

ASSOCIATION OF ALASKA SCHOOL BOARDS

CRITICAL ISSUES

The New Literacy • 21st Century Learning in Alaska



21st Century Learning and its Importance in a Competitive Nation and World

Critical Issues is a special publication of the Association of Alaska School Boards. Inside the reader will discover:

Global Interdependence.....2

Alaska Career Ready
Business & Education Speaking the Same Language2

How Young Alaskans See the World.....3

How Other States are Teaching New Skills4

What are 21st Century Skills?5

21st Century Skills and the Alaska Workforce.....5

Consortium for Digital Learning
Preparing Alaska's Students for Success in the Global Economy6

To download a copy of this Critical Issues paper, and the bibliography used to prepare it, please visit www.aasb-cdl.org.

Educating young people to be successful in the 21st century is no small task, but the consequences of failing to do so are enormous. Current data show that high school graduates in jobs requiring the highest degree of innovative thinking earn more than 50 percent more than those in jobs requiring the least innovation. For college graduates, the difference is 135 percent.

A parallel trend shows that our nation's current practice of outsourcing jobs to countries such as China and India makes it more difficult for unskilled American workers to earn middle-class incomes. As a nation, we can meet the challenge of job ready skills or relinquish the advantage to emerging economies. These trends make it clear that as a nation and within the state of Alaska, we must shift the focus of education to **learning optimized for the 21st century**.

Twenty-first century learning starts with an understanding of a new purpose for our schools and educators. Twenty years ago, school was the place where students learned information and skills in core subject areas such as English, language arts, science and history. Educators were primarily information experts who passed along what they had learned in school to their students.

Today, information is readily available from numerous sources. With a computer, the Internet and a search engine, much of the information students used to spend the entire school year learning can be acquired

in a fraction of the time or on an as needed basis. As a result, in addition to being information repositories, schools now need to be places where students can acquire knowledge and skills they can use to solve complex problems for the rest of their lives. In addition to being information experts, educators now need to be expert facilitators and coaches.

For example, students today must master core subjects **and** a broad range of interdisciplinary knowledge areas that education and business leaders call "21st century skills." Examples include global awareness, financial and entrepreneurial literacy, information and media literacy, civic literacy and health literacy. Students also need to acquire skills such as innovation and creativity, critical thinking and problem solving, information and media literacy, initiative, adaptability and accountability.

Several factors combine to make 21st century learning of critical importance, but chief among them is global interdependence.

Young Americans coming of age in the early 21st century – the 70 million people born between 1982 and 2000 – live in a world that is arguably more complex than it was just a few years ago. In a remarkably short period of time, the world and its people, economies and cultures have become inextricably connected, driven largely by the Internet, innovations in mobile computers and devices, and low-cost telecommunications technology.

Global Awareness

To compete abroad successfully, American companies need a workforce equipped to translate American business models and offerings to international marketplaces. Many of the challenges facing us – geopolitical tensions, climate change and disease pandemics – are global in nature and scale, and thus demand cross-border perspectives and solutions. In such a world, tangible skills such as proficiency in multiple languages are obviously critical to success.

@ 21st Century Skills

What Alaskans are Saying About 1 to 1 Digital Learning

"As we prepare students for an emerging world that is global, where three out of five jobs they will compete for don't even exist, I am convinced this laptop initiative is providing skills that will serve students well, regardless of the career path they pursue."

- Joel Roylance, Anchorage principal



"The staff at our school are in agreement; even without the clear educational benefits that these incredible tools provide, just the increased attendance justifies any expense that this program incurs."

- Tim Shumway, Crooked Creek teacher

"In my years of education I cannot say I have ever felt a shift to the degree that we have made. I've described it as a revolution. We are not turning back. Ever."

- Laury Scandling, Juneau principal



"The laptop has really helped me. It has pushed school into the 21st century."

- Jacob, Cordova student

"These computers changed our lives."

- Jeremiah, Fairbanks student

"The laptop program gives us students the opportunity to achieve unbelievable things."

- Mark, Kuspuk student

Global Interdependence

Global interdependence has profound implications on all aspects of our society – from how we think and work to how we play and learn. In business, for example, 9 to 5 has been replaced by 24/7, as technology keeps us "always on" and our markets and workforces extend across every time zone. Our colleagues are more diverse, as the number of women and ethnic minorities are increasing. And the focus of business is changing to match the largest growth opportunities – those abroad. International commerce now accounts for a quarter of the American economy and is fueling a third of U.S. economic growth.

The business case for global markets is compelling, and to compete abroad successfully, American companies need a workforce equipped to translate American business models and offerings to international marketplaces.

Moreover, many of the challenges facing us – geopolitical tensions, climate change and disease pandemics – are global in nature and scale, and thus demand cross-border perspectives and solutions.

In such a world, tangible skills such as proficiency in multiple languages are obviously critical to success. But language skills are just part of the equation. To be productive global citizens, Americans need other skills that are less tangible, including greater sensitivity to cultural differences, openness to new and different ideas, and the ability to adapt to change.

The massive amount of information and opinion available to us offline and online can help us meet these and other challenges, but awash in this sea of information each of us needs the ability to sort fact from fiction, evaluate and interpret conflicting ideas. We also need to know how to work collaboratively and creatively in person, by telephone and online to make decisions and take action.

Making the transition to 21st century learning requires rethinking both **what** and **how** we teach in the context of preparing our students for life and work in this changing world.

Alaska Career Ready Business & Education Speaking the Same Language

The State of Alaska is piloting a new assessment and training program to equip high school students with foundational skills needed to succeed in college or on the job. The Alaska Career Ready program is scheduled to expand to all Alaska schools in 2009.

The foundational skills assessed by Alaska Career Ready include applied math, reading for information and locating information. Eventually, students who are assessed will be awarded a Career Readiness Certificate, which will provide prospective colleges or employers with another credential indicating foundational skill levels, in addition to a high school diploma and SAT or ACT scores.

"The skills needed to enter many vocations are similar to the skills needed to get into college. By 2010, three-quarters of jobs will require some type of training after high school," says Roger Sampson, former commissioner of education who championed the program. "Alaska Career Ready lets students know what level of skill they need for the occupations they're interested in, how well they match up in those skill levels, and it provides training to ready their goal."

The pilot program will focus assessments on 6th, 8th and 11th grade students in about eight school districts in 2008 before going statewide next year, say officials at the Departments of Labor & Workforce Development and Education & Early Development, which are coordinating the effort.

At the urging of AASB and others, the state Board of Education & Early Development decided to test the readiness of school



districts to implement the assessments and training in 2008 before launching the program as a statewide mandate. Officials say 15 states already issue Career Ready certificates and 18 more are in the process of implementation.

The state already has contracted with the Worldwide Interactive Network (WIN) of Kingston, Tennessee, to provide benchmark assessments and curriculum, and with ACT Inc. through its WorkKeys program to provide assessments for the Career Readiness Certificate.

Corporations want workers with 21st Century skills. When asked what skills are becoming more important in the workforces, companies listed critical thinking (78%), information technology (77%), health and wellness (76%), collaboration (74%), innovation (74%), and personal financial responsibility (72%).

- Partnership for 21st Century Skills

Financial, Economic and Business Literacy

"As I talk to businesses, the biggest thing that they look for is qualified people. My job as a leader is to try to look out into the future, see what's necessary, and then equip my people with whatever it is. This (1 to 1 learning) proposal is for every school, every kid, rich, poor, north, south, east, west, rural, and urban. At a stroke, it would begin the elimination of the division between the technological haves and the have-nots."

- Former Maine Governor Angus King on the 1 to 1 learning initiative he spearheaded

@ 21st Century Skills

How Young Alaskans See the World

Today's generation of learners is markedly different from previous generations in what engages them and how they learn.

Today's Students Are Diverse

According to U.S. Census data, 34 percent of today's students are minorities and multi-ethnic and nearly half of the nation's children under the age of five are minorities. Americans will become even more diverse as immigration fuels two-thirds of the national population growth between now and 2050. In Minnesota's public schools, 80 languages are spoken; in California, the number is 300. Here in Alaska it is 108.

Reflecting the world that surrounds them, many of today's youth simply don't understand their parents' perspectives on race, religion and hot-button social issues. Ethnic, cultural and social diversity is just part of their lives. The same is true for having more diversity in their peers' abilities and disabilities. According to the U.S. Department of Education, the number of K-12 students enrolled in programs serving students with disabilities doubled to 6.2 million between 1976 and 2000.

Today's Students Thrive on Collaboration

With the global community made possible through the Internet and participatory web sites, today's students also expect collaboration. "A global youth culture has emerged of individuals who share tastes in music, fashion and lifestyle – and who also think alike," observed education consultant Thom Markham. "The research also shows that youth in cities as diverse as New York, Seoul and Caracas have more in common with each other than they do with peers in their own countryside. This trend puts us squarely on the path to greater collaborative and synergistic efforts that could improve the quality of life on a global level."

Today's Students Are Community Minded

If students in the 1960s and 1970s were the "me" generation, demographics and technology have created a 21st century "we" generation. Where community once was defined by geography or perhaps political or religious beliefs, today's students experience community around a wide range of ideas and interests – and across continents and cultures.

Nowhere is today's definition of community more apparent than on the Internet. As New York Times columnist David Pogue wrote, "In 2006, the big Internet news was 'Web 2.0,' that is, participatory Web sites, like YouTube, MySpace, Wikipedia, Digg and Flickr, which relied on material supplied by the audience itself. On these explosively popular sites, the Web is not so much a publication as a global conversation."

Participatory sites provide students with a highly engaging and effective learning environment. University of Wisconsin-Madison Professor J.P. Gee asserts that these "affinity spaces" are critical because they "are sustained by common endeavors that bridge differences in age, class, race, gender and educational level, and because people can participate

in various ways according to their skills and interests. They depend on peer-to-peer teaching with each participant constantly motivated to acquire new knowledge or refine their existing skills and allow each participant to feel like an expert while tapping the expertise of others."

Today's Students Embrace Technology

Students today have grown up in a world where mobile computers, cell phones with browsers and other personal digital devices are common tools, and instant messaging, blogs and wikis are common modes of self-expression. They live a media rich, connected and mobile lifestyle, and they are just as often producers of content as they are consumers. Social networks and participatory sites such as My Space and Second Life provide them with engaging opportunities for interaction and informal learning.



Students spend an average of nearly 6.5 hours a day with media.

87 percent of 12 to 17-year-olds – or 21 million young people – are Internet users.



Three-quarters of today's teens use at least two digital devices daily.

Today's Students Demand Relevance

Not surprisingly, students today expect to learn in an environment that mirrors their lives and their futures – one that seamlessly integrates today's digital tools, accommodates a mobile lifestyle, and encourages collaboration and teamwork.

Too often, though, these are not the attributes students find at school. As one student expressed it: "Going to school is like flying on an airplane. I have to turn off my digital life, strap myself in and wait until the end of the flight to resume my digital life."

The disconnect between a student's digital life and school matters because students learn better when they are engaged, and research about what engages them points to technology. Numerous studies also have shown that effective integration of technology into teaching and learning – technology when used to support meaningful learning activities in context – can result in higher levels of student achievement.



The link between technology, engagement and achievement is especially important for our K-12 schools because by government mandate, their mission has evolved from providing an opportunity for young people to learn to making sure they do. When students must learn, motivating them to learn becomes essential.

Today's Students Require Access

1 to 1 learning programs, which provide students and teachers with round-the-clock use of a notebook computer as well as access to educational software and digital authoring tools, can be critical components and are showing compelling evidence of preparing students for the future.

Every state, district and school has its own unique objectives for their 1 to 1 programs, but most focus on one or more of the following goals:

- Improving students' academic achievement through the use of technology;
- Assuring equity in access to digital resources;
- Promoting economic development by better preparing students for today's workplace; and
- Enhancing teaching to transform the quality of instruction.

While 1 to 1 learning programs require a significant commitment to technology, it is important to view them as learning programs, not technology initiatives. As Bette Manchester, a teacher in the Maine Learning Technology Initiative, said, "1 to 1 computer access changes everything. But let me make this crystal clear: this is not about technology or software, it is about teaching kids."

An increasing number of schools and school districts across the country and in Alaska are experiencing the reality of such observations after implementing 1 to 1 learning programs. In fact, both quantitative and qualitative research show that students with routine access to notebook computers score higher in writing assessments, demonstrate better analytical skills, collaborate more, and have lower absenteeism and dropout rates.

Civic Literacy

Where community once was defined by geography or perhaps political or religious beliefs, today's students experience community around a wide range of ideas and interests – and across continents and cultures. Nowhere is today's definition of community more apparent than on the Internet. Participatory sites provide students with a highly engaging and effective learning environment.

How Other States are Teaching New Skills

Reality Today

School districts across the country are revising their academic curriculum to give students more 21st century learning opportunities, according to a survey by the National School Boards Association (NSBA).

More than 50 percent of responding school districts reported that they have **revamped their curricula** to include higher math, science, and technology standards; and nearly 50 percent have indicated they are now **using new assessment measures** for 21st century learning skills, such as problem-solving, teamwork and critical thinking. Many districts are also reporting that they are **offering more Advanced Placement courses and tests** (nearly 42 percent), and **revamping their workforce readiness programs** (35 percent).

"We believe this is a good indication that school districts are moving beyond the basic requirements of No Child Left Behind and really looking at the advanced skills that students are going to need to perform well in the workplaces of the future," said NSBA Executive Anne L. Bryant.

Among those districts that are revising their curricula, **85 percent reported that technology is playing a part** in supporting the changes, especially in the area of using technology tools for project-based learning (83 percent), distance or online learning (nearly 57 percent) and upgrading math and science equipment and facilities (nearly 52 percent). A majority of districts (nearly 53 percent) said that they are using new interactive web tools, such as wikis and blogs, in the classroom.

School districts were evenly split (45 percent) between the two biggest technology challenges: funding and integrating technology into the classroom. These two challenges have remained consistent over the four years of the NSBA technology survey.

NSBA conducted an e-mail survey the week of October 1, 2007 of approximately 1,400 registrants of the T+L Conference and members of NSBA's Technology Leadership Network. The group includes technology directors and specialists, teachers, administrators, and school board members.



For the **fourth straight year**, survey respondents said by a wide margin – 92 percent – that technology in the classroom increases educational opportunities for students. And when asked how technology helped, nearly 95 percent said it helps students become more engaged in learning.

Home access to the Internet for low-income students continues to be a serious issue with nearly 80 percent of respondents saying it was a problem in their districts, which was about the same reported as last year. Districts are improving Internet access for low-income students by providing opportunities in before- or after-school programs (nearly 54 percent), and supporting access for students at community centers or libraries (48 percent).

Progress Being Made

In **Maine**, economic development was the driving force behind the state's 1 to 1 learning program, which distributed a notebook computer to every seventh- and eighth-grade student and their teachers.

Now, after having notebooks all four years of high school, 12th grade students scored higher than 85 percent of their peers in all five core subjects of the last Maine Educational Assessment. Those students also set a state record for the percentage going on to college. In addition, attendance improved by nearly 8 percent and the number of behavior letters sent home decreased by 54 percent, according to a 2004 study.

The **federal E-Rate program continues** to be important to school districts in meeting their technology goals. Nearly 72 percent replied in the NSBA survey that E-Rate is somewhat or very important to their districts. In terms of improving the program, nearly 76 percent said the application process needs to be enhanced, 35 percent want more additional training and outreach to applicants, and 31 percent want sanctions for rule violators.

If school districts were to receive additional technology funding, nearly 75 percent said they would put it into classroom instruction and 66 percent said they would use it for staff professional development.

"20th century learning was largely spent refining the teaching model of the 19th century. The design of schools needs to keep up with the pace at which students are going. Children are doing things they could never do before. That's very exciting, but the education system has to go there with them."

*- Professor Stephen Heppell,
UK education technology consultant*



Information and Communication

"Students are coming into our classrooms today out of an information-rich online experience. This changing information landscape means rethinking literacy. Students require not only the ability to write, but to communicate compellingly...to find information, critically evaluate it, and employ it to express ideas, answer questions, solve problems, and accomplish goals. As little as we know about the future for which we are preparing our students, it is clear that it will be a place governed by information."

- David Warlick, The Landmark Project

@ 21st Century Skills



"For so long we've been used to a curricula construct that's come out of an industrial age. It's become ingrained in teachers, the pedagogical DNA deeply buried within them. Skill sets must be appropriate for a digital age in which young people live. They have a new way of looking at the world. We're getting teachers with a DNA construct working with these young people, and there's a fundamental mismatch. We need a new pedagogy called 'DNA for the 21st Century.' Kids and teachers in that complex interrelationship we call 'learning' will provide a rich new way of doing things. If we don't have a new DNA, we're going to continue to condemn future generations of teachers because we haven't changed the fundamental building blocks."

- Greg Whitby, Executive Director of Schools, Catholic Diocese of Parramatta, Australia



"For the first time in history, our job as educators is to prepare our children for a future that we can not clearly describe."

- David Warlick, The Landmark Project



What Are 21st Century Skills?

Skills students now need to succeed in school, work and life. They include:

Information and Communication

- Using technology to access, evaluate, create, manage information
- Analyzing, synthesizing information to solve problems and answer questions
- Understanding ethical/legal use issues

Thinking and Problem Solving

- Developing, communicating ideas; demonstrating originality, inventiveness
- Using sound reasoning, problem-solving to reach goals
- Working effectively with changing priorities

Interpersonal and Self-Direction Skills

- Working appropriately, productively with others
- Adapting to varied roles and responsibilities
- Defining, prioritizing, completing tasks, managing workload

Global Awareness

- Understanding of global issues, nations, cultures
- Working collaboratively with people of diverse cultures, religions, lifestyles
- Using languages in addition to English

Financial, Economic and Business Literacy

- Making appropriate personal economic choices
- Understanding role of the economy in society
- Using entrepreneurial skills to enhance workplace productivity, career options

Civic Literacy

- Understanding, participating in governmental processes
- Exercising citizenship rights and obligations
- Understanding local, global implications of civic decisions

For more information visit www.21stcenturyskills.org. The Partnership for 21st Century Skills has developed a unified, collective vision for 21st century learning to strengthen American education. Its 26 members represent prominent business and education organizations.

21st Century Skills and the Alaska Workforce

While the Alaska Department of Labor estimates that eight of every 10 well-paying jobs in Alaska currently do not require a four-year college degree, increasingly employers are seeking workers with 21st Century skills to manage and build construction projects, operate complex machinery and think innovatively as part of a workplace team. That means instilling those skills in Alaska's 130,000 K-12 students.

With a workforce now topping 330,000 jobs, Alaska has outgrown the boom and bust cycles of the past. In their place, the state has seen two decades of steady job growth and a maturing of the economy in several important sectors, especially in high-skilled white-collar employment. Labor statistics show the number of architects, engineers, accountants and lawyers in Alaska has grown from about 7,800 to 12,000 since 1990, an increase of 53 percent. In total, Alaska's 24,000 professional and business service workers make up eight percent of the workforce and account for \$1 billion in wages.

Yet Gov. Sarah Palin noted in a recent state publication, "In 2005, more than 36 percent of newly hired engineers working in Alaska were not Alaska residents. To address this and other skills gaps, Alaska must continue its investment in professional development at the secondary and postsecondary levels."

In a 2005 report to Congress, the Committee on Prospering in the Global Economy of the 21st Century, chaired by Norman R. Augustine,

the retired CEO of Lockheed Martin Corp., concluded that "few jobs seem safe" in today's competitive world. The committee credited this to "The Death of Distance" through breakthroughs in aviation and transportation of goods and the World Wide Web (transportation of information in large volumes at little cost).

"How will Americans compete?" the committee asked. "The answer appears to be: not very well. . . . For example, five qualified chemists can be hired in India for the cost of just one in America. Given the enormous disadvantages in labor costs, we cannot be satisfied merely to match other economies in those areas where we do enjoy strength; rather we must excel . . . markedly."

This analogy by poet Richard Hodgetts summarizes the essence of innovation in a highly competitive environment:

*Every morning in Africa a gazelle wakes up.
It knows it must outrun the fastest lion or it will be killed.*

*Every morning in Africa a lion wakes up.
It knows it must outrun the slowest gazelle or it will starve.*

*It doesn't matter whether you're a lion or a gazelle.
When the sun comes up, you'd better be running.*

Interpersonal and Self-Direction Skills

Young Americans coming of age in the early 21st Century – the 70 million people born between 1982 and 2000 – live in a world that is arguably more complex than it was just a few years ago. In business, for example, 9 to 5 has been replaced by 24/7, as technology keeps us "always on" and our markets and workforces extend across every time zone. Our colleagues are more diverse, as the number of women and ethnic minorities are increasing.

Consortium for Digital Learning

Preparing Alaska's Students for Success in The Global Economy

AASB is committed to the idea that creating 1 to 1 digital learning environments in Alaska's schools will help all students develop 21st century skills, reach their potential, raise their achievement levels and lead successful lives in the global economy.

In spring of 2006, the AASB Consortium for Digital Learning (CDL) was awarded capital funds in the amount of \$5 million by the 24th Legislature. Within seven months after funds were received by AASB, 1 to 1 initiatives were successfully launched at over 55 project sites in 18 districts throughout the state.

The infrastructure is in place to support the ongoing success of each district's four-year CDL project. Major components include; district performance contracts identifying academic and other targets, onsite/online staff professional development, in-state repair and 24-hour phone tech support, ongoing UAA-ISER evaluation, multiple platform options, and parent education seminars on safe computing.

Next Steps

Educators, students and parents involved with CDL have acknowledged the initiative's effectiveness in engaging students, improving academic performance and instilling skills relevant to today's job market. Establishing successful 1 to 1 digital learning pilot projects in diverse school

districts across Alaska has been a good start, but we can and must do more. Given the swift pace of societal transformation, time is not on our side.

Our education system needs to move quickly to ensure that our state's 130,000 students have the benefit of 1 to 1 learning environments so they can graduate from public schools with the skills needed to compete in the rapidly changing global economy. Through the CDL initiative, AASB has articulated a vision firmly rooted in 21st century literacy, and is actively working to educate stakeholders and policymakers on the importance of digital learning as a moral imperative for all of Alaska's students.

Districts currently participating in CDL:

- Alaska Gateway
- Anchorage
- Cordova
- Craig
- Denali
- Dillingham
- Fairbanks
- Juneau
- Klawock
- Kodiak
- Kuspuk
- Lake and Peninsula
- Lower Kuskokwim
- North Slope
- Petersburg
- Southeast Island
- Southwest Region
- Yukon Flats

For more information visit www.aasb-cdl.org



DRC
is a proud sponsor
of the
**Association of
Alaska School Boards**

13490 Bass Lake Rd • Maple Grove, MN 55311 • 800-826-2368

SCHOOLACCESS®

GCI SCHOOLACCESS

Committed to providing
Alaska's students with high
quality education to prepare
them for the global economy.

www.schoolaccess.net
(866) 254-2855

Thinking and Problem Solving

The increased emphasis on problem solving and reasoning skills in the workplace reflects an expansion in demand for better, larger and more sophisticated products and services. Employees, managers and policy makers alike need to grasp complex issues, react appropriately to the existing environment and offer suitable solutions. All levels of an organization – support, supervisory, executive and board – must weigh customer demand and product satisfaction.

@ 21st Century Skills