21st Century Skills – Where Do We Start?

An Overview of Successful School Implementation Models

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Introduction

Many schools are focusing on the critical need to develop 21st century skills in today's students. In this white paper I will share some personal observations about 21st century skills and describe several implementation models using Creative Learning Systems SmartLabs that proven successful in schools across the country.

21st Century Skills – What Are We Really Talking About?

I've come to find that the term "21st century skills" is a little like "family values". We're all in favor of the idea; we're just not always sure what we mean. So, before we take another step, let me clarify how I will use the term in this white paper.

For these purposes, we will refer to the P21 framework developed by the Partnership for 21st Century Skills. To summarize, we are specifically concerned with skills such as:

- critical thinking
- problem solving
- creativity and innovation
- adaptability
- collaboration
- communication (written, oral and blended and advanced media)
- information sourcing and media literacy
- self direction and self assessment
- application of technology to workflow

With respect to the latter category, technology, note that the operative word is *application*. This is an important distinction and one that is often lost the discussion of 21st century skills. Let me be clear that I consider technology skills by themselves to be rather pointless. Technologies should be taught as a toolset – typically an integrated toolset – to facilitate workflow and productivity. It's the application that matters, not the tool.

Moreover, the application of 21st century skills requires context. In order to think critically, we must have knowledge we can bring to bear to a process or problem. It follows therefore, that academic content must be integral to the learning process. Contrary to some recent debates on the subject of 21st century skills, it is not a question of skills vs. content. The challenge is to merge the two into engaging, relevant learning experiences.

Why do we care?

21st century skills are nothing new. In 1992, the U.S. Department of Labor released its SCANS Report (Secretary's Commission on Achieving Necessary Skills). This document outlines many of the same critical workplace competencies that fall under the 21st century skills umbrella today. So what has changed?

First let's consider what *hasn't* changed. Employers today still demand employees who can solve problems, collaborate, communicate and be responsible for directing and assessing their own performance. What has changed is that the need has become increasingly urgent. Consider the following two data points:

- The amount of technical information is currently doubling every two years.
- The U.S. Department of Labor estimates that today's learners will have 10-14 jobs within the first 20 years after high school graduation.

Without question, one of the biggest challenges facing educators today is, *'How do we prepare today's learners for jobs that don't yet exist and which will require proficiency in technologies that haven't been invented'*. If we cannot define the specific knowledge or skills that will be required to succeed in a fast paced global economy, it is *imperative* to equip today's learners with the competencies necessary to adapt and thrive. There is a growing recognition that traditional education, while just as critical to the intellectual development of our children, does not adequately address these needs.

What's Being Done (and Not Being Done)

As of this writing, fourteen states (Arizona, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Nevada, New Jersey, North Carolina, Ohio, South Dakota, West Virginia and Wisconsin) have formally adopted 21st century skills initiatives under the P21 framework and a number of other states are either considering such initiatives or have adopted similar frameworks.

Within these states, as well as other schools and districts that have recognized the need to emphasize 21st century skills in addition to the acquisition of core subject content, a common question arises. **Where do we start?**

It's not a simple problem. Development of 21st century skills requires both a different approach to learning and different methods of assessment. Traditional curriculum may not lend itself well to a focus on these competencies and state standards often emphasize acquisition of specific knowledge rather than critical thinking and workplace competencies. Teachers may not be comfortable with this style of teaching, especially as it concerns the integration of applied technology. Districts may not be able to afford the technological resources necessary for school-wide deployment. And, not insignificantly, federal mandated testing under the current No Child Left Behind legislation places high stakes on teaching-to-the-test – the antithesis of a 21st century skills emphasis.

It's no wonder that, despite the best of intentions among educators, many 21st skills initiatives die of their own weight before becoming a reality. It is worth considering whether bold, near-term, system-wide change is possible (or even advisable). Rather, it may be more productive to explore what immediate and practical actions educators can take to begin the transformation process in their state, district, school, or classroom.

Successful Models of Implementation

First a little background on my interest and perspective. My company, Creative Learning Systems has worked with schools for over 20 years to implement 21st century learning programs. The programs, called **SmartLabs**, are 21st century learning labs that link technology exploration to core academic content with a particular focus on STEM (science, technology, engineering and mathematics). Every conversation with a new school partner begins with their anticipated model of usage. This informs our design and provisioning of each lab. It's a highly consultative, collaborative process, individualized for each school. While each SmartLab is a unique learning environment, it is possible to generalize among three broad models of usage. In order of integration with the broader school context, they are 1) stand-alone classroom; 2) technology resource center; 3) integrated whole-school approach.

Stand-Alone Classroom

This is, by far, the most common implementation model, especially in public schools. The primary advantage of the stand-alone classroom is its ease of implementation. It does not require reinvention of the educational model. Nor does it require broad buy-in or retraining of existing staff. Schools that choose this model of usage recognize the need to commit educational resources towards 21st century skills, but do not have the desire or ability to make broad, wholesale changes to the educational system.

Typically, a classroom is designed and provisioned for project-based, technology-enabled learning. Classes are scheduled into the classroom, either as a required course, or as part of the school's elective offering. Commonly used course titles are STEM Lab, 21st Century Technology, Science and Technology, or Technology Education (though it must be noted that these programs are significantly different than traditional modules-based Tech Ed classes offered by many schools that focus on technology skills alone), or the case of our programs, simply "SmartLab". Classroom resources include computers, media equipment, a broad spectrum of software applications, and hands-on learning resources such as scientific probeware, test equipment, manipulatives and construction sets, etc.

A single teacher is trained in the resources and educational methodology. In the SmartLab system, this professional is called a "Facilitator" in recognition of their primary role to facilitate learning (as distinct from an emphasis on traditional instruction). It should be noted that a successful facilitator does not need to be an expert in all of the classroom technologies. In fact, given the broad spectrum of advanced technologies represented in a typical SmartLab, it would be an unreasonable expectation. Rather, since self-direction is one of the primary 21st century skills to be developed in such a classroom,

learners are expected to be able to source and utilize resources other than the teacher when they have questions about the technology. It is much more important that the Facilitator be competent in guiding a project-based, student-centered style of learning than have specific expertise in the various technology applications and tools.

The limitation of this model of usage is that it does not necessarily extend integration of 21st century skills into the rest of the school day. To mitigate this limitation, we typically recommend that professional development be extended to other staff members, especially core subject teachers that are more likely to appreciate and integrate the technology resources available. A successful model is a broad staff orientation where teachers assume the role of learners, working through a typical project-based engagement.

Technology Resource Center

This model of usage is analogous to the school library. Technology resources are centralized, but the utilization is decentralized. Deployment of advanced technology applications throughout the school is typically impractical, both for cost and support issues. This model allows schools to deploy these resources in a single location, with a single individual responsible for control and usage of the resources.

Configuration and resources are typically similar to the stand-alone classroom. However, it is highly recommended that core subject teachers have substantial input into the design and provisioning of the center, both to ensure sufficient resources and to promote early buy-in.

In this model of usage, rather than supporting separate classes, teachers throughout the school utilize center resources to support regular class project work. The center's facilitator is responsible for allocating and scheduling resource time, maintaining the resources, and assisting students in the center. In addition, schools that implement this model typically allow students to use these resources individually to support class work during the school day and often, make them available before and after school as well. It is important that schools considering a technology resource center model allocate a staff specialist to the center (as they do in the library) to manage and control the resources as well as assist both students and teachers in the proper use of the facility.

This model of usage can be more effective in integrating technology and 21st century skills into core content study. However, it requires broader buy-in by school teaching staff to properly use the resources and integrate them into regular coursework. If there is doubt as to the readiness of the broader teaching staff to adapt to this model, we generally recommend that schools begin with the stand-alone classroom model and evolve the usage pattern into a technology resource center over time.

Integrated Whole-School Approach

While considerably less common, many schools have approached the need to integrate 21st century skills from the ground up – effectively reinventing the academic model. Such profound change is not typically feasible in traditional public schools. It is therefore most commonly seen in alternative programs such as charter and magnet schools as well as those addressing at-risk student populations.

There are several models that have been successful. One such example was pioneered at Southwest Secondary Learning Center, a charter school in Albuquerque, NM. This educational model combines a computer-based instructional system for delivery of core content with a SmartLab where the focus is application of core subject knowledge and development of 21st century skills such as critical thinking, project management, communication and collaboration. With this model, SSLC has consistently ranked as one of the top schools in the state based on student standardized test scores.

Blended Approaches

Many schools have successfully adopted models of usage that blend two or more of these approaches. One example is Woodridge Academy in Washington D.C, a K-8 school that is part of the Friendship Public Charter School organization. At Woodridge, the SmartLab is a required course for all 6th graders. In this mode, all students learn how to use SmartLab resources through rotational project-based experiences in each major system of technology. The remainder of the time, the SmartLab is available for core content teachers to schedule time for technology-enabled learning. Students may also use SmartLab resources to do project work for their other classes; during school hours they must request passes for SmartLab access from their core academic teachers. The SmartLab is also generally available to students during after-school hours.

A similar strategy can be employed as an articulated middle school/high school learning experience. Churchill County School District in Fallon, Nevada operates their middle school SmartLab as a stand-alone classroom. The high school has two SmartLabs, one with a STEM focus and another with resources to support digital media arts. The STEM lab supports the school's math and science departments. The digital media arts SmartLab hosts a wide variety of media arts classes such as digital photography and broadcast communications as well after-school programs. The school also plans to use the media arts resources to support the broader community.

Conclusion

The need for development of 21st century skills is widely accepted and many schools have recognized the need to focus educational resources to develop these skills. While few would disagree that the ultimate goal is full integration of 21st century skills into all classes and curriculum, the task is overwhelming. It is simply beyond the reach of most school organizations.

Fortunately, there are practical ways to introduce these skills into the typical school environment. The question should no longer be *whether* to integrate 21st century skills into everyday learning. Rather teachers, administrators and community leaders should ask the question, *"Where do we start?"* **Stand-alone classrooms**, **technology resource centers**, **integrated whole-school approaches,** and **blended approaches** represent three proven methods to develop these critical skills in today's students.

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