Personalizing Learning with Technology
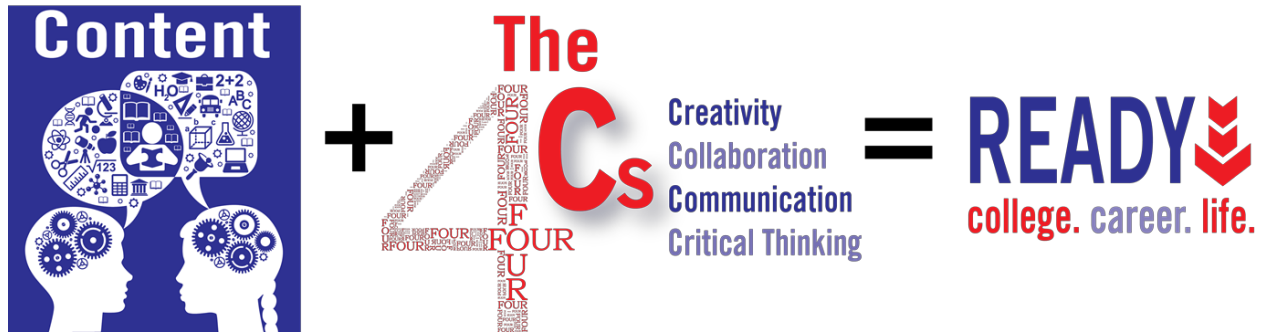

A three-year plan to deploy technology solutions in support of personalized learning across the district.

August, 2014

Personalizing Learning with Technology

Table of Contents

Personalizing Learning with Technology

Overview

The purpose of this plan is to meet the strategic objectives of the district by deploying technology solutions in support of the teaching and learning needs of our students and staff through the effective deployment of district and community resources. Two specific strategies have contributed significantly to preparing the district for the successful integration of technology over the long-term:

1. A partnership between the Teaching and Learning and Technology Departments focused on designing the District's approach towards Authentic Student Engagement and Personalized Learning, supported by technology.
2. The development of a phased approach to address technical infrastructure needs through the Personalized Learning Technology Framework.

Through the work of many people and various committees, the following strategic objectives (bolded) were identified to focus the work captured in this technology plan:

1. Achieve, measure, and report **growth for all students** through authentic student engagement
2. Prepare for **college and career readiness** through the development of rigorous subject-area/secondary course content aligned to standards and communication, collaboration, critical thinking, and creativity (4 C's) skills
3. **Establish a culture of innovation** through the scaling of innovative teaching and learning practices, expert support and training, and flexible learning and collaboration spaces
4. Provide adequate resources, support, and infrastructure to facilitate learning and to **build a sustainable business model**

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Authentically Engaged Students

The vision for student learning is to authentically and deeply engage every child in his or her learning. This is accomplished through a number of specific conditions and factors that have been attributed to engaging learning environments. While teacher behavior is important, what matters most are the learning conditions that students experience that are designed to ready students for college and careers. These conditions are supported and enhanced through the effective use of technology. Nine design principles govern this approach towards personalized learning and are supported with clear student, teacher, and administrator expectations necessary to meet the desired outcomes. .

Teaching and Learning Design Principles

1. Student incentives, support, and rewards are designed to build commitment to learning rather than compliance with external demands and expectations.

2. The pace of learning is calibrated to fall within the student's proximal zone of development such that success remains within reach, but is challenging enough to require significant effort.

3. Learning is the focus of attention rather than instruction: the focus is on nurturing the learning of the learner rather than presenting the curriculum.

4. Learner success is presumed and built into the learning path rather than waiting for failure and building in remediation.

5. Instructional strategies and supports are designed to foster learning independence rather than dependence on others for direction, structures, and solutions.

6. Students are encouraged, nurtured, and expected to own their learning rather than view learning as something they do for someone else.

7. Student learning capacity is seen as malleable and developable through practice, persistence, and effective use of available resources rather than a hard wired, unchangeable characteristic.

8. Student learning is positioned as the constant in the learning environment, with time positioned as a variable resource in support of the learning process.

9. Students see the value of and potential to succeed in learning tasks so they engage in and persist with efforts to learn.

Technology has the potential to play a powerful role in the successful deployment of the design principles and student ownership of learning. Centered on the why, we are committed to a vision of universal access and leveraging the best features different devices have to offer. This results in a 1:x approach, flexible to support dynamic learning needs. More important than access, the student, teacher and administrator need to be equipped with the skills, competencies, and technology tools to meet the learner outcomes.

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Roles and Responsibilities to Actualize a Vision of Authentically Engaged Students

Student Expectations

- Develop skills and competencies necessary to meet the National Educational Technology Standards (NETS) for Students

- Assume ownership of learning demonstrated through engagement, voice and choice, seeking resources, growing independence, with an understanding of outcomes and expectations

- Capture growth and progress towards learning outcomes through an electronic portfolio

- Flexibly utilize district and personal technology devices to meet learning outcomes

Teacher Expectations

- Develop skills and competencies necessary to meet the National Educational Technology Standards (NETS) for Teachers

- Begin to integrate design principles and student devices into the classroom through thoughtful planning, collection of feedback, reflection, and continuous improvement

- Leverage Google Apps, a Learning Management System, and other technology tools to foster and nurture students' content area knowledge ability to communicate, be creative, think critically, and collaborate (the 4 C's)

- Support students in their work towards meeting the NETS for Students, to include reporting out on grade-level expectations

- Develop a communications plan for students and parents to develop understanding of the authentically engaged classroom and to report student progress

Administrator Expectations

- Develop skills and competencies necessary to meet the National Educational Technology Standards (NETS) for Administrators

- Establish a plan to scale authentically engaged classrooms across the school to include parent and student communication

- Prepare and equip staff for the successful integration of devices through professional development, peer observations, and clear expectations

- Model design principles to authentically engage staff in professional learning experiences (flexible pace, blended learning, proficiency-based progress)

- Share and celebrate authentically engaged students and teachers using school communication tools (website, twitter, etc)

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Key Outcomes of Authentic Student Engagement

Learning environments governed by the design principles will result in the consistent presence of these elements in every classroom.

- Purposeful learning
- Learner efficacy
- Ownership for learning
- Flexible pace
- Learner voice infused
- Learner choice presented
- Learners serve as resources for learning
- Space for learning flexibility
- Commitment focus
- Collaboration
- Technology supported
- Growing learning independence

Key Measures of Authentic Student Engagement

2014 -15	● 15% of our classrooms will consistently reflect four or more of the design principles evidenced by walkthroughs and self-reporting ● 100% of our staff will demonstrate understanding of the design principles through completion of an online, personalized learning course ● 100% of our staff will complete the Clarity assessment measuring administrator and teacher technology skills and ability to effectively leverage technology to promote collaboration, creativity, communication and critical thinking
2015 -16	● 60% of our classrooms will consistently reflect four or more of the design principles evidenced by walkthroughs and self-reporting ● Elmbrook students will reflect 20% growth from Fall to Spring in the areas of collaboration creativity, critical thinking and communication measured by the Clarity Assessment ● 100% of our classroom teachers will identify and integrate at least two design principles into their classrooms throughout the year ● Elmbrook staff will demonstrate 20% growth from Fall to Spring in the areas of students use of technology, professional growth, and overall effectiveness at integrating technology measured by the Clarity Assessment
2016 -17	● 100% of our classrooms will consistently reflect four or more of the design principles evidenced by walkthroughs ● Elmbrook students will reflect 20% growth from Fall to Spring in the areas of collaboration creativity, critical thinking and communication measured by the Clarity Assessment ● Elmbrook staff will demonstrate 20% growth from Fall to Spring in the areas of students use of technology, professional growth, and overall effectiveness at integrating technology measured by the Clarity Assessment

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Strategic Objective: Growth for All Students

Position Responsible: Assistant Supt for Teaching and Learning, Chief Information Officer

Strategic Scope: In order to achieve growth for all students the District seeks to provide:
1. Universal Access - guaranteed access to a device
2. Technology Outcomes – accountability for students and staff to meet the National Education Technology Standards (NETS)
3. Data-Driven Decisions by Students – provide students and families access to assessment and achievement data to inform goal setting and college and career planning
4. E-Literacy – support of literacy work through access to e-Books

Strategic Dashboard Data:
- % of Quarterly goals met in action plans created to support growth for all students
- % "up time" of all student devices
- % of students meeting NETS proficiency as reported on report cards (K-5)
- % of Students Accessing Dashboard Data
- Quarterly e-Book Circulation
- % of e-Book Collection relative to Print
- # of lost/damaged devices each quarter

Personalizing Learning with Technology

1. Universal Access

While many students in Elmbrook have access to a personal device at home, a variety of factors, such as shared use with sibling/parent and robustness of the device (e.g. e-reader, gaming device), prevent guaranteed and consistent access at school and at home. Further, assessment demands (screen size, dedicated keyboard) and staff concerns about integrating and supporting different device types led the Personalized Learning Advisory Team to recommend a district-provided device strategy. Specifically, by 2016-17 each student in grades 4-12 will be issued a Chromebook (1:1), and the current 2:1 ratio of students to iPads in Grade 3 will be extended to all KG-2nd grade classrooms.

Due to the changing nature of the device market, and the fact that no one device meets all teaching and learning needs, the District is adopting a 1:x strategy across all grades. This approach recognizes the value of Apple iPad for its powerful apps and creativity tools as well as the ease-of-use with Google Chromebooks and integration with Google Apps. A 1:x vision encourages the use of personal and other devices to complement students' and staff members' district-issued devices.

Position Responsible - Universal Access: Chief Information Officer

Key Milestones:
- Deploy devices requested from Classroom Innovation Proposals
- Establish approach to student support of devices at all levels (course, clubs, classroom experts)
- Deploy Chromebooks for Grades 4, 5, 6, 8, 9, 10
- Deploy Chromebooks for Grades 4, 5, 8, 12
- Evaluate iPad impact and replacement cycle

Metrics - Universal Access
- % of students with a district provided device
- # of trained/certified student support (help desk) specialists
- # of student help desk calls
- # of lost/damaged devices each quarter

2. Technology Outcomes

Technology learning outcomes are articulated in the vision for authentic student engagement and include the development of skills and competencies necessary to meet the National Educational Technology Standards (NETS) for Students and Staff. In addition to communication, collaboration, critical thinking and creativity (the 4 C's – see page ##), the standards also address responsible use, research and information fluency, and technology concepts for students, and modeling digital work and engaging in professional growth for staff.

Key Milestones:
- Deploy Clarity Assessment in UnCommittee Classrooms to Baseline 1:1 Impact on Proficiency
- Establish Student and Teacher Technology Outcomes

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- Communicate Expectations to Staff, Students
- Deploy Clarity Assessment in Fall/Spring to Measure Growth
- Create and Deploy Training Resources for Staff, Students

Metrics – Technology Outcomes
- % of Students Achieving Proficient/Advanced on Elementary Report Card
- Clarity "Classroom – Access - Skills – Environment (CASE)" District Score
- Clarity "Maturity Level" for Students' 4 C's, Responsible Technology Use
- Clarity "Maturity Level" for Staff regarding classroom integration and personal use
- # of Digital Ethics Behavior Incidents

3. Data-Driven Decisions by Students

While student assessment data is often used by adults to direct learning pathways, interventions and department/classroom goal setting, it is far less frequently used by students to inform academic, college and career decisions. To equip the student to play an active role in the decision making process, the district will invest in the development of a student assessment dashboard, designed to provide access to historical assessment and achievement data.

Owner: Director of Assessment and Continuous Improvement

Key Milestones:
- Establish Student Dashboard Vision and Expectations
- Evaluate Data Integrity and Data Collection Practices
- Develop Prototype Dashboard - Web and Mobile
- Deploy Dashboard to Students, Families
- Integrate Dashboard Use in Annual Guidance Counselor Meetings

Metrics – Data-Driven Decisions by Students
- % of Student Data in the Dashboard (out of all Achievement Data)
- % of Students Accessing Dashboard Data
- % of Parents Accessing Dashboard Data
- % of Students Utilizing Dashboard for College and Career Planning

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4. E-Literacy

Anticipating the 1:1 rollout of student devices, an e-book and information literacy strategy is needed to complement the current deployment of the K-12 Literacy Framework. Currently, the majority of library books, e-books, and research databases are purchased through the District's Common School Fund (CSF) allocation. The goal of this initiative is to develop an annual process that strategically builds out an e-book collection, reviews the impact of research databases and helps create the digital library of the future.

Owner: Assistant Supt for Teaching and Learning, Chief Information Officer

Key Milestones:
- Establish targets for e-book circulation and collection
- Create training modules for staff, students on how to use e-Literacy resources
- Integrate E-Literacy expectations with technology device rollout

Metrics – E-Literacy
- e-Book Circulation
- % of e-Book Collection relative to Print
- % of CSF Allocated to e-Literacy Resources
- % of Utilization for Research Databases
- % of Students/Staff Completing Online Training Modules

Personalizing Learning with Technology

Strategic Objective: College and Career Readiness

Position Responsible: Assistant Supt for Teaching and Learning, Chief Information Officer

Strategic Scope: In order to achieve college and career readiness the District will:
1. Leverage Technology to Foster Subject-Area/Secondary Course Content Knowledge Creativity, Collaboration, Communication and Critical Thinking (the 4 C's)
2. Deploy an Online Learning Platform
3. Establish Digital Academic & Career Plans for All Students

Strategic Dashboard Data:

- District's Classroom – Access – Skills – Environment (CASE) Clarity Score
- Clarity "Maturity Level" for Students' 4 C's, Responsible Technology Use
- % of Students participating in a blended or online course
- % of 6th-12th Grade Students with Academic & Career Plans
- # of Online Courses
- % of Students Participating in a Blended or Online Course
- % of Staff Completing Personalized Learning Training Course

Personalizing Learning with Technology

1. Rigorous Subject-Area/Secondary Course Content Aligned to Standards Paired with a Focus on Creativity, Collaboration, Communication and Critical Thinking (4 C's)

The vision for student learning is to authentically and deeply engage every child in his or her learning. This is accomplished through a number of specific conditions and factors that have been attributed to engaging learning environments and result in student experiences often designed around rigorous core content aligned to standards paired with a focus on the 4 C's. Technology devices, applications, projects and learning platforms can be utilized to develop students' ability to think creatively, communicate effectively, think critically, and collaborate with others.

Key Milestones

- Deploy Learning Management System
- Establish Telepresence Strategy
- Deploy video management system
- Develop and deploy 4C walkthrough criteria
- Continue deployment, expectations of use for Google Apps Suite

Metrics – 4 C's

- Clarity "Classroom – Access - Skills – Environment (CASE)" District Score
- Clarity "Maturity Level" for Students' 4 C's, Responsible Technology Use
- # of Google Docs Created
- Average Shares of Each Doc
- 4 C Walkthrough Evidence
- Frequency of use - Telepresence

2. Online Learning Platform

Over the past five years the percentage of students in higher education taking an online course doubled from 23% to 45%. Anticipating even higher participation in the coming years and considering over 90% of Elmbrook students attend a two- or four-year college or university, it is important to prepare our students to be successful learners in both physical and virtual classrooms. In addition, the online learning platform offers flexibility to sustain and extend Elmbrook's course offerings in a very competitive course delivery market.

Similarly, the ability to efficiently deliver course content and training resources to our staff is critical with limited face-to-face professional development time and high expectations. Tracking course completion and performance strengthens deployment through accountability.

Key Milestones:

- Integration of LMS and Student Information System (Infinite Campus)
- Create Short- and Long-Term Expectations of Use of LMS
- Create and deploy Personalized Learning Course for Staff, Students
- Establish Professional Development modules for key training needs for all employee groups

Personalizing Learning with Technology

● Evaluate participation in Massive Open Online Course and timeline for hosting such a course

Metrics – Online Learning
● # of Blended Learning Courses Requiring Regular Use (2-3 times per week)
● # of Online Courses
● % of Students Participating in a Blended or Online Course
● % of Staff Completing Personalized Learning Training Course
● % of Staff Meeting or Exceeding Blended Learning Requirements

3. Digital Academic & Career Plans for All 6th – 12th Grade Students

In 2017, the State of Wisconsin is requiring all 6th-12th grade students to have an academic and career plan. The District seeks to meet and exceed this requirement through the use and integration of student dashboards, electronic portfolios, and digital academic and career plans. In addition to the state of Wisconsin providing a digital career planning tool, the Elmbrook Schools will capture and present academic and career plans using a robust digital platform.

Key Milestones:
● Identify e-Portfolio Tool based on State Recommendations and LMS functionality
● Develop approach to K-12 academic and career plans
● Establish e-portfolio guidelines and training resources
● Deploy academic and career plan expectations with device rollout

Metrics – Digital Academic & Career Plans
● % of Students with Academic & Career Plans

Personalizing Learning with Technology

Strategic Objective: Establish a Culture of Innovation

Position Responsible: Assistant Supt for Teaching and Learning, Chief Information Officer

Strategic Scope: The District will create a culture of innovation by:
- Continuing to scale innovation at the classroom level through the UnCommittee Process
- Aligning staff resources to support the changing needs of our students and teachers
- Redesigning work spaces to support new practices in learning and teaching
- Celebrating student and staff success

Strategic Dashboard Data:
- % of Classrooms Recognized for Authentic Student Engagement
- % of Classrooms with Redesigned Learning Spaces
- # of Elmbrook Student and Staff Member Presentations at Regional, State & National Conferences about Innovative Practices
- # of Key Partners Supporting Innovation
- Clarity "Maturity Level" Reflecting Staff Proficiency and Growth
- # of Industry-Recognized Certifications Earned by Elmbrook Staff

Personalizing Learning with Technology

1. Scaling Innovation

In January 2013, twenty-seven educators began a process of learning focused on the student-centered, personalized learning work of *the Institute at CESA 1*. After reflection, site visits, and discussion, participants submitted 17 innovation project proposals that were funded for implementation in the Fall of 2013. Seeking to build on promising results and expand the scope of impact across the District and southeastern Wisconsin region, Elmbrook partnered with the Institute to facilitate a cohort of districts to work through a similar process of learning and proposal writing. Elmbrook participants, referred internally as members of UnCommittee II, totaling thirty-seven submitted 33 proposals in March 2014. This process of learning and proposal writing will continue in 2014-15 to continue to scale innovation and support the successful rollout of Chromebook devices in 2015-16 and 2016-17.

Key Milestones
- Deploy UnCommittee II Projects and report progress quarterly
- Prepare for UnCommittee III
- Develop professional development resources and expectations for all staff
- Deploy Bus Tour strategy for key stakeholders
- Develop strategic partnerships to support District Innovation

Metrics – Scaling Innovation
- % of Classrooms with Strong Evidence of Authentic Student Engagement
- Student Engagement Survey Data
- Participation in Innovation Bus Tours
- EEF Endowment Funds Raised
- # of Key Partners in Support of Innovation

2. Align Staff Resources

Recommendations from the Personalized Learning Team highlighted the importance of providing professional support in the form of teaching and learning (T&L) specialists (formerly technology integrators/coaches). Specialists are able to give quality feedback, offer training, research solutions, and support the implementation of new approaches and/or technologies in the classroom. While resources were aligned at elementary at the start of 2013-14, staffing resources will need to align at our middle and high schools before a 1:1 initiative is deployed in 2015.

Key Milestones:
- Transition Technology Coaches to Teaching and Learning Specialists
- Explore Library staffing models and recommend long-term vision
- Build technology leadership capacity amongst teaching and support staff members

Metrics – Align Staff Resources
- Clarity "Maturity Level" reflecting staff proficiency in technology use and integration
- Staff survey regarding access to support and quality of support

Personalizing Learning with Technology

- # of technical certifications (e.g. Google) earned by Teaching and Learning Specialists

3. Redesign Workspaces

Authentic student engagement can happen in any classroom environment, but may be more successful in an environment designed for collaboration, creativity, and flexible use of classroom resources. Many school districts in the region have changed some or all of their classrooms and report anecdotally a positive correlation between room design and student engagement. In addition, many workspaces in Corporate America are changing to reflect similar dynamics between employees.

While it is important for the District to prepare our students to be successful in college and career, the large investment required to transform classrooms demands due diligence to carefully monitor the impact of room design on achievement and engagement.

Key Milestones:
- Create model workspace environments
- Establish Elmbrook standards for furniture and classroom redesign
- Align workspace needs with large capital improvement projects
- Study and recommend library space model for all K-12 libraries
- Establish long-term funding for workspace vision

Metrics – Redesign Workspaces
- % of classrooms that have transformed their learning spaces
- Student engagement and achievement data from transformed classrooms
- % of classrooms included in the long-range plan process
- # of libraries transitioned to active learning spaces

4. Celebrate Student and Staff Success

As authentic student engagement increases due to changed teaching and learning practices, increased access to technology, quality professional development resources and support, and a robust technical infrastructure, it is important to celebrate student and staff accomplishments along the way. These celebrations and recognition will promote a positive culture for change, build awareness of the scope of change, and motivate and inspire students and staff to take risks.

Key Milestones:
- Establish regular process to capture major celebrations via video
- Establish consistent approach to recognizing student and staff accomplishments
- Develop and deploy marketing materials for classroom innovation and results

Metrics – Celebrate Success
- # of Views on Innovation Videos
- Monthly Posts to Twitter and # of Followers
- Monthly Posts to Staff News and Open Rates

Personalizing Learning with Technology

Strategic Objective: Build a Sustainable Business Model

Position Responsible: Assistant Supt for Teaching and Learning, Chief Information Officer

Strategic Scope: The District will create a sustainable business model by:
- Establishing a Budget that Supports Key Teaching and Learning Initiatives
- Deploying the Personalized Learning Technology Framework
- Aligning Technical Staff to the Current and Projected Work of the District
- Establishing Policies that Guide Responsible Use and Support Teaching and Learning Objectives

Strategic Dashboard Data:
- % of Technology Budget Aligned to Key Teaching and Learning Initiatives
- % of Projects Completed On-Time
- Bandwidth Usage Data
- HelpDesk Ticket Response Time
- HelpDesk Ticket Resolution Time
- % Server Uptime

Personalizing Learning with Technology

1. Budget Alignment in Support of Key Teaching and Learning Initiatives

The increased device and infrastructure (wireless, storage and bandwidth) plans require an increased and sustained investment in technology. Appendix A highlights some of the major technology expenses and the budget needs over the next five years.

Key Milestones:
- Identify long-range funding needs
- Annually assess needs and funding resources in budget process
- Report out on investment in technology and student outcomes - Content + 4C's

Metrics – Budget to Support Key Initiatives
- % of technology budget aligned to key teaching and learning initiatives
- % of needs deferred or not met due to budget constraints

2. Establish Personalized Learning Technology Framework

In 2012, the personalized learning technology framework (Appendix B) was developed to establish a comprehensive vision and planning timeline to address technical and teaching learning technology needs. Many elements are captured in other areas of this technology plan, leaving the sustainable infrastructure needs for this plan element:
- Anytime, Anywhere Access
- Bandwidth
- Communication Tools
- Data Warehouse
- Login/Account Creation
- Reliability and Accountability
- Servers & Storage

Key Milestones:
- Fiber backbone recommendation and deployment
- Leverage online application availability and single sign-on tools
- Streamline communication tools and expectations of use
- Move all storage/servers to the cloud
- Deploy IP Telephony across the district

Metrics – Personalized Learning Technology Framework
- % of projects completed on-time
- % of projects completed on-budget
- Bandwidth usage data
- # of help desk calls seeking gmail support
- % server uptime

Personalizing Learning with Technology

3. Align Technical Staff

While the number of technology devices has doubled over the past six years, the roles and responsibilities of the technology staff members have largely remained unchanged. In preparation for the deployment of a 1:1 strategy and in recognition of the reduced role of desktop computers and Windows-based management tools, several changes are being made to prepare for the work of the future. An annual review of key responsibilities and performance metrics will allow the technology department to be more agile to the changing nature of technology and dynamic teaching and learning needs.

a. Reduced Desktop Supervisor Position
b. Add Tier III Technician Position for Network Administration, Storage and Recovery, Group Policies and Server Scripting
c. Add Tier I Technician Position for first-level break and fix support of all technology devices in the district.
d. Modified Tier II Technician Roles to specialize on key products (e.g. iPad management)
e. Establish cross-training strategy to insure backup on key skills and job duties

Key Milestones:
- Redesign department roles and responsibilities
- Document key processes
- Cross train on key business functions
- Align practices to ITIL best practices

Metrics – Align Technical Staff
- HelpDesk Ticket Response Time
- HelpDesk Ticket Resolution Time
- # of Hours Spent Training per Employee
- % of Key Skills/Duties with Backup Support (Cross-Training)
- % of Key Processes Documented
- # of Industry Certifications Earned

4. Establish Policies that Guide Responsible Use and Support Teaching and Learning Objectives

A series of policies exist to guide and direct the work of the district, comply with state and federal requirements, and remind stakeholders of their rights and responsibilities. Policies are reviewed every three years and are often modified to adapt to changing technologies and student and staff behaviors.

All of the policies listed below have been reviewed and revised in the spring of 2014.
- 1111.3 District Website and Intranet
- 4511 Staff – Appropriate Use of Technology
- 4511.1 Staff – Social Media Policy
- 6163.1 – Libraries

Personalizing Learning with Technology

- 6163.12 – Interloan of Library Resources
- 6163.2 – Copyright
- 6171.2 – Assistive Technology
- 6177 Student - Appropriate Use of Technology
- 6177.1 Children's Internet Protection Act

Key Milestones:
- Review and revise all Board Policies
- Communicate policies and changes to staff and students
- Annually review policies and practices to identify gaps and solutions

Metrics – Establish Guiding Policies
- Policies reviewed, revised and approved every three years
- # of Staff Policy Violations

Personalizing Learning with Technology

Appendix A – Technology Budget Overview

	2014-2015	**2015-2016**	**2016-2017**
Key Expenses	- Learning Management System - HS Telepresence - HS Teacher Laptops - UnCommittee II Classrooms - Existing Lease Expense - TimeWarnerCable Bandwidth	5 Grade Levels of 1:1 Student Devices - Projector Replacement (50%) - Secondary iPad Carts - HS CAD Labs - Existing Lease - MS Teacher Laptops - TimeWarnerCable Bandwidth	4 Grade Levels of 1:1 Student Devices - K-2 iPads (2:1 Ratio) - Projector Replacement (50%) - Elementary Teacher Laptops - Build-out of District Fiber Network
Total Budget Needs	$1,314,000	$1,314,000	$1,314,000

Personalizing Learning with Technology

Appendix B – Personalized Learning Technology Framework

Devices	Storage	Online Learning Platform
Devices - Flexible - Device independent strategy (1:x) - Leverages home investment/access - Common software platform to guarantee experience (files, links, applications) regardless of the device	**Storage** - Flexible storage - access anytime, anywhere - Shared storage spaces - student to student, student to teacher, teacher to teacher - Access files on any device - device independent storage - Some kind of redundancy or backup	**Online Learning Platform** - Robust - scalable - Collaboration Tools - Supports Video capture & streaming (e.g. Assessment feedback) - Standards-based Activities, Assignments - Flexibly shares content - Strong e-Portfolio Option
Access & Bandwidth - Anytime, Anywhere - including campus/outdoor spaces - Secure with option for public access (adaptable/flexible) - Bandwidth supports current and future needs - Wireless access point in every classroom	**Staff** - Technical staff to support environment and devices - Teaching & Learning Specialists to support classroom integration - Extended access to support	**Technology Outcomes** - Aligned to NETS - Includes Responsible Use - Digital Portfolios - Flexible pathways to demonstrate proficiency - outcome based through performance, demonstration
Login - Simple, coordinated single account for most/all applications - Single sign-on - Secure, primary authentication - Wireless authentication (device, user, and guest)	**Data Warehouse** - Single source for all key data - Flexible to store local, state and national data - Present information to staff that is timely and actionable - Is integrated into the response to intervention process - Data drives the goals set in individualized learning plans	**Communication Tools** - Clear purpose for each tool - Integrates with existing communications approach - Flexible tools that support a variety of tactics - Publish once, share everywhere - Establishes social media presence
Policy - Policies must support personalized learning needs and address social media use - Comply with Federal Requirements including Children's Internet Protection Act	**Servers** - Centralized location - collapse # of physical devices - Redundancy/Disaster Recovery - Virtual environment contains room for scalability - Determine if hosted or on-site solution	**Reliability & Accountability** - Performance - response time, login time, internet speed - Access to the right tools at the right time - Devices and software work as expected - Walkthroughs, site visits, on-site support - Support is timely and helpful
Budget - Long-term infrastructure strategy - Device payment and replacement plan - Sustainable staffing model to support infrastructure and deployment of technology	**Teaching & Learning** - Promotes authentic student engagement - Assures rigorous subject-area/secondary course content aligned to standards - Drives 4 C's - Includes classroom redesign - Balances focus on engagement and achievement	