CyberSmart!®
21st century skills for education

CyberSmart! Online Workshops Facilitated Professional Development in 21st Century Skills

Research Basis

Contact us for a **CyberSmart!** Online Workshop demo at information@cybersmart.org, 800.615.9806, or www.cybersmart.org

CyberSmart! Online Workshops provide Facilitated Professional Development in 21st Century Skills, anytime/anywhere, for all K–12 administrators, technology coordinators, subject area teachers, and classroom educators.

The workshops, created by the developers of the highly acclaimed CyberSmart! Student Curriculum, train educators to safely harness the Internet to support student learning of 21st Century Skills identified by state and national standards as critical to students' learning, achievement, and success in today's digital world.

This paper discusses the need for such professional development, provides findings from current research and standards, and highlights CyberSmart! Online Workshops' unique features:

- anytime/anywhere accessibility
- trained facilitator support
- rich multimedia experience
- collaborative learning community
- hands-on experience in the same kinds of learning educators are expected to facilitate in the classroom

That's **S-M-A-R-T.**

21st Century Skills are now the new "basic" skills

Introducing CyberSmart! Online Workshops

CyberSmart! Online Workshops provide facilitated professional development in 21st century skills, anytime/anywhere, for all K-12 administrators, technology coordinators, subject area teachers, and classroom educators.

The five SMART CyberSmart! Online Workshops:

S afety and Security Online
M anners, Bullying, and Ethics
A uthentic Learning and Creativity
R esearch and Information Fluency
T wenty-First Century Challenges

Workshops last for 10 hours over four consecutive weeks, requiring 2.5 hours "seat" time each week, earning one CEU credit. CyberSmart! is an authorized IACET provider of CEU credit.

The suite of multimedia workshops — using live coaching, video, animation, and reflection within a supportive collaborative online learning community — trains educators to safely harness the Internet to support student learning of the 21st Century Skills identified by state and national standards as critical to K-12 students' learning, achievement, and success in today's digital world.

CyberSmart! Online Workshops represent an unprecedented attempt to build on the remarkably sustained popularity of the free CyberSmart! Student Curriculum — the first professionally developed curriculum to teach students to use the Internet safely, responsibly, and effectively — to respond to the growing demand to train educators to support student learning in a technology-enriched environment where 21st Century Skills are now the new "basic" skills.

Market Demand

Our society's increasing reliance on the Internet for "business transactions, shopping, entertainment, information searches, communication, and of course, learning" is recognized by policy makers, business executives and educators nationwide (Kerry & Isakson, 2002). Educational groups have concluded that "the challenge to educators is to help students develop the 21st century skills that enable them to fully realize technology's most positive effects..." (North Central Regional Educational Laboratory/Metiri Group, 2003).

Even the American public recognizes that the skills students need to learn to be competitive in today's global economy are significantly different that what was needed 20 years ago (Partnership for 21st Century Skills, 2007). Teachers are "under significant pressure to create new and different learning environments for their students if they are to realize the potential of a knowledge society, environments that they themselves have not experienced." (Friesen & Clifford, 2003).

CyberSmart! 21st century skills for education

Developing Highly Qualified Teachers

A significant majority of teachers were trained before the digital age, and even many younger teachers did not receive training in today's technology-enriched environment (Levine, 2006). The importance of training educators in 21st Century Skills is clear. Research consistently shows a significant relationship between highly qualified teachers and student achievement. Developing highly qualified teachers can be accomplished through well-constructed professional development.

> "...preparing accomplished teachers is essential to economic and political survival."
>
> Darling-Hammond 2005

Teacher training is recognized as the "single most effective milieu" for expanding technology literacy (New Media Consortium, 2005). With the emergence of our new knowledge-based economy, the importance of education has increased and must be accompanied by recognizing "that preparing accomplished teachers is essential to economic and political survival" (Darling-Hammond, 2005).

Opportunity

The research-based CyberSmart! Online Workshops allow educators to learn standards-based 21st Century Skills while immersed in a technology-enriched environment, modeling the use of 21st Century tools and engaging educators hands-on in the same kind of learning they are expected to support in the classroom.

CyberSmart! Online Workshops train educators in 21st Century knowledge and skills, identified by state and national standards as critical to K-12 students' learning, achievement, and success in today's digital world. CyberSmart! Online Workshops encourage teachers to deepen their content knowledge using 21st Century Skills. A key hallmark of high quality teacher training is that it deepens educators' content knowledge (Butler, 2004).

Building on the phenomenally successful CyberSmart! Student Curriculum — CyberSmart! Online Workshops address the same issues and objectives for educators that the Curriculum has taught to students for more than five years. Teachers have found the lessons from the CyberSmart! Student Curriculum to be extremely effective teaching tools. Currently, teachers download about 50,000 CyberSmart! Student Curriculum lessons each month. CyberSmart! Online Workshops encourage teachers to deepen their content knowledge using 21st Century Skills.

Key factors in the Curriculum's ongoing appeal to teachers are its message of positive empowerment; ease of use; friendly, engaging tone; and focus on problem-solving and critical-thinking skills. CyberSmart! Online Workshops leverage these same assets to positively impact student learning in a technology-enriched environment.

The Positive Impact of Technology on Student Learning

A meta-analysis aggregating findings from more than 500 individual research studies on computer-based instruction was conducted by James Kulik in 1994 and found that, on average, students using computer-based instruction scored higher on achievement in some subject areas and learned in less time than those in classrooms without computer instruction (Schacter, 1999). A 1998 review of 219 studies by Jay Sivin-Kachala underscored and broadened these results by finding "students in technology-enriched environments experienced positive effects on achievement in all major subject areas" and that "students attitudes toward learning and their own self-concept improved consistently when computers were used for instruction." Writing on the impact and effectiveness of more than 700 empirical research studies, a study involving the entire state of West Virginia and national samples, Schacter concluded that students with access to learning technologies, including collaborative networked technologies, showed positive gains in achievement (Schacter, 1999).

More recently, a technology-infused curriculum has been shown to improve basic skills (WestEd, 2002), the performance and attitudes of regular and honors middle school algebra students (Carnegie Learning, 2002), and the performance and self-esteem of low-socioeconomic level students in mathematics (Page, 2002).

The Missouri Instructional Networked Teaching Strategies (MINTs) Project Evaluation showed the impact that a

technologically-enriched networked classroom could have on educational practice and student achievement (Bickford, 2000). The Project concluded that students in the MINTs classroom, as compared to non-MINTs students, showed increases in the scores in the math and reading sections of the Terra Nova standardized tests for 5th graders and increases in the mathematics and science sections for 6th graders.

From 2003 to 2005 the program, renamed eMINTS, included in-depth professional development for teachers. Students' communications arts and mathematics performance levels on the Missouri state test (MAP) showed more children in eMINTS classrooms scored higher proficiency levels in both areas of the curriculum than students in non-eMINTS classrooms (Huntley and Greever-Rice, 2007).

Students' online use was found to have measurable impact on the quality of assigned research projects in Texas (Texas Center for Educational Technology, 2006). The British government reports after routine nationwide testing "there is increasing evidence that the use of Information and Communications Technologies (ICT) can help raise education standards and a strong improvement in the attainment of pupils" (British Educational Communications Technology Agency [BECTA], 2007).

Each of the five CyberSmart! Online Workshops focuses on a different issue and the skills related to Internet use.

Safety and Security Online Workshop
includes instruction on safe and secure online communications.

Manners, Bullying, and Ethics Workshop
covers the topics of cyberbullying, ethics, fair use and plagiarism.

Authentic Learning and Creativity Workshop
provides hands-on practice in the use of the Internet to facilitate students' higher-order thinking.

Research and Information Fluency Workshop
includes instruction in locating, identifying and evaluating suitable online resources to support student learning.

Twenty-First Century Challenges Workshop
supports educator "buy-in" by investigating the implications of a globally connected economy and relating it to the instructional strategies in a technology-enriched environment.

By engaging teachers hands-on in the same kinds of learning they are expected to facilitate in the classroom, CyberSmart! Online Workshops provide a new and exciting way to train teachers.

Providing a participant-driven hands-on learning experience, CyberSmart! Online Workshops enable teachers to move from theory to the practical. They do so by engaging teachers in concrete tasks requiring inquiry, reflection, and experimentation with 21st Century tools (Darling-Hammond, 1995). The workshops are structured to support inquiry and professional collaboration providing meaningful opportunities for active learning.

Active learning in professional development activities has been shown to have "significant, positive effects on teachers' self-reported increases in knowledge and skills and changes in classroom practice" (Porter, Garet, Desimone, Yoo, & Birman, 2001). CyberSmart! Online Workshops allow teachers to actually practice what they will do in the classroom, supporting research that shows that it is "actual changes in classroom practices that can result in gains in students' learning" (Kleiman, 2004).

"Technology is a means, not an end; a tool for achieving learning goals, not a goal in itself."

WestEd, 2002

The infusion of technology into schools has impacted the roles of teachers and students. Teachers are transforming from the providers of facts and knowledge to facilitators as students "take charge of their learning and gain responsibility for and control over their work" (WestEd, 2002). CyberSmart! Online Workshops support this transformation by providing a technology-enriched environment in which teacher-learners construct their own knowledge in inquiry-based investigations and collaborative forums, guided by facilitators, who function as coaches in much the same way as the teacher guides students in the technology-enriched classroom.

Researchers agree that learning theory applies to teachers as well as to their students and that an essential characteristic of professional development is that teachers participate in the same types of learning activities their students would (Bransford et. al., 2000; Snow-Renner and Lauer, 2005). Learner-centered opportunities that meet the needs of individual learners, integrate pedagogy with knowledge, and provide feedback are recommended (Bransford, Brown & Cocking, 2000; Dede, 2006), so that educators may also experience the value of appropriate online learning strategies, including problem-solving through collaboration, reflecting, and building a community of learning (Menchaca, 2006; Dede, 2006).

In addition to examining the big issues related to students' use of the Internet (i.e., safety, security, ethics, and information literacy), CyberSmart! Online Workshops provide educators with the opportunity to experience firsthand information and communications technological tools such as blogs, online forums, online surveys, interactive multimedia, video, and animation to explore content knowledge. Technology-based tools can enhance student performance when they are integrated into the curriculum and used in accordance with knowledge about learning (Bransford et. al., 2000).

In this way all CyberSmart! Online Workshops provide a metacognitive experience on how technology can potentially transform learning and teaching.

By structuring a learning community, fostering collaboration, and providing a trained facilitator CyberSmart! Online Workshops offer a uniquely supportive environment for transforming student learning.

Building Communities of Learners

CyberSmart! Online Workshops create scaffolded online professional learning communities in which participants from the same school or district interact—sharing and creating knowledge in a supportive, collaborative environment. The workshops allow for sustained professional learning, as participants interact asynchronously several times a week over four consecutive weeks.

The learning process as a social function was most notably explored by John Dewey (1916). Years later it was found that teachers who participate in professional learning communities are more likely to "engage in meaningful, systemic change" (Southwest Educational Development Laboratory, 1997). Stein, Silver, and Smith (1998) proposed that teacher development occurs best through the building of communities of collaborative, reflective practitioners. One study went so far as to report that professional development that relies on scripts and mandates rather than on learning communities can actually hinder

teachers' growth (Sparks, 2004). Teachers that "enjoy the benefits of supportive, collegial interactions result in teacher growth in professional judgment and skills, see improvements in student learning and feel the increased confidence and motivation that these improvements produce" (Sparks, 2004).

The importance of professional learning communities for the improvement of student learning is now widely recognized by researchers as providing an opportunity to "engage in the learning process for themselves... refine their thinking and practice...listen to each other as they formulate ideas and understandings" (Lock, 2006). The acceptance is so widespread that professional learning communities are, in fact, the first standard in the National Staff Development Council's (NSDC) standards.

"As agents of change in the educational system, teachers need to have the necessary knowledge and skill sets..."

Lock, 2006

Collaboration

The professional needs of the workshop participants determine and generate the knowledge created in these online workshops. Opportunities for constructing new knowledge by questioning, investigating, and analyzing are built into the structure of each workshop's required collaborative activities. Each discussion forum is carefully designed to produce meaningful interactions and to refine and enhance the learning process through participants commenting on one another's postings. The role of the social environment to actively develop knowledge is crucial. (Savery & Duffy, 1995).

Gaining educators' engagement is not easy and the collaborative tasks must be structured and connected to the day-to-day realities of their classrooms (Stephens, 2004). CyberSmart! Online Workshops provide educators with the opportunity to do just this by asking participants to connect every collaborative activity to their own professional context.

Participants are supported by the CyberSmart! Knowledgebase, an interactive resource of video clips of nationally recognized experts. The knowledge gained in this inquiry-based research is then shared in collaborative forums encouraging the "reflective dialog" and "social networking" shown to be effective learning methods (Fadel and Lemke, 2006).

Using online collaboration tools, workshop participants discuss their investigations and communicate examples from their own teaching experiences, providing the dynamic social context and the opportunity to dialog with other innovative educators, creating a true "network of learners" — all factors recognized as critical to successful online learning programs (Menchaca, 2006; Russell, 2006; Bransford et. al., 2000; Pittinsky, 2005).

The importance of designing and building an environment to purposely create and support this process of collaboration and learning is well documented both from within a constructivist framework and out (Lock, 2006; Savery & Duffy, 1995). CyberSmart! Online Workshops use Moodle course management software, specifically designed for educators on sound pedagogical principles (Moodle).

Reflection

CyberSmart Online Workshops enable educators to have multiple opportunities to think about, process, and write about the information presented. The process of group reflection has been shown to improve teaching (Bransford et. al., 2000). Online discussion forums encourage structured reflection and problem-solving.

Towards the end of each workshop, culminating activities require participants to either teach a lesson from the free CyberSmart! Students Curriculum, write a plan for integrating what they have learned in support of their own curriculum, or to practice writing a blog entry appropriate to a selected audience (i.e., students, professional colleagues, or parents) addressing, in their own words, a topic of professional relevance within a selected content area. These cognitively "authentic task(s)," requiring reflection and synthesis of all that has been learned (Savery & Duffy, 1995).

Use of Trained Facilitators

> "Teachers learn by doing, reading, and reflecting just as students do..."
>
> Darling-Hammond 1995

CyberSmart! Online Workshops facilitators provide individualized guidance specific to learning objectives by answering questions, stimulating collaboration, and motivating participants throughout the duration of each workshop. Facilitators are professional educators themselves, trained by CyberSmart! to provide a supportive experience within which to challenge participants' thinking.

The facilitator's task is to make everyone feel welcome and to create an open atmosphere for sharing and interaction. Facilitated online learning classes that had a "peer-like, consistent facilitative instructor and discussion anchored around questions and shared artifacts were more likely to engage in discussion leading to the negotiation of knowledge and deeper understanding." (Dennen, 2007).

Extending its widely embraced positive message of empowerment from the CyberSmart! Student Curriculum to educational professionals, Cybersmart! Online Workshops are structured and run to raise the expectations and confidence of participants in mastering new concepts and new ways of doing things. Bandura (1977) pointed out in his social learning theory that people learn from their observations of other people's actions and often imitate these behaviors. Positive reinforcement and motivation throughout the learning process is widely recognized as important (Perkins, 1992). The use of facilitators can be especially helpful to educators who are reluctant learners because it provides them with personalized support and helps minimize their frustration (Burge, 1988).

To optimize participant learning through deeper and more engaged interactions, CyberSmart! Online Workshops train facilitators in accordance with the most recent finding in this area. With a focus on learning and participant satisfaction, research confirms the importance of looking to the quality and sequence of a participant's interactions, rather than the amount contributed by each participant (Lowes et. al., 2007).

The friendly, engaging format of CyberSmart! Online Workshops is designed to appeal to the needs of diverse learners, ensuring that whatever subject area they teach, grade level they work with, or level of technology proficiency, all workshop participants will succeed in increasing their skills and knowledge.

Backward Design

CyberSmart! Online Workshops are created using "backward design," a widely recognized instructional design methodology focused on getting results. Using this method, developers first determine the knowledge and skills they desire the learner to gain, next identify what types of assessments will allow learners to demonstrate mastery, and then structure the learning activities that are best suited to getting learners to succeed on those assessments. In their book Understanding by Design, Wiggins and McTighe (2005, ASCD) explain that the focus of backward design is to reach the ultimate goal of instruction: student learning. CyberSmart! Online Workshops are also developed with an awareness of the learning styles outlined in the Dimensions of Learning model (Mid-Continent Research for Education and Learning) and teacher-defined

teaching and learning goals were used to address both skill-oriented, content-oriented, and process- oriented visions in addressing the important area of 21st century skills (terms as used by Ertmer, 2001).

Scaffolded and Guided Instruction

Workshops each begin using an online survey tool to examine existing attitudes, prior knowledge, and initial interpretations of the topic(s) being addressed. Next, instructional animated multimedia presentations provide direct instruction without text-heavy demands (optional transcripts are provided).

Workshop participants access these multimedia presentations at their convenience and with the freedom to view as often as needed. Many adults raised in the 50s, 60s, and 70s can recall with crystal clarity the audio-visual presentations of their childhoods. The use of multimedia instructional tools has a long history in educational settings: film projection for schoolwide assemblies, filmstrip projectors for classrooms, and more recently animations with audio for individual students delivered by computer networks. Use of audio and animated or real-life visual components helps reach a variety of learning styles (Albalooshi, 2002).

> "Communicating via technology can connect students to a broad range of interactivity that sharpens and extends thinking and piques intellectual curiosity."
>
> Fadel and Lemke, 2006

The guided multimedia presentations provide an introductory overview to the topics being addressed, and a common basis for collaborative discussion in the online forums that follow. This guidance strengthens the participants' ability to transfer new knowledge effectively into practical application in their own professional contexts (Kirschner, 2006; Larkin, 2002) and enables the participants to extend and refine their knowledge to make new distinctions (Mid-Continent Research for Education and Learning, 2008).

Applied to education, the term scaffolding describes the process of supporting learners while they acquire new skills (Greenfield, 1984). CyberSmart! Online Workshops scaffold the skill-building process by providing online communication tools for practice within the context of the workshop learning and providing guided practice for effective online research, critically evaluating resources, and creating secure passwords, to cite just a few examples.

Social Constructivism and Inquiry-Based Learning

In their interactive explorations of the CyberSmart! Knowledgebase, workshop participants build their own personal knowledge by investigating questions of professional relevance to them. The CyberSmart! Knowledgebase, designed specifically to support these workshops, provides a unique database of hundreds of questions posed to nationally prominent experts in a myriad of topics related to student use of the Internet.

Social Constructivism, as a learning theory involves collaboration and is often paired with inquiry-based learning and/or problem-based learning. Upon completing their individual investigations in the CyberSmart! Knowledgebase, participants reconvene to collaborate — articulating their ideas, testing their understanding, and examining the understanding of others as a mechanism for enriching their thinking (Vygotski, 1978; Savery & Duffy, 1995).

The online forums aid participants in gaining significant new insights to transfer to their specific workplace routine. Professional development that employs active learning is most likely to positively affect teacher instruction (Snow-Renner & Lauer, 2005). Supporting teachers as managers of their own inquiry and making them generators, not just recipients of knowledge, "empowers them to use and develop knowledge about teaching and learning as sophisticated and powerful as the demands of their work require" (Darling-Hammond, 1996).

The workshops' inquiry-based investigations and follow-up collaboration enable all participants to focus on a topic that has real and compelling meaning for them in their professional context. Learning activities must be anchored to a larger task or problem that the participant "owns" (Savery & Duffy, 1995). Such relevancy is important to learning and focuses learners on ownership of the problem (Bransford et. al., 2000).

Blended Learning

CyberSmart! Online Workshops include optional face-to-face materials for conducting pre-, mid-, and post-workshop activities to be facilitated by participant-leaders (i.e., workshop participants who wish to take a leadership role). Blended learning, or combining online learning with face-to-face learning, increases the effectiveness of instruction, especially at the onset of a program to build community (Menchaca, 2006).

Sustained Learning

CyberSmart! Online Workshops require participants to interact several times a week, over a period of four continuous weeks rather than all at once. Then, to support educators in connecting their professional learning to the teaching and learning going on in the classroom, each workshop is aligned with free Classroom Connections materials, including lessons from the CyberSmart! Student Curriculum and the free CyberSmart! Educator Toolbar, which connects directly to all content areas.

The opportunity for ongoing involvement, sharing, and collective problem-solving is a key component of effective professional development (Darling-Hammond, 1995). Online teacher professional development can "also serve as a bridge between preservice education, new teacher support, and continuing teacher development (Sprague, 2006) and may help to solve the problem of teacher retention by providing effective peer support (Spicer & Dede, 2006).

CyberSmart! Online Workshops provide a flexible solution to the perennial scheduling issues schools face, while offering an effective data-driven management training solution.

With convenient anytime/anywhere access for educators, who can choose days, nights, or weekends to take the workshop(s) — provided they meet the weekly schedule of to-do tasks—CyberSmart! Online Workshops cross a huge logistical hurdle from the very start. As early as the mid-1990s, researchers were experimenting with asynchronous Web-based professional development and concluded that "virtual forums" were beneficial in "contributing to continuing education for professionals" (Anderson & Kanuka, 1997).

Collected data from each workshop—a pre and post survey, a portfolio of written work, and an end-of-workshop anonymous evaluation — is available to gauge the impact of CyberSmart! Online Workshops. In addition, a real-time progress monitoring report on every participant is continuously available online for school or district administrators. This report also permits facilitators to identify reluctant learners immediately and intervene effectively.

CyberSmart! Online Workshops Address Standards

- ✔ CyberSmart! Online Workshops are designed to meet the Standards for Staff Development from the National Staff Development Council (National Staff Development Council, 2001). The NSDC standards describe the characteristics of high-quality professional development with the goal of student success. Correlations are available upon request.

- ✔ CyberSmart! Online Workshops are designed to meet the ISTE Educational Technology Standards and Performance Indicators for All Teachers (International Society for Technology in Education, 2000). These ISTE standards are intended to

describe what all American teachers should know and be able to do with electronic technology as well as provide guidance for pre-service teacher preparation programs. Correlations are available upon request.

✔ Designed to help teachers help their students meet the ISTE Educational Technology Standards and Performance Indicators for Students.

Conclusion

CyberSmart! Online Workshops build on the phenomenally successful CyberSmart! Student Curriculum, addressing the same issues and objectives for educators that the Curriculum has taught to students for more than five years. It responds to the growing demand to train educators to support student learning of standards-based 21st Century Skills. These skills are identified by state and national standards, business leaders, educators, and policy makers as critical to students' learning, achievement, and success in today's digital world.

Designed and facilitated by educators for educators, the friendly and dynamic interactive format of CyberSmart! Online Workshops appeals to diverse learners of varying levels of technological proficiency.

By engaging teachers hands-on in the same kinds of learning they are expected to facilitate in the classroom, within a professional learning community, CyberSmart! Online Workshops provide a uniquely supportive environment to transform learning to meet the demands of the 21st Century.

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