NORTH DAKOTA
EDUCATIONAL TECHNOLOGY COUNCIL

Tools for Teaching and Learning - 2009
North Dakota Educational Technology Plan

Purpose of the North Dakota Educational Technology Plan

The purpose of the 2009 plan is to identify goals, strategies, timelines, measures and rationale that state entities will use in supporting the use of technology in schools. The plan also provides guidance to North Dakota K-12 educators, school leaders and other stakeholders as they plan for educational technology in local school districts.

This plan is consistent with the ND Educational Technology Council's mission to *"develop technology systems and coordinate their use to enhance and support the educational opportunities for elementary and secondary education,"* the ND Department of Public Instruction's mission to *"align all elements of public education to help students achieve academic success,"* and *"build capacity to ensure a uniform educational system that meets or exceeds established standards,"* and the ND Department of Career and Technical Education's mission to *"work with others to provide all North Dakota citizens with the technical skills, knowledge, and attitudes necessary for successful performance in a globally competitive workplace."*

This 2009 plan is a revision of the 2006 plan; it is consistent with the U.S. Dept. of Ed. plan (http://www.ed.gov/about/offices/list/os/technology/plan/2004/plan.pdf). North Dakota's 2009 plan is developed to be consistent with the *ND Library/Technology Literacy Standards* (*http://www.dpi.state.nd.us/standard/content/tech.pdf*), the *No Child Left Behind* Act (*http://www.ed.gov/nclb/overview/intro/4pillars.html*) and the technology plan requirements of the E-Rate program (*http://www.usac.org/sl/applicants/step02/*).

Process for Developing this Plan

The 2009 ND educational technology planning process began in 2008. Teachers, technology coordinators, administrators, and state educational technology staff were identified to serve on the planning committee. The committee's work was done by video and online. A statewide online survey was conducted in February 2009 to seek input from school administrators, technology coordinators and others.

A draft 2009 plan was made available for public comment from April 7 through April 26, 2009. That public input was used to develop a final draft of the plan, which was approved by the state technology planning committee on May 6, 2009 and adopted by the North Dakota Educational Technology Council on May 15, 2009.

2009 North Dakota Educational Technology Planning Committee:

- Dan Pullen – ND ETC Director, Planning Committee Chair
- Joan Birdsell, Drake PS – Teacher, Technology Coordinator & NDATL Board
- Tom Cummings - Special Education Representative & ND ETC Member
- Mike DeFoe, Devils Lake PS – District Technology Director
- Jeff Fastnacht, Ellendale PS – Superintendent
- Ray Hintz - ND CTE Representative
- Tanna Kincaid, Bismarck PS – District Technology Director
- Darin King, Grand Forks PS – District Tech. Dir., ND ETC Member & NDATL Bd.
- Dave Skogen - EduTech Representative
- Denise Soehren, Billings County PS – Principal
- Frank Snow, ND DPI Representative
- Rae Ann Vandrovec, Jamestown PS – Tech Curriculum/Staff Development. Coordinator & NDATL Board Member
- Shawneen Voiles, Minot PS - Teacher & ND ETC Member

Related Resources

In addition to the 2009 state educational technology plan, a template and an approval process for school technology plans is available October 2009.

Vision for Educational Technology in North Dakota

Educational Technology is a basic resource that helps schools provide access to learning opportunities for all students, assess and monitor student progress, and support new educational models that can lead to improved teaching and student achievement.

Goals for Educational Technology in North Dakota

The ND Educational Technology Plan has five goals to achieve the vision.

Vision: ***Educational Technology is a basic resource that helps schools provide access to learning opportunities for all students, assess and monitor student progress, and support new educational models that can lead to improved teaching and student achievement.***

Goal #1: A vision for educational technology is available to schools to help guide their technology planning and implementation.

Background and Rationale

The vision of how and why technology is to be used in schools is the destination, identifying "where we want to go" with technology. Without a clearly defined vision that is known and understood by all stakeholders, everyone will struggle and technology implementations will not have the structure or support necessary to sustain learning environments in which technology is integral to student achievement.

The 2004 National Education Technology Plan includes a student-focused vision, "There is no dispute over the need for America's students to have the knowledge and competence to compete in an increasingly technology-driven world economy. This need demands new models of education facilitated by educational technology."

The 2007 National Educational Technology Standards for Students (NETS-S) developed by the International Society for Technology in Education (ISTE), identify "proactive leadership in developing a shared vision for educational technology among school personnel, students, parents, and the community" as an essential condition to realizing powerful uses of technology.

ISTE's 2008 NET Standards for Teachers confirms that educators need to "exhibit leadership by demonstrating a vision of technology infusion." Further, ISTE's Technology Standards for School Administrators (TSSA, 2009 draft) include as the first standard that administrators need to "inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization."

Clear expectations are required to take a strong vision and put it into practice in the classroom. District and building administrators play a key role in communicating the vision to stakeholders and setting expectations for translating that vision into practice. It is not acceptable to continue having students learn in the same way and consider that "a vision." Technology needs to be used to teach students new ways to learn.

To make the vision become a part of the community, stakeholders must be involved in the development and the support of the vision. Including parents, students and other stakeholders in a process of collaborative, informed planning will foster enthusiasm and urgency for the implementation of the vision.

Goal #1: A vision for educational technology is available to schools to help guide their technology planning and implementation.		
Strategy	Measure	Timeline
1.1 The state will have a clear vision for educational technology developed with input from school leaders, educators and others.	The state educational technology plan includes a clear vision statement.	May 2009.
1.2 The ND Educational Technology Council will communicate the state's vision for educational technology to stakeholders.	The state educational technology plan is published & distributed to ND DPI, ND CTE, NDEA, NDCEL, NDATL, other administrator and public groups.	September 2009 and ongoing
1.3 North Dakota schools will, as part of their annual technology planning process, use a broad-based stakeholder group to develop a clear vision for educational technology.	School technology plans submitted to state agencies for approval include an educational technology vision.	Revised school tech plans submitted to ND ETC by April 2010.
1.4 ND school leaders will articulate and support a shared vision for the role of technology use in their schools.	School leaders engage in technology planning and professional development related to technology use in their schools.	Annually updated technology plans include professional development.

Goal 1 - 2009 Status

The vision for educational technology in North Dakota has evolved in the last two decades to reflect the changing role of technology in schools – from a few specialized systems used by a few teachers and administrators, to everyday tools for teaching and learning used by students, teachers, school administrators, staff and parents.

The 2009 vision, *"Educational Technology is a basic resource that helps schools provide access to learning opportunities for all students, assess and monitor student progress, and support new educational models that can lead to improved teaching and student achievement,"* clearly identifies the need for technology resources in our schools.

Vision: ***Educational Technology is a basic resource that helps schools provide access to learning opportunities for all students, assess and monitor student progress, and support new educational models that can lead to improved teaching and student achievement.***

Goal #2: Schools create learning environments that include effective technology resources for educators and students.

Background and Rationale

Schools must put in place the infrastructure and other resources necessary to provide and maintain effective and efficient technology deployment and connectivity on an equitable basis. As access to educational resources increases through the use of technology, it is critical that all students in North Dakota have an equal opportunity to participate in technology-enriched learning. Otherwise, we may fail to serve the learners at greatest risk (subgroups identified in NCLB and IDEA 2004): those with special needs, those with limited English proficiency, those scoring poorly on standardized tests, those with socioeconomic backgrounds that put them at risk, those for whom a historic technology bias exists, and those living in remote areas that lack access to a broad range of curriculum choices and informational resources.

The types of technology tools available and the performance capabilities of those tools should be at a level that will support and sustain current learning practices, but will also encourage new and innovative learning practices. The range of technology tools must go beyond desktop computers with Internet connectivity, and include hardware and software that is appropriate for and specific to individual curriculum areas such as reading, math, science, the performing arts, and career and technical education, as well as include video and other distance learning technologies. Of particular importance are Web 2.0 applications because they facilitate communication, secure information sharing, interoperability, and collaboration. Web 2.0 concepts can lead to the development and evolution of web-based communities, hosted services, and applications such as social-networking sites and video-sharing sites.

Local schools and districts should have an annual plan for updating, refurbishing, and replacing hardware and software resources. Obsolete hardware and software and the lack of well planned and managed networks make the issue of connectivity and use difficult and create inequities for students.

Adequate and consistent funding is essential to successful integration of technology in schools. Schools should provide funding mechanisms for on-going costs of equipment replacement and employing and training technical support staff. Schools should provide adequate ratios of support personnel based on the size and complexity of the environment to ensure adequate response time and customized support to meet the instructional and equipment maintenance needs of each building. Well-trained student technology assistants may be an appropriate method for providing needed technical support for teachers.

Goal #2: Schools create learning environments that include effective technology resources for educators and students.

Strategy	Measure	Timeline
2.1 The state will continue to ensure that all high schools have basic connectivity through North Dakota STAGEnet.	ND ITD data indicate that all high schools have basic connectivity.	Annual E-rate process and biennial legislative process.
2.2 The state will provide the support needed to ensure that STAGEnet and other technology resources are reliable and useful for schools to use in teaching, learning and administration of schools.	State funding for ND ETC, EduTech, ITD and other agencies is maintained. Performance data from ITD and EduTech indicate support.	December 2009 and biennially.
2.3 The state will make financial and other resources available to schools to support the implementation of educational technology, including distance education (state funds, federal title, IDEA and vocational funds, and E-rate discounts).	State/federal funds are secured and made available to schools. Reports from E-rate, ND ETC, DPI, CTE and EduTech indicate funding and other support provided.	December 2009 and annually.
2.4 ND schools will maintain student-to-computer ratios (e.g. by implementing mobile or other labs, handheld or one-to-one initiatives) in order to provide regular and equitable access for all students to modern multimedia computers and related devices, including assistive technology for students with disabilities.	Data from school annual MIS and E-rate reports indicate 95% of school districts maintain student to computer ratios better than 3.5 to 1.	December 2009 and annually.
2.5 ND schools will provide technical support so technology resources are reliable and available to educators and students.	Data from NDATL, DPI MIS reports and from schools' consolidated applications for federal programs indicate staff and funding levels for salaried and contracted support services.	Dec 2009 and annually.

Goal 2 - 2009 Status

All high school buildings in the state are connected to the state network (STAGEnet) and the Internet with a minimum ATM T1. Beginning July 1, 2009 school connections will increase to up to 10 Mbps. State general funds and federal E-Rate reimbursement pay for basic connectivity at no cost to public schools. Public and private schools purchase additional connectivity beyond that provided by the state. They use local funds to pay for the portion of the additional cost not reimbursed by E-Rate.

The state general fund appropriation to the ND Information Technology Department (ND ITD) for support of school connections to K-12 STAGEnet in 2008-09 is $1,340,000. Other E-rate discounts received by ND schools in 2008-2009:

ND SchoolNet	$2,150,000
Other school E-Rate discounts	$1,900,000

ND ITD supports K-12 networking and hosts a number of IT applications for schools including video conferencing and video event scheduling. ITD's 2008-09 general fund budget for support of K-12 schools is $550,000.

Educational technology funds are made available to North Dakota schools by the Department of Public Instruction through Title II Part D state allocation for fiscal year 2008:

Formula grant distribution to schools	$614,800
Competitive grants to schools (new and continuation)	$614,800

In addition, federal IDEA funds administered by ND DPI are used for special education activities including assistive technology for children with disabilities.

The ND Educational Technology Council coordinates K-12 educational technology statewide and serves as the governing board for EduTech and the ND Center for Distance Education (state distance education high school). The ND ETC 2007-09 budget is $1,136,267, including:

Classroom Transformation Grants to 22 schools	$384,000
Video Classroom construction grants to 5 high schools	$190,000
Statewide license for Atomic Learning	$221,000

The 2007-09 budget for EduTech is $ 3,340,000 of which $2,722,000 is from state general funds. EduTech supports the use of educational technologies in K-12 schools by providing email and web-hosting services as well as training and support for statewide applications such as virus protection and Internet filtering for compliance with the Children's Internet Protection Act for 40,000 K-12 networked computers. EduTech also supports school use of other services such as PowerSchool and Atomic Learning (discontinued August 1, 2009). As of June 2009, 103 school districts, which include 83% of all public school students, use PowerSchool Student Information System and most other districts use some other electronic student information system.

The 2007-09 budget for the ND Center for Distance Education is $5,600,000, of which $916,000 is from state general funds. ND CDE enrolls 4,500 students per year (over 7,500 course enrollments); 30% of ND CDE students are from North Dakota.

The ND Department of Career and Technical Education provides funding to K-12 schools for a number of CTE programs. In the 2007-09 funds directed to schools for information technology, technology education, virtual CTEs and HiTech consortium programs were $2,876,000 in state general funds and $524,000 in federal funds.

In the 2008-09 school year 100% of ND public school districts have Internet access in instructional areas. 97% of school districts report a student to computer ratio of 3.5 to 1 or better. The statewide average student to computer ratio is 2.9 students per Internet connected computer, with a range of 0.3 to 5 students per computer.

As of June 2009, 143 public high school districts have video networking capabilities used to share high school courses through distance education; seven high school districts do not have a video classroom.

The North Dakota Association of Technology Leaders (NDATL) is the state's membership organization for K-12 technology coordinators. NDATL is committed to the improvement of education through the uses of technology. In 2009 NDATL has 219 members representing 102 school districts as well as state agencies and other public service providers. NDATL provides professional development opportunities for its members, including two one-day Face-to-Face conferences which are held annually in October and April with 150 people in attendance at each. In addition, the TECO email list provides a valuable communication tool to link technology coordinators together to share technology information statewide.

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Goal #3: Educators use appropriate technologies to improve their teaching and other professional practices.

Background and Rationale

Administrators at the building and district level greatly influence changes in the culture of a school. Because of this, they should model the effective use of technology in support of learning and administrative functions and be expected to maintain a knowledge of the applications of technology to teaching and learning. Administrators should initiate and support professional development processes that reflect attention to principles of adult learning. ISTE's NET Standards for Administrators are a valuable resource for administrators to use in their own professional development (www.iste.org/Content/NavigationMenu/NETS/ForAdministrators/NETS_for_Administrators.htm).

The most important factor in student achievement is teacher quality. Teachers must possess skills that allow them to be innovators in a technology-rich environment. If educators are not effective users of technology, they will not recognize how technology can be used in the classroom. Educators must be prepared to support students in achieving high academic performance through the effective use of technology.

Focused professional development will help ensure that technology is used effectively to create new opportunities for learning and to promote student achievement. Through professional development, educators should become proficient at aligning technology use with student learning standards and goals, and integrating technology seamlessly into the curriculum. Ongoing professional development is more effective than one-shot topical sessions. The use of curriculum technology partners within the classroom to provide ongoing training and support has proven to be most effective, especially when combined with ongoing professional learning communities, in which teachers regularly meet in teams with their peers for curriculum development and reflective discussion of professional practice.

Communicating school and student results to parents and the larger community can lead to stronger support for all school efforts to improve student achievement. School websites and communication tools within student information systems can be used effectively to communicate with parents and other stakeholders.

Goal #3: Educators use appropriate technologies to improve their teaching and other professional practices.

Strategy	Measure	Timeline
3.1 The ND ETC will endorse the revised National Educational Technology Standards for Teachers and School Administrators as a guide for K-12 schools and schools of education to use in developing educational programs.	An ND ETC endorsement of the ISTE NET Standards is published by the ND ETC and posted on its website.	December 2009.
3.2 ND ETC and ND DPI will continue to use a common definition for "Technology Integration," which will be used to guide schools in their efforts to integrate technology into all curriculum areas.	The common definition of technology integration is used by DPI and it is posted on the ND ETC website.	April 2009.
3.3 ND schools will assess the technology proficiency of all educators.	All schools will periodically assess the technology proficiency of their educators.	Defined locally by each school.
3.4 ND schools will make professional development available to educators that meet their technology skill and technology integration needs as identified in school education improvement and professional development plans.	EduTech data indicate that schools are using technology professional development resources. Schools' education improvement and professional development plans identify technology as a means to achieve their goals.	September 2009 and annually. Educational improvement data reviewed December 2009 and annually.
3.6 ND schools will use student information systems and communication systems such as websites to communicate with students and parents.	The number of schools that use parent communications tools in their student information systems (PowerSchool data) and use websites (EduTech data) increases annually.	September 2009 and annually.

Goal 3 - 2009 Status

The ND ETC and ND DPI continue to use the definition of "Technology Integration" derived from the ND Professional Competency Continuum (PCC). Educators who integrate technology into the curriculum exhibit the following competencies.

The Educator

- Identifies opportunities within the curriculum to improve student learning through the use of technology and designs technology-enriched learning activities that are aligned with curriculum standards,

- Uses instructional strategies with technology, such as authentic problem-based, project-based, and inquiry-based learning and matches specific strategies with the learning needs of individual students,

- Adopts the role of facilitator, co-investigator, coach, and guide to better support learning in a technology-rich classroom and uses specific strategies for adopting these roles such as modeling, mediating, explaining and providing options without controlling,

- Fosters new roles for students (teacher, independent learner, collaborator, investigator, problem solver and producer of knowledge and products valued by stakeholders outside the classroom) that better support learning in the technology-rich classroom and uses explicit strategies for supporting students as they adopt these roles,

- Designs and implements a variety of ongoing, seamless assessment strategies, including portfolio, performance and product-based assessments that are viewed by students as a valuable part of learning, and are more relevant in the technology-rich classroom than paper and pencil assessments,

- Organizes classroom technology resources and guides students to identify, select and apply the most appropriate technology tools for new kinds of learning activities,

- Configures technology resources within the classroom in order to meet individual student learning needs and to maximize equitable student access,

- Uses technology to track student progress through the curriculum and to manage curriculum resources through the use of electronic grade books, student information systems, and similar tools.

The ND Professional Competency Continuum (PCC) was used annually in North Dakota schools from 2001 to 2007 as a self-assessment of teacher technology use. ND DPI used the PCC as an annual requirement for schools applying for Title II-D funds. As of 2004 all schools had at least 85% of their educators complete the PCC. No statewide replacement for the PCC has been available since its use was discontinued. ND ETC and DPI continue to discuss this issue and are waiting for clarifications in NCLB and Title II-D before planning for a statewide technology assessment tool.

Professional development is offered to educators through a variety of providers including the EduTech regional and state level staff. In the last 12 months EduTech offered 450 workshops covering 94 different topics. Over 2,945 educators from 134 districts attended these offerings. Both basic technology skills workshops and advanced curriculum integration sessions were delivered by EduTech. In addition to professional development offered by EduTech, local district and REA staff, higher education and private sector providers also offered professional development for educators in ND schools.

School use of electronic student information systems has increased dramatically in the past three years. 103 school districts, which include 83% of all K-12 public school students, now use PowerSchool as their student information system. Schools using PowerSchool pay license fees and a hosting fee to ITD. ND ETC, EduTech, DPI and ITD are planning to roll out PowerSchool to all public school districts in the state pending funding by the 2009 ND Legislature.

Vision: ***Educational Technology is a basic resource that helps schools provide access to learning opportunities for all students, assess and monitor student progress, and support new educational models that can lead to improved teaching and student achievement.***

Goal #4: Educators provide students with technology-rich learning opportunities.

Background and Rationale

Technology in schools has the potential to transform teaching practices and student learning. It provides opportunities for educators and students to break through isolation and serves as a catalyst for significant changes in teaching and learning.

What do students need to learn and how can technology promote those learning goals? A clear set of goals, expectations and criteria for student learning should be part of the school improvement plan and based on national and state standards, including the NIMAS instructional materials accessibility standards for students with disabilities (http://nimas.cast.org/). Only then can technology plans be made for purchasing equipment and materials and for assessing how well the technology helps achieve identified student-learning goals.

The effective use of technology enables educators to implement new teaching techniques designed to increase student learning through engaging authentic activities. Teachers who use technology as a tool to support strategies such as problem-based, inquiry-based and project-based learning create environments in which students can work in self-directed, collaborative teams and develop higher-order thinking skills.

Online instruction or courses delivered by video, the Web or other distance learning technologies can make it possible for students to receive high quality instruction that is personalized to their needs. Schools can use these new types of learning to expand opportunities and choices for students and to offer professional development for educators. Blended or hybrid teaching/learning using combinations of classroom and online learning activities engage students in multiple ways and help prepare them for post-secondary education and life-long learning.

Goal #4: Educators provide students with technology-rich learning opportunities.		
Strategy	Measure	Timeline
4.1 ND ETC and ND DPI will continue to endorse the use of the North Dakota Library/Technology Literacy Standards as the guideline for determining student technology literacy in general, and "Eighth Grade Technology Literacy" as identified in the federal No Child Left Behind law.	Endorsement was made by ND ETC in October 2006. DPI endorsement is contained in the federal consolidated application.	October 2009.
4.2 ND educators will implement standards-based learning opportunities that use effective technology enhanced instructional strategies to meet the learning styles/needs of all students, including students with disabilities.	Local evaluation.	Ongoing
4.3 ND educators will use technology to engage students in collaborative, project-based, problem-based, inquiry-based and other authentic learning activities.	Local evaluation.	Ongoing
4.4 ND schools will use distance learning and other technologies to help ensure that students graduate ready for work or post-secondary education.	ND Center for Distance Education and ND ETC data indicate increase in number of schools offering distance learning opportunities. DPI Approval and Accreditation records indicate an increase in number of courses provided electronically and in compliance with state licensure laws.	September 2009 and annually. December 2009 and annually.

Goal 4 – 2009 Status

North Dakota defines technology literacy for students in its Library/Technology Literacy Standards, which includes benchmarks for grades 4, 8 and 12. The 8th grade benchmarks represent the level of technological literacy that 8th grade students should achieve (http://www.dpi.state.nd.us/standard/content/tech.pdf).

The North Dakota Center for Distance Education offers courses to schools and individual students throughout the state and worldwide via video conference, web-based delivery and print options. Of the 160 ND CDE course titles, 100 are available online. In the last school year over 1,380 North Dakota students took over 2,240 courses through ND CDE. In the last three years the number of North Dakota students taking ND CDE courses decreased by 2%.

During fall semester 2008, in the 11 school-based video consortiums across the state, over 2,600 students attended a high school class in one of 189 North Dakota K-12 video classrooms. 208 courses were taken by those students, including foreign languages, math, science, CTE, and advanced placement courses for college credit.

Vision: ***Educational Technology is a basic resource that helps schools provide access to learning opportunities for all students, assess and monitor student progress, and support new educational models that can lead to improved teaching and student achievement.***

Goal #5: Schools employ technology systems that help improve classroom practice by accessing and monitoring student achievement.

Background and Rationale

Federal and state agencies, local school boards and the general public require schools to be accountable for their results. A systematic process should be in place for continuous assessment, evaluation and reporting the extent to which students are progressing and whether educational objectives are being met. Data systems that are integrated into the daily operations of the school, from the classrooms to the administrative and business offices, are critical to greater efficiency and to the capability to differentiate instruction.

Systems that are interoperable allow school leaders to use data from a number of sources and disaggregate the data for purposes of analysis. Additionally, interoperability and data collection and analysis over time can provide useful information about the quality of educational programs from preschool through post-secondary institutions.

The use of such tools as curriculum mapping, electronic individualized education plans, computer assisted assessments, data warehouses, and tools such as AIMSweb help educators plan teaching strategies to better meet the individual needs of all students, including the subgroups identified in NCLB. Assessment, including online student testing tools and electronic portfolios, should be a seamless part of the learning process and focus on measuring student performance in authentic ways. Assessment and analysis tools should be varied and provide data that will support accountability. Conclusions regarding instructional results should be communicated and used to support differentiated instruction and other data-driven decisions.

Goal #5: Schools employ technology systems that help improve classroom practice by assessing and monitoring student achievement.		
Strategy	Measure	Timeline
5.1 The state will assist schools in implementing student information and other school data systems that help track achievement and allow analysis necessary to differentiate instruction in order to better meet the learning needs of all students, including students in NCLB subgroups.	EduTech and ETC data indicate increase in electronic student information system implementations and other school/student data systems.	September 2009 and annually.
5.2 ND schools will use technology-based systems to differentiate instruction, assess student achievement, track student progress and analyze achievement results in order to differentiate instruction and improve learning outcomes for all students, including students in NCLB subgroups.	ND ETC data indicate increase in number of schools using data warehousing tools, electronic student information systems and other electronic teaching/learning tools such as online adaptive testing and electronic portfolios.	April 2010 and annually.

Goal 5 - 2009 Status

162 ND public school districts and two ND Regional Education Associations (REAs) use MAP (Measures of Academic Progress) online testing from NWEA to periodically assess student academic achievement. These districts and consortiums include over 74% of the state's K-12 public students. The MAP adaptive assessment program is aligned to North Dakota academic standards. MAP testing results enable teachers to identify specific areas where each student needs improvement and then to develop individualized instructional strategies to address those deficiencies.

Six North Dakota school districts have developed and maintain their own data warehouses (Viewpoint) for collecting, storing and analyzing student and school data over time. The use of these data warehouses allows school administrators and teachers to identify achievement gaps related to individuals and groups of students and better design interventions for improving the achievement of individual students and addressing issues related to AYP.

The State Automated Reporting System (STARS) is DPI's primary means for collecting data from the school districts for federal and state reporting. STARS is the

state's primary source of student demographic data, including a nightly feed into TIENET, the new IEP program. DPI is working with EduTech and a pilot school district to automate the link between PowerSchool and STARS in an effort to make the submission of data by the schools more transparent and timely.

DPI is in the first year of planning a departmental data warehouse (ndSLEDS). The DPI STARS system is designed primarily for "one-way" data collection and used to comply with federal and state reporting requirements. While STARS contains a wealth of K-12 data, it is not readily accessible to outside stakeholders. In addition, STARS provide "point in time" reports with little ability to track data "longitudinally" or over time. In September of 2008, DPI received a federal grant to design, develop, and implement a North Dakota Statewide Longitudinal Data System (ndSLEDS) to track K-12 student outcomes. DPI will begin developing ndSLEDS in 2009 and completed in 2013.

North Dakota is in the third year of planning a longitudinal data warehouse system (LDS) that would be used for K-12, North Dakota University System, the Department of Human Services, Workforce, Commerce Department, Department of Human Services, and others. Development and implementation of the statewide LDS is dependent on an ongoing appropriation from the ND Legislature.

During the 2008-09 school year, ND DPI implemented a statewide web-based Special Education Case Management System. Approximately 75% of the Individualized Education Programs (IEPs) in the state are currently in this system *(TIENET*). ND DPI continues to work with special education units and school districts to make the system more user-friendly.

Glossary of Terms

AIMSweb - a student progress monitoring system based on direct, frequent and continuous student assessment. The results are reported to students, parents, teachers and administrators via a web-based data management and reporting system to determine response to intervention. http://aimsweb.com/

Basic Connectivity – a minimum of one ATM T1 (1.544 Mbits per second asynchronous transfer mode circuit) used to connect North Dakota high schools to the state network (STAGEnet) and to the Internet. This minimum connectivity will be increased to Ethernet circuits of up to 10 Mbits per second after July 1, 2009 based on increased funding from the legislature and a new contract between the state and Dakota Carrier Network (DCN). http://www.stagenet.nd.gov/

Curriculum Mapping - a procedure for reviewing the operational curriculum as it is entered into an electronic database in K-12 schools. Schools use curriculum templates that display key components of the curriculum: content, skills, assessments, and essential questions. Curriculum mapping is used to ensure that what is actually being taught per grade level does not have unintended gaps and overlaps. http://en.wikipedia.org/wiki/Curriculum_mapping

Data Warehouse - a repository of a school's electronically stored data. Data warehouses are designed to facilitate reporting and analysis. The means to retrieve and analyze data, to extract, transform and load data, and to manage the data dictionary are considered essential components of a data warehousing system. The planned statewide longitudinal data system (SLDS) is made up of multiple agency-based data warehouses that allow for analysis of data from multiple sources from multiple years. In contrast to data warehouses are operational databases that support day-to-day transaction processing such as student information systems. http://en.wikipedia.org/wiki/Data_warehouse

Differentiated Instruction - sometimes referred to as differentiated learning, involves providing students with different avenues to acquiring content or other academic skills; to processing, constructing, or making sense of ideas; and to developing teaching products or activities so that all students within a classroom can learn effectively, regardless of differences in ability. http://en.wikipedia.org/wiki/Differentiated_instruction

E-Rate - commonly used name for the Schools and Libraries Program of the Universal Service Fund, which is administered by the Universal Service Administrative Company (USAC) under the direction of the Federal Communications Commission (FCC). The program provides discounts to assist most schools and libraries in the United States to obtain affordable telecommunications and Internet access. Discounts for support depend on the level of poverty and the urban/rural status of the population served and range from 20% to 90% of the costs of eligible services. http://en.wikipedia.org/wiki/E-Rate

Educational Technology Council (ND ETC) – is the State Board responsible for coordinating educational technology initiatives for elementary and secondary education. The Council has 12 members, 8 of whom are appointed by the Governor. www.governor.nd.gov/boards/boards-query.asp?Board_ID=124 and www.ndetc.k12.nd.us//index.html

Electronic Portfolio, also known as e-portfolio or digital portfolio - a collection of electronic student work assembled and managed by the student and teachers, usually on the Web (Webfolio). Such electronic student work may include inputted text, electronic files, images, multimedia, blog entries, and hyperlinks. An e-portfolio is both a demonstration of the student's abilities and a platform for self-expression. E-portfolios can be maintained dynamically over time. Some e-portfolio applications permit access by parents and others. An e-portfolio can be seen as a learning record that provides actual evidence of achievement. http://en.wikipedia.org/wiki/Electronic_portfolio

Electronic Student Information System (SIS) - a software application (like PowerSchool) that schools use to manage student data: storing student test and other assessment scores, building schedules, tracking attendance, and managing many other student-related data. Also known as student information management system (SIMS, SIM), student records system (SRS), student management system (SMS) or school management system (SMS), these are transactional systems, used on a day-to-day basis, as compared to data warehouses that are used for storing and analyzing data over time (longitudinal data). http://en.wikipedia.org/wiki/Student_information_system

IDEA 2004 - The federal Individuals with Disabilities Education Improvement Act of 2004 is designed to ensure equity, accountability and excellence in education for children with disabilities. It authorizes formula grants to states, discretionary grants for research, technology and training. The latest revision of IDEA became effective in October 2006. http://en.wikipedia.org/wiki/IDEA_2004

Individualized Education Program (IEP) – a process mandated by the Individuals with Disabilities Education Act (IDEA), requiring public schools to develop an IEP for every student with a disability who is found to meet the federal and state requirements for special education. The IEP refers both to the educational program to be provided to a child with a disability and to the written document that describes that educational program. Key to developing an IEP are assessing students in all areas related to the suspected disabilities, considering access to the general curriculum, considering how the disability affects the student's learning, developing goals and objectives that make the biggest difference for the student, and ultimately choosing a placement in the least restrictive environment. http://en.wikipedia.org/wiki/Individualized_Education_Program

ITD (North Dakota Information Technology Department) – an executive agency of ND state government that is responsible for all wide area network services, including planning, selection, and implementation for all state agencies, including institutions under the control of the State Board of Higher Education, counties, cities, and school districts. ITD is also responsible for computer support services, software development, statewide communications services, IT standards for state agencies and the public, technology planning, design and quality assurance. http://www.nd.gov/itd/about/

MIS Reports - reports periodically submitted by schools as required by the North Dakota Department of Public Instruction. MIS reports are related to specific student and school data. MIS 01 is the district fall membership report; MIS 02 is the school building-level report; MIS 03 is the report on licensed and non-licensed school personnel. http://www.dpi.state.nd.us/resource/STARS/index.shtm#MIS

NCLB – The "No Child Left Behind" legislation of 2001 (Public Law 107-110) is the federal law that reauthorized the Elementary and Secondary Education Act of 1965 (ESEA). The law reauthorized a number of federal programs designed to improve the performance of primary and secondary schools by increasing the standards of accountability for states, school districts, and schools, as well as providing parents more flexibility in choosing which schools their children attend. Additionally, it promotes an increased focus on reading. http://en.wikipedia.org/wiki/NCLB

NDATL – North Dakota Association of Technology Leaders is the state membership organization for K-12 technology directors and coordinators. NDATL is committed to the improvement of education through the uses of technology and provides professional development opportunities and other benefits for its members. NDATL is an affiliate of the ND Council of Educational Leaders. http://www.ndatl.k12.nd.us/

Regional Education Association (REA) – voluntary consortium of ND schools that share educational and administrative services to improve educational services to students and to enhance cooperation in communities and geographic regions. Over 93% of school districts in North Dakota, comprising 98% of all students, belong to a REA (formerly Joint Powers Agreement or JPA). http://www.ndrea.org/index.html

Social Networking - focuses on building online communities of people who share interests and activities, or who explore the interests and activities of others. Most social network services are web based and provide a variety of ways for users to interact, such as e-mail and instant messaging services and services such as MySpace and Facebook. http://en.wikipedia.org/wiki/Social_Networking

Technology Implementation - the use or application of any technology tool to accomplish desired outcomes in schools. The implementation process includes identification of needs, determination of the best technology solution, purchase, installation and testing of the solution, training of teachers and others to use the technology, and evaluation of the effectiveness of the technology solution in practice. https://www.howard.edu/assessment/open/Tools/Implementation%20of%20Technology--Assess%20Rubric.pdf

Web 2.0 - a perceived second generation of web development and design that aims to facilitate communication and collaboration and secure information sharing and interoperability on the World Wide Web. Web 2.0 concepts have led to the development of web-based communities, hosted services, and applications such as social networking, video-sharing, wikis and blogs. Although the term suggests a new version of the World Wide Web, it does not refer to any technical specifications, but rather to changes in the ways software developers and teachers and students utilize the Web. http://en.wikipedia.org/wiki/Web_2.0