THE IMMERSIVE LEARNINGSCAPE 2.0

A Pattern Language for the Design of the Learning Revolution Environments



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Learning Objectives

- 1. "Sign of the Times" in Education
- 2. We have entered a Learning Revolution.....
- 3. A Pattern Language for Creating Immersive Learning Environments
- 4. Case Studies

The Immersive LearningScape 1.0 Recap





5 A Customizable World

Teaching Dilemmas







Is our current education making us competitive in the global marketplace?



What skills will be needed to excel as we further move into the 3rd millennium?



What will their jobs be like?

10 JOBS THAT DID NOT EXIST 10 YEARS AGO

- 1 App Developers (Creative Tech)
- 2 Market research Data Miner (Library science Info gathering/summarizing)
- 3 Millennial Generational Expert (Social Networks)
- 4 Social Media Manger (Social Networks)
- **5** Chief Listening Officer (Social Spy)
- 6 Cloud Computing Services (Data Storage and Sharing)
- Elder Care (Health and Communication Baby Boomers)
- 8 Sustainability Expert (Global Warming / Green Economy)
- 9 User Experience Design (Right Brain thinking)
- Academic and Admissions Consultant (Education and Access)



Are learning spaces adequate to acquire the needed 21st century skills?



How do you create the ultimate inquisitive learning environment?



How might we enable a learning environment for creative and innovative thinking?





As acquiring content becomes more automated, and teamwork across disciplines becomes critical to a creative, conceptual, and innovation society, what kinds of learning spaces promote transdisciplinarily collaboration?



Why are we teaching in the same spaces as we did in the 19th Century?



Given the increasing introduction of technology in the classroom, what will be the role of the teacher?

LEARNING OBJECTIVE #1

SIGN OF THE TIMES

As the world flattens, education will heighten.

19th 20th **COUNTRIES** ____ VS _____ **COUNTRIES**



CORPORATIONS VS _____

CORPORATIONS



21st**INDIVIDUALS** VS _____ **INDIVIDUALS**



As the world becomes increasingly flat,

*•<u>•</u>••••

As the world becomes increasingly flat, education is heightened



COMPLEX CHALLENGES IN A GLOBAL WORLD

Multi-disciplinary teams needed to solve complex challenges



Thomas L. Friedman on The Charlie Rose Show discussing his book, "The World is Flat" • 04.05.05 graphic facilitation by Brandy Agerbeck • Loosetooth.com

QUALITY OF EDUCATION

How do we prepare students for jobs that don't yet exist?

QUALITY OF EDUCATION

What are the skills they will need?



21st CENTURY SKILLS

Problem Solving Critical Thinking Technology-savviness Leadership skills **Communication Skills Collaboration Skills Global Knowledge** Languages Interdisciplinary skills **Creative Skills**



21st CENTURY SKILLS (as per employers' needs)

Concepts in Science & Tech (82%) Teamwork (76%) Real world / hands on experience (73%) Communication Skills (73%) Critical Thinking / Analytical (72%) Global Issues / Developments (72%) Locate / Organize / Evaluate Info (70%) Creative Thinking / Innovation (70%) Solve Complex Problems (64%) Work with Numbers / Statistics (60%) Global Cultures / Languages (53%)

SOURCE - What Employers are looking for in college graduates Survey by Association of American Colleges & Universities - 2007



STUDENT VOICES on engagement

1 10

I'M BORED 99 PERCENT OF THE TIME.

- California

The 21st-Century Digital Learner, by Marc Prensky. EDUTOPIA. http://www.edutopia.org/ikid-digital-learner-technology-2008

SCHOOL IS REALLY, REALLY BORING.

- Virginia

The 21st-Century Digital Learner, by Marc Prensky. EDUTOPIA. http://www.edutopia.org/ikid-digital-learner-technology-2008

ENGAGE US MORE. – Texas

POINTLESS. I'M ENGAGED IN TWO OUT OF MY SEVEN CLASSES.

– Florida

The 21st-Century Digital Learner, by Marc Prensky. EDUTOPIA. http://www.edutopia.org/ikid-digital-learner-technology-2008

STUDENT VOICES on technology

SOURCES: The 21st-Century Digital Learner, by Marc Prensky. EDUTOPIA. http://www.edutopia.org/ikid-digital-learner-technology-2008 Project Tomorrow - http://www.tomorrow.org/

You think of technology as a **tool**. We think of it as a **foundation** -- it's at the basis of everything we do.

The 21st-Century Digital Learner, by Marc Prensky. EDUTOPIA. http://www.edutopia.org/ikid-digital-learner-technology-2008 Project Tomorrow - http://www.tomorrow.org/

SOURCES:

TEACHER VOICES on innovation

a partnership of teachers, parents and administrators to improve student achievement. No one and no thing can accomplish this monumental task alone."

"Treat all students equally, provide high-quality teaching, have high expectations and students will succeed."

"In today's world it is absolutely necessary for students to achieve at the highest level their ability allows, and then go beyond."

PRIMARY SOURCES: AMERICA'S TEACHERS ON AMERICA'S SCHOOLS A PROJECT OF SCHOLASTIC AND THE BILL & MELINDA GATES FOUNDATION

"Give them standardized tests, but not all the time, and their lives shouldn't depend on it; and neither should ours."

Learning is a lifelong

"How do we prepare students for jobs that don't yet exist?" Teachers recognize that it is essential for instruction to be **tailored** to individual students' skills and interests

SOURCE: SCHOLASTIC -Teachers in America Survey.

90% of teachers say that **differentiated** assignments are absolutely essential

SOURCE: SCHOLASTIC -Teachers in America Survey.

81% of teachers say that up-to date information-based technology, that is well integrated into the classroom, is absolutely essential

SOURCE: SCHOLASTIC -Teachers in America Survey.
WHY AREN'T STUDENTS PREPARED FOR COLLEGE?

Overall, teachers ranked "Lack of motivation" as the #1 reason

	ΤΟΤΑ	ES	MS	HS
Lack of participation in CP	2%	2%	2%	3%
Poor reading and comm. skills	19%	20%	17%	15%
Lack of critical thinking skills	17%	18%	16%	17%
Lack of encouragement	27%	34%	22%	15%
Lack of motivation	34%	25%	43%	49%
Not sure	1%	1%	0%	1%

We are entering a

LEARNING REVOLUTION

factor 1 Technology

"Scientists have learned more about the brain in the last 10 years than in all previous centuries because of the accelerating pace of research in neurological and behavioral science and the development of new research techniques."

National Institute of Neurological Disorders and Stroke (NINDS)

FACTOR 2 Brain



WORK SCHEDULE

SHANNON'S CLASS SCHEDULT

-

a consumation of 9-(0-20¢

> 11 20

NOT

toX pp

2.09

333

300

8.15

SHANNON'S STUFF

ART

SOCIAL STUDIES

MATH

there sharing

FRIENDS & FAMILY SHARED CALENDAR

0 .

AYLA'S WORKSPACE

SHANNON'S CLASSROOM



SOURCE - Active Learning - Creating excitement in the classroom. 1991. Bonwell and Eison

FACTOR 5 Paradigm Shift

20th Century

Mechanization & Sequentiality

21st Century

Instant Access to Information & Simultaneity

Marshall McLuhan



20th Century Linear Learning = 1 isolated discipline per hour

21st Century

Asynchronous Cross-Disciplinary Learning = Multiple disciplines simultaneously

FACTOR 7 Relevance

learn here. apply there

"The problem-solving process cannot be taught; it has to be experienced"

Ben Johnson

FACTOR 8 Experiential Learning

FACTOR 9 Investigative Learning "This approach would address students not as receivers of information, but as shapers of knowledge"

Ormondale Elementary School



GENIUS SAR

guide, inspire, and troubleshoot



Technology Teamwork Technology



Technology Augmented Reality Technology



Technology Blended Learning



Technology 1-to-1 learning



Technology Teacher 1-to-1 supervision



Technology Flipped Classroom

WHAT IS THE FLIPPED CLASSROOM?

The flipped classroom inverts traditional teaching methods, delivering instruction online outside of class and moving "homework" into the classroom.

THE INVERSION





Technology Prosumer = Producing + Consumer

With the proliferation of digital networks the world over, the electronic marketplace has gone from empowering the consumer to supporting a global civic society. Power to the people.

SOURCE: The Third Wave, Alvin Toffler

Technology Technology / Learning Environment Relationship



INTERSECTIONAL IDEAS

FOR AN INTERSECTIONAL WORLD



Breakthrough Insights at the Intersection of Ideas, Concepts & Cultures



INTERSECTION AND INNOVATION

Diverse teams create far more ideas than homogenous teams







BELL LABS

FACTOR

INNOVATION -

Older management was demoted, younger management given new titles, and, most importantly, every research group was interdisciplinary: chemists mingled with physicists who chatted with metallurgists who lunched with engineers. Every building in the New Jersey campus was interconnected and no one was allowed to shut their door. This was the beginning of a newly innovative time.











Bell Labs: A Hive of Invention

Source: Alcatel-Lucent

BILL MARSH/THE NEW YORK TIMES

LEFT AND CENTER PHOTOS COURTESY OF ALCATEL-LUCENT USA INC. AND THE AT&T ARCHIVES AND HISTORY CENTER; RIGHT PHOTO: EZRA STOLLER/ESTO

s: A Hive of Invention

the breakup of its parent company, AT&T, in 1984, and how they helped lead to some of the latest technologies.



BILL MARSH/THE NEW YORK TIMES

LEFT AND CENTER PHOTOS COURTESY OF ALCATEL-LUCENT USA INC. AND THE AT&T ARCHIVES AND HISTORY CENTER; RIGHT PHOTO: EZRA STOLLER/ESTO

Interdisciplinary thinking for solving challenges Doctors and Nascar



Interdisciplinary thinking for solving challenges Volvo and Locusts



Interdisciplinary thinking for solving challenges Volvo and Locusts



3M

- A CULTURE OF SHARING -

55,000 Patents a 1-to-1 ratio to employees

Sharing Among Scientists core tenet of their culture, 15% rule pursue speculative new ideas and share with the group, Conceptual Blending, Employee Rotation, Horizontal Sharing inventing new products by transplanting same concepts into different domains, Tech Forum Event each researcher shares findings with the company

"Flexible Attention Policy" take a walk outside, sit by a sunny window, daydream

> Spend 8% of gross revenue on research

> > Magic" Tape

A Culture of Sharing 3M Australia



HOW CAN WE CREATE A LEARNING ENVIRONMENT THAT SUPPORTS A CULTURE OF INNOVATION ?

8 IMMERSIVE LEARNINGSCAPE PATTERNS

the learning revolution's impact on educational environments

Pattern 1: Sketch-Scape Sharing Knowledge


Pattern 2: Transparency Cross-Pollination of Ideas



Pattern 3: Tinkering Space Creative Space



Pattern 4: Immersive-Scape Relevance of Knowledge



Pattern 5: Unifying Space Collaboration



Pattern 6: Play-Scape Fun-scape





Pattern 7: Adaptability Flexibility



Pattern 8: Technology-infused Learning Active & Engaging Tools



methodologies of typologies of **TEACHING** vs. **LEARNING**

typologies of methodologies of **TEACHING** LEARNING VS.

classROOM



typologies of **LEARNING – Space**

typologies of LEARNING-SPACE





THINK



CREATE



EXCHANGE

DISCOVER

IMPART

typologies of LEARNING-SPACE



THINK







Think-Scape A Space that Supports a "Thinking Curriculum"



Think-Scape A Space for Research



Think-Scape A Space for Contemplation



Think-Scape

A Space for Critical Thinking



Think-Scape A Space for Assessment



Think-Scape A Space for Organizing Your Thoughts



Think-Scape A Space for Visual and Audio Recording



Think-Scape A Space for Individual Distance Learning



typologies of LEARNING-SPACE



THINK



CREATE





Create-Scape A Space for Teamwork



Create-Scape A Space for Collaboration



Create-Scape A Space that Supports Communication



Create-Scape A Space that Records Ideas



A Space that Supports Cross-Cultural Distance Learning



Create-Scape A Space that Supports STEM & STE<u>A</u>M Education











Case Study Sarasota's Classroom of Tomorrow



Case Study Sarasota's Classroom of Tomorrow

Content Purpose: Identify the structure and describe the physical characteristics of the Sun language Purpose: Use the scientific terms corona, chromosphere, convection zone, radiation zone, core, sunspots, solar flares and prominences, to describe the structure of the Sun Autcome: With your group members help create and label a model that identifies the Sun's Structure and properties

A Space that Supports Project-Based Learning



typologies of LEARNING-SPACE









THINK





CREATE



Discover-Scape A Space for Hands On Investigative Learning



Discover-Scape A Space for Tinkering



Discover-Scape A Space for Production


Discover-Scape A Space for Failure



Discover-Scape A Space for Idea Application



Discover-Scape A Space for Specificity



typologies of LEARNING-SPACE



DISCOVER



THINK



IMPART



CREATE



Impart-Scape A Space for Sharing



Impart-Scape A Space for Teaching



Impart-Scape A Space for Quick Lessons



Impart-Scape A Space for Distance Learning



typologies of LEARNING-SPACE



THINK







IMPART



EXCHANGE

Exchange-Scape A Space for Social Learning



Exchange-Scape A Space for Co-Teaching



Exchange-Scape A Space for Interactions



Exchange-Scape A Space for Informal Conversation



Exchange-Scape A Space for Serendipity



Exchange-Scape A Space for Exhibiting



LEARNING OBJECTIVE #4

CASE STUDIES

- Re-Thinking the Knowledge Community
- Organic Change

e been all of these

FAMONT BU

GEORGE WASHINGTON

• The Building as a Teaching Tool

CASE STUDY 1

Re-thinking the knowledge community

IMMERSIVE - MEDIUM SCALE - LOW IMPACT - APPLICABILITY TO ALL SCHOOLS

CASE STUDY 1

Re:Thinking The Classroom Wing



PILOT MOUNTAIN MIDDLE SCHOOL, Pilot Mountain, NC







Integrated Curriculum Model ITEEA Recommendations



INTERNATIONAL TECHNOLOGY AND ENGINEERING EDUCATORS ASSOCIATION

"The current mainstream school facility models restrict the teaching of science, math, technology and engineering subjects to individual rooms designed around isolated topics/disciplines.

The National Governors Association report– "Innovation America: Building a Science, Technology, Engineering and Math Agenda", pg. 8 further describes it. "*The existing core curriculum, which is divided into silos and fo-cuses on traditional math and science, is often criticized as being irrelevant and boring to today's students*.

Studies report that the interest levels of American students, especially girls, in science begin to drop around middle school. As factors in turning off high numbers of students to STEM disciplines and professions, researchers point to the artificial separation in the curriculum of natural phenomenon into subjects, the focus on natural sciences and lack of attention to the human-made world of engineering and technology, and the disconnect of coursework from the lives of students."

ITEEA (International Technology and Engineering Educators Association) report, a May 3, 2011









21st CENTURY SKILLS IN THE IMMERSIVE LEARNINGSCAPE













THE IMMERSIVE LEARNINGSCAPE - EXCHANGE-SCAPE



Click here for the Immersive LearningScape video:



Cannon School

Immersive LearningScape Incremental Immersive Change

IMMERSIVE - SMALL SCALE - LOW IMPACT - APPLICABILITY TO ALL SCHOOLS








































Greenville STEM Middle School

Immersive LearningScape The Building as a Teaching Tool

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Integrated Curriculum Model Floor Plans Level 1



Integrated Curriculum Model Building as Teaching Tool



Integrated Curriculum Model Building as Teaching Tool



Integrated Curriculum Model Building as Teaching Tool



Integrated Curriculum Model Rendering at Exploratorium



THE FUTURE

INNOVATION

"The dogmas of the quiet past, are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise -with the occasion.

As our case is new, so we must think anew, and act anew. We must disenthrall ourselves, and then we shall save our country"

Abraham Lincoln

Educate for Disenthrallment



STEVEN JOHNSON

— WHERE DO GOOD IDEAS COME FROM ——

Chance favors the connected mind.

PRESENTED BY

Tomas Jimenez-Eliaeson

Little, Design Director teliaeson@littleonline.com





























