority of hardware replaced within three years, and then replacing hardware in a systematic manner after five years of use.

Hardware Refresh Strategic Priorities

The hardware refresh priorities of this plan are:

1. Data projectors in every Secondary and Middle school core classroom
 - a. Begin to deploy on media carts working towards ceiling mounted as the standard
 - b. Pro-D is connected with this deployment
 - c. Begin deployment immediately
 - d. Maintenance and warranty to be supported and managed centrally
2. Desktop and Laptop Replacement
 - a. Middle and Secondary schools
 - b. Pro-D is connected with this deployment
3. Interactive White Boards
 - a. A small number to be deployed in Middle and Secondary schools with existing data projectors
 - b. Teachers using IWBs will become mentors for other teachers
 - c. Pro-D is connected with this deployment
4. Desktop and Laptop Replacement
 - a. Elementary schools
 - b. Pro-D is connected with this deployment
5. Student Services Computer Replacement
 - a. Beginning in year 2
 - b. Pro-D is connected with this deployment
6. Teacher Computer Replacement

- a. Beginning in year 3
- b. Either desktop or laptop
- c. Pro-D is connected with this deployment

Note: Secretary desktop computers are outside the scope of this 5 year plan as they are new and will be scheduled for replacement at the beginning of the 6th year

Hardware Replacement Timelines

The following chart outlines the hardware replacement schedule:

Hardware Replacement Timeline					
Item	2009	2010	2011	2012	2013
Data Projectors Middle/Secondary					
Computers Middle/Secondary					
IWBs Middle/Secondary					
Computers Elementary					
Student Services Computers					
Teacher Computers					

11. Roadmap Overall Task/Timeline Summary

Roadmap Overall Task/Timeline Summary					
Task	2009	2010	2011	2012	2013
Ed. Support Team Initial Tasks p14	■				
SMART Board Pro-D Lead Teachers p14	■				
Ed. Support Team Long Term Tasks p15		■			
Evaluate Existing Software p16	■				
Fill Software Gaps p16	■				
Identify Appropriate SMART Board Resources p16		■			
Determine Operating System Linux/Windows p16	■				
Develop Software Acquisition Process p16		■			
Review Examples of Portals and Classroom Management Systems p18		■			
Develop Needs Based List of Required Access if Info and Resources via a Portal p18		■			
Select Portal Solution and Develop Implementation Plan p18			■		
Implement Portal Solution p18			■		
Data Projectors Middle/Secondary p22	■				
Computers Middle/Secondary p22		■			
IWBs Middle/Secondary p23		■			
Computers Elementary p23				■	
Student Services Computers p23		■			
Teacher Computers p23			■		

12. Network Infrastructure, Standards and Security

SD72's technical infrastructure must continue to support the teaching and learning endeavors of its clientele. The priority of the end-users for consistent and functional access to standardized software tools will drive rational and supportable selections of hardware, operating systems, networking and data center designs.

The IT Department's continued adoption of industry best practices, vetted and tuned for applicability within SD72, will further enhance the teaching and learning process by providing a safe, secure and highly functional computing environment.

User requirements for solutions such as WiFi network support for personal devices, smartphone integration, and increased collaboration tools through a portal will put increased demand on the IT department. These future projects will be enterprise-wide, reaching every corner of SD72. To properly deploy and support these goals, the IT Department will enforce the prerequisite that future endeavors are enterprise-class solutions adhering to centrally managed support models.

WAN/LAN Infrastructure Standards

Access to greater WAN bandwidth will continue to evolve as telecom infrastructure expands. As such, continually upgrading bandwidth to each site will be undertaken, ensuring the network infrastructure is suitably in place to accommodate current and future client needs.

LAN infrastructure will continue to be maintained, with special consideration taken to reviewing/implementing advanced, upper-layer Open Systems Interconnect (OSI) management features, which generally govern how applications or tools work on a network, as they become more readily available at reasonable expense. These upper layers will both enhance the end-user experience and increase SD72's management and support options (granular application control/packet manipulation).

Wireless connectivity to the end-user must be framed as a priority. The increased availability of low cost consumer devices (Netbooks) will drive greater demand for wireless access to these student-owned computers. Providing safe and secure wireless access will be the challenge and SD72's IT Department will continue to evaluate existing environments and implement additional solutions in order to meet the specific needs of its clientele.

Schools, by physical nature of the concrete construction, are inherently difficult to provide universal wireless access in a cost-effective manner. However, as SD72 moves to a broader implementation of laptop carts, the IT Department will work to ensure all instructional areas in all schools have wireless coverage.

As the district moves forward implementing this Educational Technology Roadmap, the WAN/LAN connectivity goals are:

- 100MB – 1,000MB connectivity to each site
- 100MB connectivity to each client device (wired)
- A*/B*/G/N connectivity to each client device (wireless)

* A/B is optional, only if required for legacy devices

End User Devices

Client devices will support the needs of the clientele, and provide consistent and reliable access to standardized software, based on the recommendations of the Curriculum committee(s) overseeing access to essential computer resources. Access to these software resources will be provided to each identified user group, irrespective of the hardware / operating system. Standardized, functional use of required software will determine operating systems deployed, in conjunction with cost-effectiveness of supporting a heterogeneous environment while maintaining desired computer-to-user ratios.

Procurement of standardized, Tier1 client devices will increase ROI by decreasing overall support/maintenance costs through the life cycle of the technology. Standardizing will also facilitate greater IT support by enabling technologies that permit increased remote support possibilities.

With the growing demand from teachers and students to use their own portable devices in the schools, SD72 will develop a secure means of providing wireless connectivity for portable devices owned by teachers, students and guests.

Systems Management/Security

Maintaining solutions with consistent management and security, while continually improving support, will be achieved by leveraging industry best practices for enterprise-class processes, hardware and software tools. Procured hardware will be supported with systems management solutions that will facilitate the following:

- Remote and Local unattended image provisioning for expedited deployments/re-imaging
- Remote and Local patch and security update management for reduced hands-on/repetitive management tasks
- Server(s) health status updates for increased preventative measures to maintain exceptional uptimes and high user satisfaction levels
- Centrally-managed wireless infrastructure for homogenous WiFi coverage, with ability for dynamic provisioning and console-view management of the entire wireless network

The emphasis on security will continue throughout all technical endeavors, where future projects such as portal or student wireless are developed in a manner that ensures the high security expected and required in SD72.

Technical Support

The IT Department will be relied upon to develop district-wide enterprise solutions that will both integrate and be depended upon for SD72's day-to-day operations. As such, in order to maintain equity of high quality support throughout the district, IT will be required to maximize efficiencies in all areas. This translates into employing support best practices that are directly suited to the unique needs of K12 school boards, such as:

- Blend of scheduled onsite and remote support, employing tools that are developed for the enterprise
- Vendor alignment for strategic, standardized purchases that leverage hardware uniformity, decreasing time and effort to support
- Standardized clients, both hardware and software, ensuring a computing experience that's equal and consistent throughout the board
- Access to quality Pro-D for IT staff to maintain the level of expertise required to support the enterprise

13. Measures of Success

The collection and analysis of data that will assess the impact of technology within SD72 will be completed within the scope of a comprehensive program of evaluation that will enable data-driven decisions with respect to technology within the district, as well as a means for directing the continual evergreening of the district's Educational Technology Roadmap.

The key performance indicators that will be assessed, will be evaluated through a blending of both empirical evidence, as well as attitudes, perceptions and anecdotal evidence.

Key performance indicators will include:

- Assessments in Literacy
- Assessments in Numeracy
- Technology skill development in students
- Technology skill development in teachers and other staff
- Parent satisfaction of technology use in schools
- Professional Development registration numbers
- Yearly Pro-D surveys
- How TIST/MITs/Mentors spend their time with teachers
- IT Department support logs
- Numbers of students accessing LearnNowBC

Data will be collected in the following ways:

- Objective technology literacy skill data will be collected from administrators, teachers, students, and non-instructional staff
- Curricular integration data will be collected from teachers
- Perceptual data will be collected from parents, administrators, teachers, students, and non-instructional staff
- Instructional leadership data will be collected from administrators

14. Processing and Communicating the Plan

Processing the Plan

The SD72 Educational Technology Roadmap will be processed with stakeholder groups in order to receive information for the refinement of the plan, and in order to be validated by those affected by it. The process will take the following order:

1. Review of the initial draft of the plan will be carried out by the Technology Planning/Stakeholder committee.
2. Edits will be made to the plan based on feedback provided by the review in step 1.
3. Presentation of the plan to Senior Management by Technology Planning/Stakeholder committee. Adjustments are made to the plan where necessary.
4. The SD72 Educational Technology Roadmap will then be presented to the Board of Trustees.

Focus groups in the areas of software, core PD, IT, K12 instructional support, and special education will be created involving elementary, middle and secondary staff to assist with the implementation of the plan.

Communicating the Plan

In order to communicate the plan throughout the district, a collaborative venture will be undertaken among members of the Technology Planning/Stakeholders Committee to prepare a technology embedded presentation. This presentation will be used to deliver a unified message to the staff and parents of SD72.

Presentations will be made to the following groups in order to reach all staff and parents within the district:

- Senior Administration and school based administrators
- School and Central Office staff via staff meetings
- School Parent Advisory Committees and District Parent Advisory Committees

Evergreening the Plan

Meetings of the Technology Planning Committee will be held at appropriate times each year to review progress to date and to discuss amendments to the plan for the future.

15. Estimated Costs

The following chart provides an estimate of the costs of implementing the major components of this Educational Technology Roadmap. While unit prices are general estimates, additional efficiencies may be realized based on volume purchases, and added value contributions from vendors.

The chart also represents budgets for the purchase of the various components of the plan. Additional efficiencies may be realized through leasing contracts. SD72 will therefore explore leasing options when considering future technology acquisitions.

Campbell River SD 72 Estimated Technology Implementation Budget 2009 - 2013								
Category	Description and Assumptions	Unit Cost	Qty	2009	2010	2011	2012	2013
PD	LCD Care & Feeding (after school sessions)	\$0.00	TBD	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	SMART Board Training for select teachers	\$2,000.00	8	\$16,000.00	\$0.00			\$0.00
	Technology Leadership Workshop for Administrators (4 half day sessions and online support over a 6 month period)	\$750.00	30	\$22,500.00	\$0.00	\$0.00	\$0.00	\$0.00
SW	Literacy and Numeracy software	\$50.00	5400		\$67,500.00	\$67,500.00	\$67,500.00	\$67,500.00
	Portal	\$100,000.00				\$50,000.00	\$50,000.00	
	Classroom Management System	\$2,500.00	19		\$47,500.00			
HW	Interactive White Boards and Data Projectors	\$2,500.00	70	\$43,750.00	\$43,750.00	\$43,750.00	\$43,750.00	\$0.00
	Desktop Computers and Monitors	\$725.00	1715	\$0.00	\$310,843.75	\$310,843.75	\$310,843.75	\$310,843.75
	Laptop Computers	\$1,100.00	510	\$0.00	\$140,250.00	\$140,250.00	\$140,250.00	\$140,250.00
Total Yearly Costs				\$82,250.00	\$609,843.75	\$612,343.75	\$612,343.75	\$518,593.75
NOTE								
Release Time	A Min of 10 days per school would be required for Teachers on Call if the current Instructional Support Teachers, Teacher Leaders, and TIST position were not in place	\$300.00	200	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00	\$60,000.00

Appendix A: Online Survey Analysis
