Recommendations

1. Create a competency-based innovation zone for expanded learning opportunities to allow for flexible advancement in three phases:

Phase one: Review all the statutes that suggest that advancement could possibly occur in other ways than the Carnegie unit and average daily membership (attendance) at a traditional school program. Include review of project-based learning aid and course completion models.

The statutes include the following:

MS 120B.021 Required Academic Standards Subd. 1a. Rigorous course of study; waiver
MS 120B.07 Early Graduation
MS 120B.08 Early Graduation Achievement Scholarship Program
MS 120B.14 Advanced Academic Credit. Makes allowance for granting credit for students attending an accelerated or advanced academic course...
MS 123B.04 Site Based Decision-Making Agreement; Individualized Learning Agreement
MS 124D.09 Postsecondary Enrollment Option
MS 124D.095 Online Learning Option Act
MS 124D.10 Charter Schools
MS 124D.128 Learning Year Program to Provide Instruction Throughout the Year
MS 126C.05 Learning Year pupil units: Independent Study - Subd 15iv

Phase two: Place all options for students to advanced based on competency under one statute, "expanded learning opportunities; competency-based advancement" which waives attendance and seat-time requirements, calendar year, grade and age-based progression and does not require completion of a specific amount of instructional time to earn the competency/credit. This in effect would eliminate the Carnegie unit to measure learning progression.

Phase three: Create a competency-based education system such as New Hampshire in conjunction with a P-20 continuum of non-grade banded advancement. Each student would have a daily "playlist" of learning activities and assessments, advance based on demonstrated proficiency and have a personal learning plan that follows them as they progress that is co-created with their teachers.

2. High stakes state assessments should be available when students are prepared to take them to accelerate student learning and allow progression. With online assessments and advanced student data systems, there is capability to take tests at variable times of the year. *Revise MS 120B.30 Statewide Testing and Reporting System*

II. Assessment: Measure what Matters Most

Our education system at all levels will leverage the power of technology to measure what matters and use assessment data for continuous improvement.[25]

Statutes Addressing Assessment
MS 120B Curriculum and Assessment MS 120B.023 Minnesota K-12 Academic Standards MS 120B.125 Planning for students' Successful Transition to Postsecondary Education and Employment; Involuntary Career Tracking Prohibited. MS 120B.30 Statewide Testing and Reporting System (The Commissioner shall determine the testing process and the order of administration) MS 120B.31 System Accountability and Statistical Adjustments MS 120B.35 Student Academic Achievement and Growth MS 123B.06 Evaluation of Pupil Growth and Progress; Permanent Records MS 124D.095 Online Learning Option Act Subd. 7: Department of Education

Education has often measured quality by inputs (teacher licensure, preparation, quality of content, program approvals and requirements) or outputs (student tests and assessments). As we move into digital learning environments, more emphasis should be placed on outcomes. Outcomes include reaching or extending beyond proficiency, individual student academic growth, preparedness for college and careers, closing the achievement gap and increasing graduation rates.

A new model of assessment requires better ways to measure what matters, diagnose strengths and weaknesses during learning and involve multiple stakeholders in the process of designing, conducting and using assessments. Continuous improvement across the education system is possible when data from technology-based assessments help drive decisions of what is best for each and every student.

Yet all the outcome metrics currently in place for the most part look at aggregates of students to indicate how schools, programs and teachers are doing. With digital technology two important goals can be realized when assessing student learning:

Formative assessment as a learning process. Real time, instant feedback is possible within many content management systems that loop students back into content and skills that need further attention. Additionally it enables students to reach competency or mastery levels before moving on. Assessment becomes a learning tool and can be effectively implemented using digital technologies. Adaptive release of assessment and content will dramatically change the learning, teaching and assessment landscape of digital education.

These ongoing, formative assessments should be used in the classroom "in the course

[25] National Education Technology Plan 2010

of learning when there is still time to improve student performance, and involving multiple stakeholders in the process of designing, conducting and using assessment."[26]

Digital learning personalizes assessment. It provides the opportunity for assessment to be varied by using analytics to help discern what is working for individual students and adjusts strategies based on the data collected. Personalized learning digital portfolios, in which the students are involved in creating, maintaining and directing goals, assists in guiding the student toward providing articulation of competencies.

Multiple measures of learning could be included in the student digital portfolios as well as student individual growth. This disaggregation of student outcome data with a personalized record will give the student a better understanding of mastery attainment and provide their teachers with more comprehensive information about their learning progressions.

Recommendation:

1. Assessment time and format. Allow digital content assessments to occur at the time learning has taken place. Provide flexibility when students are assessed by capitalizing on flexible online assessment systems. Allow for alternative assessments of gained academic standards (beyond those provided to students with disabilities).

2. Accountability tied to student outcome. Focus accountability for all schools, including virtual schools, on student outcomes. Support statewide data systems that can disaggregate data based on the course, instructor, delivery format and other factors that contribute to positive student outcomes.

3. Special populations. Address accountability challenges related to unique student populations. Student programs and funding should support students who will need additional programs and services. Digital learning can aid in this process if the regulations are eased to allow it to be provided.

4. Data collection. Improve data collection and oversight systems to fit the delivery method and capacity for digital learning. Data should reflect individual student achievement and be available frequently to the teacher to inform instruction. Link data systems to formative assessments for real time feedback to teachers and students.

5. Accountability tied to programs, teachers and other factors. Improve accountability links to providers, teachers and other factors. Disclose external partners (providers of curriculum, learning and data management systems, administrative services, student information systems) and measure their contributions to student learning. Develop new measures of effectiveness to capitalize on available data including accounting of the "reach" of excellent teachers and teaching.

[26] Transforming American Education Learning Powered by Technology, National Education Technology Plan, 2010, U.S. Department of Education, Office of Educational Technology.

6. Accountability of teacher preparation programs. Tie student data to teacher preparation programs to hold them accountable as well. Consider threshold activity requirements for adults in virtual schools.

7. Low performing digital learning programs. Ramp up consequences attached to low performance without stifling innovation. Growth of digital learning programs needs to be contingent on performance. The state should allow for innovation but close persistently low performing fully online schools. Consider funding incentives for fully online schools that show strong results. Encourage serving the most disadvantaged students well in any performance-based funding system.

8. Portfolio Assessment. Continue efforts to provide a K-20 digital portfolio of accomplishment and competencies for each individual learner. This digital portfolio provides various evidence of assessment and mastery, including narrative competency assessment, final grades and "badges of mastery" as well as community contributions and leadership demonstrated by students.

9. Support innovative school programs that allow new perspectives on pathways to competency in 21st century skills including "cross cutting" competencies[27] such as ability to work with others, communication skills, decision making and problem-solving, information use: research and technology, self management.

[27] Course level competencies and models, New Hampshire Department of Education, Retrieved June 2013, from: http://www.education.nh.gov/innovations/hs_redesign/competencies.htm

III. Quality Teaching: Prepare and Connect

Digital instruction and teachers are high quality[28]

Digital learning eliminates the barriers that separate great teachers from students wanting to learn. Teacher preparation and professional development should educate teachers and administrators to engage students, teach online, personalize learning and manage learning platforms. Teachers need to be trained and certified based on demonstrated performance whether they plan to teach in the on-site, blended or online classroom. Finally, state or even national borders should not limit access to quality educators.

Digital learning is a model that requires a shift to "connected teaching"[29] using technologies and new pedagogies to effectively facilitate learning. This allows teachers to work closely together in teams that replace solo practitioners through 24/7 access to students, colleagues, data and analytical tools in order to teach more efficiently and improve academic outcomes. By using technology to better inform the learning process and create efficiencies the profession of teaching becomes enhanced and elevated, thereby attracting strong and effective educators to the field.

Statutes Addressing Quality Teaching

MS 122A	Teachers and Other Educators
MS 122A.05 - 122A.09	Board of Teaching
MS 122A.18	Technology strategies Subd. 3a. (2012) digital and blended learning: teacher preparation (June 30, 2014)
MS 122A.21	Teachers' and Administrators' Licenses; Fees Subd. 2 Licensure via portfolio.
MS 120A.22	Compulsory Instruction Subd. 10.Requirements for instructors
MS 122A.23	Applicants Trained in Other States
MS 122A.25	Non licensed Community Experts; Variance
MS122A.245	Alternative Teacher Preparation
MS 122A.413	Educational Improvement Plan
MS 122A.60	Effective staff development activities Subd. 1a (2012) digital and blended learning staff development
MS 122A.60	Staff development outcomes subd3 (2012) digital & blended learning staff development plan
MS 124D.095	Online Learning Option Subd 4d & e
214	Examining and Licensing Boards
8700.7500	Code of Ethics for Minnesota Teachers
8700.7600	Institutional Program Approval for Teacher Preparation
8700.7620	Teacher Licensure Candidate Assessment Alternative (as recommended by the BOT or Commissioner)

[28] Digital Learning Now! Element 6, 2010
[29] National Education Technology Plan, 2010

The Digital Learning Now Report of 2011[30] recommends the following elements of quality instruction as policy changes. They have been discussed and reviewed by the Minnesota Online Learning Advisory Council. We believe that Minnesota has taken significant state policy actions to address quality instruction in K-12 education. To assure that all barriers to quality instruction are lifted, the below state policy guidelines from the DLN report and several additional considerations should be reviewed and considered by state policymakers:

- The state should encourage post-secondary institutions with teacher preparation programs to offer targeted digital instruction training.
- The state should ensure that teachers have professional development or training to better utilize technology and understand key pedagogies to be most effective in a digital classroom.
- The state provides alternative certification routes, including online instruction and performance-based certification.
- The state should consider licensure and certification reciprocity for online instructors certified by another state.

Examples from Other States and Programs

Teacher Preparation and Professional Development
Leading Edge Certification (LEC) is a national certification program in educational technology and curriculum innovation. Created by an alliance of nonprofits, universities and educational agencies, LEC is the first national certification program of its kind, and is platform and vendor neutral. There are five (5) areas of certification offered by LEC: online and blended teacher, administrator, digital educator, teacher librarian and leading educator (professional developer). LEC is located in California.

http://www.cue.org/lec

EdTech Leaders Online (ETLO) is a subdivision of Education Development Center (EDC) a renowned nonprofit research and development educational organization for over 50 years. ETLO provides training for online and blended teachers as well as over 70 online courses and workshops. They have partnered with Antioch University to offer college credit for their programs. ETLO is located in Massachusetts.

http://edtechleaders.org/

Boise State University offers professional development to teachers and online programs with whom they collaborate. They offer a graduate certificate program in online teaching and are an approved provider for the online teaching endorsement that the state requires.

http://edtech.boisestate.edu

[30] Digital Learning Now! 2011

Plymouth State University collaborates with Virtual High School (VHS) of Massachusetts to offer VHS teachers and staff a variety of professional development.

http://www.govhs.org/Pages/ProfDev-Home

University of Texas at Austin has designed the UTeach program to bring more math and science majors into teaching. Early in their coursework, UTeach pre-service teachers use technology in blended class formats. In the courses the pre-service teachers use instructional technology in their content area to both experience and practice teach in a digital learning format.

https://uteach.utexas.edu/

Florida Virtual School, one of the oldest statewide online schools in the country, has training materials for school counselors and site facilitators working with FLVS. Both pre-service and practicing teachers use the resources they have developed.

http://www.flvs.net/products_services/p_s_course_demos.php

Other states use a variety of approaches to train teachers to teach in a digital classroom including funding professional development through a state or regional virtual school (Michigan), securing federal grants to fund online professional development (Massachusetts) or a state-funded mandate (Idaho and California) that directs a statewide organization to provide the training.

In Minnesota the professional development for digital teachers occurs within online programs, at the district level, by service agencies or training centers and/or through colleges. Several training providers have partnered with area colleges to grant college credit for professional development courses in digital teaching. Since the new state requirements have passed in 2012, it is not clear how colleges and organizations or schools offering staff development training will be addressing the mandates.

Extending the Reach of Quality Teaching

Several states are using digital learning to address teacher shortages and provide quality training and instruction. Louisiana Virtual School offers teachers onsite and online training so they can assist with virtual mathematics courses under the supervision of a licensed mathematics teacher. This has enabled content experts to have an alternative route to licensure while gaining critical digital teaching experience.

Another example is in the area of providing special services to students in remote areas of a state. Many rural schools are unable to employ a full-time speech therapist. Using new software and internet connections, students and speech therapists can connect virtually allowing professionals to work with their students and provide instruction at a geographic distance through videoconference, interactive assessments and exercises and guided practice. The results have been positive and in some cases exceed what

an on-site speech therapist can accomplish.[31] The promise of increased access and improved outcomes through telemedicine and telepractice has been found effective in over 40 published, peer-reviewed studies, including a landmark paper by the Mayo Clinic in 1997.[32] In the 2012 Governor's Broadband Task Force report in 2012, a rural speech therapist in west central Minnesota is featured for "teleporting" into schools to work with students to improve efficiency for staff, provide flexibility for students and build a sustainable method for reaching people in rural areas of Minnesota.[33]

Additionally with the proliferation of online teaching and digital learning, highly effective teachers can teach across state lines, because geographic proximity to their students is not required. The 2010 national online teacher of the year, Teresa Dove teaches math for Florida Virtual School but lives in Virginia. The students get the benefit of her highly effective teaching skills even though she has chosen to live in a rural location of another state.

Teacher Reciprocity

38 states participate in the National Association of State Directors of Teacher Education and Certification (NASDTEC) Interstate Agreement. This allows a teacher to receive a teaching license if they have completed a state approved teacher preparation program from a regionally accredited institution, or have a minimum of 27 months of successful, full-time teaching experience under a NASDTEC member state's valid Level II educator certificate.

Minnesota does not participate in this teacher reciprocity agreement. The state statute addressing teacher requirements for teachers trained in another state is MS 122A.23. This statute gives the Board of Teaching authority to develop criteria and procedures to grant a licensed teacher from another state up to three one-year teaching licenses while the teacher meets other state licensure requirements such as passing a skills test in reading, writing and mathematics as well as completing all required exams and human relations preparation components.

Field Experiences in Digital Teaching

Acceptance and use of online pre-service field experiences to meet teacher licensure requirements are now in place in both Michigan and Florida. [34]

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[31] Grogan-Johnson, S, Gabel, R., Taylor, Rowan, L.E, Alvares, R, Schenker, J., A Pilot Exploration of Speech Sound Disorder Intervention Delivered by Telehealth to School-Age Children, International Journal of Telerehabilitation, Vol. 3, No.1 Spring 2011, Retrieved June 2013: http://telerehab.pitt.edu/ojs/index.php/Telerehab/article/view/6064/6309

[32] Duffy, J.R., Werven G.W., Aronson, A.E., Telemedicine and the diagnosis of speech and language disorders (1997), pubmed.gov, Retrieved June 2013: http://www.ncbi.nlm.nih.gov/pubmed/9413290?report=abstract

[33] Annual Report and Broadband Plan (2012), Governor's Task force on Broadband, Retrieved June 2013: http://www.connectmn.org/sites/default/files/connected-nation/Minnesota/files/tfdecember_2012_report.pdf.

[34] Patrick, S. & Dawley, L. (2009), Redefining teacher education: K-12 online-blended learning and virtual schools. Brief prepared for the Summit on Redefining Teacher Education for Digital Age Learners, Austin, TX: The University of Texas

Anecdotal evidence has indicated that some teacher preparation programs are allowing student teaching and/or field experiences with public online high schools in Minnesota. It would be beneficial for all teachers to have experience either taking an online/blended course and/or student teaching in an online environment.

Digital Teaching Certification or Endorsement Requirements

Wisconsin is one of the only states to require in statute that teachers must complete at least 30 hours of professional development designed to prepare a teacher for online teaching before being permitted to teach an online course in a public school or charter.[35] In 2013, the Wisconsin Legislature passed an amendment to repeal the 30 hours training requirement and "prohibits the department from imposing any such professional development requirements."[36]

A K-12 online teaching endorsement for licensure to teach online courses has been implemented in Idaho and Georgia.[37] Boise State University surveyed 830 teachers nationwide with only 5% reporting having an endorsement in online education.[38]

Minnesota added requirements for digital teaching in both pre-service and staff development statutes in 2012:

> *MS 120A.22 All college and university teacher preparation programs "must include in their teacher preparation programs the knowledge and skills teacher candidates need to deliver digital and blended learning and curriculum and engage students with technology" for all students entering the program in June of 2014 or later.*
>
> *MS 122A.60 staff development activities must include the ability to "accommodate the delivery of digital and blended learning and curriculum and engage students with technology."*

Educator Effectiveness Program

MS 122A.624 and MS 122.625 references instructional effectiveness through a Minnesota Educational Effectiveness Plan (MEEP) to be developed by the commissioner that must include "principles of instructional design and essential elements of effective instruction as determined by educational research." The goals of the program point to "creating flexible school-based organizational structures." This statute was originally created in 1983. The statute received funding in initial years (1993 - 1996), but the direct appropriation was eliminated in 1997 and the program became defunct around 2001. So although the statute remains on the books, it has not

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[35] Wisconsin Act 222, enacted in April of 2008, states that, "Beginning July 1, 2010, no person may teach an online course in a public school, including a charter school, unless he or she has completed at least 30 hours of professional development designed to prepare a teacher for online teaching." [Wisconsin State Statute 118.19(13)]

[36] Wisconsin Department of Public Instruction, 2013-15 Executive Biennial Budget Request Highlights, Assembly Bill 40, Retrieved June 2013: http://bit.ly/WisconsinBiennielBudget2013-15

[37] Dawley L., Rice, K. & Hinck G., *Going Virtual 2010: The Status of Professional Development and the Unique Needs of K-12 Online Teachers,* (2010) Boise State University

[38] Going Virtual,! 2010

been operational in over a decade.[39] Since this statute emphasizes instructional design and flexible school structures, the state should consider updating it with a focus on how digital learning and educational technology can support the goals and reinstate the school improvement incentive grants, which were provided in the original version.

Recommendations:

1. Develop a teaching force skilled in digital learning and online instruction.

Minnesota has taken a step in the right direction by adding a requirement in the law for teacher training programs and staff development outcomes that address the need for skilled digital educators.

The state could guide the development of specific skills and standards for digital teaching by directing an organization such as the Minnesota Learning Commons (MnLC) to identify the key components to this training and allow the MnLC to endorse good quality training programs to meet the requirements in the revised statutes.

MnLC in conjunction with the Board of Teaching, Minnesota Department of Education and Minnesota Association of Colleges for Teacher Education (MACTE) could develop a review process to identify quality training programs and a portfolio review process for teachers with experience teaching in a digital format. Both the review processes will enable licensed teachers to meet the requirements to have "knowledge and skills to accommodate the delivery of digital and blended learning and curriculum and engage students with technology" based on nationally recognized standards for quality digital education. Teacher education programs will be consulted as the digital teacher training is developed and implemented. Additionally teachers with two years of experience with digital teaching could submit a portfolio to a digital teacher training program endorsed by the Minnesota Learning Commons to verify that they have met the standards for quality digital teaching.

MS 122A.60 Staff Development
MS 120A.22 Requirements for Instructors.
MS 122A.624 Educational Effectiveness Program

2. Review alternative routes to licensure: content area experts and community specialists.

The state has several alternative strategies for teachers to attain teaching licensure including waivers, non-licensed community expert, variances and temporary licenses. These should be reviewed to be certain that further training or testing to qualify for the licenses is not limited by place or pathway. Similar to digital learning for students, we should be modeling this in the education and requirements for teachers: that their

[39] Information received via email from Daron Korte, Director of Government Relations, Minnesota Department of Education on June 25, 2012

learning can be "facilitated by technology that offers students an element of control over the time, place, path or pace of their learning and includes blended and online learning."

By having an updated and comprehensive alternative certification program, we can improve teacher quality by opening up the profession to well educated, qualified and mature individuals with subject area expertise and life experiences.

Consider allowing programs other than Schools of Education to train content specialists to become licensed teachers. High Tech High in California has been granted licensing authority by the State of California to train and license teachers uniquely qualified to teach in the educational paradigm of the school[40].

MS 122A.245 Alternative Teacher Preparation

3. Certification Reciprocity

Review the current statute on state licensure reciprocity to consider how highly effective online teachers licensed in other states might be qualified to teach in Minnesota public school programs . By removing geographic considerations our state has an opportunity to expand its teaching force by qualifying the best prepared and most experienced online teachers regardless of location of licensure or teacher residence.

MS 122A.23 Applicants Trained in Other States

4. Encourage acceptance and use of online and digital learning pre-service field experiences

Recommend to Schools of Education that criteria be established for pre-service teachers to have an experience student teaching in digital classrooms. Encourage an experience of digital teaching as a component of the pre-service field experience.

5. Digital Curriculum in Support of Teaching

Support access to content and tools by funding development of digital curriculum, which would expand opportunities for educators to have access to technology-based content, resources and tools where and when they need them. Once these open education courses are developed and made available statewide, teachers can focus on digital teaching and learning utilizing and customizing the units of instruction that are aligned to Minnesota academic standards.

The state would save millions of dollars redundantly spent on static instructional materials by investing instead in teacher-designed digital curriculum available to all Minnesota teachers, in addition to providing training in instructional design, a skill that will be critical for the teachers of today and tomorrow.

[40] High Tech High Educator Training, Retrieved June 16, 2013, http://www.hightechhigh.org/about/educator_training.php

IV. Infrastructure: Digital Learning Delivery

All students and educators will have access to a comprehensive infrastructure for learning when and where they need it.[41]

Statutes Relevant to Infrastructure and Digital Learning Delivery	
MS 123B	School District Powers and Duties
MS 124D.095	Online Learning Option Act
MS125B.05	State Information System: created in 1980 and not updated since 2003
MS 123B.35	Public School Fees
MS 125B.02	State Goals for Technological Advances in Education (last updated 1998)
MS 125B.15	Internet Access for Students
MS 125B.26	Telecommunications/Internet Access Equity Aid

Overview

If digital learning is to realize its full potential, all students and educators must have access to a comprehensive infrastructure for learning when and where they need it. Studies have shown that one-to-one computer access at school for students is only part of the picture. Having high speed broadband internet outside of school and with a mobile device 24/7 is essential for teaching and learning in the 21st century.

A key principle of any educational infrastructure is that it fundamentally involves people, processes, learning resources, policies and sustainable models for continuous updates and improvements. Within that principle, we must consider broadband connectivity, software, management systems, servers and other technical tools. Building and sustaining a digital learning infrastructure will take contributions and involvement from many sectors, including K-12 and higher education institutions, business and government. Thus the work of the Governor's Broadband Taskforce must guide the collaborative work that is necessary to ensure delivery of digital learning to all students, teachers and schools in the state.

The critical components involving access enabling digital learning delivery include:

1. **A plan**. School leaders and teachers should have a clearly articulated digital learning plan that includes goals, objectives, learning outcomes, new pedagogies, and innovative instructional practices and assessments.
2. **Mobile devices**. Students should have access 24/7 to their own mobile computing devices just as they would have access to a textbook.
3. **Broadband at school.** Wireless high speed internet should be available in all areas of school facilities.
4. **Broadband at home.** High speed internet outside of school.

[41] National Education Technology Plan, 2010

a. Access in homes. A recent study has shown that, as of October 2012, 81% of Minnesotans have access to broadband at 10Mbps download and 3 Mbps upload.
b. Adoption by families. More problematic is even if some families have access to high speed broadband, they choose not to subscribe. According to the 2011 Connect Minnesota Residential Survey the major reasons cited by nonsubscribers were cost, outdated computer equipment and no content worth viewing. The Center for Rural Policy and Development estimates that only 75.4% of households in outstate Minnesota have chosen to adopt high speed internet.[42]

5. **Cost Considerations.** Funding infrastructure requires a demonstration that cost savings can be realized and reinforces shifts in funding allocations to support digital learning.

Examples from other States and Communities

Colorado (EAGLE-net) has supported a statewide broadband initiative to support internet connectivity to reach all citizens and schools.

Tennessee's K-12 Network was the first statewide K-12 broadband connection in the U.S. established in 1996. It provides a robust infrastructure to all K-12 schools and libraries and delivers services that make possible sharing of tools and resources regardless of location, enabling students to access a 21st century learning environment.

ConnectKentucky is a statewide public/private partnership created to "accelerate the growth of technology in support of community and economic development, improved healthcare, enhanced education and more effective government"[43]

Some local communities are creating their own municipal broadband networks as an alternative to slow services offered by cable and telephone companies. For more than 10 years Thomasville, Georgia has been providing this service. This is in response to sluggish service from companies who don't feel their investment would be worth bringing broadband to small communities.

Recommendations:[44]

Outdated Educational Technology Statutes.
Many of the following educational technology statutes were last updated over 15 years ago (1998).

[42] Minnesota Adoption Rate 2010-2012, Center for Rural Policy and Development, St. Peter, Mn,
[43] ConnectKentucky, Mission Statement, http://www.connectkentucky.org/about_us
[44] These recommendations are based in part on the Center for American Progress, Are Schools Getting a Big Enough Bang for Their Education Technology Buck?, June 14, 2013, Ulrich Boser, Retrieved June 15, 2013, http://www.americanprogress.org/issues/education/report/2013/06/14/66485/are-schools-getting-a-big-enough-bang-for-their-education-technology-buck/

MS 125B.02 State Goals for Technological Advances in Education:
MS 125B.15 Internet Access for Students
MS 125B.26 Telecommunications/Internet Access Equity Aid

This needs to be addressed by the legislature and the Digital Learning Council. The following considerations should be included in the revision process in order to maximize the potential for digital learning on student achievement.

- **Establish benchmarks for bandwidth** capacities that reflect the requirements of a transformed educational system reliant on digital personalized learning. Partnerships should be created that lead to creative, cost-effective solutions for achieving the benchmarks statewide. Statewide public/private initiatives and replicable models should be used to drive down costs, realize volume pricing and steadily increase capacity.

- **Digital Learning Plans.** Policymakers must do more to make sure that technology promotes key learning goals. Education technology and digital learning should give teachers and schools new ways of reaching students and delivering education. This starts with a regulatory environment that rewards new and innovative approaches. At the same time, we need to ensure that schools have the plan in place and the capacity to put digital tools in the classroom in ways that raise the bar for all students regardless of their background.

- **Digital content and e-flexbooks** should be implemented as flexible, interactive and adaptive instructional resources rather than static textbook purchases. Managing an instructional network that is dependent on digital content and electronic textbook means that it must be robust, high capacity and reliable. The state should take the lead in encouraging the replacement of textbooks with digital content, including interactive and adaptive multimedia.

- **The New Digital Divide.** States must aggressively address the new digital divide. The digital divide used to be between the students who had access to computers and those who did not. But times have changed, and while access remains a problem in many schools, access to digital learning opportunities is of far greater concern. In many schools, students from disadvantaged backgrounds are being given the least engaging, least promising technology-facilitated learning opportunities.

- **Educational Technology and Digital Education State Leadership** In order for all schools, teachers and students to be connected and have access to dynamic digital learning a senior-level individual and unit within the state education agency must ensure that digital technologies and networks connect with the core functions of curriculum, instruction and assessment, professional development and administration.

- **Cost Effectiveness.** Advocates must push for studies of the cost-effectiveness

of digital learning and educational technologies to assure taxpayers are getting their money's worth when it comes to technology in schools. Research shows that technology in education can raise student outcomes under certain conditions. The question now is how we can bring those outcomes to scale and at what cost. In addition to close and careful studies of digital learning's return on investment, the state should use state purchasing power to negotiate lower cost licenses and contracts for digital content and courses and support development of digital units of instruction that are aligned to Minnesota state academic standards. Lastly, investment in high speed internet and networks along with mobile technologies is an ongoing expense that must be included in operating budgets.

- **Administrative management and study of digital learning**. The state should ensure that local and state data systems and related applications are updated, interoperable and robust to inform longitudinal management decisions and accountability. Data systems that collect student outcome data should be tethered to digital course catalogs and student financial reporting.

V. Digital Learning: Funding and Productivity

Our education system at all levels will redesign processes and structures to take advantage of the power of technology to improve learning outcomes while making more efficient use of time, money and staff. [45]

Relevant Statutes to Education Funding

MS 123B School District Powers and Duties
MS 123B.35 General Policy: Free Public Education
MS 123B.36 Authorized Fees

MS 124D Education Programs
MS 124D.69 Aid for Alternative Programs Provided under Contract
MS 124D.09 Postsecondary enrollment option subd 15
MS 124D..091 Concurrent Enrollment Funding
MS 124D.096 Online Learning Aid
MS 124D.098 Literacy Incentive Aid
MS 124D.11 Revenue for a Charter School

MS 126C Education Funding
MS 126C.01 Definitions, Subd 6-8
MS 126C.05 Definition of Pupil Units (weighted by grade levels)
MS 126C.19 Shared Time Aid

290.0674 Mn Education Credit
https://www.revisor.mn.gov/statutes/?id=290.0674&year=2012

Funding Digital Learning Education Programs

School finance systems were not designed with the flexibility needed to support educational innovations such as digital learning. Students and families seek personalized alternatives to traditional, industrial model schooling such as online and blended options. Local districts and teachers are implementing digital learning to offer more customized instruction to improve student outcomes and create efficiencies. A 2008 report from the Center for Reinventing Public Education (CRPE), Facing the Future concluded after a six-year investigation that no amount of updating will fix American education finance system since it is "overloaded, can't run all the programs we have attached to it, and was never designed for things we now most need done."[46]

Yet we still pay schools for student attendance, not performance. If the system could be reoriented around student learning, there would be more consistent accountability for student outcomes.

[45] National Education Technology Plan 2010
[46] Center for American Progress: The Stealth Inequities of School Funding, Retrieved June 2013 from: http://www.americanprogress.org/wp-content/uploads/2012/09/StealthInequites.pdf

Digital learning challenges the historic binding of funding with geography. Matching resources with individual student needs rather than zip code offers great promise in improving student outcomes. The concept of weighted school funding (WSF) is partially realized in Minnesota. Several states have taken this to the next level, which would allow students and families to have greater access to a myriad of educational choices unbounded by place by allowing the WSF to flow directly to the school, program and/or family rather than the district.

Digital learning can actually save money in areas such as collaborative curriculum development, professional development, facilities and transportation. As more students engage in digital learning, economies of scale will drive down costs as well. This is clearly demonstrated when districts collaborate within states to increase volume purchasing (e.g. state telecommunication networks for telecommunication services) or for development of digital units of instruction or courses (e.g. Partnership for Collaborative Curriculum and Innovative Instruction[47] and the National Repository of Online Courses[48]) which become open education resources available to all public schools and students upon release.

What would a new system of funding education look like that supports digital learning? An effective school funding structure would acknowledge diverse student needs, allow dollars to follow students to where they are instructed in fractional amounts, create mechanisms for ensuring quality and incentivize educational innovation.

The following recommendations regarding school finance are design principles proposed by Digital Learning Now! in a recent publication on funding students, options and achievement.[49] and by the Fordham Foundation in a 2006 report, Fund the Child[50] on school finance.

Fortunately Minnesota has moved in the direction in several areas but the current system is inconsistent among learner option programs, reducing its potential for maximum effectiveness. A competency-based system emphasizing personalized digital learning would require an entirely different structure to deploy public funding for education. However until money follows the student based on where instruction is provided according to their need without undue restrictions, the problem of funding will be inadequately addressed.

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[47] Partnership for Collaborative Curriculum and Innovative Instruction, Retrieved June 2013, http://bit.ly/innovativeinstruction

[48] National Repository of Online Courses, Retrieved June 2013, http://www.montereyinstitute.org/nroc/

[49] John Bailey, Carrie Schneider, Tom Vander Ark, Funding Students, Options, and Achievement,, Digital Learning Now!, April 2013, Retrieved June 2013 from: http://www.digitallearningnow.com/wp-content/uploads/2013/04/Funding-Paper-Final.pdf

[50] Thomas B. Fordham Institute, *Fund the Child, Tackling Inequity and Antiquity in School Finance*, July 2006, retrieved June 2013 from: http://www.schoolfunding.info/resource_center/media/Fordham_FundtheChild.pdf

New Design Principles

Portable. Dollars should follow the student to whatever public school program best fits their individual interests or needs. Fractional funding should also be considered for full-time or part-time options.

Minnesota has a long history of educational choice starting with postsecondary enrollment options in 1985 in providing fractional funding to the course level. This concept of funding to the course level also is available for part time online learning and state-approved alternative programs, although sub-fractional funding (less than at the course level) is only available to SAAPs.

Weighted. Funding should pay for individual students based on the factors that affect the cost of educating students of various needs, poverty levels, special needs, disabled, English Language Learners (ELL), gifted or those behind in credits. The weighted funding should be based on the real costs associated with educating these students since studies have clearly shown that some students require more resources than others.[51]

Minnesota has weighted student funding based on grade levels. compensatory (free and reduced lunch eligibility) and ELL, which addresses some of these needs. But the funding for the most part flows to the districts to provide services, which makes accountability disputable regarding whether students are well served. The exceptions are free and reduced lunch funding that does go directly to the school serving the qualifying students and funding for gifted programs at the school level, though it is not based on identified gifted students but on total enrollment. Additionally students who have fallen behind in credits are restricted to learning opportunities (beyond full time) only through State-Approved Alternative Learning programs (SAAPs), which often are limited to specific geographic areas, and local districts that have approved programs.

Flexible. State education finance policy should allow the local school to decide uses for funds and create greater school-level autonomy. Digital learning can take many formats and each school should be funded in ways to support the best structure for their students whether it is embedded within the traditional course, flipped classrooms, blended instruction or fully online. This includes funding at-risk students by several means when additional content or courses are needed for progression to graduation.

Minnesota school districts have begun to shift funding from within their budgets to support digital learning. There could be greater incentives built into state policy to do this by funding innovative programs, rewarding results and lifting mandates for schools creating programs that personalize digital learning. Additionally it is now possible with advancements in adaptive release curriculum to offer content recovery methods to struggling students before they fail. This additional method should be funded rather than the perverse incentive of funding students for credit recovery after they fail.

[51] Funding Students, Options, and Achievement, April 2013.

Performance-based. Schools should be paid based on performance that would reward completion and student outcomes. Results rather than inputs, programs, or activities would gauge accountability. Currently traditional school districts are compensated when students show up or "attend", regardless of what or how much students learn.

Supplemental online learning in Minnesota is funded based on course completion. Among all Minnesota education programs, it is only one of two that links funding to student performance, along with the Independent Study option for extend time revenue. A third recently created program funds literacy incentive aid (MS 124.098), partly on the percentage of students proficient at third grade in reading and the percentage of students with high growth in reading from grade 3 to 4.

There are several models being introduced in other states that even the playing field on paying for student outcomes rather than attendance or seat-time and require that outcomes warrant the educational expenditure.

In the graphic below designed by Paul Hill, funding students and innovation and experimentation moves on a continuum away from mandates and standardization resulting in continuous improvement.

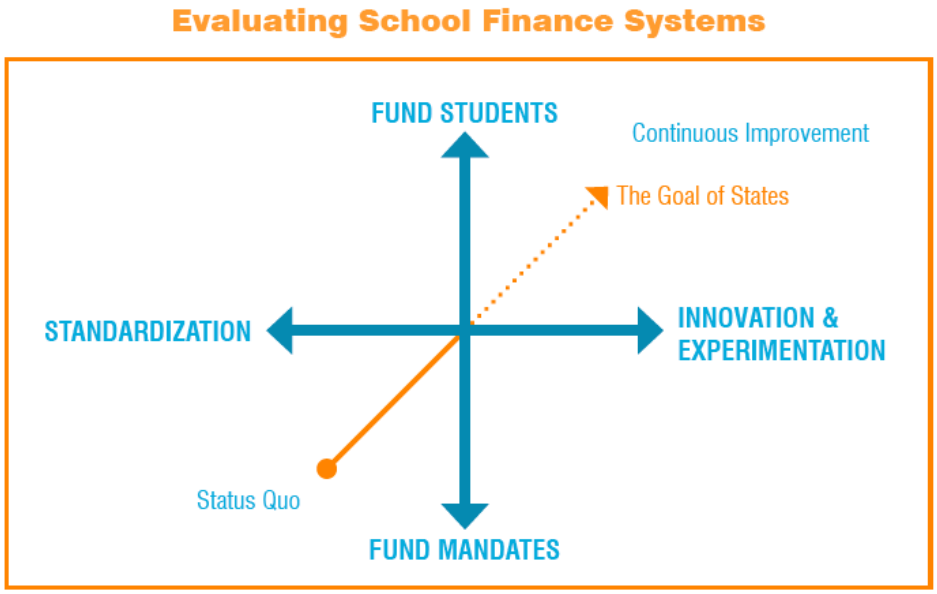

Figure 2: Graphic adapted from: Hill, P. Steps in the Right Direction: Assessing "Ohio Achievement Everywhere' the Kasich Plan, Thomas B Fordham Institute, March 2013.[52]

[52] Hill, P. Steps in the Right Direction: Assessing "Ohio Achievement Everywhere' the Kasich Plan, Thomas B Fordham Institute, March 2013.

Examples from Other States

Weighted Student Funding to Support Digital Learning

Weighted Student Funding (WSF) acknowledges that various student characteristics require different levels of educational support. The states noted below have implemented WSF that is attached to the student or school, not at the district level, allowing for students to directly receive the educational services they need.

Hawaii implemented a WSF formula in 2006-07, based on student characteristics that impact learning and achievement.

In Utah, SB 110 requires that school districts distribute revenues to schools based on a weighted student funding (WSF) formula and gives principals more autonomy to make financial decisions at the building level.

Georgia has put in place a WSF formula under the Quality Basic Education program that funds both local districts and charter schools.

Funding School Choice Options

Four states, including Louisiana, Utah, Florida and Minnesota have permitted fractional funding that follows the student at the course level to where they are receiving instruction for online learning and learner option programs. In most cases, for part time online learning, a small portion of the general education revenue stays with the enrolling district for ongoing student support and administrative services.

Minnesota was among the first states to allow students school choice at the course level in a variety of online approved programs. Even though this option comes without restrictions, the participation rate is fairly low (1.5% of high school course enrollment). Since the education dollar follows the student, this revenue loss to the local district creates pressure to not inform or recommend online learning options to enrolled students. State policy should enforce the mandate to inform students and families about online learning option that is articulated in MS 124D.095 Subd. 6.

Perhaps the most innovative change in school choice has recently been implemented in Louisiana where each student has a course choice account. This permits families to choose how their students' public education dollars are "spent". Students may choose any course from another school or program if their enrolling district is rated D or F or can select a course not offered at their local school if the school rating is A.B or C. Both public and private schools and educational organizations may provide courses and learning experiences to families and students through the course choice account program.

Funding Based on Student Performance

Digital learning is funded in a variety of ways at the state level. In Minnesota full time online schools (statewide district programs or charter schools) are funded the same as other school districts with funding following to the district in which the student open enrolls or to a public charter school. Minnesota does not have a statewide virtual school, which in most other states delivers subsidized supplemental online learning to local students. Instead state policy has provided for local districts, charter schools or consortia of schools to become approved providers of statewide full time schools and part time online programs.

In the case of supplemental or part time online courses, the online program ("provider" in state statute) is only paid if the student completes the course. This pay for performance or course completion is intended to assure quality but in effect has had a chilling effect on programs willing to offer online instruction because the risk of not getting compensated increases when students enroll but are not prepared for the self-directedness it requires. High-risk students often gravitate toward online learning believing it will be easier when if fact it requires more active learning and participation by an individual student.

Other states have implemented graduated funding for course completion, which acknowledges that schools incur costs regardless of outcome but that student outcome is important. In Utah, the online provider receives 50 percent after the add/drop deadline and 50% upon successful completion. In Texas state funding is parsed out on a similar model with 70% going to the instructing state virtual school after the withdrawal period and 30% upon successful completion. Florida has gone the furthest in equalizing school funding based on performance by funding courses based on students passing end-of-course exams for both site-based schools and virtual schools beginning in the fourth year of implementation, with the first course, Algebra I, being funded this way in 2013-14.

Recommendations:

1. **Performance-based funding.** The state should consider competency-based or performance-based funding that pays for student outcomes not attendance. Models being implemented in other states should be considered, including Florida, where funding is based on student outcome for traditional, blended and online programs, and New Hampshire, which has transformed the entire K-12 education system into one based on competency pathways rather than Carnegie units of time.

> *MS 126C Education Funding: transform by basing school funding on performance not attendance.*

2. L**earning Option Program Funding Equity**. Fund to the course or fractional course level for whatever is completed by the student. State funding should pay programs in installments that incentivize completion and achievement.

Two key changes would be required that would impact all learner option programs (PSEO, online learning, alternative learning, charter schools):

1) Fractionalize funding to a portion of a course completed using the funding model for State-Approved Alternative Programs. Currently most learner option programs are funded to the course level. This proposal would allow for fractional funding to the percentage of the course successfully completed.
2) Fund programs in at least two payments; one payment (50%) after a withdrawal date and the second payment upon completion (50%).

MS 124D.09 Postsecondary Enrollment Option Act Subd 13
MS 124D..091 Concurrent Enrollment Funding
MS 124D.096 Online Learning Aid
MS 124D.098 Literacy Incentive Aid
MS 124D.11 Revenue for a Charter School

3. **Acceleration and Credit Recovery**. Widen access to additional funding for acceleration or recovering credit. The funding inequities among learner option programs should be addressed. Extended time ADM (20%) is available only to State Approved Alternative Programs (SAAPs) and Postsecondary Enrollment Options (PSEO), where students have access to publicly funded college courses beyond full time status based on enrollment guidelines set by the colleges.

The option to enroll above full time needs to be made equitable across learner option programs (including charter schools, online programs, district level programs) to acknowledge that digital learning can expand options for acceleration or credit recovery regardless of regulated program.

This would require amending the Learning Year Program statute to permit funded acceleration or credit recovery at the high school level. Unfortunately the 2013 legislature removed this option from learning year programs that were previously approved by the state for acceleration. The reason provided for eliminating funding for acceleration was that elementary programs were using the funding but students were not graduating before their peers.

MS 124D.128 Learning Year Program: reinstate allowance for acceleration at the high school level to graduation and permit programs offering digital learning to access aid to support acceleration to graduation.
124D.096 Online Learning Aid: allow aid to be paid for online learning courses for credit recovery and acceleration through access to extended time ADM

4. **Funding Special Populations.** Provide funding for special populations including non-domiciled students and shared time pupils to the same level as other public school students who are allowed to access online and digital learning. Shared-time students should be funded to the same level (50% of classes per semester) as enrolled public school students for online supplemental.

MS 126C.19 Shared time aid: lift the "only in a school building" restriction
MS 120A Admission to Public School: change the residential requirement to allow for Minnesota family temporary mobility

5. Funding Access. Provide student access and guidance to districts for necessary digital learning technology by considering funding strategies being considered in other states and within school districts including state and district provided, subsidized parent pay, and a mixed model, which includes "bring-your-own-device" (BYOD) policies.

In the 2013 Minnesota legislature, HF 1180 was proposed that would open the door to subsidized parent pay by authorizing a school district to charge fees in order to make digital technology more widely available.

> *MS 123B.36 Subd. 1: School boards may require fees.*

6. Information Sharing. School districts have been relatively silent about online learning options due mainly to the loss of revenue. Although it is written into law, school districts minimally inform students and inhibit access to digital learning through supplemental online courses or full time online programs for all students. Since school districts are not making information widely available, it should be made possible by providing requirements similar to PSEO in subd 7 and 9 (see below reference).

> *MS 124D.095 Subd. 6.Information. School districts and charter schools must make available information about online learning to all interested people.*
>
> *MS 124D.09 Subd. 7.Dissemination of information; notification of intent to enroll**. By March 1 of each year, a district must provide general information about the program to all pupils in grades 8, 9, 10, & 11.***
>
> *MS 124D.09 subd 9 A postsecondary institution may provide information about its programs to a secondary school or to a pupil or parent and it may advertise or otherwise recruit or solicit a secondary pupil to enroll in its programs on educational and programmatic grounds only.*

7. Role of Private Educational Management Organizations. Consider the role of private organizations providing education funded by public education dollars. In some states private educational management organizations (EMOs) are given authority to deliver public education. In Minnesota, educational management organizations can work with districts and online learning programs through contractual agreements to provide services but not operate independently.

There are at least two current Minnesota statutes that permit private organizations to directly provide public K-12 education. These include contract alternatives serving at-risk students and private colleges through postsecondary enrollment options (see below). The digital learning council may consider trends in private organizations providing publicly funded digital learning since that precedent has been set in other public education programs.

> *124D.69 Aid for Alternative Programs Provided under Contract: private organizations providing alternative programs to at-risk students*
> *124D.09 Postsecondary Enrollment Option Act: Private colleges can access postsecondary enrollment option aid for public and nonpublic school students.*
> *Supplemental Education Services (tutoring for students from schools not making annual yearly progress) was also provided by private, approved organizations.*

Summary

There is evidence that learning can be accelerated and enhanced through digital instruction, online tutoring, restructuring curricula, and providing guiding feedback and formative assessment throughout the learning process. Current systems that define and pay for learning by semester or yearlong attendance in courses is arbitrary yet defended by long standing tradition rather than careful study and redesign. We have the potential to offer students opportunities to achieve twice the content expertise and competencies in half the time at much less cost through digital learning, but it will require careful design, development and evaluation to shift the systems currently in place.[53]

[53] National Education Technology Plan, 2010.

VI. Quality Digital Content

Digital content and courses are high quality.[54]

Statutes Relevant to Digital Content and Curriculum

Curriculum and Assessment
MS 120B.02 Educational Expectations - cannot prescribe format of delivery, assessments or form of instruction
MS 120B.021 Required Academic Standards
Exception/ Waiver: Subd. 1a.Rigorous course of study; waiver.
https://www.revisor.mn.gov/statutes/?id=120B.021#stat.120B.021
120B.024 Graduation Requirements / course credit requirements

School District Powers and Duties
MS 123B.41 Subd 2 Textbook (2010 to include electronic books)
MS 123B.41 Subd 5 Individualized Instruction or cooperative learning material
Subd. 5a.Software or other educational technology.
MS 123B.42 Textbooks; Individual Instruction or Cooperative Learning Material; Standard Tests*
MS 124B.43 Use of Individualized Instructional Materials*

**123B.42 and 123B.43, references individualized instructional materials to include "software or other educational technology" which is defined in MS 123B.4 Subd 5a as including software, programs, applications, hardware, and any other electronic educational technology.*

Education Programs
MS 124D.095 Subd 3b: Authorization; notice; limitations on enrollment
Subd 7: Department of Education.

Proposed Bills 2013

HF 1435 and SF 1345 Minnesota Learning Commons Consortium (2013)
https://www.revisor.mn.gov/bills/bill.php?f=HF1435&b=house&y=2013&ssn=0
HF 0789 & SF 0894 Open Education Resource establishment and appropriation (2013)
HF 1145 & SF 0781 Online homework help services funding provided

Overview

Digital content is defined as any instructional material or program stored on an electronic or digital medium that can be delivered by computers over the Internet. Online interactive and adaptive multimedia and adaptive release digital content offers opportunities for schools to transition from a single source of knowledge (static textbook) to dynamic digital learning units of instruction designed and/or selected by teachers and students who use them.

Digital content resides most often within learning management systems, which allow access to course content, lessons and instruction from any internet connection. It enables teachers to modify content and teach from anywhere at any time and students

[54] National Education Technology Plan, 2010

to study content, contribute to the class, participate in activities and submit assignments at their convenience.

In MS 124D.095 (Online Learning Option Act) it is required that a Minnesota licensed teacher assemble and deliver instruction in online and blended courses but allows the curriculum to be developed by someone other than a license teacher. The dilemma many districts face is whether to buy or develop their own digital content. The decision to develop digital instructional content involves skill, technology, time, financial resources and trained instructional designers/teachers. Many schools simply do not have the resources to design high quality digital content or courses.

There are online programs in the state that have built most of their own online courses as well as local districts that are encouraging teachers to design blended courses as they shift towards wider implementation of digital learning. Since few teachers are trained in digital instructional design the early versions of teacher-designed courses have been variable in quality mainly due to an attempt to mimic an onsite class rather than transform teaching and learning.

The bottom line for many district leadership is cost: if digital content is locally designed, they then have ownership of the course and will not have to pay for subscriptions or purchase content from a curriculum vendor. Additionally it allows more control at the local level over modifying and/or repurposing digital course content while giving that critical role of "assembling" instruction to the licensed teacher in the class as required by MS 124D.095 subd 3.

Minnesota does not take a top down approach to decisions regarding course content beyond requiring that curriculum and instruction meet state and local academic standards. The decision to procure curriculum is made at the local level with guidelines on curriculum budgets set at the state level.

One solution to the build versus buy digital content decision has been a grassroots effort to organize districts that want to collaborate to train teachers in instructional design of digital content and develop digital courses as open educational resources (OER) aligned to state academic standards available to all Minnesota schools and teachers. This project, the Partnership for Collaborative Curriculum and Innovative Instruction[55] invites participating districts to contribute financially (a small portion of a district's curriculum budget) to be used for training and digital content development. Teachers from partnership schools become part of cross-district design teams to create digital content to be used in traditional classrooms, blended and online courses. All content developed is reviewed by licensed teachers for quality and is available in open source learning management systems (Moodle or Schoology).

Examples of other States and Programs

[55] The Partnership for Collaborative Curriculum and Innovative Instruction, Retrieved June 2013, http://bit.ly/innovativeinstruction

There are three ways that other states have addressed policy regarding digital content and courses:

1. A statewide virtual school that offers supplemental online courses to students. In many cases, the local school does not lose funding if students take courses from the statewide virtual school (ACCESS in Alabama) or it is offered at reduced, state-subsidized tuition billed to the local district (Colorado Online). This "double dipping" has become unsustainable in some states that have closed their statewide virtual schools (e.g. Kentucky).

2. Independent organizations have been created to address providing digital learning to students. Florida Virtual School (FLVS) was created to provide this option with line item funding from the legislature. Funding for students enrolling in FLVS or other approved Florida providers follow the student at the course level to the program providing instruction. Florida approved providers only receive state funding when students successfully complete the course.[56] In Washington state, the Digital Learning Commons (DLC) was funded as a line item nonprofit organization that vetted quality online courses, provided a central registration system, delivered digital services (test preparation and instructional resources) and trained local school staff to support online students. In recent years the DLC in Washington has become a unit within the state education agency and funding has shifted more to local districts to support online courses.

3. Minnesota's model is to allow public schools and consortia of public schools to become approved online learning statewide programs or "providers" to deliver full time or part time online learning. The digital content that the providers use is resides with the program similarly to local curriculum decisions granted to districts implementing digital courses.

Libraries of Digital Content

Washington has joined a number of states (Florida, Ohio, California) in developing a library of high-quality, openly licensed K-12 courseware that is aligned to state and common core K-12 standards. The goals articulated in House Bill 2337[57] enacted in 2012 are to make these open education resources available free of charge to school districts in digital format so students and teachers have a broader selection of materials, materials that are more up-to-date and to substantially reduce the expenses that districts would otherwise incur in purchasing materials.

Minnesota has followed the lead of these states in requiring that a catalog of publicly available digital learning content currently aligned to Minnesota academic standards be

[56] 2012 Florida Statute 1002.321 Digital learning, Retrieved June, 2013: http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=1000-1099/1002/Sections/1002.321.html

[57] Digital Learning Department, Office of Superintendent of Public Education, State of Washington, Retrieved June 2013: http://digitallearning.k12.wa.us/oer/

developed and maintained. The requirement was enacted in 2012 with the goal of making the resource available by June 2013. This catalog will include indexing of the curriculum to state academic standards, a method for users to provide evaluative feedback, a plan for ongoing maintenance and methods for including student performance data on the digital learning content.

The Minnesota Digital Catalog will be administered and maintained by the Minnesota Learning Commons (MnLC). The MnLC is a K-20 collaborative partnership of the Minnesota Department of Education, Minnesota State Colleges and Universities and the University or Minnesota to provide information about free online resources for public education. It was created as a centralized web portal to online, education-related resources, opportunities, tools and services for targeted audiences.

Recommendations on Removing Policy Barriers to Digital Content

Minnesota was highly ranked on state policy impacting digital content in the Digital Learning Now! 2012 report issued from Digital Learning Council. The top grade of "A" was given to Minnesota based on high expectations that all curriculum regardless of format is aligned to state academic standards, no additional burdens are placed on the approval and procurement processes for digital content beyond those for print content and instructional material funding may be used for purchasing digital content and systems.

The state could take it a step further and actively support efforts to make digital curriculum available through teacher-designed open educational resources in collaboration with other K-20 initiatives. The following recommendations would enable districts to work together and be better prepared for the shift to digital learning:

1. Support the Partnership for Collaborative Curriculum and Innovative Instruction (PC2I2) with establishment and funding in statute.

Minnesota's strong commitment to local control over curriculum and course content has been a barrier to schools working together to realize efficient and effective ways to develop digital content, train teachers in instructional design and implement high quality digital teaching and learning. The Partnership for Collaborative Curriculum and Innovative Instruction is an exemplary program that brings teachers and school leaders together to develop, train teachers and share resources to make quality digital content available to all Minnesota schools as open educational resources.

Proposal: The legislature should create a nonprofit foundation that would support and fund the work of the PC2I2 to develop, train teacher designers and implement digital open education resources (OER). This could be done in conjunction with the Minnesota Learning Commons (HF 1435 & SF 1345 - 2013) and an Open Education Resource Council (HF 0789 & SF 0824 -2013), two bills that were proposed but not passed in 2013.

2. Formally support the Minnesota Learning Commons as a K-20 initiative that joins together K-12 and higher education to provide quality digital learning opportunities to students, teachers, parents and community members.

Proposal: This organization should be recognized in state policy and funded so that collaboration can be supported and enhanced through strong leadership and financial support.

In 2013, HF 1435 (SF 1345)[58]was proposed that would have formalized the MnLC as a consortium to "design, develop, and promote the adoption of technologies and services to advance the effectiveness and efficacy of school-to-school and school-to-work transitions for Minnesota students in public and nonpublic schools and communities". The bill provided for development of portfolio-based individual learning plans to increase proficiency outcomes and reduce the skill gap of postsecondary students in their transition to college and/or the workplace.

3. Schools districts are all attempting to vet digital content for quality when deciding to purchase digital curriculum or implement open educational resources. The curriculum is required to be aligned to state academic standards as well as having the rigor and activities that support quality instruction. It has become redundant to have digital content go through repetitive reviews and approval processes when online programs and schools are utilizing this curriculum

Proposal: Create an independent certification program that identifies approved, high-quality digital curriculum and content solutions. This program would "help support a safe purchasing process and incentivize school districts to lean forward with the transition to digital learning."[59] This will reduce redundancy of effort of reviewing digital content and provide guidance to schools as they transition into the important planning, implementation and oversight responsibilities in the shift to digital education.

4. Evolve state and district purchasing cycles and products to reflect digital delivery. Multi-year purchasing cycles that are driven by the traditional textbook "edition" model are outdated. States and districts should adopt a more flexible, timely procurement process. Additionally shifting textbook budgets to support quality digital curriculum can be a cost savings. Support efforts of schools to collaborate to develop and/or share procurement and implementation of digital content. See H.F. 0789 & S.F. 0824 proposed (but not passed) in 2013 to establish and fund an open education resource council to develop strategies to use digital open source resources.

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[58] HF 1435 (124D.99) Minnesota Learning Commons https://www.revisor.mn.gov/bills/text.php?number=HF1435&version=0&session=ls88&session_year=2013&session_number=0

[59] Paving a Path Forward for Digital Learning in the United States (2013), Leading Education by Advancing Digital (LEAD) Commission, Retrieved June 2013: http://www.leadcommission.org/news/lead-commission-unveils-digital-learning-blueprint

Thoughtful Integration of Statutes and Statewide Initiatives

The following statutes have implications for either inhibiting or advancing digital learning. Any changes should be made through thoughtful integration of these statutes and other initiatives. The dates noted in parenthesis are enactment dates followed by the most recent dates the statutes were amended.

- 120B.08 EARLY GRADUATION ACHIEVEMENT SCHOLARSHIP PROGRAM. Provides scholarship as an incentive to graduate early. (2011/2013)

- MS 120B.125 PLANNING FOR STUDENTS' SUCCESSFUL TRANSITION TO POSTSECONDARY EDUCATION AND EMPLOYMENT; INVOLUNTARY CAREER TRACKING PROHIBITED. (2001/2012)

- 122A.624 EDUCATIONAL EFFECTIVENESS PROGRAM. (1993/2003),
  122A.625 Educational Effectiveness Plan (1983/2003)
  Based on principles of instructional design. Integrates developments of educational technology.

- 123B.04 SITE DECISION MAKING; INDIVIDUALIZED LEARNING AGREEMENT; OTHER AGREEMENTS. (1987/2012). Provides individualized student learning. Note H.F. 1342 (2013).

- 123B.045 DISTRICT-CREATED SITE-GOVERNED SCHOOLS. Provides for educator-led schools and site-based governance. (2009)

- 123A.06 STATE-APPROVED ALTERNATIVE PROGRAM AND SERVICES. Provides additional instruction to students who qualify for graduation incentives (1987/2012)

- 124D.03 ENROLLMENT OPTIONS PROGRAM. Parameters for open enrollment (1988/2003)

- 124D.09 POSTSECONDARY ENROLLMENT OPTIONS ACT. Dual college/high school program. (1985/2012)

- 124D.095 ONLINE LEARNING OPTION. Part-time and full time online learning. (2003/2012)

- 124D.10 CHARTER SCHOOLS. Establishes charter schools. (1991/2012)

- 124D.12 PURPOSE OF FLEXIBLE LEARNING YEAR PROGRAMS. Provides for alternative calendar and academic year schedules. (1974/1998)

- 124D.128 LEARNING YEAR PROGRAM TO PROVIDE INSTRUCTION THROUGHOUT YEAR. (acceleration eliminated in 2013). Provides for acceleration or credit/content recovery through extended time funding by providing learning in extended day or year format. (1989/2013)

- 124D.90 SCHOOL ENRICHMENT PARTNERSHIP PROGRAM. Private / public partnership programs. (1995/1998)

- 124D.94 MINNESOTA ACADEMIC EXCELLENCE FOUNDATION. (2003). Creates foundation to administer public-private partnerships to support academic excellence. (1983/2003)

- 124D.98 LITERACY INCENTIVE AID. Provides additional aid to districts for demonstrated student proficiency and growth. (2011/2012)

- Chapter Law 263 - INNOVATIVE DELIVERY OF EDUCATION SERVICES AND SHARING OF DISTRICT RESOURCES; PILOT PROJECT. 6 pilot projects across the state that allow 2 or more school districts to work together to offer ideas to combine services in exchange for the state lifting

mandates. (2012)

Conclusion

Digital learning is a catalyzing agent to transform education by better preparing students for college and careers in the 21st century. It is critically important to lift barriers that inhibit innovation and digital learning that exist in state laws and rules that were enacted prior to the widespread proliferation of digital technology and that support an industrial model of education rather than knowledge-based learning systems.

Several states have taken bold measures to implement policies that would enhance digital learning at all levels of education. New Hampshire has moved to a competency-based system of advancement instead of using the Carnegie unit as a measure of learning. Open High School of Utah was created to provide courses freely available in digital formats. Washington has a Division of Digital Learning with six staff that oversees collaboration of participating school districts to provide online courses and programs to K-12 students. Michigan has created a Center for Online Learning Research and Innovation to support and accelerate innovation and build greater capacity for digital learning while expanding Michigan's leadership role in the knowledge economy.[60] Colorado has an Office of Online and Blended Learning in the state education agency's Choice and Innovation Office with eight professional staff. Wisconsin has developed a Vision for Digital Learning.[61]

Minnesota has a long and respected tradition of supporting learner options and various schooling models through school choice programs and course-level funding structures. Also the state has made recent attempts at acknowledging digital learning as a critical concept and method for improving educational outcomes. However the efforts to change the multitude of statutes governing school districts, education programs, teacher quality and school finance is a daunting undertaking. The regulations are complex and cross-cutting, created in years past and since amended (or defunct) without a "big picture" overview of how rapidly digital technologies are changing all sectors of society. The Minnesota Department of Education has a regulatory role with regards to online, blended and digital learning but is not able to provide the level and depth of guidance, support and consultation to bring about creative, transformative change that would open new pathways of learning.

The changes proposed in this report address the directive to identify laws and rules that "inhibit digital learning". Since many statutes have been created in silos of consideration, it is challenging to suggest how each could be updated to reflect the dramatic change that digital technology is bringing to all sectors of society. There is a diverse web of related education regulations that defies changing a subset of statutes without having consequences for other laws and rules.

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[60] Center for Online Learning Research and Innovation in Michigan was established at the Michigan Virtual University with funding from the State of Michigan and the Michigan Legislature. http://www.mivu.org/News/tabid/297/newsid696/85/mid/696/Default.aspx

[61] Wisconsin's Vision for Digital Learning, Retrieved June 2013: https://sites.google.com/a/dpi.wi.gov/wi_digital_learning_plan/

The best possible scenario would be for a separate "split screen" approach as described by Education Evolving in *Innovation-based Systematic Reform*.[62] Christensen developed a similar theory as a service to non-consumers of education that doesn't directly compete with the majority industry in, *Disrupting Class, How Disruptive Innovation will Change the Way the World Learns*.[63] Both concepts call for separate development and implementation during which the new paradigm, product or service does not directly challenge an established or existing system or market and can operate outside norms and regulations. A new education sector would focus on creative and new models of school while trying to improve existing practices in conventional schools. It would involve consideration of a holistic continuum of P-20 education that is personalized through digital learning and new instructional pedagogies to support individual learners achieving 21st century skills and knowledge.

In several states, a nonprofit organization recognized and supported at the state level has been given the charge to help transform education by using a different lens than state regulation and mandates. In Colorado, this organization is the Colorado Legacy Foundation (CFL) , which is an independent nonprofit working in partnership with the Colorado Department of Education and public education stakeholders to "accelerate bold improvements in student achievement through innovation, collaboration and capacity building".[64] Having a nonprofit take the lead in advancing educational innovation in Colorado has enabled creative and collaborative solutions by "conducting research, spurring dialogue, incubating innovative ideas, brokering partnerships, identifying proof points and scaling adoption of promising practices."[65]

To best make the changes necessary to lift the barriers that are in antiquated state education policies and support advancement of digital learning, Minnesota should create a similar organization to the Colorado Legacy Foundation. In 2011, the MNovate Commission was proposed in S.F. 3025 in Minnesota. The Commission's mission was to "provide leadership for creation of new and innovative public schools and schooling."[66] In 2013, H.F. 1342 was introduced to support schools redesigning learning within districts. This bill also would have amended M.S. 123B.04 to allow "learning redesign sites and redesign of student achievement".[67] In order to advance transformative change in education we need to have a razor sharp focus on innovation, collaboration and capacity-building allowing creative people from all sectors of education, business and government to come together under a "legacy" organization to guide effective educational change that can be realized through digital learning.

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[62] Education *Evolving, Innovation-based Systemic Reform,* April 2010.
[63] Christensen, C., Horn M, Johnson, C, Disrupting Class: How Disruptive Innovation will Change the Way the World Learns, McGraw Hill, New York, 2008.
[64] Colorado Legacy Foundation, Retrieved June 2013: http://colegacy.org/about-us/
[65] Colorado Legacy Foundation, 2013
[66] Minnesota State Legislature, S.F. No 325, 2011, Retrieved June 2013: http://www.senate.leg.state.mn.us/departments/scr/billsumm/summary_display_from_db.php?ls=&id=73
[67] Minnesota State Legislature, H.F. 1342, 2013, Retrieved June 2013: https://www.revisor.mn.gov/bills/text.php?number=HF1342&version=latest&session=ls88&session_number=0&session_year=2013

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Appendix

Specific Recommendations on Laws and Rules

I. **Learning: Engage and Empower**
   a. **MS 124D** Learner options program enrollment, requirements and reporting should be consistent and streamlined.
   b. **No action.** Digital Learning Graduation Requirement. Suspend consideration of an online graduation requirement.
   c. **MS 123A.06, MS 124D.128, MS 124D.68, MS 126C.05**
   Credit recovery and at-risk students. Consider allowing digital learning programs and schools to qualify for extended time funding to reach all at-risk students regardless of location.
   d. **MS 120A.22, MS 124D.01, MS 126D.19.** Amend by eliminating location restriction for shared time students by allowing digital learning.
   e. **MS 120A.20, MS 122A.22.** Amend to allow Minnesota residents temporarily living out of state to enroll in public education through digital learning.
   f. **MS 125A.50,** Require data analysis and development of best practices for special needs students engaging in digital learning. Review alternative delivery of specialized instructional services to implement the most effective digital learning strategies.
   g. MS123B.04, MS 124D.095, MS 124D.126, MS 124D.128, Chapter Law 263. Revise statutes to increase opportunities to personalize digital learning in which the student has "an element of control over the time, place, path, or pace of their learning ."
   h. New Statute. Create a nonprofit organization to stimulate growth in new, innovative schools. Provide incentives for programs to demonstrate creative solutions using digital learning to expand learning time and improve student outcomes. S.F 3025 (2011) MNovate.
   i. New Statute. Consider investment in or coordination of a statewide eLearning portal such as IDEAL New Mexico or as recommended in the Digital Learning Plan of Wisconsin**.**
   j. MS 124D.90, MS 124D.94 Update and fund these statutes that provide incentives for private/public partnerships in education.
   k. MS 120, MS 123B.04, MS 124D, MS 126C.05 Revise statutes to allow advancement based on mastery rather than grade-based progression.

II. **Assessment: Measure what Matters Most**
   MS 120.30-.36 Assessment; Accountability
   Revisions to state educational assessment systems should focus on three goals:
   a. Creating an ongoing technology-based formative assessment system that provides real-time feedback to students and teachers as part of the learning process.
   b. Customize online assessment by using various measures of learning, data analytics to adjust instruction to unique learning modalities and testing students at the time of learning.
   c. Assess authentic learning: Expand project-based learning, career academies, cross-cutting 21st century skill building (e.g. critical thinking, communication, collaboration).

III. **Quality Teaching: Prepare and Connect**
   a. MS 120A.22, MS 122A.60 Create digital teaching standards to meet these requirements.
   b. MS 122A.245 Consider allowing other entities than schools of education to issue teaching licenses modeled after High Tech High in California for digital educators.
   c. MS 122A.23 Allow teacher reciprocity for highly effective digital educators from other states by participating in the NASDTEC Interstate Agreement.
   d. Pre-service digital field experiences. Encourage schools of education to offer field experiences in virtual courses / digital classrooms.
   e. **New Statute.** Establish a program to encourage online presence for all teachers. This will include training in digital design, communication and pedagogy. Support collaborative state-funded digital curriculum development by highly trained Minnesota teachers and

instructional designers. See Partnership for Collaborative Curriculum and Innovative Instruction. Reinstate MS 122A.625 with a focus on digital instruction.

IV. **Infrastructure: Digital Learning Delivery**

- **a. MS 125B.02, MS 125B.15, MS 125B.26** Update educational technology statutes that have not been updated in over 15 years.
- **b. New Statute.** Established benchmarks and public/private partnerships for statewide high-speed broadband access and adoption for all K-12 schools, students and families.
- **c. New Statute.** Schools should have digital learning plans that develop capacity to use digital tools and instructional strategies. As more digital content and learning management systems are an integral part of learning environments, school infrastructure should be robust, provide adequate capacity and reliable.
- **d. State Agency Role.** MDE needs leadership in the area of digital learning and educational technology rather than parsing out duties to different internal units with limited staff support.
- **e. Statewide Volume Purchasing.** State agencies that are charged with procurement of digital technologies should assist and guide districts to the lowest cost, best products and services to advance digital learning.
- **f. Statewide student data systems.** The state should ensure that local and state student data systems are updated, interoperable and robust.

V. Digital Learning: Funding and Productivity

- **a. MS 126C** Performance-based funding should be the basis of funding students. **MS 124D** Create equity among learner option programs and fund to the fractional course credit level.
- **b. MS 124D.128, 124D.096.** Fund Learning Year and Online Learning Programs to allow student acceleration to graduation. Digital learning gives students the flexibility to advance more quickly to graduation.
- **c. MS 126C.19, MS 120A.** Allow funding for non-domiciled and shared time students.
- **d. MS 123B.36** Allow for a mixed model of school fees to be paid by parents for digital technologies. See HF 1180 (2013) Authorize a school district to charge fees.
- **e. MS 124D.095 Subd 6, MS 124D.09 Subd 7 & 9.** Mandate information sharing at the local level rather than withholding information about digital learning options because of lost local revenue.
- **f. MS 124D.69, 124D.09, 124D.095.** There is precedent in statute to fund private educational organizations (contract alternatives, PSEO). Policymakers should give careful consideration to possible funding for private organizations providing digital educational services.

VI. Quality Digital Content

- **a. New Statute / HF 0789 & SF 0824 (2013)** Establish an OER Council to support the Partnership for Collaborative Curriculum & Innovative Instruction in development digital curriculum as OER freely available for teachers, students and schools.
- **b. New Statute.** Formalize the Minnesota Learning Commons (MnLC) as a P-20 organization in support of digital learning. See HF 1435 / SF 1345 (2013)
- **c. 124D.095 Subd. 7, MS 120** Create an independent, non-governmental certification program that identifies approved, high-quality curriculum and content solutions. Include a provision in MS 124D.095 to review digital curriculum and courses once and avoid redundancy during new online learning provider applications.
- **d. New Statute** Support in statute electronic and digital curriculum. The state and districts need to adopt more flexible timely procurement processes less tied to multi-year purchasing cycles tied to traditional textbooks.

VII. Redesign of Learning

- **a. H.F. 1342 (2013)** Support and fund redesign of learning through new models of school and approaches to learning.
- **b. S.F. 3025 (2011)** To provide leadership for creation of new and innovative public schools and schooling.

List of Websites of Key Organizations

Digital Learning Now!, http://www.digitallearningnow.com

Getting Smart, http://www.gettingsmart.org

iNACOL International Association for Online Learning Reports and Publications, http://inacol.org

Keeping Pace, http://digitallearningnow.com/wp-content/uploads/2011/11/Keeping-Pace-2011.pdf

KnowledgeWorks Foundation, http://knowledgeworks.org

Minnesota Department of Education Online Learning,
http://education.state.mn.us/MDE/Academic_Excellence/School_Choice/Public_School_Choice/Online_Learning/index.html

Minnesota K-12 Online Advisory Council 2008 report: http://bit.ly/2008olladvisoryreport

Minnesota K-12 Online Learning Advisory Council 2010 - 2013,
https://sites.google.com/site/mnolac/documents.

Minnesota Online Learning Alliance, http://mnola.org

Minnesota Learning Commons, http://mnlearningcommons.org/

National Education Technology Plan, http://www.ed.gov/technology/netp-2010

National Repository of Online Courses, http://www.montereyinstitute.org/nroc

Partnership for Collaborative Curriculum and Innovative Instruction, http://bit.ly/innovativeinstruction

Reinventing Schools Coalition, http://reinventingschools.org

Key Minnesota Reports

These reports are all linked on the 2013 K-12 Online Learning Advisory Council website

- 2002 Online Learning in Minnesota: Summary Report of the Online Learning Task Force
- 2004 Digital Learning Plan of Minnesota
- 2008 Summary of the Work of the K-12 Online Learning Advisory Council
- 2010 Innovative Schools Advisory Council Report
- 2011 Minnesota Legislative Audit of K-12 Online Learning
- 2011 Governor's Broadband Task Force
- 2012 Mid-term Report of the K12 Online Learning Advisory Council