21st Century Readiness for Every Student: Fusing the three “R”s and the four “C”s

Systems Thinking/Dynamic Modeling Conference
Wellesley, MA
June 27, 2010

Ken Kay, President
Overview

- Our country is competing in a global innovation economy.
- Fusing the three Rs with the four Cs is a national imperative.
- Leading districts are already fusing the three Rs and the four Cs.
- Policy must be the catalyst for change.
- We need to construct a thoughtful relationship between systems thinking and the four Cs.
OUR COUNTRY IS COMPETING IN A GLOBAL ECONOMY THAT DEMANDS INNOVATION; OUR EDUCATION SYSTEM MUST KEEP UP.
Mean task input as percentiles of the 1960 task distribution

Economy-wide measures of routine and non-routine task input (US)

(Levy and Murnane)
2010 Critical Skills Survey

American Management Association, in conjunction with P21, surveyed 2,115 managers and other executives about the needs of the 21st century workforce.
How are the four Cs recognized within organizations?

Has your organization identified these skills as priorities for employee development, talent management, and succession planning?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Agree/Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical thinking</td>
<td>73.3%</td>
</tr>
<tr>
<td>Communication skills</td>
<td>79.2%</td>
</tr>
<tr>
<td>Collaboration/team building</td>
<td>72.3%</td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>66.6%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
How are the four Cs recognized within organizations?

Has your organization measured these skills and competencies during annual performance reviews?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Agree/ Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical thinking</td>
<td>72.4%</td>
</tr>
<tr>
<td>Communication skills</td>
<td>80.4%</td>
</tr>
<tr>
<td>Collaboration/team building</td>
<td>71.2%</td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>57.3%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
Has your organization made an effort to assess these skills and competencies when hiring new employees?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Agree/ Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical thinking</td>
<td>75.7%</td>
</tr>
<tr>
<td>Communication skills</td>
<td>80.7%</td>
</tr>
<tr>
<td>Collaboration/team building</td>
<td>62.6%</td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>60.1%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
What has changed in business today?

How do you believe your organization will view these skills and competencies in the next 3-5 years?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>They will become less important</td>
<td>0.6%</td>
</tr>
<tr>
<td>They will remain the same</td>
<td>22.5%</td>
</tr>
<tr>
<td>They will become more important</td>
<td>75.7%</td>
</tr>
<tr>
<td>No opinion</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
What has changed in business today?

Rate by order of importance why you believe these additional skills and competencies are taking on relative importance in the business environment.

<table>
<thead>
<tr>
<th>Nature of work</th>
<th>Somewhat/Most Important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>77.5%</td>
</tr>
<tr>
<td>Global competition</td>
<td>86.5%</td>
</tr>
<tr>
<td>Pace of change</td>
<td>91.0%</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>66.3%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
As the economy improves, how important are the following skills and competencies in helping grow your organization?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Somewhat/Most Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical thinking</td>
<td>97.1%</td>
</tr>
<tr>
<td>Communication skills</td>
<td>95.3%</td>
</tr>
<tr>
<td>Collaboration/team building</td>
<td>92.0%</td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>93.1%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
Please rate the following education systems for their abilities to prepare students in the four Cs to ensure those entering the workforce are proficient in these areas:

<table>
<thead>
<tr>
<th>Education System</th>
<th>Above Average/Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-12</td>
<td>10.9%</td>
</tr>
<tr>
<td>Trade schools</td>
<td>13.7%</td>
</tr>
<tr>
<td>Two-year colleges</td>
<td>18.7%</td>
</tr>
<tr>
<td>Four-year colleges</td>
<td>48.9%</td>
</tr>
</tbody>
</table>

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
Do you agree that fusing the three Rs (reading, writing, and arithmetic) with the four Cs ensures 21st century readiness for students today?

| Agree/Strongly Agree | 79.5% |

Source: AMA/P21 2010 Critical Skills Survey, released April 2010
WE MUST FUSE THE THREE Rs WITH THE FOUR Cs.
P21 members are unanimous! The three Rs aren’t enough in the 21st century.
The four Cs

- Critical thinking and problem solving
- Communication
- Collaboration
- Creativity and innovation

As the three Rs serve as an umbrella for other subjects, the four Cs do for other skills.
Is systems thinking a subset of critical thinking or is critical thinking a subset of systems thinking?
The four Cs are a student’s ticket up the economic ladder in the 21st century.
THERE ARE LEADING EXAMPLES AROUND THE COUNTRY OF 21ST CENTURY READINESS.
Leading districts are already fusing the three Rs and the four Cs.
Leading Districts:

• Catalina Foothills School District
• Chesterfield County Public Schools
• Tahoma School District
Leading Examples

Catalina Foothills School District
(Tucson, AZ)

www.cfsd16.org
Leading Examples

CHESTERFIELD COUNTY PUBLIC SCHOOLS
21ST CENTURY KNOWLEDGE AND SKILLS MODEL
FOR SELF-DIRECTED LEARNERS

RESEARCH-BASED, BEST PRACTICE STRATEGIES;
HABITS OF MIND; MARZANO STRATEGIES

ASSESSMENTS

Digital-Age Literacy
- Basic Literacy
- Economic and Financial Literacy
- Scientific and Mathematical Literacy
- Health and Fitness Literacy
- Visual and Musical Literacy

Inventive Thinking
- Adaptability and Self-Direction
- Problem Solving
- Creative and Innovative Thinking
- Critical Thinking and Reasoning
- Managing Complexity

Communication and Collaboration
- Teaming, Collaboration and Interpersonal Skills
- Personal, Social and Civic Responsibility
- Interactive Communication
- Information Management

Global Connections
- Global Awareness
- Multicultural Literacy
- Global Perspectives
- Global Citizenship
- Cultural Competence

VISION

21st Century Technology
- Information Integration
- Imagination

MISSION

CORE VALUES

STANDARDS OF LEARNING; CURRICULUM FRAMEWORK;
CCPS INSTRUCTIONAL MODEL; RIGOR AND RELEVANCE FRAMEWORK

CCPS Mission Statement

The mission of the CCPS is to work in partnership with students, families and the community to ensure that each student acquires the knowledge, skills and core values necessary to achieve personal success and to enrich the community.

CCPS Vision Statement

In 2012, we envision that every Chesterfield school will be a thriving, dynamic and inspiring educational environment that produces self-directed learners and stimulates citizens of all ages to trust in, invest in, and benefit from public education.

May 2000

Partnership for 21st Century Skills
Leading Examples

Tahoma
School District
(Maple Valley, WA)

www.tahomasd.us

Outcomes and Indicators

Self-Directed Learners
- Set goals
- Show persistence
- Make effective decisions
- Evaluate work
- Use time effectively
- Strive for improvement

Collaborative Workers
- Contribute to shared vision
- Demonstrate flexibility
- Show empathy and respect
- Listen actively
- Are accountable
- Build on other people's thinking

Effective Communicators
- Communicate with clarity and precision
- Deliver information effectively and in multiple formats
- Interact with globally diverse audiences
- Listen, interpret and evaluate

Community Contributors
- Consider global perspectives
- Demonstrate personal, social and civic responsibility
- Respect and value diversity
- Enhance the environment
- Engage in community service

Quality Producers
- Develop and/or utilize criteria
- Aspire to exceed expectations
- Skillfully use tools, resources and technology
- Demonstrate accuracy and precision
- Create aesthetically pleasing work

Complex Thinkers
- Imagine, create and innovate
- Recognize and appreciate humor
- Gather, filter and synthesize information
- Access multiple problem-solving strategies
- Reflect on and apply past learning to new experiences
- Generate questions to deepen understanding
- Explore and take risks

Our mission is to develop a learning community where all students, staff and parents continually learn and grow.

Quality learning every day, in every classroom, for every child.
Leading Models:
There are leading models around the country that embrace 21st century readiness:
• New Tech
• Envision Schools
• IB
• Expeditionary Learning
• Asia Society
• Career Academies
The leading examples define the skills.

http://tinyurl.com/route21rubrics
The leading examples focus on professional development.
Embedding into professional development:

- West Virginia/Teach 21
- North Carolina Teaching Standards
The leading examples focus on assessment.

Examples:
- CWRA
- PISA
- New Tech model
- N.C. Genetics Assessment
- e-portfolios
- Senior capstone projects
Resources you can use

- P21 Framework
- Implementation Guides
- Content Skills Maps
- Mile Guide
- Route 21
- New Book on 21st C Skills
- Video Resources (Video 21)
Resources you can use

Framework for 21st Century Learning

www.p21.org
Resources you can use

Implementation Guides

Brief, user-friendly guides for each of the P21 support systems:

- Professional Development
- Curriculum & Instruction
- Assessment
- Standards
- Learning Environments
Resources you can use

P21’s 21st century skills
Core Subject Maps:

- English
- Social Studies
- Geography
- Science
- Arts (2010)
- Foreign Languages (2010)
Resources you can use

The MILE Guide and The online MILE Guide

P21’s self-assessment tool for schools and districts

www.P21.org/mileguide
**Resources you can use**

**The MILE Guide (continued)**

The ability to assess readiness and progress in terms of:

- Student Knowledge and Skills
- Education Support Systems
- Education Leadership
- Policymaking
- Partnering
- Continuous Improvement and Strategic Planning

<table>
<thead>
<tr>
<th>Student Knowledge &amp; Skills</th>
<th>Education Support Systems</th>
<th>Education Leadership</th>
<th>Policymaking</th>
<th>Partnering</th>
<th>Continuous Improvement &amp; Strategic Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Competencies</td>
<td>Core Competencies</td>
<td>Core Competencies</td>
<td>Core Competencies</td>
<td>Core Competencies</td>
<td>Core Competencies</td>
</tr>
</tbody>
</table>
Resources you can use

Welcome to Route 21

The Partnership for 21st Century Skills is pleased to offer Route 21, a one-stop-shop for 21st century skills-related information, resources and community tools. To get started, take a tour or explore the P21 framework.

www.P21.org/route21
Resources you can use

New Book by Bernie Trilling And Charles Fadel

www.21stcenturyskillsbook.com
Resources you can use

View P21’s online collection of videos showing what 21st century education looks like in the classroom.

POLICY MUST BE THE CATALYST FOR CHANGE.

MOMENTUM ISN’T SUSTAINABLE WITHOUT STATE AND FEDERAL GOVERNMENTS CREATING THE RIGHT POLICIES.
Current State Partners

- Arizona
- Illinois
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Massachusetts
- Nevada
- New Jersey
- North Carolina
- Ohio
- South Dakota
- West Virginia
- Wisconsin
Federal directions:

- Common standards
- Assessment
- ESEA
- College and work readiness
“I'm calling on our nation's governors and state education chiefs to develop standards and assessments that don't simply measure whether students can fill in a bubble on a test, but whether they possess 21st century skills like problem-solving and critical thinking and entrepreneurship and creativity.”

President Barack Obama, 3/10/09, in an address to the U.S. Hispanic Chamber of Commerce
We need to construct a thoughtful relationship between systems thinking and the four Cs.
Conclusion

- The four Cs as a political construct.

- Systems thinking as a critical skill for 21st century citizens and workers.

- Systems thinking as a critical element of district and school transformation.