

Advances in Technology in Educational facilities

**Addressing Today's and Tomorrow's
Security and Learning Environments**

Presented by:

Jim Otte, SET, NICET IV SSOE Group

&

S. Sonny Hamizadeh, AIA SSOE Group

October 2013

Session

TITLE OF PRESENTATION: Advances in Technology for Security & Learning in Educational Facilities

TAGS: Technology/Work Orders/Automation/Security/Fleet/Procurement

PRESENTED BY: Jim Otte, NICET IV and Sonny Hamizadeh, AIA, Data/Fire/Security Specialist and Senior Account Manager, Healthcare, SSOE Group

ABSTRACT: Technology in the Educational realm continues to rapidly advance more than any other sector and with hectic schedules it is difficult to keep up to pace with what is occurring. This session will provide attendees with a review of advancements in education security technology and education learning technologies and how they are improving the educational facilities, reducing costs and increasing the safety, security and learning capacity of students. Examples of topics to be covered in the security realm are; mass notification requirements for first responders, how to protect your campus from hacking and against access card cloning, what are current threats and methods to address each threat. Examples of topics to be covered in the learning realm are; advancements in interactive screens and interactive systems, collaboration systems and methods as well as what systems provide the best outcomes with respect to costs.

LEARNING OUTCOMES:

- 1). Awareness of some of the advancements in technology impacting everyone, and how and why you need to consider them.
- 2). Learn how municipalities are enforcing first responder communications in educational facilities and how it impacts you.
- 3). Understand that most threats are internal and how to leverage technologies to protect your campus from internal threats.
- 4). Understand new technologies being used for learning and which ones are the most effective.

Agenda/Objectives

- Education Learning Technologies
- Education Security Technologies

LEARNING ENVIRONMENTS

“COMPETING IN 21ST CENTURY TEACHING
AND LEARNING ENVIRONMENTS”

How technology can become a differentiator for educational facilities...

Issues:

- Economic downturn
- Reduced funding from State and Federal agencies
- Advance of E-Education (on-line courses)
- Expanding into emerging educational markets
- Reducing operational costs and increasing efficiencies and revenues
- Attracting and retaining students and faculty

How technology can become a differentiator for educational facilities...

Opportunities:

- Advancement of technology in resources and academic programs
 - Attract new students and faculties
 - Abilities to enable formal and informal learning
 - Virtual and online learning and interaction
 - Use of technology to enhance quality of campus life
- Controlling construction costs
- Increase campus security

Identifying learning environments

Dealing with multi-tasking technology generation

- Auditoriums
- Classrooms
- Corridors
- Dining Halls
- Residence Halls
- Outdoors

How do we deliver education?

- In person
- Virtual
- Online and Remote Access

Auditorium Technology



Collaboration Spaces



Classroom Technology





Photo Courtesy Ballogg Photography

ClassSpot in use at Middle Tennessee State University



design by learning an exercise in 21st century project based learning

the process

day 1 - orientation

Students visit classroom learning environment and are exposed to an entirely new type of learning space.

In a high-tech learning lab they are introduced to what it means to "design" the users of an environment and how they gathered information informs the design process.

Students learn a framework for the documentation and analysis of their observations that will be used to inform the design process.

day 2 - observation

Students observe their own environment to reveal issues that are currently causing the different classroom.

Classroom issues are prioritized with each observation.

Back to their own classrooms each group reviews what they saw and discusses what they learned.

Current class collages are created by each team to represent the observations of their working classroom. Collages are posted with the whole class.

day 3 - synthesis

Each team what it means to "synthesize" the observations they have gathered.

Students then identify their observations into categories and identify a "problem statement" which emerges from each category.

Students present their findings back to the whole class. Collaborations are emerging amongst the teams.

day 4 - solution

In a class, the "problem statement" are shared and "design solutions" are given the design team opportunities to address in the new classroom design.

Back to their classrooms, students work on the design of the day to work, too-to-look to design design ideas to "big new classroom".

Students then discuss their design ideas, make and prototype, and what it means to communicate an idea through a design.

Together the design team and the students work to address the design solution in the new space of the future classroom.

At the end of the day, the design team is given the opportunity to present and build consensus about the design solutions that have been developed.

Each team and solution is an essential part of the design process.

No design can be completed without collaboration.

1. **views to exterior** stimulate a feeling of connectedness to the world beyond the classroom, and provide natural daylighting

2. **soft seating** encourages the development of important social relationships; movable furniture allows classroom to spill out into shared community space

3. **enclosures** allow for personal reflection, re-centering, and one-on-one mentoring with faculty

4. **acoustical boundaries** are important to separate each pair of small "studios" (16 students each)

5. **flexible furniture** allows individual and team work; swivel chairs allow students to easily focus where they need to; high-tech environment allows for real-time information share

6. **project room** is shared by two classes for team and individual space to work on large projects; ample storage provides a place to safely keep projects in progress

7. **glass overhead doors** provide learning transparency and can also open to eliminate physical and noise boundaries

8. **recycling zone** at entry creates visible consciousness about the materials consumed on a daily basis

project based learning experiences bridge the gap between classroom learning and "real world"



Help teachers assess top concerns and achievements related to their students



Registration for the Learning Analytics and Knowledge conference doubled between 2011 and 2012

2012

2011

COMPONENTS OF A 21st Century Classroom

Technology is undeniably changing the face of education, and it's easy to see the impact already. Imagine what classrooms will be like in 20 years with the speed of technological innovation. Learn more about some of the key advancements in the 21st century classroom.



of teachers have computers in their classroom...



...but just **1 in 5** feel their classrooms have the right level of technology

INCREASING THE PRESENCE OF THE FOLLOWING TECHNOLOGIES COULD CHANGE THAT RATIO DRASTICALLY

Real World Education

Project-based learning (PBL) teaches concepts, but also organization, articulation, project management and collaboration

Integrating life skills into education can improve student engagement and retention and prepare them for 21st century careers



Online Courses



Almost a third of all college students take at least one online

Online enrollments saw 21% growth while overall higher education student population only grew 1%

Games and Gamification

In one study, games raised average test scores:

Learning Analytics

Help teachers assess top concerns and achievements related to their students



Registration for the Learning Analytics and Knowledge conference doubled between 2011 and 2012



One system claims to predict whether a student's likelihood of sufficient course completion with about 70% accuracy, highlighting risk factors for individual students



Top 3 Reasons for Teachers to Use Technology in the Classroom



Adapt to diverse learning styles



Boost student motivation



Enhance the material being taught



Over 51% of colleges cited wireless upgrades as their tech priority in 2011-12 given the 60% increase in mobile devices on campus in the previous year

Integration of Social Networks

Engaging students with a free tool they already use can help them learn in new ways, gain focus and increase participation



One social media pilot program assisted in a class' 50% rise in grades



4 in 10 students believe integrating social networks into the classroom would benefit their education

Open Source Textbooks

In the next decade, open source textbooks are expected to grow to 20% of the textbook market

By 2013, e-textbooks may comprise 11% of textbook revenue

6 in 10 students have used a digital textbook - just 4 in 10 had in 2011

81% of teachers believe tablets enrich classroom learning

86% of students believe they study more efficiently with tablets

1 in 5 students have used a mobile app to keep their coursework organized

21% of teachers use social media for coursework, compared to now 10% of college professors

59% of students would like to use their own mobile devices to enhance learning



of teachers have computers in their classroom...



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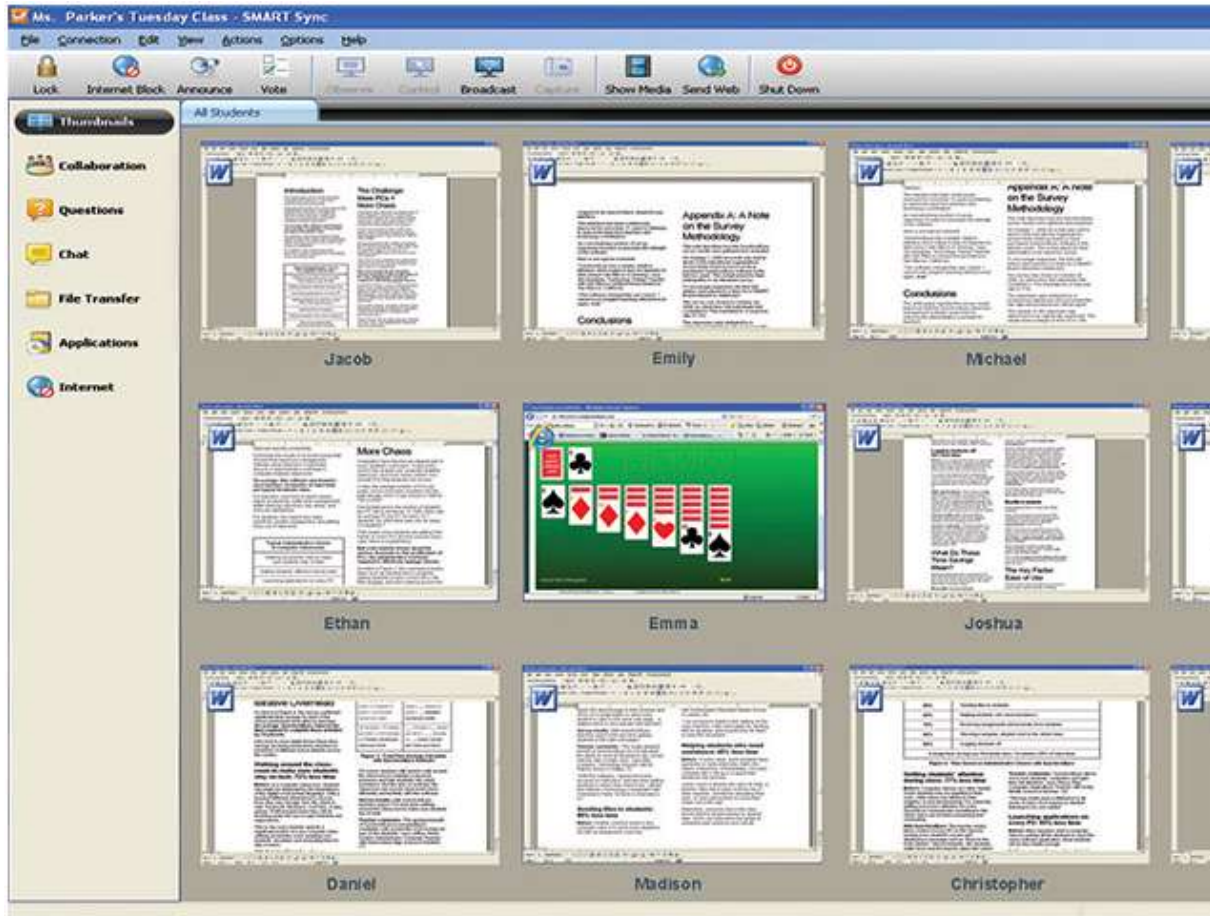
86% of students believe they study more efficiently with tablets







Software



Hardware



SECURING ENVIRONMENTS

“PROTECTING FACILITIES AND STUDENTS IN
THE 21ST CENTURY”

Passive vs. Aggressive/Active Approaches

“OLD” TACTICAL RESPONSE POSTURE

- Cordon and control perimeter
- Wait for SWAT, make communications contact, negotiate, deescalate and respond

“NEW” TACTICAL RESPONSE POSTURE

- Assume active intent to do harm
- Immediate entry and active engagement of suspect
- Neutralize suspect(s) through necessary force as quickly as possible
- Impede ability of suspect to freely move and find victims to target
- Lockdown and shelter in secure places

Cause and Effect of Poor Communications during School incident

CAUSE

- Responders cannot communicate with school personnel, different agencies and hospitals except through dispatch relay of 911 calls
- First Responders are walking into a facility “blind” not knowing where suspects are and are challenged by unfamiliar layouts

EFFECT

- Slowed
 - Response Time
 - Entry
 - Movement
 - Evacuation
 - Medical Care
- Delays in establishing and controlling safe areas and evacuation routes
- Misidentification of suspects
- Higher Risk to Responders of Ambush

Identifying Current Issues...

FOR ANY SCHOOL IN A TIME OF CRISIS, THE FOLLOWING EMERGENCY CAPABILITIES SHOULD BE PRESENT

- School personnel can seamlessly communicate with First Responders
- Responders inside the school need to be able to communicate
- Sharing of Live video from the School surveillance and video systems
- First Responders ability to issue directives over Public Address systems and mass notification systems

Possible scenario

1. Wireless Silent Panic Alarm activated
2. Communications established between School Staff and Police Dispatch
3. Responders dispatched to correct areas
4. Suspect identified by Police Dispatch using video
5. School Floor plans shared wirelessly
6. School PA and mass notification system used via Police Radios to issue instructions
7. Monitoring of internal video to direct staff and responders
8. Police Response team is streaming live video back from mobile device and is shared with command and EOC
9. Hospital Emergency room alerted and placed on standby and updated live

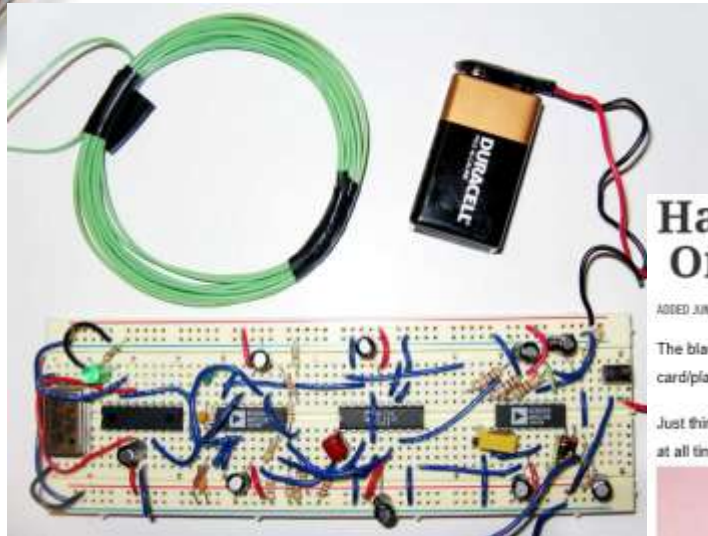
Moving wireless



A platform to integrate video systems, floor plans, fire-burglar alarms, access control, public address systems, call boxes and other life safety systems on a simple easy to use mobile interface.



Preventing Card Cloning

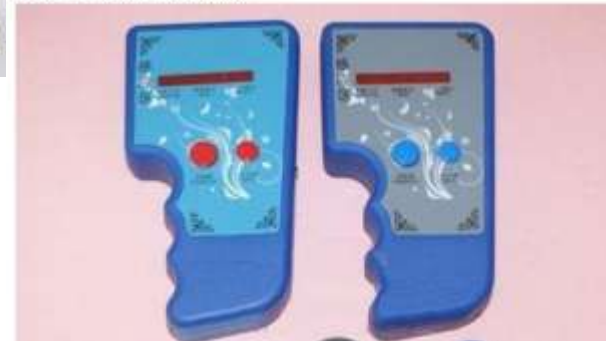


Handheld I.D Card Cloner! Only \$40 Dollars

ADDED JUN 22, 2012 UNDER: NEWS

The blank cards and keyfobs are like 25 cents to one dollar at most. It will duplicate any ID card/plastic key etc that you use to access secure areas.

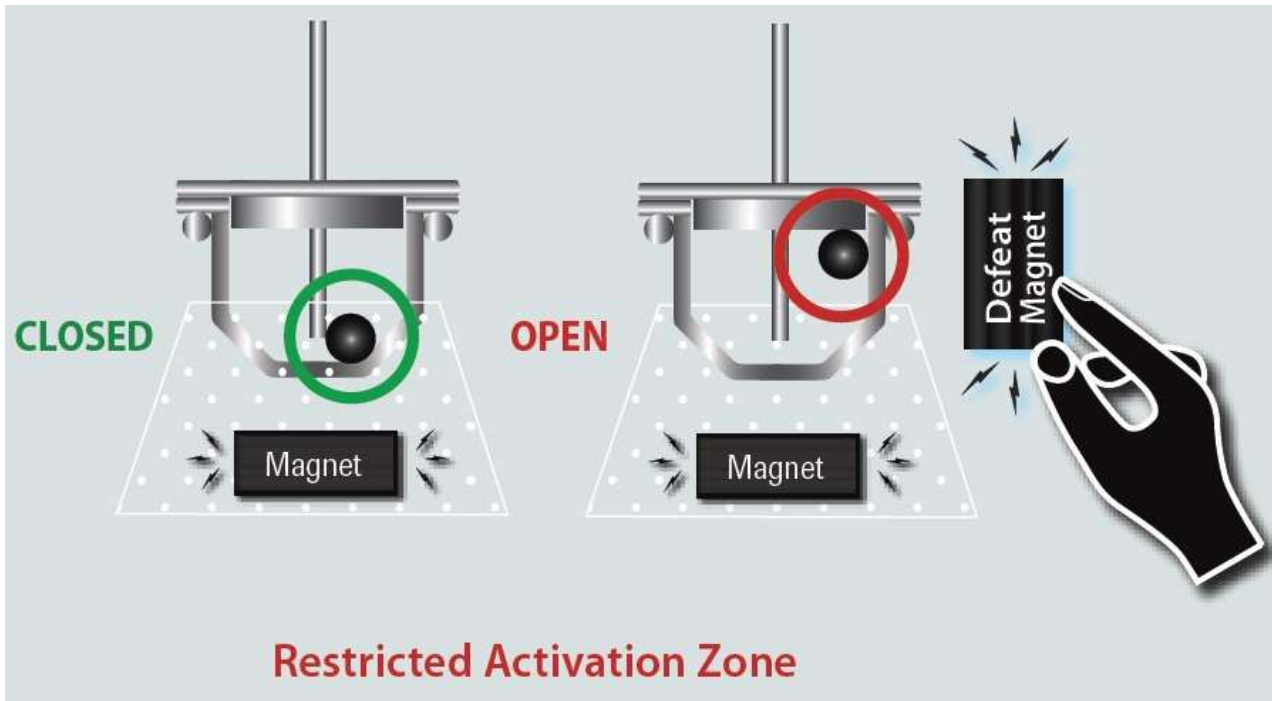
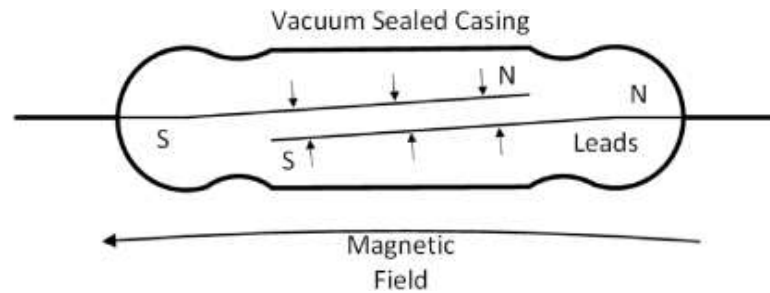
Just think of the "access cards" you can clone with this tiny device that can stay hidden in your pocket at all times. So much for security....



Preventing Card Cloning



Old Technology door contacts vs New Technology



Preventing Hacking

Last year, higher education faced nearly 2 million data breaches. Traditional defenses involving firewalls and antivirus software are required but increasingly insufficient.

- 1. Increase the importance of Cyber security at your facility**
- 2. Consolidate Security Solutions**
- 3. Know the Enemy**
- 4. Collaborate and Share Intel** - Research and Education Networking Information Sharing and Analysis Center, or REN-ISAC.

Summary and Conclusions:

- Working with a team of designers that:
 - Understand issues and have expertise
 - Team with product knowledge, and no affiliation to any manufacturer
 - Start discussing Technology Early on in the project
 - Get IT and campus security people involve in early design phases
- Establish a security and technology team
- Ensure that the team has:
 - Fully researched possible technologies
 - Researched cost savings measures
 - Addressed security and technology Early on in the project and understand/identify levels of costs.

Questions

Thank you...