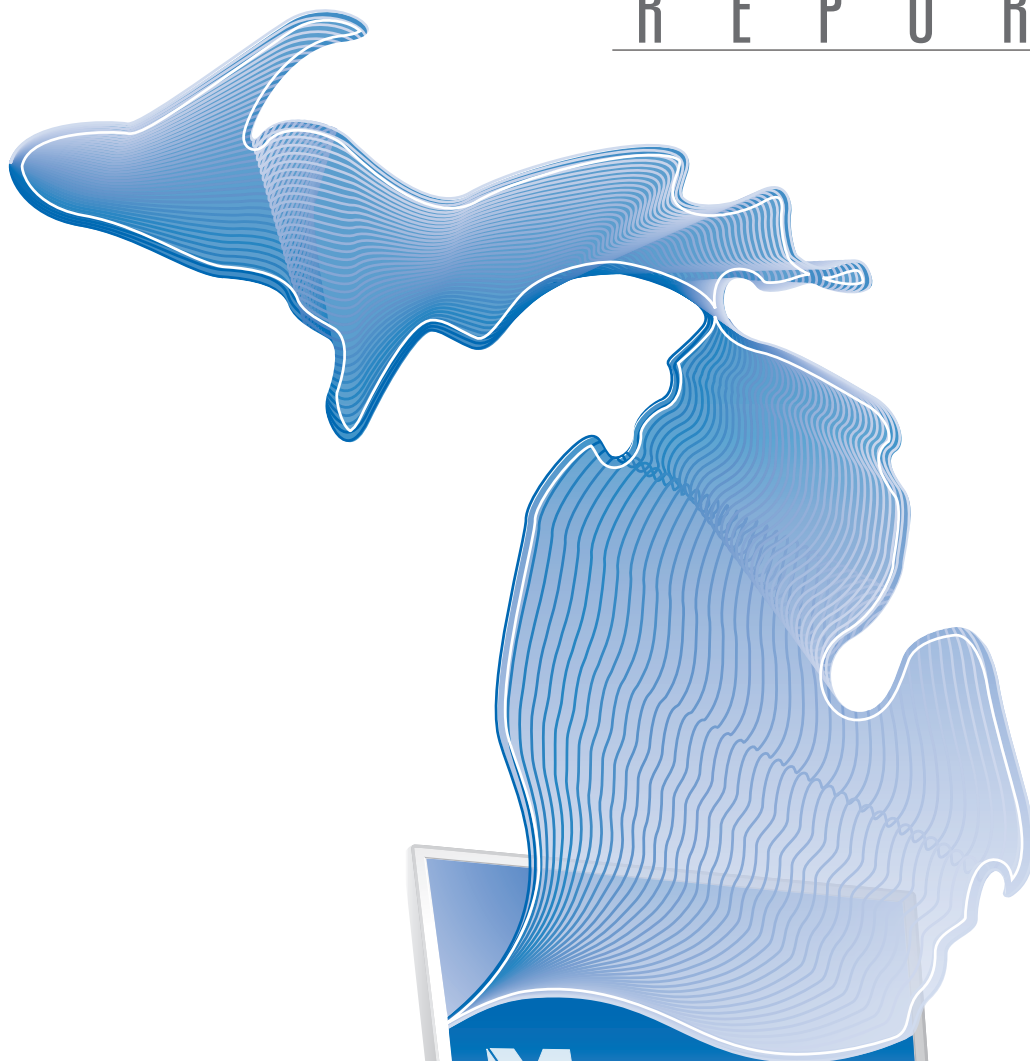


T H E

Michigan online learning

R E P O R T



ACKNOWLEDGEMENTS

This report addresses online learning in Michigan, with a particular focus on Michigan state-level policies and on the practices of the *Michigan Virtual University*[®] (MVU[®]). It is adapted from *A National Primer on K-12 Online Learning*, which was published in April 2007. The *National Primer*, published by the North American Council for Online Learning (NACOL), addressed the key issues in online learning with a focus on programs, practices and policies across the country.

The *National Primer* in turn built on an earlier report commissioned in California. In 2006 the University of California College Prep Online program, along with eScholar Academy, Institute for Computer Technology, Rainbow Advanced Institute for Learning Digital Charter High School, and the California Virtual Academies commissioned the report *The State of Online Learning in California: A Look at Current K-12 Policies and Practices*. The organizations listed above were a subgroup of participants of an informal ad hoc California e-learning group, loosely composed of government education segments and e-learning practitioners.

This report also benefits from countless other researchers and practitioners in online education, and in particular the work of NACOL. In addition, the MVU commissioned and published the report, and provided invaluable information and reports from which much of the Michigan-specific information is derived.

John Watson
January 2008



John Watson is founder of Evergreen Consulting Associates, the leading consulting and advisory firm focused on K-12 online education and virtual schools in the United States.

John created and is the lead author of the national online education policy report *Keeping Pace with K-12 Online Education: A Review of State-Level Policy and Practice*. Now in its fifth year, *Keeping Pace* has been funded and guided by a diverse group of education organizations. John is also the lead author of *A National Primer on K-12 Online Learning* and *The California Elearning Report*. In addition to research and writing, John project-managed a series of research projects investigating the effectiveness of online learning for the North Central Regional Educational Lab, and has conducted program analyses and evaluations of the Illinois Virtual High School and Idaho Digital Learning Academy. John's work has been cited in the New York Times and Education Week, he has appeared on NBC Nightly News, and he has presented numerous times at the Virtual School Symposium of the North American Council for Online Learning, Technology and Leadership Conference of the National School Boards Association, and other conferences. John holds a BA from Middlebury College and an MS and MBA from the University of Michigan.



In 2005, *Michigan Virtual School*[™] (MVS[™]) was awarded CITA and NCA accreditation. CITA is an accrediting authority in the U.S. and throughout the world and is an alliance of the premier American accrediting associations, including the NCA, which accredits schools in 19 states, including Michigan.

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PREFACE



In August 2008 the *Michigan Virtual University (MVU)* will celebrate its 10-year anniversary as a nonprofit 501(c)(3) organization created to serve as a champion for online learning. Over the past decade our state and nation and most other countries have experienced profound changes brought about by powerful and more affordable communications technologies. The impact of the Internet is difficult to measure, yet every sector of our economy can point to specific examples of how communications technology is increasing human productivity and expanding opportunities.

Online learning is not another education trend — it's become part of everyday life for millions in schools, colleges and at the workplace. Educators and students are discovering the flexibility and convenience of learning online, leading to explosive growth which is expected to continue for the foreseeable future.

Because many educators, administrators, counselors, school board members and policy leaders continue to have questions about online learning, *MVU* commissioned this report as a strategy to help inform anyone who wishes to gain a deeper understanding of how this new delivery option is impacting K-12 education. I would like to thank John Watson for authoring this concise and informative publication that will serve as a valuable resource for Michigan's K-12 community.

MVU was originally designed to assist higher education institutions and provide online education and training to Michigan's workforce. In 2004, *MVU* refocused its mission to target the needs of our state's K-12 community and today, we operate one of the largest statewide virtual schools in the U.S. Since the enactment of P.A. 230 of 2000 and the launch of the *Michigan Virtual School*, we have provided nearly 40,000 online course enrollments for Michigan students. In addition, *MVU* operates *Michigan LearnPort*, a new and improved online professional development portal that offers school employees access to high-quality online courses, workshops and seminars. To date, more than 25,000 Michigan K-12 educators have begun using this free online professional development service.

A great deal of credit should be given to Michael Flanagan, Michigan's State Superintendent of Public Instruction, for his leadership efforts in guiding the creation of Michigan's online learning requirement for high school graduation. This innovative policy is the first of its kind in the nation and recognizes the full potential of teaching and learning in a virtual environment. This policy communicates a strong message about Michigan's commitment to providing its students with the 21st century learning skills needed to compete in an increasingly complex global economy.

I would also like to recognize the leadership, support and technical assistance provided by Microsoft Corporation's Partners in Learning Program and Blackboard Inc. Our partnership with these two organizations has enabled *MVU* to develop and offer a free online course that allows all students to meet the state's new online learning requirement.

MVU takes pride in knowing that we are playing a vital role in helping rural, urban and suburban schools address important educational needs of individual students and teachers. Whether it's a middle or high school student accessing an online Mandarin Chinese language or Algebra I course, participating in a virtual science camp during the summer, or an educator taking a free online professional development course linked to the new Michigan Merit Curriculum, we're striving to develop innovative solutions to help your students succeed. I hope you find this report to be useful as you explore online opportunities to address your needs.

Jamey Fitzpatrick
President & CEO
Michigan Virtual University

EXECUTIVE SUMMARY

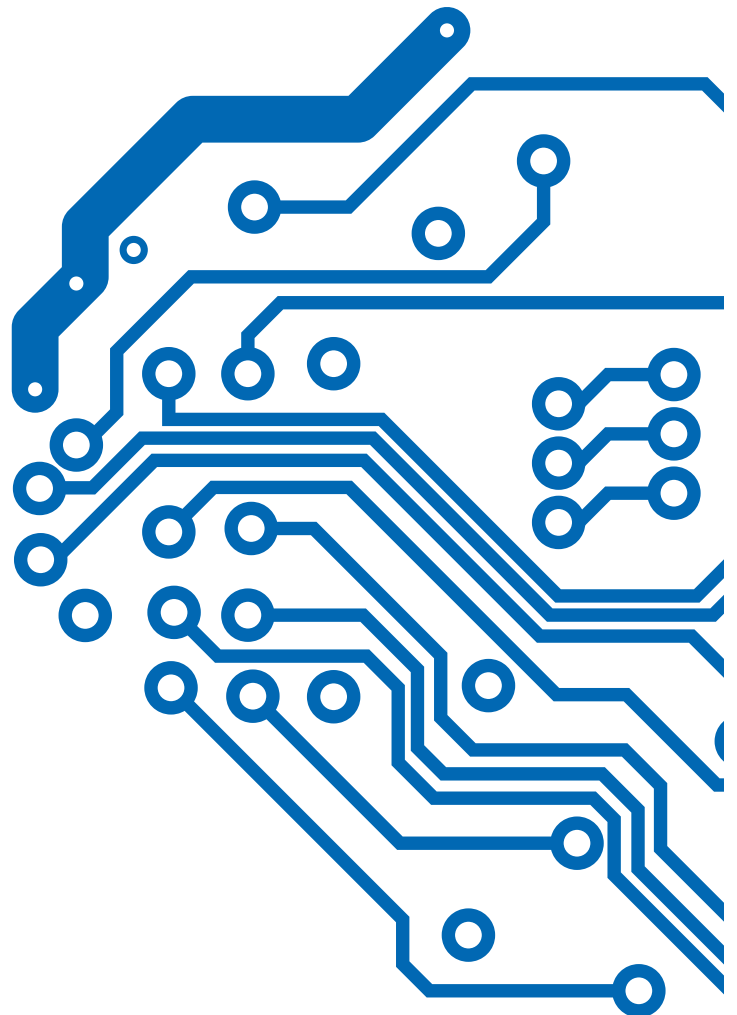
Online learning is dramatically expanding access to high quality K-12 education across the United States and the world. It is being used to expand the range of courses available to students beyond what a single school can offer; provide highly qualified teachers in subjects where qualified teachers are lacking; expand credit recovery options for students; and increase the teaching of technology skills by embedding technology literacy in academic content. Online learning has grown so much in recent years that the main issue in most states is no longer whether or not online learning is occurring but rather how it is being implemented. As of early 2008, over 80% of states have significant K-12 online learning programs, and several of the states that do not yet have large online programs are formally exploring online learning options.

Online education allows students to learn essential 21st century skills by stressing self-directed learning, collaborative communication, time management, and technical literacy in the context of problem solving and global awareness. Students are finding increased opportunity, flexibility, and convenience through online learning. Teachers are discovering a new way to reach students, many of whom were not successful in traditional schools and courses. Administrators are exploring ways to offer a wider range of courses to students and professional development opportunities to teachers.

Online courses use video, text, audio, simulations and other interactive tools that are delivered primarily via the Internet. Course content may be online or offline, with offline content usually being paper textbooks, other books such as novels for an English class or journal articles for a science class. The type of course, and teacher preferences, determine to what extent certain features are used. An English course might rely heavily on online and offline text; Spanish might rely on audio clips so that students can hear proper pronunciation; and a biology course might use animations demonstrating cell division in a way that no paper textbook can match. Regardless of the instructional materials used, teachers remain the central part of learning in the online classroom.

Online professional development for classroom teachers offers many of the same benefits as online classes for students: flexibility, cost-effectiveness and embedded teaching of technology literacy. Cost savings are a particularly important component of online professional development, as a variety of costs that are incurred by school districts in supporting professional development programs can be avoided with online professional development.

Michigan has been at the forefront of states implementing online learning. The *Michigan Virtual School*, which was implemented in 2000, had 8,942 course enrollments (one student taking one course) in school year 2006-07, and has had nearly 40,000 course enrollments since its inception. In 2006 the Michigan legislature passed the country's first statewide online learning requirement for all graduating high school seniors. The law, and the innovative courses and programs developed by *MVS*, have made Michigan a model for educators and policy makers across the country. In addition, Michigan has been among the leading states in creating online professional development opportunities for classroom teachers with *Michigan LearnPort*, a statewide, web-based system that delivers quality online professional development to the desktop, and enables teachers and administrators to plan, earn and keep track of professional development.



Accelerating technological change and globalization are eliminating barriers of time and space, dramatically expanding connections and interdependencies across the world. Globalization is driving important new educational themes in science and technology (information and communications technologies, nanotechnology, climate change, sustainable development) and in the social and political arenas (ethics and values, migration, health and welfare, cultural diversity and intercultural leadership). These changes present opportunities to today's students that previous generations would have thought incredible, such as the chance to learn Mandarin Chinese from home, or to take an advanced course in emerging nanotechnologies. At the same time, they threaten to leave behind students, economies and societies that are not keeping pace with today's transformations.

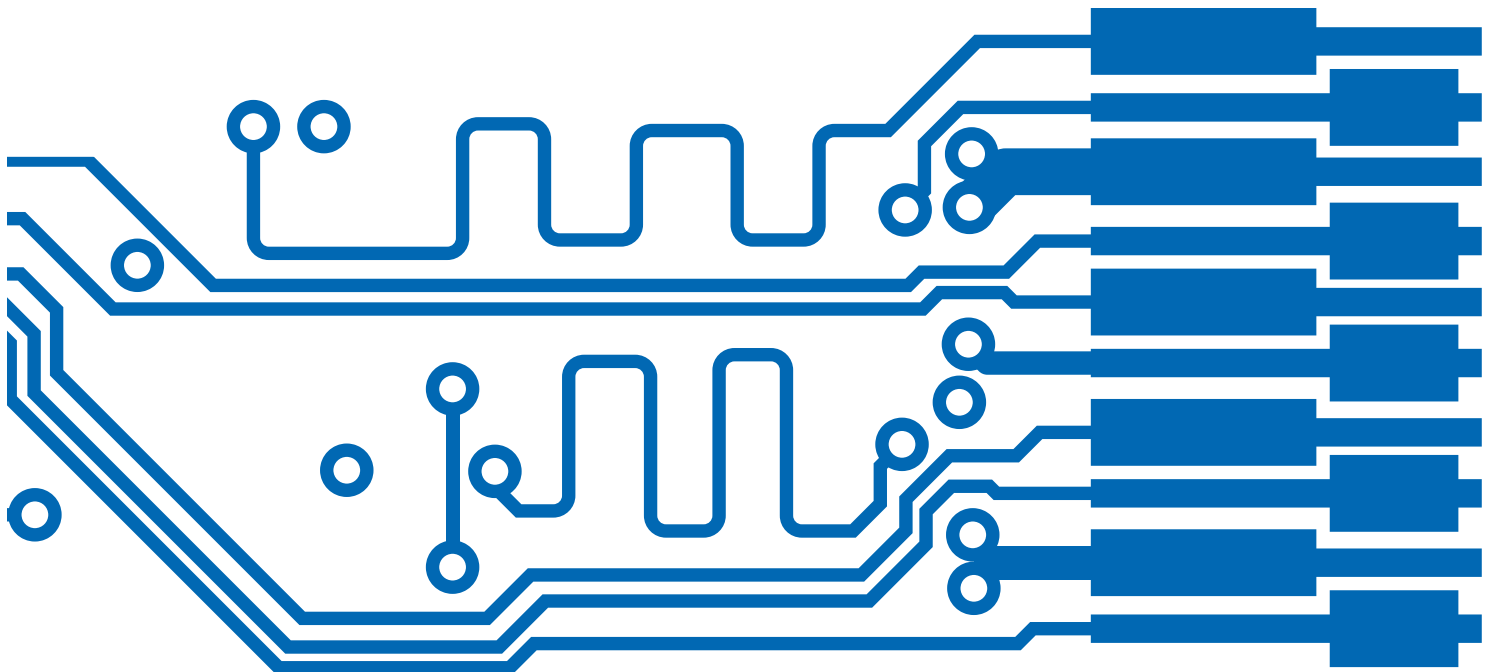
All these trends point to an increase in the amount of learning that takes place online, whether that means distance education or greater use of Internet technology in the classroom. Certainly more teachers will use Internet resources and tools in their traditional classrooms. Already, 20% of higher education students are taking at least one online course; therefore, taking an online course in high school is becoming a necessary part of a student's preparation for higher education.

Keeping educational practice up to date is not primarily a technology challenge, but instead is largely an issue of whether or not teaching and learning will continue to evolve to a changing world. Online learning is one of the vital methods that educators must use to address

these changes. Whether it's anticipating rapid advances in technology and communication, teaching students how to collaborate around the globe, increasing proficiency in foreign languages, or increasing the expertise and capacity of our teachers, Michigan's schools are entrusted with providing our students with the skills necessary to thrive in an increasingly global, connected and digital world.

In response to these challenges, *MVS* works with schools across Michigan to respond to new and emerging needs, and to seek new and enriching educational experiences for students that build on educational technology and prepare them for the 21st century and global economy. In addition to existing language, science and math courses — including Chinese — *MVS* is planning to add an online Arabic course, an American Sign Language course, and a set of online after-school enrichment experiences in 2008 and beyond. *MVS* also continues to explore and evaluate the use of new and innovative technologies such as social software, games and simulations.

Although these successes and opportunities are becoming more common within K-12 education, many educators and policy makers remain unaware of the basics of how online education programs operate, what an online course looks like, the role of the teacher, and most fundamentally, how students can learn online. This report aims to help fill the gaps, and to be a resource for anyone who is new to online learning and wishes to quickly gain a broad understanding of the academics, quality, management and operations, policies, performance, and other key issues in online education.



1. INTRODUCTION



Online education is dramatically expanding access to high quality, 21st century education. Investments are being made in the United States and abroad in new types of teaching, new engaging content, and new models of schools and classrooms through online learning.

Other countries are examining how to build their educational systems for the knowledge economy and finding that a key strategy is e-learning. The European Union is using e-learning as a central strategy to prepare its young people to have increased educational opportunities and develop technical literacy skills. Singapore trains every teacher to teach online and uses online learning in 100% of secondary schools. China has digitized its entire K-12 content and curriculum. As systems are being restructured across the world for digital learning, countries are adapting their professional development programs, training teachers to teach online, developing high quality digital courses, and

focusing on new models of data-rich student outcomes to better prepare their children for the needs of the new economy in collaborative, 21st century classrooms. In addition, new funding models and operational environments are emerging to allow schools worldwide to offer online learning as a central way to prepare more students at a higher level for success and to become global citizens.

In the United States, 50 states are tackling the issue one-by-one. Online learning is growing rapidly at 30% annually. Online education at the K-12 level has grown so much in recent years that the main issue in most states is no longer whether or not online learning is occurring but rather how it is being implemented. As of early 2008, 80% of states have significant K-12 online learning programs. Moreover, several of the states that do not yet have large online programs are formally exploring online learning through the creation of distance education task forces.

Online learning allows students to learn essential 21st century skills by stressing self-directed learning, collaborative communication, time management, and technical literacy in the context of problem solving and global awareness. Across most states and all grade levels, students are finding increased opportunity, flexibility and convenience through online learning. Teachers are discovering a new way to reach students, many of whom were not successful in traditional schools and courses. Teachers have more flexible professional opportunities open to them, both adjunct teaching positions and telecommuting opportunities, never before available. Administrators are exploring ways to offer a wider range of courses to students and professional development opportunities to teachers.

Online learning is also spreading because technology and information literacy skills are needed. Students of this generation are ultra-communicators, powered up, and

always on — they want to take courses online. According to recent surveys by the North American Council for Online Learning and Project Tomorrow, more than 40% of high school and middle school students and their parents want to have online courses available. They expect their education to be in line with their technology-rich, online experiences in everyday communication, research and work. In addition, they recognize that students will be better prepared to enter higher education and the work place with online learning, as 20% of college students will take an online course and more than 30% of workforce training is done through online learning.

Michigan's policy leaders are to be commended for taking a national leadership role in recognizing the critical importance of online learning. The state's new online learning requirement for high school graduation is ground-breaking policy that other states are using as a model as they address the challenges of the future.

Although these successes and opportunities are becoming more common within K-12 education, many educators and policymakers remain unaware of the basics of how online education programs operate, what an online course looks like, the role of the teacher, and most fundamentally, how students can learn online. This report aims to help fill the gaps, and to be a resource for anyone who is new to online learning and wishes to quickly gain a broad understanding of the academics, quality, management and operations, policies, performance, and other key issues in online education.

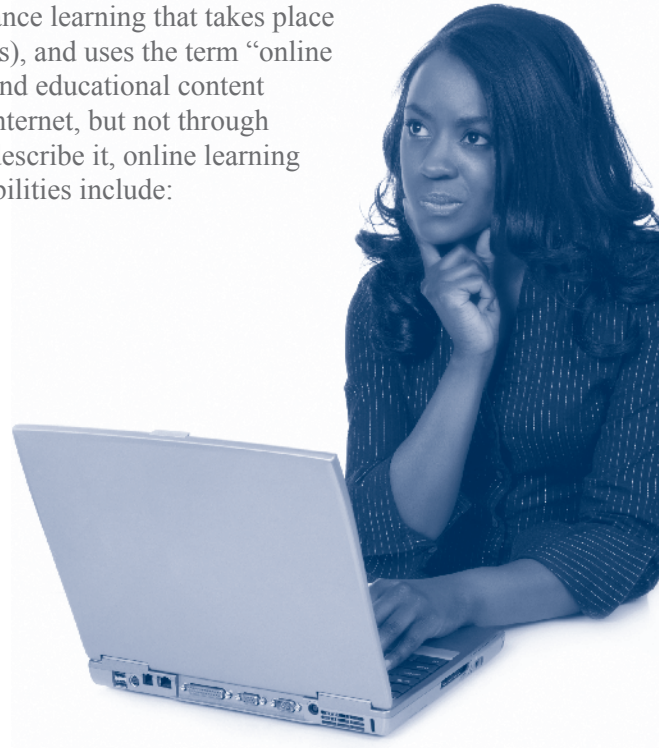
Susan Patrick
President & CEO

NACOL
North American Council for Online Learning

2. WHAT IS ONLINE LEARNING?

Many terms and definitions in the field, such as online learning, e-learning and virtual schools, do not have commonly understood definitions. This report is focused on distance learning that takes place via the Internet, both in real time (synchronous) and not (asynchronous), and uses the term “online learning” to describe this method of education. This type of learning and educational content includes video, text, audio and simulations that are delivered via the Internet, but not through other channels such as video conferencing. Whatever term is used to describe it, online learning is being used in many ways. Examples that suggest the range of possibilities include:

- ▶ Expanding the range of courses available to students, especially in rural and inner-city schools, beyond what a single school can offer;
- ▶ Providing highly-qualified teachers in subjects where qualified teachers are lacking;
- ▶ Expanding credit recovery options for students;
- ▶ Providing scheduling flexibility to students facing scheduling conflicts;
- ▶ Affording opportunities to at-risk students, elite athletes and performers in the arts, dropouts, pregnant or incarcerated students, and students who are homebound due to illness or injury, allowing them to continue their studies outside the classroom;
- ▶ Addressing the needs of the Millennial student, as the online medium is consistent with these students’ expectations and interests;
- ▶ Increasing the teaching of technology skills by embedding technology literacy in academic content; and
- ▶ Providing professional development opportunities for teachers, including mentoring and learning communities.



The ability of online learning to allow schools to expand their course offerings is particularly relevant because of the mandates of No Child Left Behind (NCLB). NCLB required that by the end of the 2005-06 school year all teachers must demonstrate subject matter competence in the core academic subjects they teach (NCLB lists 10 core subjects). For small secondary schools this requirement has presented major challenges, with the result that some schools are unable to offer all the courses that their students need. Federal guidance on how to meet these challenges advises districts to consider using online learning; for example, stating that “educators must embrace e-learning solutions if they want to ensure that every student has a quality educational experience.”¹

“There has been no shortage of solutions for improving the nation’s public schools. School leadership, teacher quality, standards, testing, funding and a host of other issues have crowded reform agendas. But an important trend in public education has gone largely unnoticed in the cacophony of policy proposals: the rise of a completely new class of public schools — “virtual” schools using the Internet to create online classrooms — that is bringing about reforms that have long eluded traditional public schools.”

Bill Tucker
Chief Operating Officer
Education Sector

¹eLearning Frameworks for NCLB, Susan Collins, U.S. Department of Education Secretary’s No Child Left Behind Leadership Summit, available at <http://www.ed.gov/about/offices/list/os/technology/plan/2004/site/documents/S.Collins-e-LearningFramework.pdf>

2.1 Common misconceptions about online learning

Online learning gives educators a tool to reach a broad spectrum of students with a variety of needs, yet many common misconceptions have formed due to a lack of information and a distrust of new methodologies.

Myth: Online learning is just a high-tech version of the old correspondence course.

Reality: Many online courses are teacher-led, with extensive interaction between teachers and students, and often between students. Online courses also often include video, audio, animation, simulations and other media elements that provide a very different learning experience than a correspondence course. Online learning also offers immediate access to research sources and supplemental content not available in correspondence courses.

Myth: Online students spend all their time in front of a computer.

Reality: Many students take only one or two of their courses online, and have most of their courses in a physical school. For students who do take all their courses online, they usually have many activities that are not online, including reading books or other documents, paper-based homework activities, science labs and field trips.



Myth: Online learning is essentially “teacher-less.”

Reality: Not only are teachers heavily involved in online courses, online teachers report that they know their students better online than in a face-to-face course.

Myth: Online courses are easy to pass.

Reality: The level of difficulty of online courses varies, in the same way that the level of difficulty of face-to-face classes varies by course, teacher and other variables. Classes such as Advanced Placement® and honors courses are clearly challenging. Students in some online programs’ AP® classes have done as well or better than the national average on AP exams, suggesting that these courses are at least as rigorous as their face-to-face counterparts.

Myth: Students are able to cheat easily in online courses.

Reality: Most online teachers believe this issue is handled fairly easily through a combination of teaching practice and technology. The teacher may require that quizzes and exams be proctored, and the learning software ensures that a student can’t enter an assessment more than once without permission from the teacher. Additional software may be used to compare students’ work against resources available on the Internet, to make sure that students aren’t plagiarizing easily available sources. Teachers base student grades on a range of assignments and tests, thus ensuring that students do most of the work required in order to pass the class.

Myth: Online learning is only good for highly-motivated, highly-able students (or conversely, only for dropouts and students in need of remediation).

Reality: Online programs serve a range of students. Some programs focus on high-achieving students, others focus on at-risk or credit recovery students, and many programs serve many different types of students.

Myth: Online learning is much cheaper than face-to-face instruction.

Reality: Some people expect that because online programs do not require school buildings they will be much less expensive than traditional schools. However, for an online program its technological infrastructure is the equivalent of the school’s physical facility, and the hardware and software can be expensive. In addition, many online programs maintain student-teacher ratios similar to the ratios of traditional schools. For these programs, as with physical schools, a major cost is in teachers and other personnel, and these costs increase in a linear fashion with the increase in the number of students.

Myth: Online students are isolated from their peers and short-changed on important socialization skills.

Reality: Many online programs are primarily supplemental, meaning that the students take only one or two courses online while receiving the rest of their classes in their physical school. Full-time programs often bring students together for field trips and other activities.

2.2 The online course environment

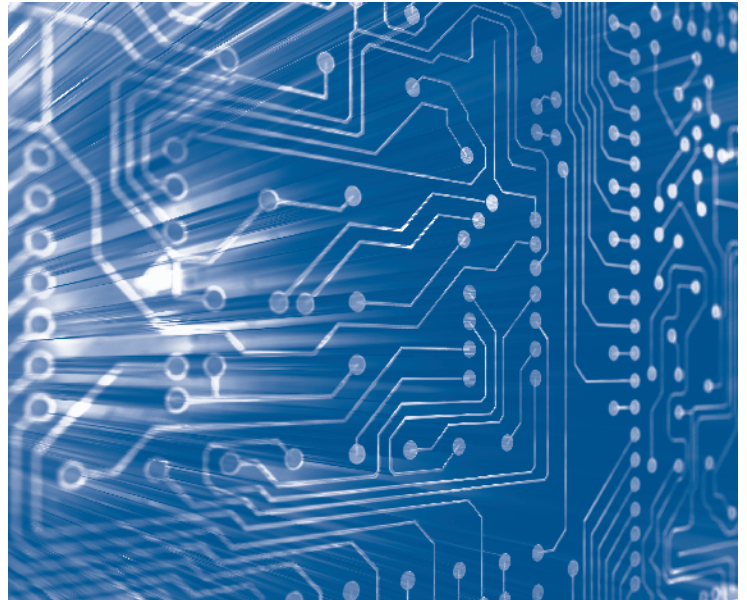
In the early days of online learning, it became evident that students and teachers needed a consistent, easy-to-use Internet-based environment with which to interact with course content and each other. Software was developed specifically to support the learning experience of students and to facilitate the development of online courses by teachers and other educators.

Online courses are now delivered via a software package called a learning management system (LMS), also referred to as a course management system (CMS). An LMS allows instructors to manage distribution of materials, create content and assignments, and administer communications and other aspects of instruction for their courses. The software has numerous features, typically including:

- ▶ Authoring tools that make it relatively simple for educators to structure the course and course content to meet the goals of a specific curriculum, pace the rate at which content is made available to students, post content of various types and easily change content as the need arises.
- ▶ Tools that allow synchronous (i.e., real time) and asynchronous communication. Asynchronous communication tools include email and threaded discussions. Synchronous communication tools integrate video (sometimes via webcam), audio (including voice over IP), text chat and whiteboard. Some programs also use phone calls between teachers and students to supplement communication via the Internet. Communication is a critical part of an online course, and many programs have specific communication requirements of teachers and students. Programs may require that students be in touch with their teachers three times a week, or that teachers check email at least once every school day and respond the same day.
- ▶ Assessment tools and automatic grading capability. Online assessments include different types of questions such as multiple choice, true/false, long answer, short answer and matching. Some of these questions can be automatically graded by the LMS using correct answers provided by the teacher, while others require individual assessment and commentary by the teacher.
- ▶ Student activity tracking by the software. However, time online is not a good proxy for time in a classroom, because it doesn't take into account student activity offline, which may be a substantial part of learning activity. The LMS may also track other information including discussion board posts, emails and assignments submitted.
- ▶ Course structure that divides content into lessons and units.

Many courses use offline materials, including textbooks and hands-on materials, to complement the content delivered via the Internet. The type of course, and teacher preferences, determine to what extent certain features are used. An English course might rely heavily on online and offline text; Spanish might rely on audio clips so that students can hear proper pronunciation; a biology course might use animations demonstrating cell division in a way that no textbook can match.

Some asynchronous courses are self-paced, in which a student starts and ends at any time, and proceeds through the course at whatever pace is deemed appropriate by the teacher. Other courses have start and end dates so that students go through as cohorts, and pass certain milestones together, allowing for class discussions and projects.



“ Schoolcraft is a small school and doesn't offer certain classes, such as journalism, so *Michigan Virtual School* gave me that chance to take one. I believe online learning supports my personal learning preferences. Personally I have trouble picking things up right away and through *MVS* I was allowed to go over things and get better understandings. Although I could do this in a regular classroom, I couldn't take my time going over things because in a real classroom you have certain time limits for everything. ”

Schoolcraft High School student
Advanced Composition

2.3 Content for online courses

Online courses utilize digital, text-based content with the added benefit of technology delivery and interactivity. Course content may include text, graphics, video, audio, animation and other interactive tools. It may be online or offline, with offline content usually being paper textbooks, other books such as novels for an English class, or journal articles for a science class. Online content falls into two categories. It may be embedded within the LMS, or may reside outside the LMS at approved, reliable Internet sites. Examples of the latter include e-text books at a publisher's website, which range from PDF documents to versions of books within e-book readers. Many online programs develop some of their own content and license other content from publishers and other providers.

Online courses typically meet state content standards, and *MVS* courses are aligned with the new Michigan Merit Curriculum. Courses and course content licensed from outside sources are modified to meet these standards. Advanced Placement courses must meet the requirements of the College Board.

In addition to state content standards, there are quality standards for online course content. In September 2007 the North American Council for Online Learning released its *National Standards of Quality for Online Courses*,² which are based on the Southern Regional Education Board's *Standards for Quality Online Courses*.³ The standard's recommendations fall into several categories, including content, instructional design, student assessment, technology, course evaluation and management, and 21st century skills. *MVS* has adopted the NACOL course quality standards and uses them in the development of its courses.



2.4 The role of the online teacher

While teachers remain the central part of learning in the virtual classroom, experienced online teachers — and indeed anyone familiar with technology in the 21st century — recognize that the role of the teacher is changing. The teacher and school system (including educational materials such as textbooks) can no longer be the *only* conduit of information to students — there is simply too much good information available. As the nature of learning (and working) changes due to the explosion of available information via the Internet and new ways of managing and accessing information, the focus of education must continue to evolve from passing along information to students to helping students be better thinkers and learners. The role of the teacher, especially at the high school level, is increasingly to help build students' literacy skills and critical thinking.⁴

The online teacher's role can be broken down into several categories, with some of these tasks sometimes being accomplished by teams of teachers, instructional designers or content specialists who may not actually teach the individual course:

- ▶ Developing the online course content and structure: As with a classroom course, the teacher must plan the course. What topics will be covered? How will the course material align with state content standards? How will content be delivered? What will be the homework, group projects and other course tasks? How will content mastery be assessed?

Within course creation there are several differences between an online course and a traditional classroom course. These include:

- ▶ Material Delivery. Except for synchronous instruction, little course material is delivered via the equivalent of a classroom lecture. PowerPoint-style lectures can be developed and delivered with audio as one part of a course, but this is not an ideal use of the online environment.
- ▶ Content Availability. In an online course, many types of content are available, including pre-developed digital content for many courses. Digital content is increasingly being developed by publishers, digital content companies and nonprofit educational organizations. Online programs often share course content within and across states, and repositories have been created that allow sharing of content, in the form of reusable learning objects. An advantage of online learning is the opportunity to present concepts to students that address a variety learning styles. Auditory and visual learners may benefit from a video demonstration, while other students discuss the major topics to reinforce challenging concepts.
- ▶ Content Development. The online environment allows for capturing the development of the course and individual content elements in ways that are not available in a classroom. Many online programs have instructional designers or design teams that develop courses together in a more formal way than most traditional classrooms use. Instructional designers are trained to understand how content can be created, modified or assembled to take greatest advantage of the online format of a course.

²Available at www.nacol.org/nationalstandards/

³Available at http://www.sreb.org/programs/edtech/pubs/2006Pubs/06T05_Standards_quality_online_courses.pdf

⁴ *High School on the Web*, Liz Pape, American School Board Journal, July 2005.

2.4 The role of the online teacher (cont.)

- ▶ **Communication:** One of the main roles of the teacher in a student-centered learning environment is to be available consistently to provide guidance around the course material. For this reason many online programs have requirements for how often teachers must log in to their classes, and how quickly they must respond to student emails. Online teachers recognize the potential communication advantages and drawbacks of the online environment. The advantages include the increased comfort some students feel in participating in an online discussion board and the teacher's ability to record everything "said" in class. Disadvantages include the inability for the teacher to use nonverbal cues to determine a student's level of understanding of course topics. This is often overcome through increased written communication, attention to each individual student and frequent small assessments to ensure that students are staying up to date.
- ▶ **Guiding and individualizing learning:** In addition to course creation and communication, the teacher is guiding student learning in the online course. There are many ways in which this can be done, from creating and facilitating group discussions, to developing group projects, constantly adjusting course resources, and responding to students' questions and the concepts that they are finding most challenging. Programs in which students are enrolled in a physical school while taking an online course usually have the local school provide a mentor or facilitator to students taking an online course so that the students will have someone available for support within their school.
- ▶ **Assessing, grading and promoting:** Online teachers are also responsible for tasks that any traditional classroom teacher would recognize, such as creating, giving, and grading tests and homework assignments; providing overall course grades; and determining whether the student is ready to move on to the next unit, course or grade level. While the technology may automate some grading functions, these crucial assessment decisions remain the professional teacher's responsibility.

“ My [*Michigan Virtual School*] teacher is nothing like the strict, looming figure of the traditional sense, but a guide and mentor, helping me along with comments and suggestions through a chain of back and forth emails. I feel more organized, more in control and confident. This virtual experience has made me more independent and proud. ”

Student
Grand Rapids



2.5 Professional development for online teachers

The skills needed to teach online not only include but often go beyond skills needed to be a successful teacher in the traditional classroom. The elements of learning necessary to teach online fall into two categories. The first, learning the technology and tools of the LMS, is fairly straightforward. Online programs have trained staff who know their technology well, and can both train teachers before a class starts and provide ongoing help. The technology in an LMS is not highly sophisticated and requires no knowledge of computer programming. Teachers with basic computer skills who are adept at web browsing, email and Microsoft Office applications are usually able to learn the technical aspects of teaching online fairly quickly.

The second element of teaching online, effective online pedagogy, is much more complex. How does an English teacher motivate a discussion about the use of metaphors? How does a science teacher demonstrate the concept of gravity? Many online program professional development requirements focus on helping teachers understand how to motivate individual learners, enhance student interaction and understanding without visual cues, tailor instruction to particular learning styles, and develop or modify interactive lessons to meet student needs.

Online teachers and researchers studying online learning report several key skills for online teachers that should be enhanced through professional development opportunities:⁵

- ▶ Teachers must develop heightened communication skills, particularly in written communication.
- ▶ In asynchronous programs, time management skills are critical for teachers (and students) because they can be online at any time.
- ▶ Teachers must be able to recognize different learning styles and adapt the class to them. Some online programs and many online teachers pay special attention to gaining an understanding of each student's skills and challenges in the early days of an online course to ensure that the course meets all students' needs.
- ▶ If teachers have any students with disabilities, they must know how to adapt course content and instruction to meet these students' needs. Reaching visually-impaired, hearing-impaired or learning-disabled students online can be quite different than in a physical classroom.

Some online programs evaluate their teachers on many more dimensions than most physical schools. This is possible in part because of the nature of the LMS technology, which captures teacher-student interactions, class discussions and course content in a way that is not possible in a traditional classroom. A school administrator can drop into a threaded discussion without disturbing the student-teacher dynamic much more easily than a classroom discussion. Also, many online programs survey students one or more times per semester, and may ask the students' opinions about their teachers.



⁵ Information in this section, and all quotes in this section, are based on *Essential Principles of Online Teaching: Guidelines for evaluating K-12 online teachers*, Southern Regional Education Board, April 2003.

2.6 Student support and the role of the local mentor

A key challenge for online programs is providing effective support to their students. Support needs include both technical (i.e., issues of accessing the course, problems with computers or software, etc.) and academic (issues with the course content, tutoring and counseling). Separate from technical support is the assistance provided by the local mentor in each school that has one or more students taking an online course. Typically mentors are certified teachers, but they do not have to be certified in the same subject area as the course that the student is taking. Tasks of the mentor include:

- ▶ Serving as the local “eyes and ears” for the online instructor, and communicating with the online instructor, school administration and parents;
- ▶ Tracking student progress; and
- ▶ Assigning the final grade to the student after the percentile score is submitted by the online instructor.



2.7 Technology for online programs

Technology issues are obviously an important consideration in online learning. In many respects the hardware and software are essentially the “facilities” of an online school much as physical buildings are the facilities of a traditional school. However, although technology is important to online learning, it is crucial not to overstate its role. In the online environment teachers and students are still the primary players; the technology plays a supporting role. In addition, while some cutting-edge educational technology tools hold great promise for online learning — and indeed classroom-based learning as well — the basic technological components in online education are relatively easy to implement. Software includes:

- ▶ The LMS or course management system (CMS):⁶ As discussed in section 2.2, the LMS is the software system that packages the course content, communication tools (asynchronous and synchronous), grade book, and other elements of the course.
- ▶ Student information system (SIS) capability is required of all full-time and many supplemental online programs, to keep track of key student demographic, contact and assessment data for reporting as well as for data-driven decision making.
- ▶ Audio and video plug-ins: Teachers and students will usually need a media player for viewing video and audio. Programs may also integrate third-party software for real-time web conferencing capability.
- ▶ Basic productivity software: Students and teachers need to have basic software for web browsing (e.g., Internet Explorer), word processing (e.g., Microsoft Word), reading text documents (e.g., Adobe Acrobat reader) and developing/reading presentations (e.g., Microsoft PowerPoint).

Hardware needs of an online program depend on the program, but generally include servers, bandwidth and computers for teachers and students. Local schools often provide the computers and Internet access for their students.

⁶“Learning management system” (LMS) and “course management system” (CMS) are terms that are increasingly being used interchangeably, partly because of convergence of features. Software used to support online courses, with the features described above, was originally called a CMS. An LMS was originally software used to track registrations, course completions and similar administrative functions in a corporate training setting. Over time CMS and LMS software have converged as each has added features of the other; hence, many people use the terms interchangeably.

2.8 Millennial students and the digital divide

One of the key technology issues in online learning is more of a generational issue than strictly a technology one. The Millennial generation students in K-12 schools today are children of a digital age, and are typically far more comfortable with technology than their parents and teachers. According to the report *The Digital Disconnect: The widening gap between Internet Savvy Students and their Schools*, “there is evidence that many students are more frequent users of the Internet and are more Internet savvy than their parents and teachers.”⁷ This difference is not just about what today’s students do with their time; it is also about how they use technology differently than older generations, and how deeply technology is integrated into their lives. This difference is clear to anyone who has watched teenagers use cell phones to send text messages, using their thumbs to type faster than many people can type on a computer keyboard. Online learning’s challenge today is to be technologically in synch with its consumers, while also meeting broader policy and social imperatives.

Another key technology issue is that of the digital divide — the disparity in the availability of computers and Internet access among students. While for many students and families an up-to-date computer and broadband Internet access are available at home, for many other students, especially low-

income and minority students, this is not the case. A key part of public education’s mission is providing a quality education for all students, and online programs must make sure that they are available to all, not just to higher-income students. Some online programs work with local schools to provide computers and Internet access, and some students are able to get online at libraries and community centers.

A 2006 report from the National Center for Education Statistics, using data from 2003, reports that “There is a ‘digital divide’... Computer and Internet use are divided along demographic and socioeconomic lines. Use of both technologies is higher among Whites than among Blacks and Hispanics. Students living with more highly educated parents are more likely to use these technologies than those living with less well educated parents, and those living in households with higher family incomes are more likely to use computers and the Internet than those living in lower income households.” However, “schools help bridge the digital divide” because “many disadvantaged students use the Internet only at school.”⁸ Supplemental online programs, in particular, help address these digital divide issues by working with local schools to provide online courses and teaching 21st century skills to all public school students.

Why are students choosing online courses?

- ▶ 47% of students in grades 9–12 pursue online learning to secure courses not offered at school
- ▶ 43% pursue online courses to work at their own pace
- ▶ 42% of students in grades 6–8 pursue online learning to receive extra help
- ▶ 77% of teachers believe technology makes a difference in learning
- ▶ 28% of teachers want online courses to be offered as an alternative in their district
- ▶ 42% of parents believe online classes are a good investment to improve student achievement

Source: “*Learning in the 21st Century: A National Report of Online Learning.*” Blackboard and Project Tomorrow (2006 Net Day Speak Up Surveys of 250,000 students, parents and educators)

⁷ *The Digital Disconnect: The widening gap between Internet Savvy Students and their Schools*, Douglas Levin and Sousan Arafeh, 2002, The Pew Internet & American Life Project

⁸ *Computer and Internet Use by Students in 2003*, Matthew DeBell and Chris Chapman, 2006, National Center for Education Statistics, U.S. Department of Education

3. NATIONAL MODELS AND TRENDS

Online learning is becoming increasingly common across the country. As of late 2007 significant online learning opportunities were available in 42 states, and several of the remaining states were planning new online initiatives. Models of online learning include:

- ▶ State-led online programs and initiatives, which provide online learning opportunities across states or beyond. These programs are typically supplemental, providing one or two courses to students enrolled in physical schools. Figure 1 shows states with these programs.
- ▶ Online charter schools typically enroll students who take their entire course load online. Unlike most state-led programs, these full-time programs are responsible for students' state assessment scores and Adequate Yearly Progress under No Child Left Behind.
- ▶ District online programs are, as the name implies, run by individual school districts. They may be full-time or supplemental.
- ▶ Online networks or consortia, such as the Wisconsin eSchool Network or programs run by Intermediate School Districts, Educational Service Units or Boards of Educational Cooperative Services, pool resources across districts in an effort to achieve economies of scale.

Examples of online programs include:

- ▶ The Florida Virtual School (FLVS) served more than 50,000 students in nearly 100,000 half-credit courses in school year 2006-07. FLVS, which has grown steadily since its inception in 1997, has shown the popularity of online learning when students are given the choice of taking online courses, and has demonstrated the ability of a program to grow rapidly.
- ▶ The Louisiana Virtual School is working with local schools that lack a qualified algebra teacher by offering an online algebra course that is taken by students sitting together in a classroom. The students learn from a highly-qualified teacher online, and a teacher who is not yet certified in math assists in the physical classroom. This arrangement serves the dual purpose of providing both a highly-qualified teacher for students and a mentor to the classroom teacher being trained in algebra.
- ▶ The Washington Digital Learning Commons and Oregon Virtual School District are state-led initiatives that provide online tools and resources, including online content, across their respective states. Unlike the Florida and Louisiana programs, they do not enroll students into their own courses, but instead broker courses that are available to school districts.

The number of students taking online courses has grown rapidly, with annual growth rates in individual programs, and in some states, consistently in the range of 15% to 50% over multiple years. Although the exact number of students taking online courses across the country is unknown, knowledgeable estimates put the number of enrollments at about 500,000 to one million students.⁹

States with a state-led programs and initiatives

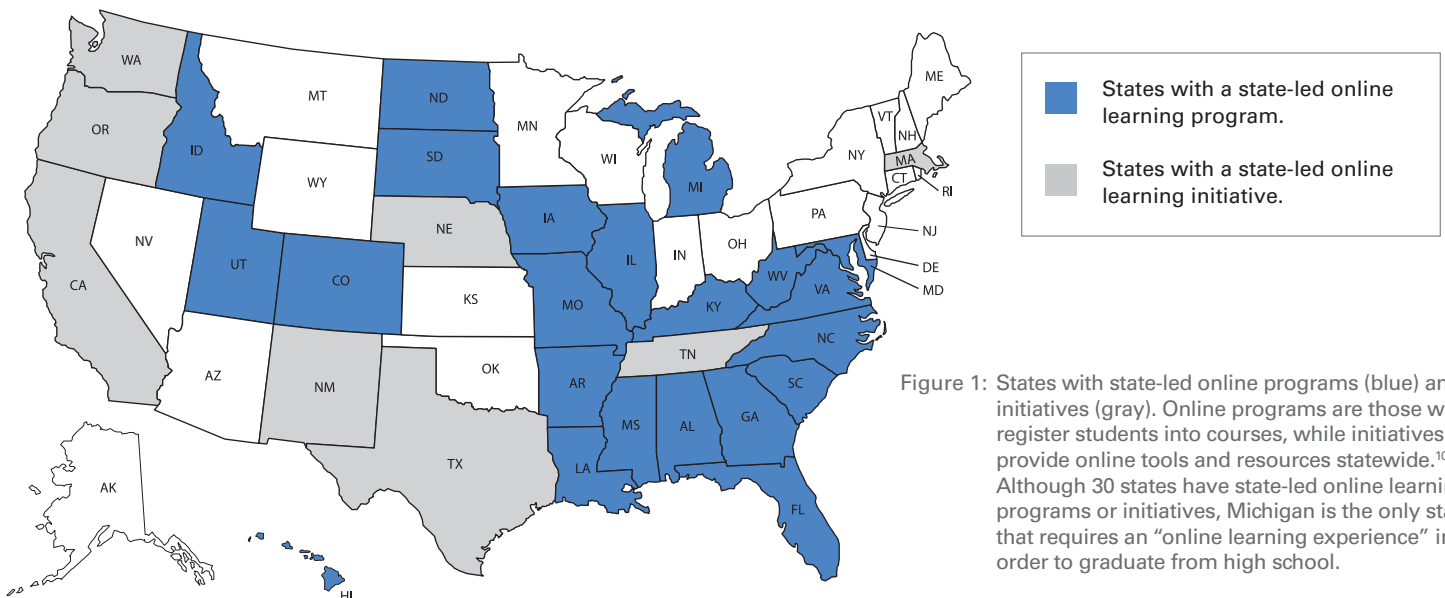


Figure 1: States with state-led online programs (blue) and initiatives (gray). Online programs are those which register students into courses, while initiatives provide online tools and resources statewide.¹⁰ Although 30 states have state-led online learning programs or initiatives, Michigan is the only state that requires an "online learning experience" in order to graduate from high school.

⁹ For example, one study published in 2007 estimates that 700,000 K-12 students are taking one or more online courses based on extrapolating from responses to a survey. *K-12 Online Learning: A Survey of U.S. School District Administrators*, 2007, Anthony G. Picciano and Jeff Seaman, Ph.D., Babson Survey Research Group and The Sloan Consortium

¹⁰ From *Keeping Pace with K12 Online Learning: A review of state-level policy and practice*, November 2007, available at <http://www.nacol.org>.

3.1 Costs and funding of online learning

There are four major cost categories for online programs:

- ▶ **Technical infrastructure:** Technology is an online program's infrastructure, in the same way a physical building provides the infrastructure for a physical school. The technology infrastructure includes servers that should be highly secure and fault-tolerant, and the necessary bandwidth to deliver media-rich courses. It should accommodate a broad range of traditional and multimedia-based content, and provide an intuitive interface for teachers and students.
- ▶ **Online instructors:** Teaching is one of the main costs for all online programs. For large programs, teaching is a relatively high percentage of the overall budget because unlike some other costs, teaching is not scalable and per-student teaching costs do not go down significantly as the number of students increases. In addition, the cost of initial and ongoing professional development for online teachers is significant.
- ▶ **Online course content and additional instructional materials:** Content for an online course is critical and serves as the equivalent of a textbook and classroom resources in a traditional face-to-face course. Content can be developed by the online program or licensed from a for-profit or nonprofit provider. In addition to the content that resides within the LMS, some courses are accompanied by digital textbooks, creating an additional cost.
- ▶ **General administration:** All online programs incur costs in managing operational activities of the organization, including leadership, general management, accounting, finance, marketing, sales and instructional support. These costs tend to be scalable and tend to drop in relative terms as the size of the program grows.

Public funding of online programs varies considerably from state to state. Five distinct funding models were highlighted in a study commissioned by the BellSouth Foundation and done by the school finance consulting firm Augenblick, Palaich and Associates (APA):

1. State appropriation;
2. Funding formula tied to FTE public school funding;
3. Course fees;
4. No state role; and
5. A combination approach.



Most states use a combination approach for funding their online programs.

The cost of online learning, alone and in comparison to the cost of traditional classrooms, has been the focus of several studies in the last two years. The APA report estimated costs of online programs and found that the “operating costs of online programs are about the same as the operating costs of a regular brick-and-mortar school.”¹¹ The Southern Regional Education Board (SREB), a nonprofit, nonpartisan organization that works with leaders and policy-makers in 16 member states to improve pre-K through postsecondary education, studied costs of state-led supplemental online programs.¹² SREB estimated costs for state-led, supplemental online programs at three different stages of growth:

1. **1,000 one-semester enrollments—approximate cost:**
\$1,500,000
2. **5,000 one-semester enrollments—approximate cost:**
\$4,000,000
3. **10,000 one-semester enrollments—approximate cost:**
\$6,000,000

The most in-depth study comparing the costs of a supplemental online program to physical schools was released in October 2007 by the Florida TaxWatch Center for Educational Performance and Accountability. Florida TaxWatch is a statewide, nonprofit, non-partisan taxpayer research institute and government watchdog which has been operating for 28 years. Its report explored the costs and funding of the Florida Virtual School. TaxWatch concluded that “Florida Virtual School is a bargain for Florida taxpayers ... It is hard to argue with better results for less money ... In return for ... decreased expenditures, FLVS produced students who earned higher grades and made higher test scores than their public school counterparts.”¹³ FLVS receives approximately \$525 in state support for each successful semester-length course completion.

¹¹ *Costs and Funding of Virtual Schools*, Augenblick, Palaich and Associates, October 2006, available at www.apaconsulting.net

¹² *Cost Guidelines for State Virtual Schools*, Southern Regional Education Board, August 2006, available at <http://www.sreb.org/programs/EdTech/pubs/PDF/CostGuidelinesSVS.asp>

¹³ *Final Report: A Comprehensive Assessment of Florida Virtual School*, Florida TaxWatch Center for Educational Performance and Accountability, 2007, available at [http://www.nacol.org/docs/FLVS_Final_Final_Report\(10-15-07\).pdf](http://www.nacol.org/docs/FLVS_Final_Final_Report(10-15-07).pdf)

3.2 Research and evaluation of online learning

Educators, students and parents who have been pleased with the student outcomes in online courses and programs have no doubt that online learning can be effective. Indeed, many people who question the effectiveness of online learning do so out of misunderstanding; they do not realize the extent to which teachers are involved with and communicate with students, the quality of material available online, and the academic rigor of many online courses. Still, the question remains as to whether online learning is equally, more, or less effective than traditional classroom teaching.

Full-time online students take state assessments that are required of all public school students, and full-time online programs are subject to state adequate yearly progress, accreditation and other state-by-state measures of public schools. Supplemental online programs, in which students are enrolled in a physical school, track numerous measures of student outcomes. Most are internal, such as course completion rates, while a few compare students in online courses to students in traditional classroom courses.

In an attempt to address the effectiveness of online learning, in 2005 Learning Point Associates (LPA) reviewed several previous meta-analyses and provided a synthesis analysis of eight recent research studies into the effectiveness of K-12 online learning. The report concluded that online learning can be as effective as classroom-based learning, but that more research is necessary:

“In reviewing these five meta-analyses related to K–12 online learning ... one conclusion seems clear: On average, students seem to perform equally well or better academically in online learning. Because of the very small number of high-quality quantitative studies available for review and synthesis ... this conclusion should be described as showing promise, but with the realization that we cannot have real ‘confidence’ in these conclusions until there is much more support available from high-quality quantitative research.”¹⁴

The challenge in answering “Is online learning effective?” is made clearer if we pose the question “Is classroom learning effective?” The answer to the latter is “Yes, however ...” with the “however” encompassing all the constraints that many schools and teachers face such as budget and student demographics. Because online education is relatively new, it would benefit from additional

research into all areas, especially the comparison of student outcomes in online courses to classroom-based courses. Other valuable research would include studying different student populations, student-to-teacher ratios and different types of online courses.

The relatively few studies that have been done often combine online learning with other forms of distance education, or look at online learning within a blended online/classroom environment.¹⁵ These studies have found that online programs collectively serve a bimodal distribution of students, attracting students in honors and Advanced Placement courses, and also students who have not been successful in traditional face-to-face courses. Successful online students often enjoy technology, have sound language skills, are visual learners, and are well supported by parents (especially for full-time students). Online programs targeting credit recovery or at-risk students often find that they must provide extensive and ongoing support for their students. Several studies have demonstrated that students value consistent communication with instructors and with other students, and have found that “a combination of flexibility, independence and experience with online tools has been associated with improved critical thinking, research and computer skills.”

One of the studies funded by Learning Point Associates in 2005 allowed the *Michigan Virtual School (MVS)* “to explore ways in which data analysis and visualization could be used to better understand student performance in online learning environments.”¹⁶ This study, and others done of both *MVS* and other online programs, has demonstrated that one of the advantages of the online environment is in the amount of data about student activity that the online environment provides. “While a course is being taught in [the online environment], richly detailed information is routinely gathered by [the online learning software] for use

by the teacher and student: day and time of access, number of ‘clicks,’ assignments done, quizzes taken, points received, email between teacher and student, and so on.”¹⁷ This level of student activity in the course is a strong indicator of student success (as measured by final grade) in the course (see Figure 2 on Page 16).

¹⁴ *A synthesis of new research in K-12 online learning*, R. Smith, T. Clark, & R. Blomeyer, 2005, Learning Point Associates

¹⁵ *Effectiveness of K-12 Online Learning*, research briefing for the North American Council for Online Learning by its Research Committee, available at <http://education.ufl.edu/faculty/cathycavanaugh/docs/Vsresearch-summary.pdf>

¹⁶ Dickson, W.P., 2005, *Toward a Deeper Understanding of Student Performance in Virtual High School Courses: Using Quantitative Analyses and Data Visualization to Inform Decision Making*. In R. Smith, T. Clark, & B. Blomeyer, (Eds.), *A synthesis of new research in K–12 online learning* (pp.21–23). Naperville, IL: Learning Point Associates.

¹⁷ Dickson, 2005. Figure 2 is from this source.

Final Score in Course by Total Discussion Board Activity
(Including All Students, N = 30, Correlation = .72)

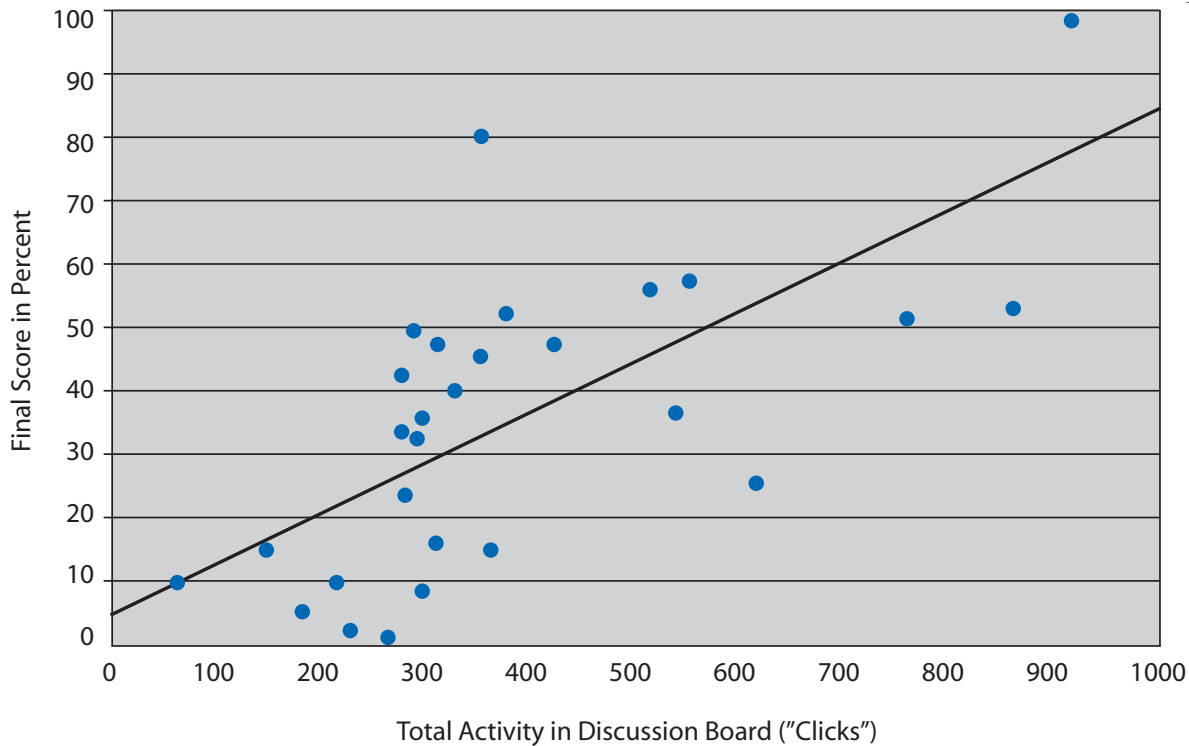


Figure 2: Correlation of student activity in discussion board with grades

Researchers have increasingly noted the benefit of data in the online environment, compared to the information available in traditional classrooms. One unpublished report states:

In the move toward greater use of data for accountability, much of the investment and development has focused on analyzing and reporting data at the level of the school and district. Everyone is now familiar with the newspaper article on the local school showing bar graphs of achievements on standardized tests, frequently based on data from a year or two earlier.

But for an individual teacher or for a principal during the present school year, these school and district averages are not especially helpful in deciding how to teach differently on Monday or how to provide needed feedback and support to a teacher this year. Both kinds of data are important — detailed data on student and teacher performance right now and aggregated data on overall performance for policymakers later. These types of data are useful in fundamentally different worlds of decision making.¹⁸

One example of how *MVS* has been able to use data to adapt its processes is illustrative. In-depth analysis of the data in the 2005 study showed that the overall mean scores for online students often mask a bimodal distribution, with many students doing very well in their online courses, and a smaller but significant percentage having trouble and either dropping out or completing the course with a very low score. *MVS* has responded to the findings that show the predictive nature of student activity levels, and the bimodal distribution, by establishing a process for checking on levels of participation in the early weeks of each course.

In addition, *MVS* is partnering with research institutions to better the opportunities for teaching and learning online. Most notably, this work includes developing strategies for helping teachers teach and students learn. Much of the current work centers on building data models to guide decision and policy making. However, *MVS* is also interested in exploring the impact of parents, alumni and school personnel in the success of teaching and learning *MVS* content. This will include broader data collection, careful and constant exploration of the uses of the LMS, and partnerships with state centers and agencies to better substantiate existing data.

¹⁸ Using Data to Inform Decision Making at the Michigan Virtual School, Dickson, W.P., 2007, unpublished

4. MICHIGAN'S EXPERIENCE WITH ONLINE LEARNING

While some states have only recently discovered the potential of online education to allow students unparalleled equity and access to a high quality education, Michigan was at the forefront of states implementing online learning. The *MVS*, which was implemented in 2000, had 8,942 course enrollments (one student taking one course) in school year 2006-07, and has had nearly 40,000 course enrollments since its inception. In 2006 the Michigan legislature passed the country's first statewide online learning requirement for all graduating high school seniors. The legislature's recognition of the value of online learning in teaching 21st century skills continues Michigan's leadership position among states in educational technology. The law, and the innovative courses and programs developed by *MVS*, have made Michigan a model for educators and policymakers across the country.

Online courses are being used throughout Michigan to expand the range of courses available to students beyond what a single school can offer, especially in rural schools and inner-city schools, and to expand educational opportunities in a variety of ways. For example:

- ▶ The Dearborn Virtual Academy provides an educational alternative for students who have fallen behind in their high school progression. The Academy offers a mix of online and face-to-face courses for about 60 students per semester who find that the alternative, flexible schedule works better for them than a traditional high school schedule. "Flexibility is the key for these students," reports Kevin Renko, the Academy's Lead Teacher and Counselor. Dearborn Virtual Academy is in its sixth year of providing an alternative for these students.
- ▶ Hustle & TECHknow, a program formerly within Detroit Public Schools, worked with at-risk students in an alternative environment by providing online courses, along with a course coach within the Hustle & TECHknow building. "This works for struggling students ... technology is a natural extension for them," says the program's former principal, Ida Byrd-Hill. Hustle & TECHknow graduated 80% of its seniors in its first year.
- ▶ Schoolcraft High School offers online courses to augment the traditional classes that this small school can provide. Over 20% of the school's students (slightly less than 400) took an online course in fall of 2007. The online courses are such an integral part of the school that they are listed in the school's course catalog, and offered in six of seven course periods. A wide variety of subjects and courses, from Advanced Placement to credit recovery, are offered.

Michigan Virtual University and the Michigan Virtual School: What's the difference?

The *Michigan Virtual University (MVU)* is a private, nonprofit 501(c)(3) corporation created by the state of Michigan in 1998 to expand the use of learning technologies and accelerate change in public education. The *Michigan Virtual School (MVS)* is the core division of the *MVU* and works in partnership with Michigan schools to provide cost-effective technology-based solutions that strengthen teaching and learning. *MVU* also provides a broad array of online professional development opportunities for educators and school personnel through *Michigan LearnPort*. An independent Board of Directors representing business, K-12 and higher education leaders and state government governs *MVU*. Michigan's State Superintendent of Public Instruction serves on the *MVU* Board.

- ▶ A consortium of seven intermediate school districts (ISDs) in the Upper Peninsula has a formal agreement to offer online courses to their students at reduced volume pricing. In addition, the ISDs are receiving enhanced communication, technical assistance and support from the *MVS*. The agreement allows these rural schools to greatly increase their course offerings.
- ▶ The *MVS* is collaborating with the Confucius Institute at Michigan State University and with China Central Radio and TV University to develop a series of online Chinese (Mandarin) courses for K-12 students. The *MVS* online Chinese courses are audio- and video-based, revolve around coherent stories, use a variety of interactive activities, and are taught by highly-qualified instructors and native speakers of Chinese. To date, over 500 students have taken an online Chinese course through *MVS*.

4.1 The Michigan Virtual School

MVS is the primary provider of online learning opportunities in Michigan, often in conjunction with schools, districts and home schools across the state. *MVS* does not grant course credit or award diplomas independently, but works in partnership with local and intermediate school districts which award credit or diplomas. The implementation of *MVS* was authorized by Public Act 230 of 2000, with the following goals:

- ▶ Expand curricular offerings for high schools across the state;
- ▶ Provide students with opportunities to develop new skills and competencies;
- ▶ Provide opportunities for teachers to learn new skills & strategies;
- ▶ Serve as a model for the use of interactive multimedia tools;
- ▶ Accelerate the state's ability to respond to current and emerging educational demands;
- ▶ Offer courses and services to both traditional and nontraditional audiences; and
- ▶ Offer college level equivalent courses and at-risk programs and services.

MVS provides online courses to students across the state, including all public and private school students grades 6-12 (with an emphasis on grades 9-12), students who are being schooled at home, adjudicated youth enrolled in institutional facility programs, expelled and homebound students receiving supervised instructional support, and gifted and talented students. Most students in *MVS* courses access the courses from the school in which they are enrolled, during a scheduled class period.

MVS has several types of courses to meet the needs of a variety of students. These include:

- ▶ Semester-paced courses follow the traditional semester schedule, with teachers setting the pace and establishing dates for quizzes, assignments and other elements of the course. Students have the opportunity to collaborate on group projects.
- ▶ Advanced Placement® courses offer college-level instruction to high achieving students. They include multimedia simulations, tutorials, and an AP® Exam Review. AP courses are teacher-led and semester-paced.
- ▶ Flex courses are student-paced and offer students a fast, flexible way to pick up an elective or required class, or to recover credit. Instructors set pacing guidelines, encourage students, monitor progress, and are available to answer questions and provide guidance.
- ▶ Student direct instruction offers schools a low-cost option for schools seeking to provide their students an online course. Interactive instruction is provided entirely by the course software, and schools enrolling students in this type of course provide instructional support.
- ▶ Test tools are a combined set of online resources that help students prepare for the Michigan Educational Assessment Program (MEAP) and the SAT, PSAT, and ACT college entrance exams.

“Most educators, political leaders, parents and citizens generally do not have an experiential basis upon which to form judgments and opinions about online K-12 education. We cannot remember our own experiences learning online when we were in high school because ... the web did not exist, let alone online teachers and courses. In contrast, elementary school children in Michigan will no more be able to remember a world in which the web did not exist than they can remember life before television.”

Patrick Dickson, Ph.D.
Michigan State University

4.1 The Michigan Virtual School (cont.)

Since its inception *MVS* has:

- ▶ Served more than 39,800 course enrollments;
- ▶ Served more than 157,000 students with an online ACT, SAT, PSAT or Michigan assessment review tool;
- ▶ Served over 400 public and private schools with an online course or test review tool; and
- ▶ Recorded approximately a 75% course completion rate during the last three years.

(See Figure 3 for annual enrollment and course counts.)

Figure 3: MVS Courses and Online Enrollments 1999-2007

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08***
Enrollments*	100	676	2,303	5,591	5,670	5,917	6,877	8,941	11,000
Schools served**	18	101	194	311	380	476	672	1,040	1,100
Unique courses	6	17	27	133	137	162	190	251	200

*This includes only approved semester-length enrollments

**This includes home school enrollments

***These are estimates

In the 2006-07 school year schools with students in *MVS* courses were located across all of Michigan, from core urban areas to sparsely populated rural regions (Figure 4).

Funding for the *MVS* is achieved through a mix of state appropriations, private sector grant support and fees charged to schools and parents. While most of the *MVS* operating budget comes from state appropriations, *MVS* secured nearly \$500,000 in grant support in partnership with the Michigan Department of Education (MDE) from the Microsoft Corporation in 2006 to develop the CareerForward course described in section 4.3. The cost and size of *MVS* compares favorably with both the SREB and Florida TaxWatch reports referenced in section 3.1, as *MVS* had over 7,000 one-semester enrollments with funding from the state appropriation and course fees of under \$4 million.

“Our online learning requirement makes Michigan a leader among all the states in using the power of the Internet to create learning opportunities in the classroom, the home and the workplace.”

Jennifer Granholm
Governor of Michigan

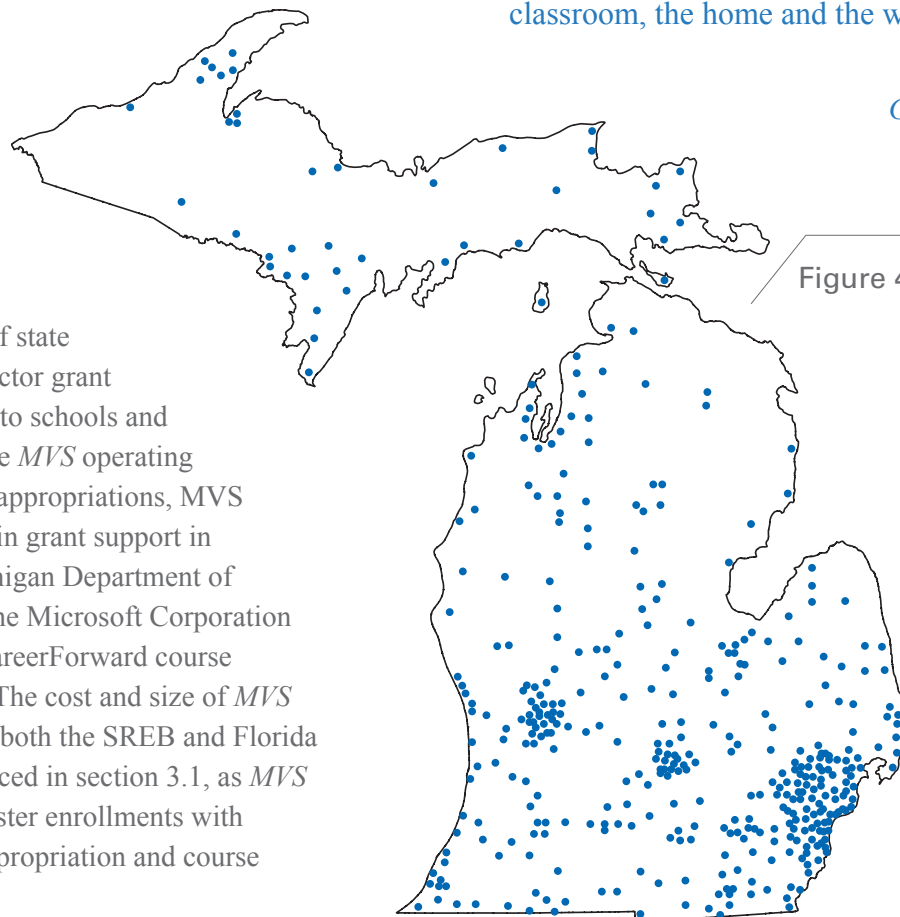


Figure 4: Approximate location of high schools using *MVS* courses in school year 2007-08. The map demonstrates that *MVS* serves Michigan's core urban areas as well as sparsely populated rural regions.

4.2 Michigan's online learning requirement

In addition to the creation and growth of *MVS*, Michigan is widely regarded as among the leading states in K12 online education due to the passage of the law requiring an online learning experience of all students. The concept of an online learning requirement dates back to a report prepared by a Task Force of the Michigan State Board of Education in 2001, *Embracing the Information Age*.¹⁹ The report was at the leading edge of thinking about the intersection of education and 21st century skills, including technology literacy, although the Task Force did not use these exact terms. Still, the Board's vision was remarkably forward-thinking:

“All learning organizations in Michigan will acknowledge that technology has and will continue to create an unprecedented rate of change that is pervasive throughout the world. Following the lead of global commerce and industry, schools will recognize that information technology can provide educational opportunities beyond those offered through traditional school models and that the very organization and management processes of educational institutions will be transformed. Stakeholders in the education system will aggressively support the premise that students' ability to find, analyze, and synthesize information is critical, and that information technology will play an increasingly fundamental role in teaching, learning, assessment, and educational management.”

The report included numerous policy recommendations, including the seed of the online learning requirement:

“Require at least all high school students to take no less than one on-line course from the Michigan Virtual High School or other quality distance learning institution as a condition for graduation.”

In late 2004, the U.S. Department of Education published the National Education Technology Plan.²⁰ One of the seven recommendations in the report was to “*Support E-Learning and Virtual Schools*.” Strategies under this core recommendation included the following items:

- ▶ Provide every student access to e-learning;
- ▶ Enable every teacher to participate in e-learning training; and
- ▶ Encourage the use of e-learning options to meet No Child Left Behind requirements for highly-qualified teachers, supplemental services and parental choice.

In 2005 the State Superintendent of Public Instruction convened a task force to study and make recommendations on high school graduation requirements for Michigan students. The task force drew upon extensive research, including meetings with other states that were rethinking their graduation requirements, and had as a guiding principle that “graduation requirements must focus on the knowledge and skills students will need in the 21st century to succeed in postsecondary education and the workplace.” The Task Force recommended that the state establish new high school graduation requirements, including a new Michigan Merit Curriculum and a requirement that all students complete an online credit or noncredit course or learning experience.²¹ The State Board adopted these recommendations and passed them along to the Legislature.

The Michigan State Educational Technology Plan, released in March of 2006, built on the findings of the State Board Task Force and the National Education Technology Plan, stating as one of its eight key objectives that:

“Every Michigan student will have meaningful technology-enabled learning opportunities based on research and best practice that include virtual learning experiences.”²²

“In the 21st century, the ability to be a lifelong learner will, for many people, be dependent on their ability to access and benefit from online learning.”

Michael Flanagan
Michigan Superintendent of
Public Instruction,
MVU Board member

¹⁹ *Embracing the Information Age*, report by the Task Force of the Michigan State Board of Education, November 15, 2001. Available at http://www.michigan.gov/documents/embracing_119435_7.pdf.

²⁰ *Toward a New Golden Age In American Education: How the Internet, the law and today's students are revolutionizing expectations*, 2004, National Education Technology Plan, U.S. Department of Education

²¹ Memorandum from Michael P. Flanagan, Superintendent of Public Instruction, to the State Board of Education, November 8, 2005

²² *Leading Educational Transformation for Today's Global Society*, State of Michigan Educational Technology Plan, March 2006. Available at http://www.michigan.gov/documents/STP2006_5-10-06c_158945_7.pdf

4.2 Michigan's online learning requirement (cont.)

One of the strategies under this objective was:

“Promote and support the expectation that every student in Michigan, including students with special needs, be provided with the opportunity to learn in a virtual environment as a strategy to build 21st century learning skills.”

With these statements the Educational Technology plan endorsed a key belief: online learning is valuable because of the skills that it teaches students, skills that are necessary for students to compete in the 21st century global economy. The issue of competing in the global economy extends from the individual student to the state economy, and to the national economy. Michigan, and the United States, needs to graduate students who are comfortable with learning and working in the digital age, and working in information-based jobs. The Educational Technology plan made this connection clear.

In April of 2006 the Michigan legislature then passed PA 123 and 124,²³ which required that in order for students to graduate from high school they would have to meet the online course or learning experience requirement by demonstrating that:

- (i) The student “has successfully completed at least one course or learning experience that is presented online, as defined by the department.
- (ii) The pupil’s school district or public school academy has integrated an online experience throughout the high school curriculum by ensuring that each teacher of each course that provides the required credits of the Michigan merit curriculum has integrated an online experience into the course.”

The next step was for the MDE to define the “online learning experience.” In September of 2006 the MDE published the guidelines, which started by defining online learning as:

“A structured learning activity that utilizes technology with intranet/internet-based tools and resources as the delivery method for instruction, research, assessment and communication.”

The MDE also defined the online learning experience as:

“A combination of structured, sustained, integrated, online experiences accessed via a telecommunications network ... The meaningful online experience requires a minimum accumulation of twenty hours (in one or more delivery formats) ... for students to become proficient in using technology tools to virtually explore content.”

The requirement applies to all students entering 8th grade in 2006 or later, giving educators time to prepare for the new requirement.

4.3 MVU response to the online learning requirement

MVU, with its experience developing and teaching online courses, is uniquely positioned in the state to help school districts respond to the new online learning requirement. *MVU* responded quickly to the passage of the online learning requirement by creating a new course that can be used by school districts in several forms to help their students meet the requirement while providing a valuable learning experience. The course, *CareerForward*, was created to help Michigan students understand how to plan their work lives and career opportunities within the global economy, with its many implications for career choices.

CareerForward was developed through a partnership of the MDE and *MVU*. Major funding was provided by Microsoft Corporation’s U.S. *Partners in Learning* program. With the *MVU*-hosted Blackboard version of the course, *MVU* is able to offer Michigan schools access under a special licensing agreement from Blackboard, Inc., which allows the possibility of approximately 450,000 Michigan students taking the course.

The *CareerForward* course was designed to be a self-contained online learning course but it may be used in companion with a variety of online career planning tools that provide students with the opportunity to assess their career interests, explore career options and create an educational development plan. School districts may choose to use the course in one of four ways: in the *MVU* web-based environment, within the *MVU* Blackboard CMS, or within the school district’s own Blackboard or Moodle CMS.²⁴

²³ <http://www.legislature.mi.gov/documents/2005-2006/publicact/htm/2006-PA-0124.htm>

²⁴ Details on the *CareerForward* options are available at http://www.mivhs.org/upload_2/cFWDelivery_FLY_web.pdf

4.4 Michigan LearnPort

Online professional development for classroom teachers offers many of the same benefits as online classes for students: flexibility, cost-effectiveness and embedded teaching of technology literacy. Cost savings are a particularly important component of online professional development. A variety of costs are incurred by school districts in supporting professional development programs, including substitute teacher expenses, travel, lodging, meals and materials that can be avoided with online professional development.

Michigan has been among the leading states in creating online professional development opportunities for classroom teachers. The State School Aid Act of 2003 (Section 98 of Public Act 158 of 2003, as amended) provided initial funding and direction to the MVU and the MDE to “develop and assist districts in the development and use of proven, innovative strategies to deliver intensive professional development programs that are both cost-effective and easily accessible...” In response, the MDE and MVU created *Michigan LearnPort* (www.learnport.org), a statewide web-based professional development system for Michigan educators. Since its inception, *Michigan LearnPort* has evolved into a comprehensive offering that:

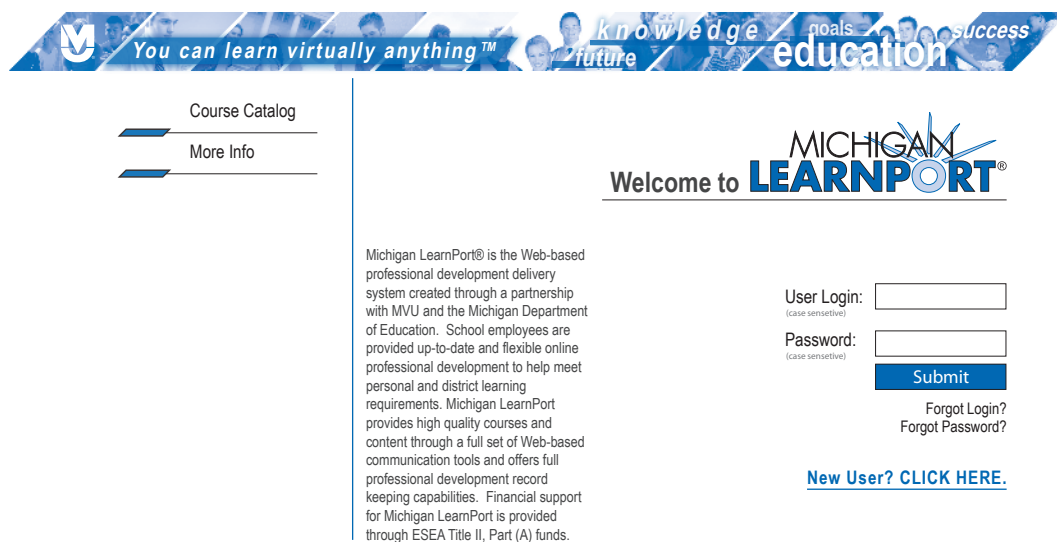
- ▶ Delivers quality online professional development to the desktop, including content developed by a variety of content providers;
- ▶ Fosters teachers’ communication with mentors, principals and other teachers within their school or across the state who have common interests;
- ▶ Enables teachers and administrators to plan, earn and keep track of professional development; and
- ▶ Assists in aligning teacher development plans to district and school improvement goals.²⁵

By providing all these elements in one place, *Michigan LearnPort* creates an integrated platform for:

- ▶ Managing individual educator development plans;
- ▶ Linking professional development to district and school goals;
- ▶ Supporting local, regional and statewide special interest learning communities;
- ▶ Providing access to training and education resources; and
- ▶ Documenting compliance with NCLB professional development requirements.

As of January 2008 *Michigan LearnPort* has approximately 25,000 registered users. The program continues to develop new courses, and in 2007 adopted a new LMS to keep pace with Web 2.0 enhancements such as blogging and wiki capabilities and collaboration features.

Figure 5: For more information and a quick tour of *Michigan LearnPort*, please visit www.learnport.org.



Course Catalog

More Info

Michigan LearnPort® is the Web-based professional development delivery system created through a partnership with MVU and the Michigan Department of Education. School employees are provided up-to-date and flexible online professional development to help meet personal and district learning requirements. Michigan LearnPort provides high quality courses and content through a full set of Web-based communication tools and offers full professional development record keeping capabilities. Financial support for Michigan LearnPort is provided through ESEA Title II, Part (A) funds.

Michigan LearnPort®
 Welcome to **LEARNPORT**®

User Login:
(case sensitive)

Password:
(case sensitive)

Submit

[Forgot Login?](#)
[Forgot Password?](#)

[New User? CLICK HERE.](#)

²⁵ Report to the Michigan Department of Education: Planning and Implementation of Online Professional Development for Michigan Educators, 2003-2006, Michigan Virtual University, September 2006

4.5 Innovative solutions

Change creates the need for innovative solutions to Michigan's educational challenges. As an example the Traverse City Area Public Schools (TCAPS) has recently been facing a temporary increase in student enrollment that will leave the school district lacking sufficient buildings and space. Because the shortfall will be temporary, the district did not want to build additional schools. Instead, the district applied to Michigan's Superintendent of Public Instruction for a waiver of online learning accounting rules in order to have up to 25% of its enrolled, full-time high school students take all their coursework online. In September 2007 the Superintendent granted the waiver, subject to several conditions.

- ▶ A student's online coursework may not be exclusively delivered in a non-instructor-led (self-study) format;
- ▶ Students must be in attendance on the appropriate pupil membership count dates or student participation must be confirmed by the online instructor(s) on the count dates;
- ▶ The district develops criteria to be used in selecting high school students that request to receive all their coursework online;
- ▶ The district requires students to take secondary credit assessment(s) at the conclusion of each Michigan Merit Curriculum core course taken online;
- ▶ The district participates in an MDE grant-funded evaluation study to gauge the effectiveness of the program and to determine successful implementation strategies that can be shared with others;
- ▶ The district submits an annual report for each year the waiver is in effect that includes input from students, teachers and parents;
- ▶ The district agrees to utilize highly-qualified teachers (as defined by the No Child Left Behind Act of 2001) for all instructor-led online courses that require highly-qualified teachers or agrees to secure instructor-led online courses only from online education providers that are accredited by a nationally recognized organization when delivering courses that are required under the Michigan Merit Curriculum; and
- ▶ The approval is for the 2007-08 school year with the possibility of a two-year extension.

MVS is working closely with the TCAPS to help implement this innovative online solution. Whether it is addressing the changing demographics of a growing Michigan city, responding to legislative mandates or providing cost effective, convenient training for the state's teachers, online learning and *MVS* can supply solutions to several of Michigan's

immediate education needs. Michigan is among the states taking a national leadership position in using online learning to position its students and teachers for a rapidly changing global society.

4.6 Other resources for Michigan schools

In addition to *MVS*, other online resources are being made available to Michigan schools. One of these is a project supported by the Regional Education Media Center Association of Michigan (RECAM) through a partnership with Genesee ISD/REMC 14. This partnership makes online courses available to middle and high school students in Michigan. The REMCAM/Genesee ISD program coordinates the registration process to more than 600 online courses, provided by nine vendors, including the University of Nebraska, Virtual Greenbush, Oklahoma State University, Northwestern University, Keystone National High School, Florida Virtual School, CyberLearning, Brigham Young University and Aventa Learning. This project enrolled 529 students during the 2006-07 school year from 26 different school districts in Michigan. The fees for these courses varied depending on the specific vendor and the length of the course and ranged from \$42 to \$800.

Last year, nearly 80 percent of the enrollments for this project were provided by the Independent Study program at Brigham Young University (BYU). The BYU Independent Study High School Program is accredited by the Northwest Association of Accredited Schools (NAAS). The BYU courses can be taken through a paper/pencil version or online. In these courses students read the materials, submit their lessons, take a final exam with a proctor or at a testing center and receive a course grade that can be transferred to their local school.



5. THE FUTURE

Accelerating technological change and globalization are eliminating barriers of time and space, dramatically expanding connections and interdependencies. These changes present opportunities to today's students that previous generations would have thought incredible, such as the chance to learn Mandarin Chinese from home, or to take an advanced course in emerging nanotechnologies. At the same time, they threaten to leave behind students, economies and societies that are not keeping pace with today's transformations. In addition, there is a growing commonality of economic, environmental and social problems facing all the world's inhabitants.²⁶ It's quite a challenge for education to continue to prepare our students, and our teachers, to compete, collaborate and lead in this changing world.

Globalization is driving important new educational themes in science and technology (information and communications technologies, nanotechnology, climate change, sustainable development) and in the social and political arenas (ethics and values, migration, health and welfare, cultural diversity and intercultural leadership). In a world that demands greater cognizance, cooperation and connectivity, education becomes the catalyst for innovative approaches to introducing our students to the impacts and opportunities of a worldwide society.²⁷ In the age of globalization, the importance of communicating in a foreign language and the potential cultural understanding to be gained through learning that language cannot be overstated.

Parents and the general public realize that the world is changing and recognize that education is one of the keys to adapting. A recent PDK/Gallup Poll found 57% of respondents feel schools should allot more time for students to spend on learning about other nations of the world and the way people live around the globe. In addition, an overwhelming 85% of respondents surveyed believe it is "very" or "somewhat" important that students learn a second language in addition to English.²⁸

“During a very hot summer two years ago, I traveled to China. After visiting Beijing, Xian, Shanghai and Hong Kong my idle curiosity toward Chinese culture turned into an absolute fascination in all things Asian. So when the teacher who accompanied us presented this online class to me I was very excited! This online class has been a major success for me, actually teaching me the language in a way I can understand and remember.”

Howell High School student
Chinese

5.1 Innovative curriculum

The challenges of the 21st century require both innovative curriculum and new modes of instruction. However, the American education system lacks the capacity to meet the rising demand for changes, such as increased foreign language instruction, through traditional methods. This is true, for example, in the languages that have recently emerged as critical for economic, cultural and national security reasons, such as Chinese and Arabic. These languages have been rarely taught in the U.S., and the infrastructure for teaching languages other than the traditionally popular ones, such as Spanish and French, is almost nonexistent: few teachers, few programs and limited curriculum materials. However, technology and globalization can be effectively employed to provide high-quality education in languages, science and other cutting-edge subjects. What is needed is creative thinking, policy support and funding.²⁹

In addition to introducing innovative curriculum such as the Chinese language program, *MVS* continues to work with schools across the state to respond to new and emerging needs, and to seek new and enriching educational experiences for students that build on educational technology and prepare them for the 21st century and global economy. These include:

- ▶ Online Scholars Community Advanced Research (OSCAR) is an innovative online course, piloted in fall 2007, for high school students who want an opportunity to conduct in-depth research on diverse topics outside of the constraints of a traditional school setting. Employing collaborative and virtual teaming skills, OSCAR participants use online tools and the Internet to work in research teams of two or four students from different schools around Michigan. Research teams develop

²⁶ <http://globalizationandeducation.ed.uiuc.edu/Concepts/index.html>, which in part references Cohen, R. & Kennedy, P. (2000). *Global sociology*. New York: New York University Press

²⁷ United Nations University, Pathways Towards a Shared Future, August 2007

²⁸ The 39th Annual Phi Delta Kappa/ Gallup Poll Of the Public's Attitudes Toward The Public Schools, available at http://www.pdkintl.org/kappan/k_v89/k0709pol.htm#37

²⁹ Based on comments by Yong Zhao, University Distinguished Professor and director, U.S.-China Center for Research on Educational Excellence, College of Education, Michigan State University, East Lansing, available at http://www.pdkintl.org/kappan/k_v89/k0709pol.htm

5.1 Innovative curriculum (cont.)

topics of investigation based on student interests. The learning experience teaches students to communicate effectively online, collaborate as a productive member of a virtual research team, engage in a variety of current research methodologies, create an authentic research product, present research findings to various audiences using multimedia tools, and contribute to scholarly communities

- ▶ The world language mobile learning project, introduced in 2007, is designed to test the impact of podcasting and portable, mobile learning in the instruction of a world language, through the use of MP3 player technology. Students who signed up for a Spanish 1A course in fall 2007 and committed to enroll in Spanish 1B in the spring received audio lessons and podcasts as part of their course. There are two fundamental premises of this project. The first is that the use of podcasting will strengthen the instructional process by inserting the audio human voice into the online course creating a powerful human connection between instructor and student. The second is that the utilization of the portable digital media player will provide greater accessibility to the course content and a highly flexible means of student access thus creating the opportunity for greater student involvement. The participants will be required to listen to the preloaded weekly audio assignments, download instructor-generated podcasts, create podcasts and send them to their instructor, and complete quizzes and assessments

related to both. The Spanish 1 students will be required to complete pre- and post-project surveys regarding their experience in the use of MP3 technology and the impact of the use of the player on their online course experience.

These cutting-edge examples are only a start. *MVS* is planning to add an online Arabic course, an American Sign Language course, and a set of online after-school enrichment experiences in 2008 and beyond. In addition, *MVS* continues to explore and evaluate the use of new and innovative technologies for delivery of content and courses. Those new tools include Web 2.0 technologies and social software, as well as games and simulations. Instructional gaming, in particular, has been cited as an important new medium for teaching and learning. Through commercial games, educational games and game design, psychologists and educators are discovering affective, cognitive and social outcomes through online, computer and console-based games. *MVS* is partnering with leading researchers to investigate the use of online games and simulations in online K-12 courses.

“Being against online learning is like being against electricity.”

Interview participant quoted on the Public Broadcasting Service News program “To the Contrary/Behind the Headlines: Public Schools go Virtual with Online Classes”

October 26, 2007



5.2 The evolution of technology

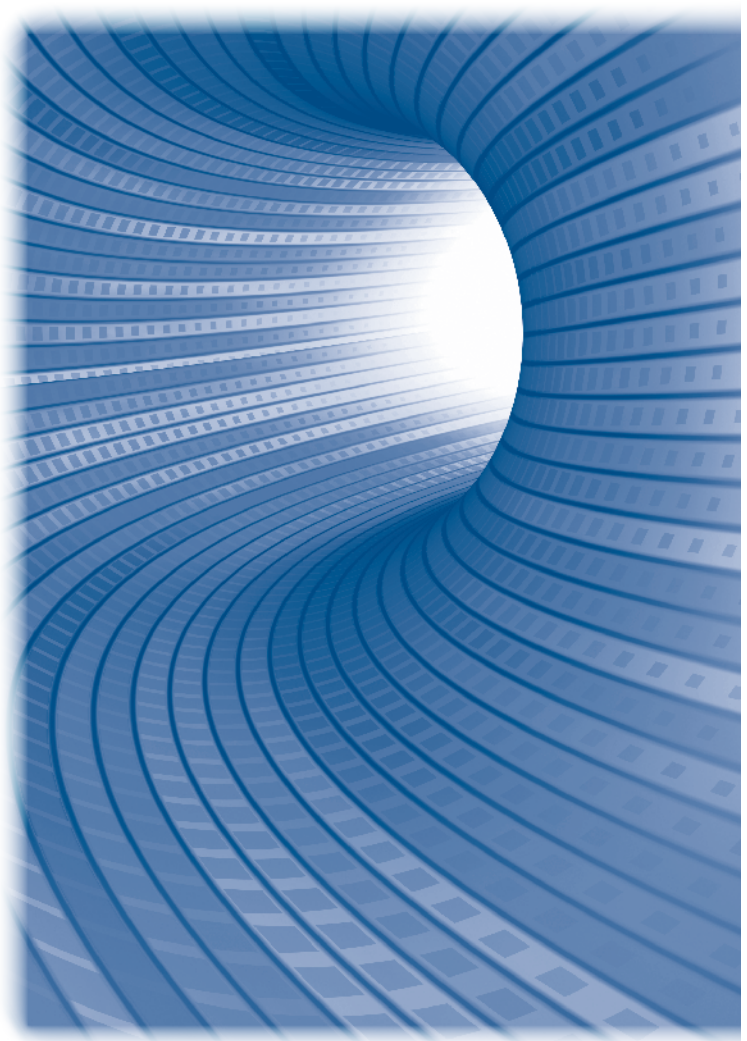
Computing is rapidly growing more powerful and cheaper. Moore's Law, the well-known observation of Intel founder Gordon Moore that computing power doubles about every two years, has allowed computers to become more and more ubiquitous. Our lives are increasingly digital and connected; from the way we take pictures, to the way we consume and share music and video, to the many companies that operate as distributed work groups. The constant doubling of computing power means that the pace of change is increasing, and the cost of computing power is being driven down rapidly. These changes have numerous implications for education, and for society in general, that go far beyond the scope of this report. A few changes that we can predict, however, include:³⁰

- ▶ One-to-one computing programs, in which each student and the teacher have a computer, are likely to become more common as the price of computers continues to drop. This will allow for truly individualized instruction that matches the course to the student's learning style and knowledge base.
- ▶ The cost of broadband access will continue to fall and broadband penetration will increase. The result will be a smaller number of students on the wrong side of the digital divide, but a greater loss for those left behind.
- ▶ The number and variety of types of devices that can access the Internet will increase, and the capabilities of these devices will converge. Consider the ways in which cell phones are now used as digital cameras and for text messaging, or the advent of video iPods and podcasting.
- ▶ Young students will continue to outpace their parents and teachers in adapting technology and in their comfort with being online. Education will be challenged to keep up with gaming, virtual worlds such as Second Life, and personal digital media such as blogs, wikis, and photo and video logs.

All of these trends point to an increase in the amount of learning that takes place online, whether that means distance education or greater use of Internet technology in the classroom. Certainly more teachers will use Internet resources and tools in their traditional classrooms. Already, 20% of higher education students (3.5 million students) are taking at least one online course;³¹ therefore, taking an online course in high school is part of a student's preparation for higher education.

One of the key aspects of education's evolution will be the need, and demand for, lifelong learning. In a rapidly changing world, it is clear that one's education cannot end at age 16, or 26, or even 36. To remain competitive, as individuals and as a state, we must continue to learn.

Keeping educational practice up to date with these advances is not primarily a technology challenge, but instead is largely an issue of whether or not teaching and learning will continue to evolve to take advantage of the latest technology and pedagogy. Online learning is one of the vital methods that educators must use to address these changes. Whether it's anticipating rapid advances in technology and communication, teaching students how to collaborate around the globe, increasing proficiency in foreign languages, or increasing the expertise and capacity of our teachers, Michigan's schools are entrusted with providing our students with the skills necessary to thrive in an increasingly global, connected and digital world.



³⁰ Several of the ideas in this section are based on the KnowledgeWorks Foundation *Map of Future Forces Affecting Education 2006-2016*, www.kwfdn.org/map

³¹ *Online Nation: Five Years of Growth in Online Learning*, I. Elaine Allen and Jeff Seaman, Babson Survey Research Group and The Sloan Consortium, October 2007

APPENDIX A: DEFINITIONS

Asynchronous: Not occurring at the same time. Most K-12 online education programs are primarily asynchronous, allowing students and teachers to participate according to their schedule. Communication and interaction take place via email or discussion boards.

Digital content: Subject matter developed and delivered via computer technology.

Discussion board: A chronological listing of students' and teacher's comments, linked to participants' names, which replicates a classroom discussion in an online course. Also called threaded discussion.

E-learning: Instruction and content delivered via digital technologies, such as online or CD-ROM, or learning experiences that involve the use of computers.

E-text: Digital version of printed words and pictures that may be delivered via the Internet or other digital means.

Learning management system (LMS): The technology platform through which online courses are offered. An LMS includes software for the creation and editing of course content, communication tools, assessment tools, and other features designed to enhance access and ease of use. "Course management system" (CMS) is often used interchangeably.

Online learning: Education in which instruction and content are delivered primarily via the Internet. Online learning is a form of distance learning.

Seat time: The actual physical presence of a student in a brick-and-mortar school setting, often used as a measure for funding in K-12 education.

Supplemental online program: An online learning program that offers courses or other learning opportunities to students who are otherwise enrolled in physical schools (or cyberschools); credit for successful completion of these learning opportunities is awarded by the school in which each student is enrolled.

Synchronous: Occurring at the same time. While most online education programs are asynchronous (see above), a few are synchronous and use real-time, Internet-based collaborative software that combines audio, video, file sharing and other forms of interaction.



APPENDIX B: MICHIGAN MERIT CURRICULUM: ONLINE EXPERIENCES

The Michigan Department of Education’s published guidelines for the online learning experience required under the Michigan Merit Curriculum³² were developed to assist teachers and schools in successfully implementing the Michigan Merit Curriculum. The characteristics of quality online learning can be categorized in five broad areas. These five areas are summarized below and describe specific experiences in which students should engage to develop 21st century learning skills. The following are suggestions for schools to use when developing online courses or experiences to meet the requirement of online learning.

1. Develop Life-long Learning Skills

As much as students need knowledge in core subjects, they also need to know how to keep learning continually throughout their lives. Lifelong learners demonstrate information and communication skills; thinking and problem-solving skills; and interpersonal and self-directional skills.

Checklist

Does the online course or online learning experience require students to:

- Conduct research using Internet-based search engines and software tools?
- Access, analyze and manage or store information gathered from online sources?
- Evaluate information from various online resources for accuracy, bias, appropriateness and comprehensiveness?
- Create and share electronic documents and multimedia materials with educators and other students?
- Post messages to threaded discussions, participate in synchronous chats, blogs, listservs and/or similar forms of communication?
- Make independent learner decisions?
- Develop, implement and communicate new ideas to others via the Internet?
- Monitor one’s own learning needs and take responsibility for meeting these needs?
- Demonstrate teamwork, develop relationships in a virtual environment and respect diverse perspectives of others?
- Demonstrate network etiquette and ethical behavior in an online community context?
- Navigate websites and other online resources such as Podcasts, and determine the value and reliability of content collected?
- Take tests, complete assignments and respond to instructor feedback in an online environment?



2. Use of Technology Tools

In the digital world, students need to learn to use the tools that are essential to everyday life and workplace productivity.

Checklist

Does the online course or online learning experience require students to:

- Use a laptop or desktop computer, Internet connection, MP3 player, camcorder, digital camera, personal digital assistant, cell phone or other multimedia device?
- Use spreadsheets, databases, email programs, word processor, web browser, search engine software, calendar tools, groupware, or graphical and multimedia programs for presentations?

³² Based on Michigan Merit Curriculum Guidelines: Online Experience, Michigan Department of Education, September 2006, http://www.michigan.gov/documents/mde/Online10.06_final_175750_7.pdf

APPENDIX B (CONT.)

3. Content Alignment and Use of Media

The curricular content of online courses or online experiences that are taken to satisfy core high school graduation requirements should be aligned with state curriculum standards, benchmarks and expectations. Online courses and learning experiences that utilize sound instructional design standards and make use of rich multimedia content can be more engaging for students.

Checklist

Does the content in the online course or online learning experience:

- Align with state and local standards, benchmarks, and expectations?
- Contain learning activities based on sound instructional design methodologies?
- Utilize audio, video animation, simulations and other engaging multimedia?
- Provide opportunities to use online tools and applications that make learning more relevant to the real world?

4. Educator, Expert and Student Involvement

Students learn best in an online learning environment when they have the opportunity to interact with educators, other adult experts and other students. Some online self-paced courseware programs can provide valuable remedial or enrichment support for students, however, many lack the characteristics of quality online learning because of limited human interaction or instructor feedback.

Checklist

Does the online course or online learning experience:

- Include an instructor who can facilitate student learning, online discussions and other activities?
- Utilize teacher-driven online assessments or other tools that offer instructor feedback to students?

5. Sustained Learning

Meaningful online learning activities usually require a period of time for students to practice using technology tools, explore the virtual learning environment and develop a comfort level in operating in this space.

Checklist

Does the online course or online learning experience:

- Provide an opportunity for students to work and learn in a virtual environment for a minimum accumulation of 20 hours?
- Provide an opportunity for students to develop working relationships with an educator and other students that do not attend their local school?

4.22	-0.22	10.00%
838.34	-8.22	11.32%
21.23	+9.32	11.56%
20.34	+0.32	10.32%
72.20	-0.21	13.10%
5,322.00	+3.12	10.04%
3.00	-9.33	10.66%
23.03	-3.38	15.29%
238.27	-7.93	18.12%
928.10	+3.03	10.89%
38.23	+0.34	10.93%
4.23	+0.00	11.93%
46.02	-3.23	11.32%
47.38	+3.98	10.32%
74.32	-3.21	10.99%
2.48	-0.32	15.32%
332.45	+9.73	10.02%
86.39	+2.09	11.87%
4.21	+3.03	10.89%
132.09	+0.34	10.93%
33.83	+0.00	11.93%
57.92	+2.23	13.78%
23.33	-2.23	11.32%
832.98	-2.21	10.73%
73.12	+3.98	10.32%
833.22	+1.32	12.12%
2,212.30	-3.21	10.99%
3.00	-0.32	15.32%
83.12	+9.73	10.02%
63.98	+2.09	11.87%
234.22	+9.32	11.56%
2.32	+0.32	10.32%

APPENDIX C: ADDITIONAL RESOURCES

Organizations

North American Council for Online Learning (NACOL)

www.nacol.org

NACOL is a Washington, DC-based, nonprofit organization that aims to increase educational opportunities and enhance learning by providing leadership in K-12 online teaching and learning; it provides a variety of resources to members and non-members and hosts the Virtual School Symposium, an annual conference focused solely on K-12 online learning and virtual schools.

Southern Regional Education Board (SREB)

<http://www.sreb.org>

The Southern Regional Education Board, the nation's first interstate compact for education, was created in 1948 by Southern states. SREB helps government and education leaders work cooperatively to advance education and has had a significant focus on online learning.

Published reports

NACOL National Standards of Quality for Online Courses

North American Council for Online Learning, September 2007

<http://www.nacol.org/nationalstandards/NACOL%20Standards%20Quality%20Online%20Courses%202007.pdf>

Standards for Quality Online Teaching

Southern Region Education Board, August 2006

http://www.sreb.org/programs/EdTech/pubs/PDF/06T02_Standards_Online_Teaching.pdf

Professional Development for Virtual Schooling and Online Learning

North American Council for Online Learning, November 2007

http://www.nacol.org/docs/NACOL_PDforVSandOlnLrng.pdf

Cost Guidelines for State Virtual Schools

Southern Region Education Board, August 2006

http://www.sreb.org/programs/EdTech/pubs/PDF/06T03_Virtual_School_Costs.pdf

Costs and Funding of Virtual Schools

Augenblick, Palaich, and Associates, October 2006

www.apaconsulting.net

Laboratories of Reform: Virtual High Schools and Innovation in Public Education Education Sector, June 2007

http://www.educationsector.org/research/research_show.htm?doc_id=502307

Virtual Schools and 21st Century Skills

The North American Council for Online Learning and the Partnership for 21st Century Skills, November 2006

<http://www.nacol.org/docs/VSand21stCenturaySkillsFINALPaper.pdf>

Report to the Michigan Department of Education on the Development and Growth of the Michigan Virtual High School, 1999-2005

Michigan Virtual University, April 2005

http://www.mivu.org/upload_1/MVS%2019992005%20report.pdf

Toward a Deeper Understanding of Student Performance in Virtual High School Courses: Using Quantitative Analyses and Data Visualization to Inform Decision Making

W. Patrick Dickson, Ph.D., report Submitted to Michigan Virtual University July 21, 2005

http://www.mivu.org/upload_1/NCREL.pdf

Connecting Students to Advanced Courses Online

U. S. Department of Education, December 2007

<http://www.ed.gov/admins/lead/academic/advanced/index.html>

Organizations

North American Council for Online Learning (NACOL)

www.nacol.org

NACOL is a Washington, DC-based, nonprofit organization that aims to increase educational opportunities and enhance learning by providing leadership in K-12 online teaching and learning. It provides a variety of resources to members and non-members and hosts the Virtual School Symposium, an annual conference focused solely on K-12 online learning and virtual schools.

Southern Regional Education Board (SREB)

<http://www.sreb.org>

The Southern Regional Education Board, the nation's first interstate compact for education, was created in 1948 by Southern states. SREB helps government and education leaders work cooperatively to advance education and has had a significant focus on online learning.

Online Michigan resources

Michigan Merit Curriculum Guidelines: Online Experience

Michigan Department of Education, September 2006

http://www.michigan.gov/documents/mde/Online10.06_final_175750_7.pdf

Pupil Accounting Manual, Section 50—Michigan Virtual High School and Distance Learning

Michigan Department of Education, revised August 2005

http://www.michigan.gov/documents/50-VirtualHS-DistLearning_41466_7.pdf

