

Thinking Outside the Box



The Science of Learning

The Language of Nature

The Art of Innovation

The Science of Learning



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The Language of Nature



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ED lab INC

The Art of Innovation



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P E R K I N S + W I L L

Science of Learning

3

The biggest mistake of past centuries in teaching has been to treat all children as if they were variants of the same individual and thus to feel justified in teaching them all the same subjects in the same way (Howard Gardner)

Science of Learning

4



1920

1960

2000

Science of Learning

5

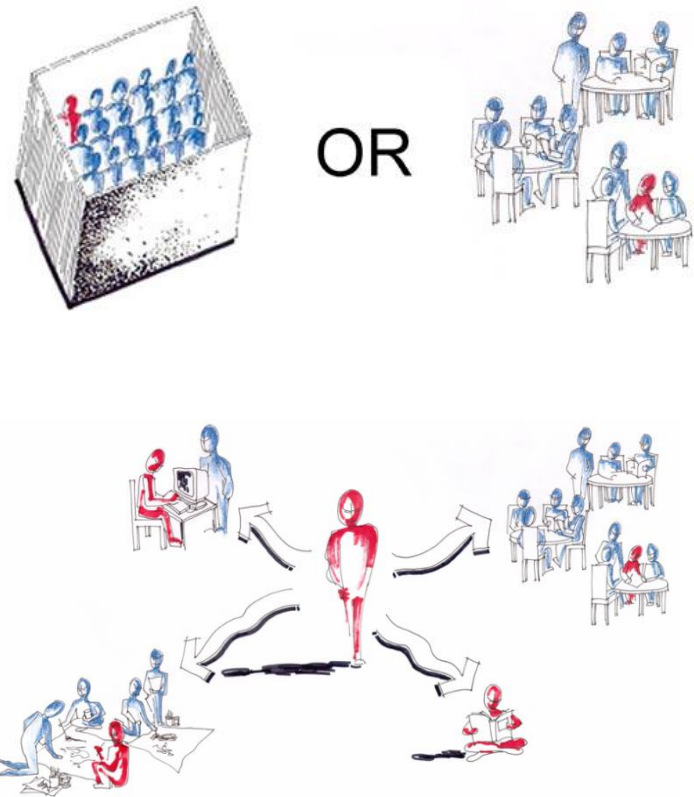
- *Fit the learner to the learning environment?*

Or

- *Design the learning environment around the learner?*

Or

- *Design the learning environment around the learning and the things to be learned?*



Science of Learning

6

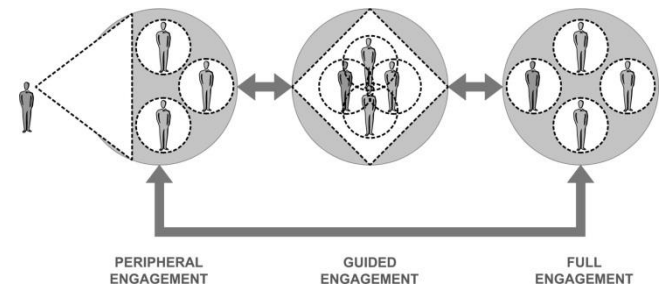
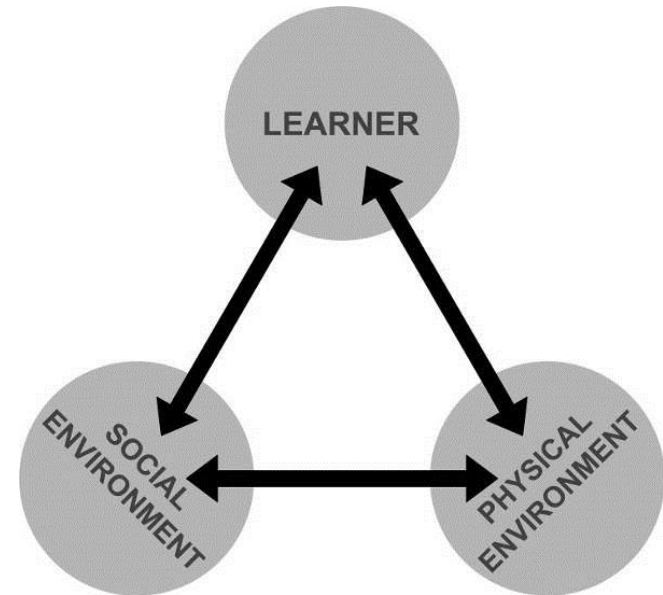
Evidence of student understanding is revealed when student apply (transfer) knowledge in authentic contexts. (Tomlinson and McTighe).

Science of Learning

7

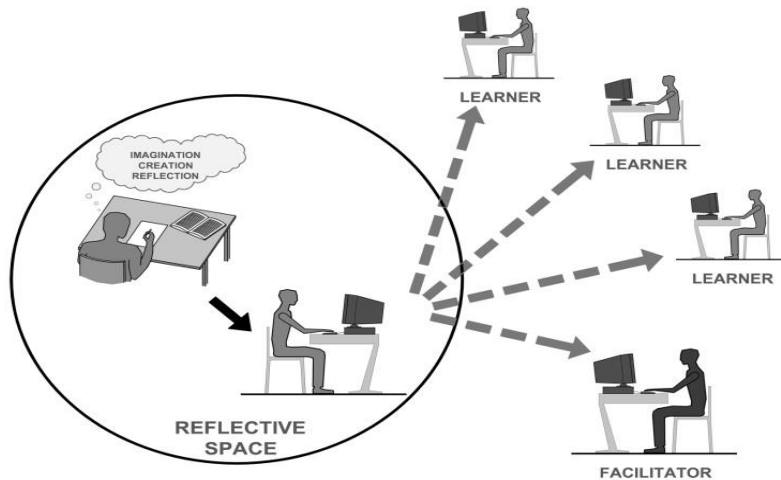


- Who is the learner?
- What is the learning environment?
- Where does learning taking place?
- How does Learning take place?



Science of Learning

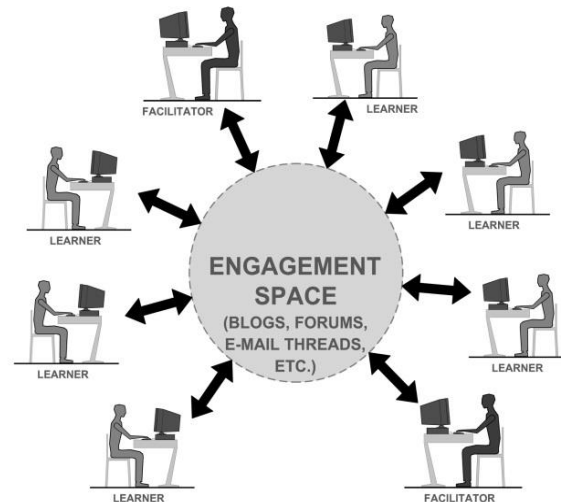
8



- Reflective Space
- Engagement Space
- Proximal Space



Chemistry Lab, University of Melbourne/ Associate Professor Peter Jamieson with Bloomquist & Wark Architects

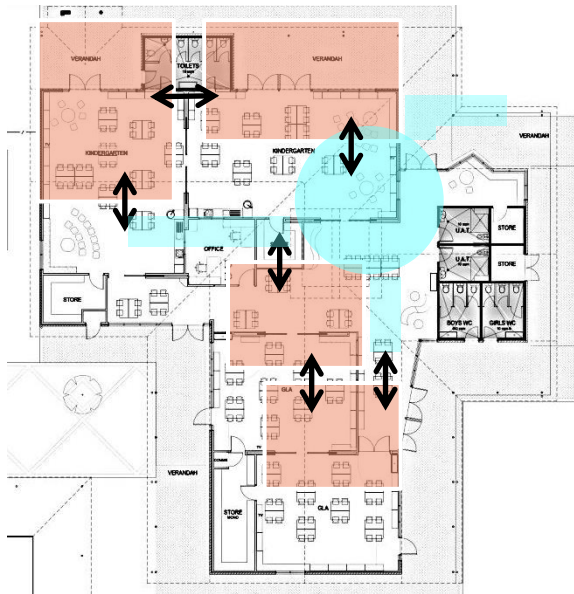


Science of Learning

Children already come to us differentiated. It just makes sense that we would differentiate our instruction in response to them (Tomlinson).

Science of Learning

10



Holy Cross College – EIW Architects

Learning Environments

- Defined Collaboration Spaces
- Integrated breakout zones outside/adjacent & attached to instructional spaces

Defined / Integrated Collaborative Spaces support (flow/flexible/fluid)

- Independent work
- One-to-one
- Small Group
- Large Group



School of One / Dull Olsen Weekes & the Cunningham Group

Science of Learning & Collaborative Spaces

11

Collaboration means “to work jointly with others or together especially in an intellectual endeavour.”

Collaborative Spaces *(Duality of use, Differentiated / Integrated)*

12



Classrooms

- *Formal*
 - *Pods*
 - *Layered*

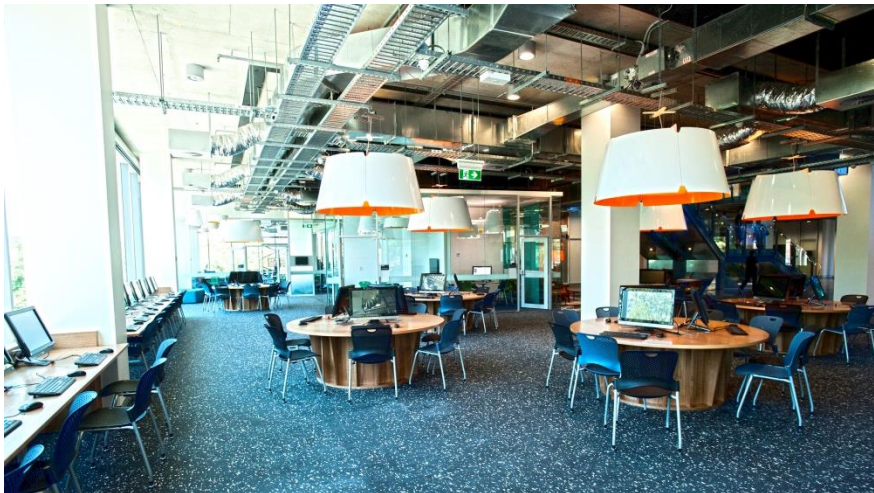
Collaborative Spaces *(Duality of use, Differentiated / Integrated)*

13



Breakout Rooms

- *Semi-formal Spaces*
 - *Practice Rooms*
 - *Work Rooms*
 - *Lounges*



Collaborative Spaces *(Duality of use, Differentiated / Integrated)*

14



Breakout Niches

- Informal Spaces/
Spontaneous
- Small group &
independent learning
 - Alcoves
 - Seating Booths
 - Corners

Collaborative Spaces *(Duality of use, Differentiated / Integrated)*

15



Breakout Hollows ("Holes")

- *Informal Spaces*
- *Independent & small group learning*
 - *Seating*
 - *Caves*

Collaborative Spaces *(Duality of use, Differentiated / Integrated)*

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Breakout Nodes-Spaces that create spaces

- *Informal Spaces/ Spontaneous*
- *Large group, small group, & independent learning*
 - *Raised &/or depressed floor areas*
 - *Grand Stairs*
 - *Pavilions*

Language of Nature



Language of Nature

Research confirms that learning outdoors:



- *Increases attention span*
- *Strengthens memory*
- *Reduces stress*
- *Improves mood*
- *Enhances creativity*

Language of Nature



What is an Outdoor Learning Environment?

A place that stimulates curiosity



Plant Life

Natural patterns, proportions, native and regional habitats stimulate biophilia



Scale of Learning

Individual reflection, small group shared learning and large group gathering



Sense of Enclosure

Framing a view, orientation for light, and protection from the elements

Language of Nature



Music of Nature

Symphony of sounds, bird habitat, water features, and human laughter

Linguistic Reflection

Poetry, quotes, and dedications provide places for individual introspection



Change in Elevation

Challenge a vertical transition to become a perspective teaching tool



Edible Landscape

Where food comes from, when to plant and harvest, how to grown and thrive



Language of Nature

Seton Montessori Environmental Atelier



Language of Nature

The College School Adventure Center

Rural Acreage Designation



Language of Nature

The College School Adventure Center

Convergence



Language of Nature

The College School Adventure Center

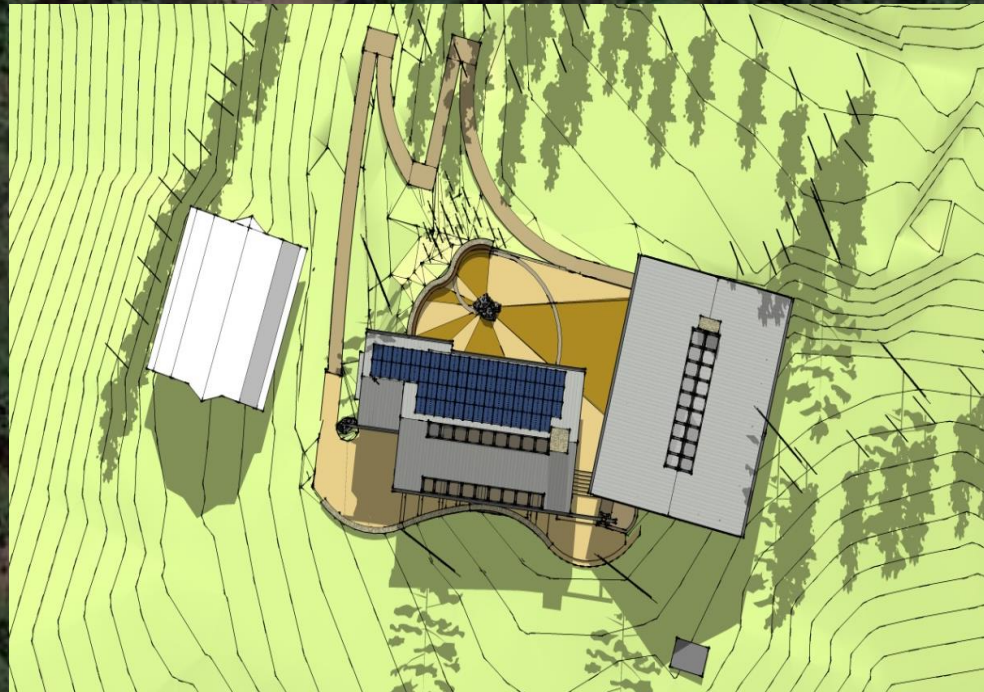
Interconnectivity



Language of Nature

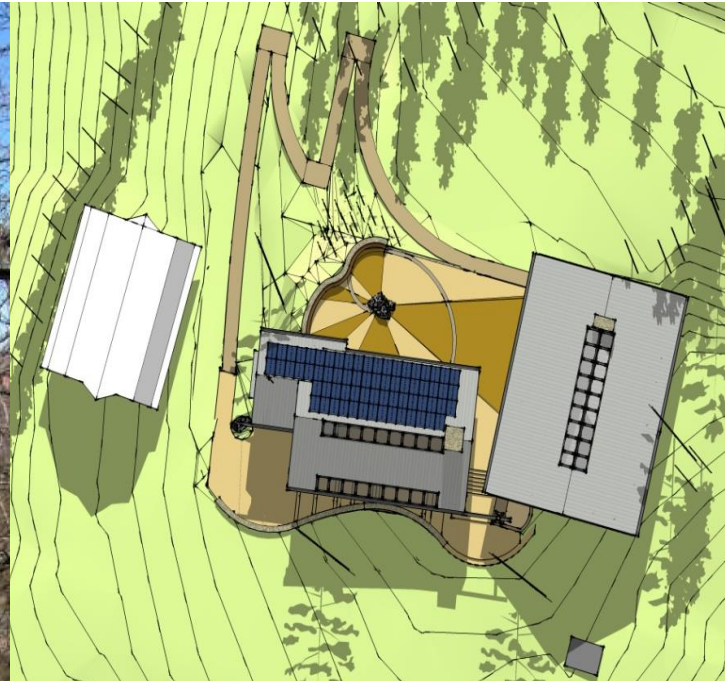
The College School Adventure Center

Aerial Photo



The College School Adventure Center

Educational Opportunities



Language of Nature

Gary Comer Youth Center Educational Garden

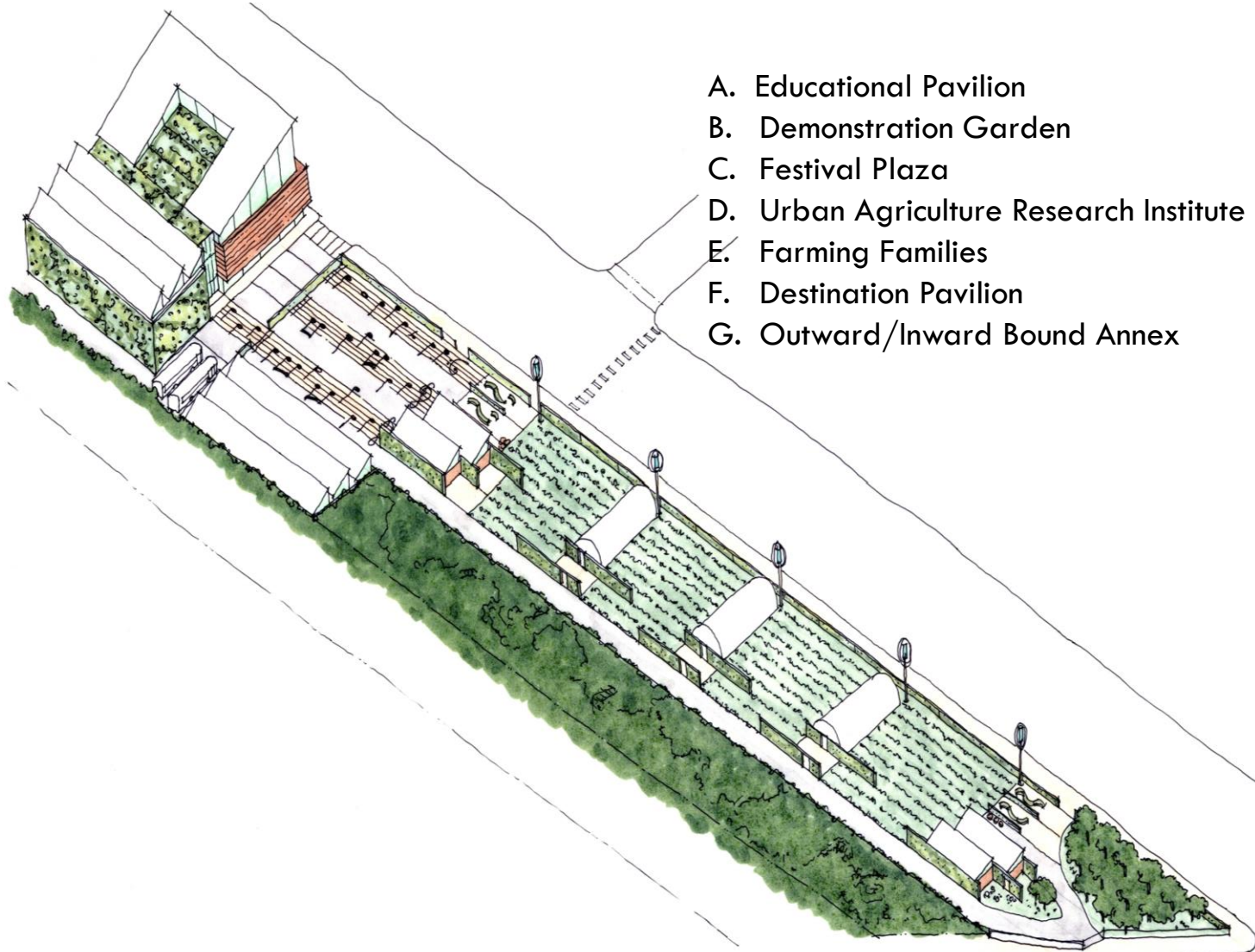
Urban Brownfield Site



Language of Nature

Gary Comer Youth Center Educational Garden

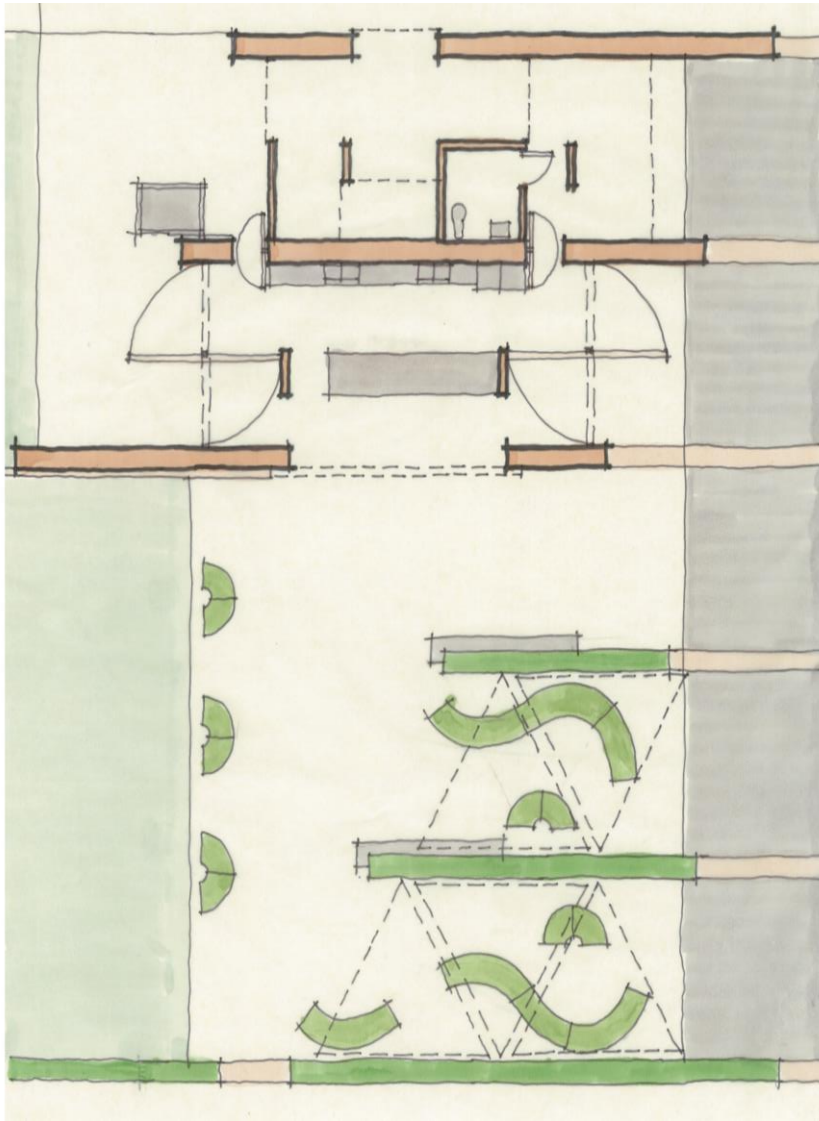
Master Plan



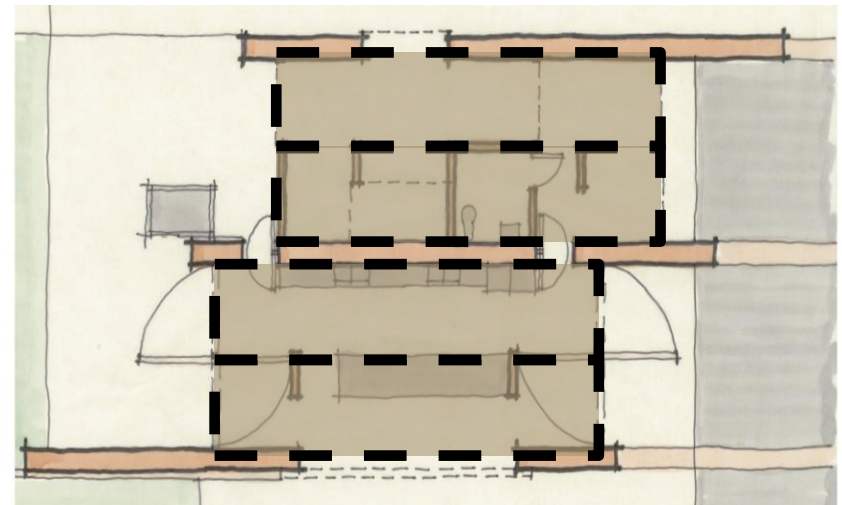
Language of Nature

Gary Comer Youth Center Educational Garden

Educational Pavilion



- A. Educational Walls located 18'-0" on center
- B. Demonstration Counter
- C. Washing and Sorting Counter with sinks
- D. Large Double Wide Refrigerator
- E. 16' wide Sliding Door
- F. 16' wide Pivot Doors
- G. Accessible Toilet
- H. Storage
- I. Water Collection
- J. Green Walls located 18'-0" on Center
- K. Demonstration Garden Kitchen Community



Sketch showing four 40' Shipping Containers

Language of Nature

Gary Comer Youth Center Educational Garden

Educational Pavilion

Temporary Building or
Temporary Classroom

Modular kit of parts built
off site, assembled on site



Language of Nature

Gary Comer Youth Center Educational Garden

Educational Pavilion



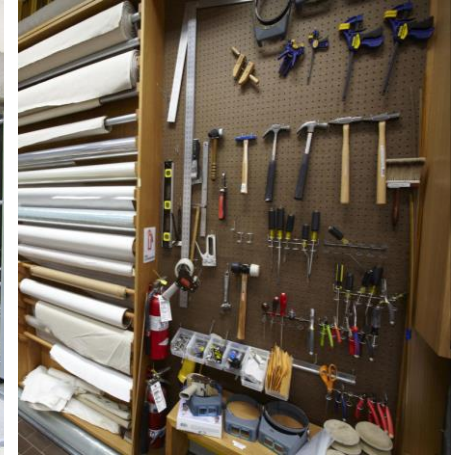
Wall: Grow



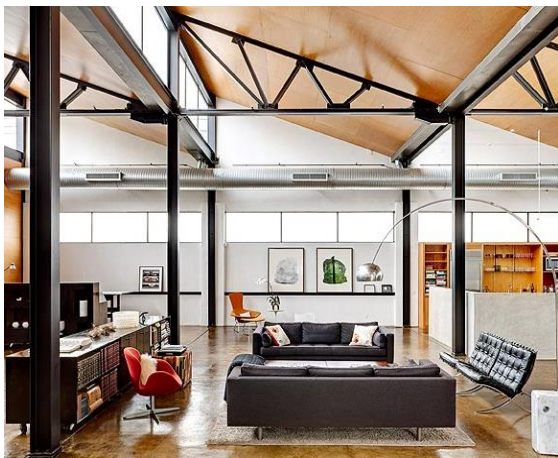
Display



Illustrate



Storage



Roof: Light and Ventilation



Storage



Energy and Water Harvesting



Language of Nature

Gary Comer Youth Center Educational Garden

Educational Pavilion



Door: Welcome

Pivot

Sliding



Counter:

Washing

Cooking

Teaching

Packing

Cooling

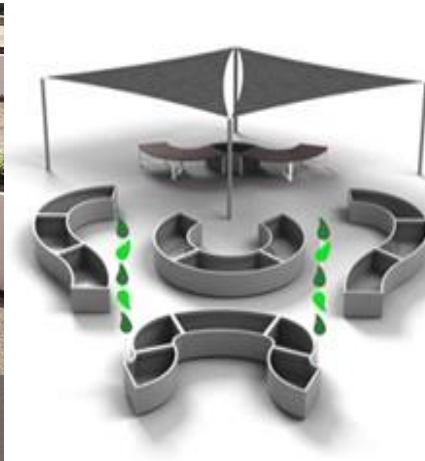
Language of Nature

Gary Comer Youth Center Educational Garden

Educational Garden



LEARNING GARDENS SERVE AS ENGAGING, OUTDOOR CLASSROOMS AND EXPERIENTIAL PLAY SPACES.



Planters:

Accessible

Movable

Collaborative



Seating:

Stackable



Foldable



Durable

Language of Nature

Gary Comer Youth Center Educational Garden

Educational Garden



Art of Innovation

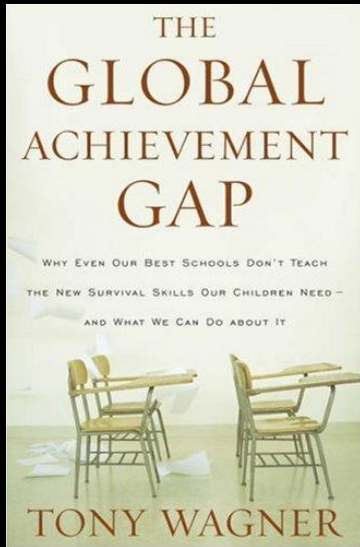
- ▶ Know more about the world
 - ▶ Be global citizens
- ▶ Think outside the box
 - ▶ Premium on creative and innovative skills
 - ▶ Think across disciplines (that's where the breakthroughs occur)
- ▶ Become smarter about new sources of information
 - ▶ Data - know how to manage, interpret, validate, act on
- ▶ Develop good people skills
 - ▶ EQ important as IQ

Source: Time Magazine, December 2006

Creative thinkers
who accelerate innovation.

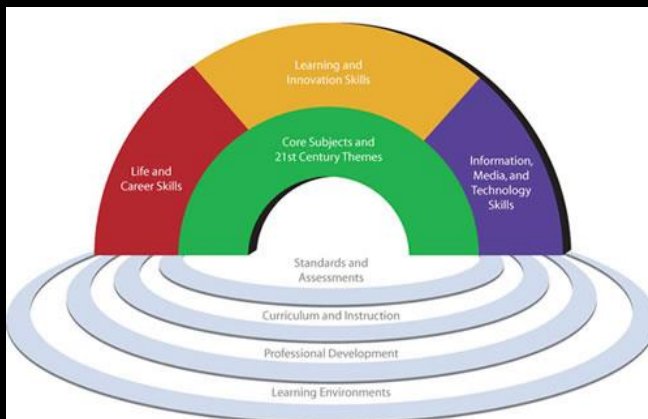


Art of Innovation



7 Survival Skills:

- critical thinking and problem solving
- collaboration across networks and leading by influence
- agility and adaptability
- initiative and entrepreneurship
- effective oral and written communication
- accessing and analyzing information
- curiosity and imagination

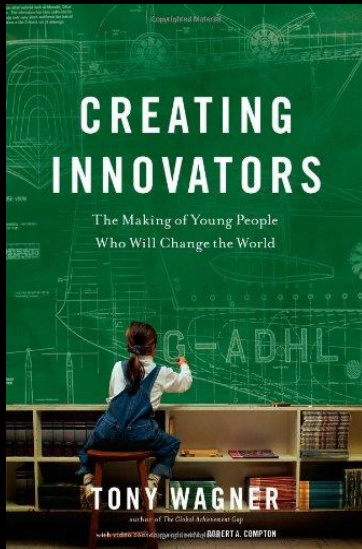


The Four C's:

- Critical Thinking
- Communication
- Collaboration
- Creativity and Innovation

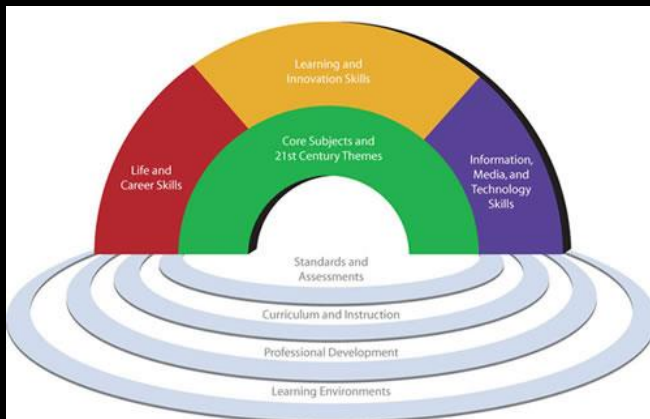


Art of Innovation



7 Survival Skills:

- critical thinking and problem solving
- collaboration across networks and leading by influence
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- initiative and entrepreneurship
- effective oral and written communication
- accessing and analyzing information
- curiosity and imagination
- **creativity and innovation**
(from *Creating Innovators*)

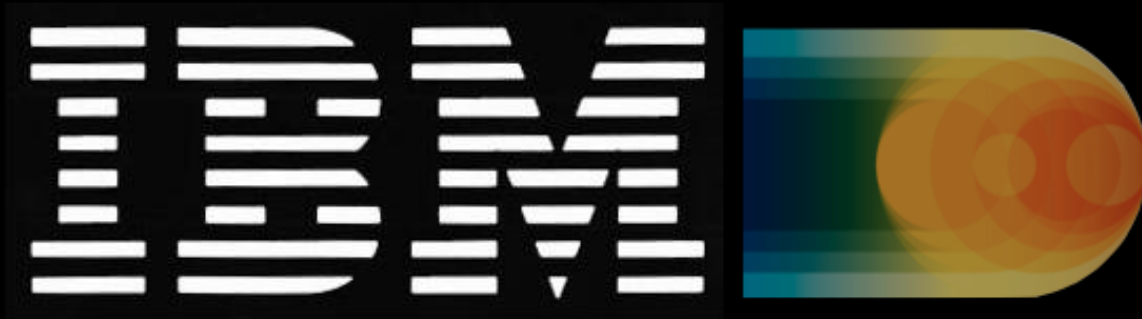


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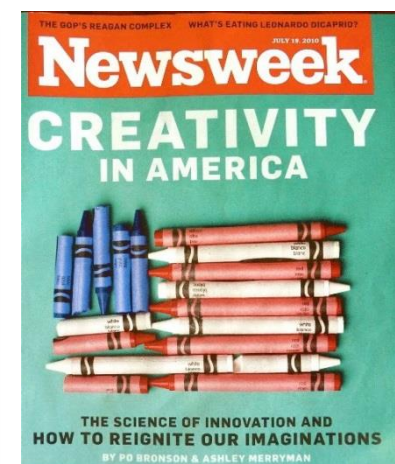
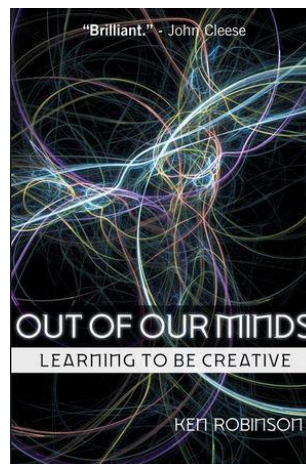
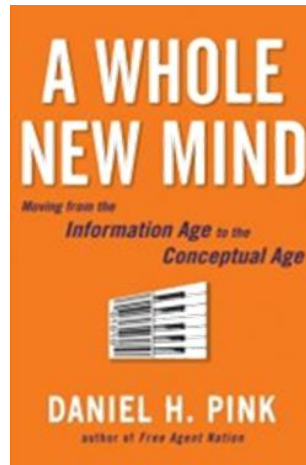
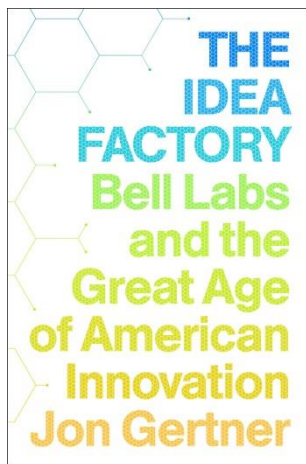
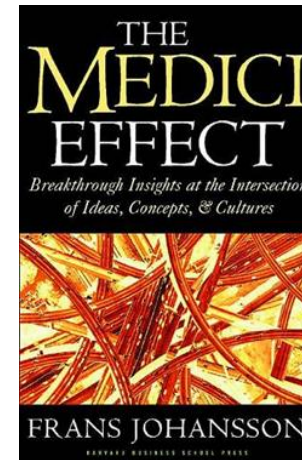
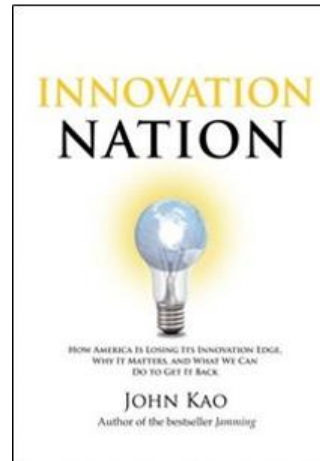
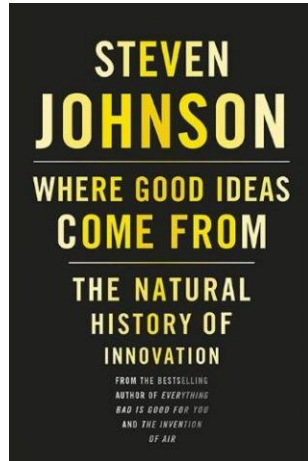
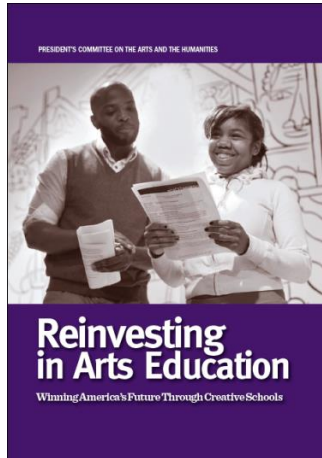


Art of Innovation

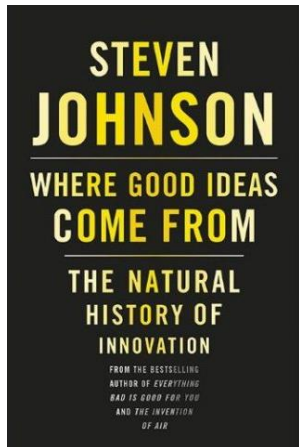


Survey of 1,500 CEO's:
“identify **creativity** as the number
one leadership competency of the
successful enterprise of the future”

Art of Innovation



Art of Innovation



MARKET

NON-MARKET

INDIVIDUAL

NETWORK

1

MARKET/INDIVIDUAL

2

MARKET/NETWORK

NON-MARKET/INDIVIDUAL

3

NON-MARKET/NETWORK

4

Source: Johnson, Steven. *Where Good Ideas Come From: The Natural History of Innovation*. New York: Riverhead Books, 2010.

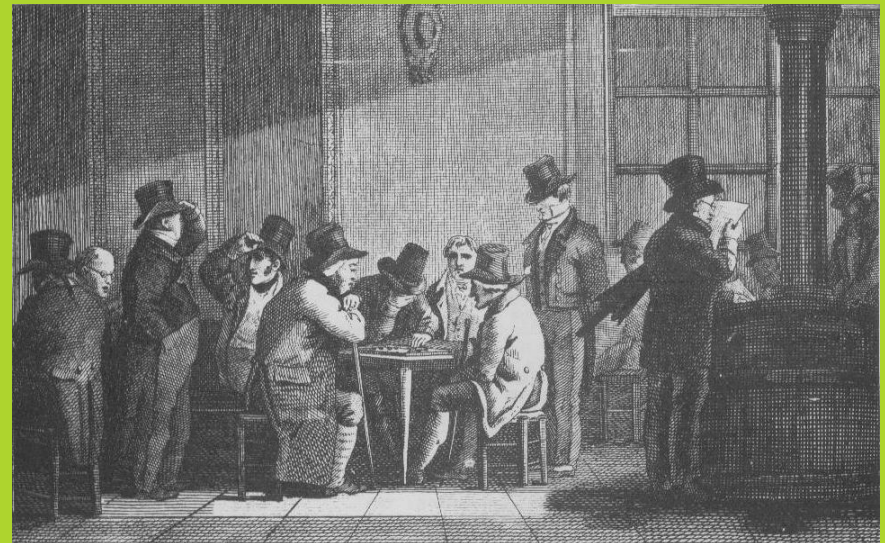
Art of Innovation

Quadrant 1



Archimedes

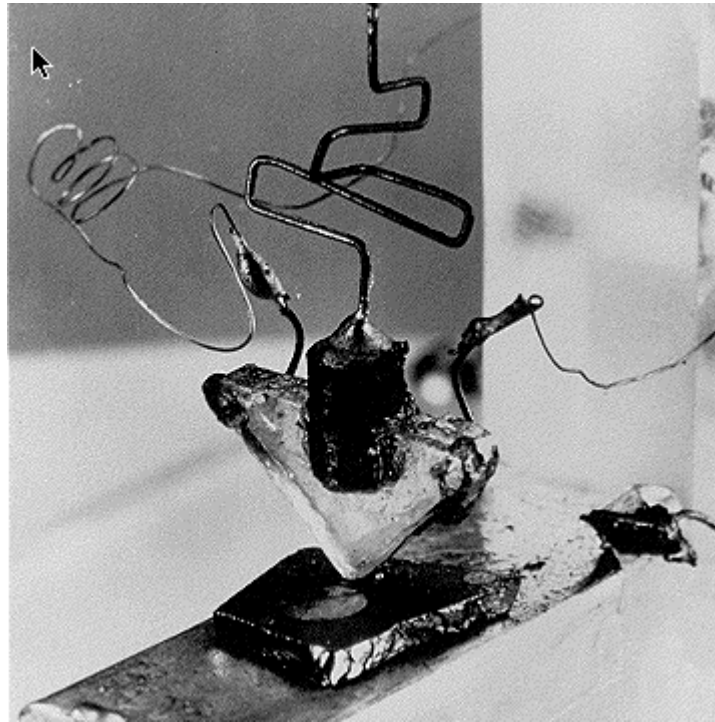
Quadrant 4



Drawing entitled "Café Manoury", Paris

Art of Innovation

what is it? three guesses.....



Art of Innovation

from this.....



to this.....



Art of Innovation

Other Bell Lab Inventions/Innovations:

to name just a few....

- ❑ The telephone (and the entire infrastructure to support it)
- ❑ Vacuum tubes
- ❑ Trans-Atlantic cable
- ❑ Telstar – the first active communications satellite
- ❑ Silicon solar cell
- ❑ The unix operating system
- ❑ The first gas laser
- ❑ Cell phone mobile phone system
- ❑ Information theory (Claude Shannon)
- ❑ Binary code system

Bell Labs: Murray Hill, New Jersey

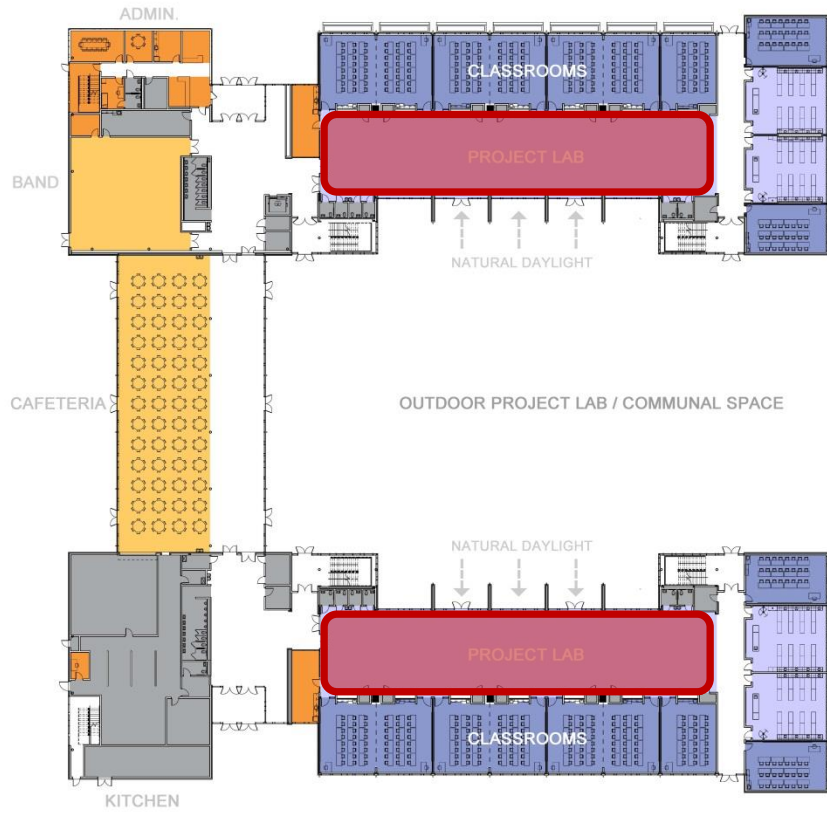




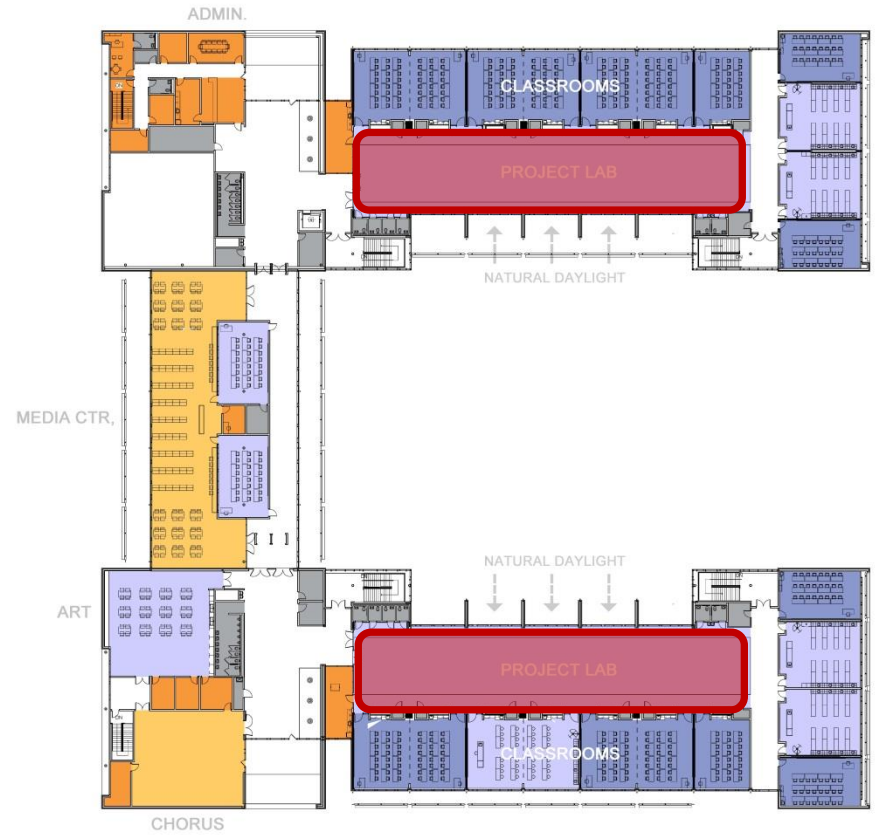
EASTBROOK MIDDLE SCHOOL

DALTON, GEORGIA





First Floor Plan



Second Floor Plan









BLUE VALLEY SCHOOLS

CENTER FOR ADVANCED PROFESSIONAL STUDIES

2011
Design Citation
National School Boards
Association

2011
Gold Award for Living, Working,
and Learning Environments
Center for Advanced
Professional Studies





2006:
Charge to Superintendent + Research “provide unique student learning opportunities that currently do not exist in the school district”

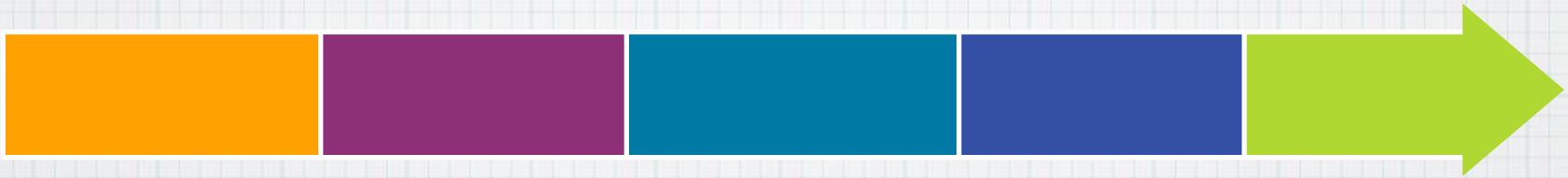
2007:
Feasibility Study Presented the idea of a “Center Based Program”(CBP)

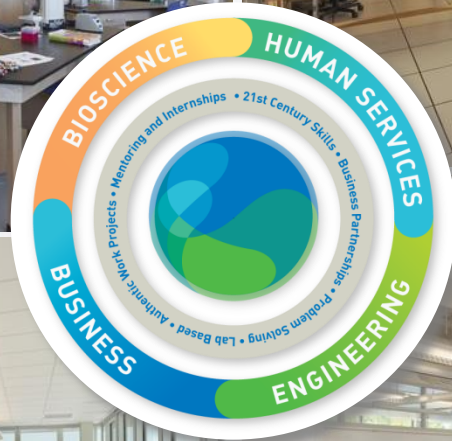
2008:
Search for Exec. Director starts (Donna Deeds starts April 1) Programming workshops commence

2009/2010:
CONSTRUCTION

Pre-engineering in all High Schools while designing balance of CAPS strands Full immersion into business classrooms

2011
Full implementation
Evolution and sharing
NSBA Citation
Edison Award





PROCESS

Bioscience

Logos for Bioscience:

- JCC
- Hill's
- KANSAS BIOSCIENCE AUTHORITY
- KANSAS BIO
- KU MEDICAL CENTER
- VETERINARY MEDICAL TEACHING HOSPITAL

Business

Logos for Business:

- JOHN DEERE
- charles SCHWAB
- GE
- KCTV 5 NEWS
- accenture
- Sprint
- Hallmark

Engineering

Logos for Engineering:

- CISCO
- Burns & McDonnell
- Honeywell
- MISSOURI S&T
- WICHITA STATE UNIVERSITY
- GARMIN

Human Services

Logos for Human Services:

- KU MEDICAL CENTER
- FEDERAL BUREAU OF INVESTIGATION
- Saint Luke's Health System
- Missouri State UNIVERSITY
- KS
- TwinFitness
- INSIDE SPORTS CLINIC





Google™





Dream it.



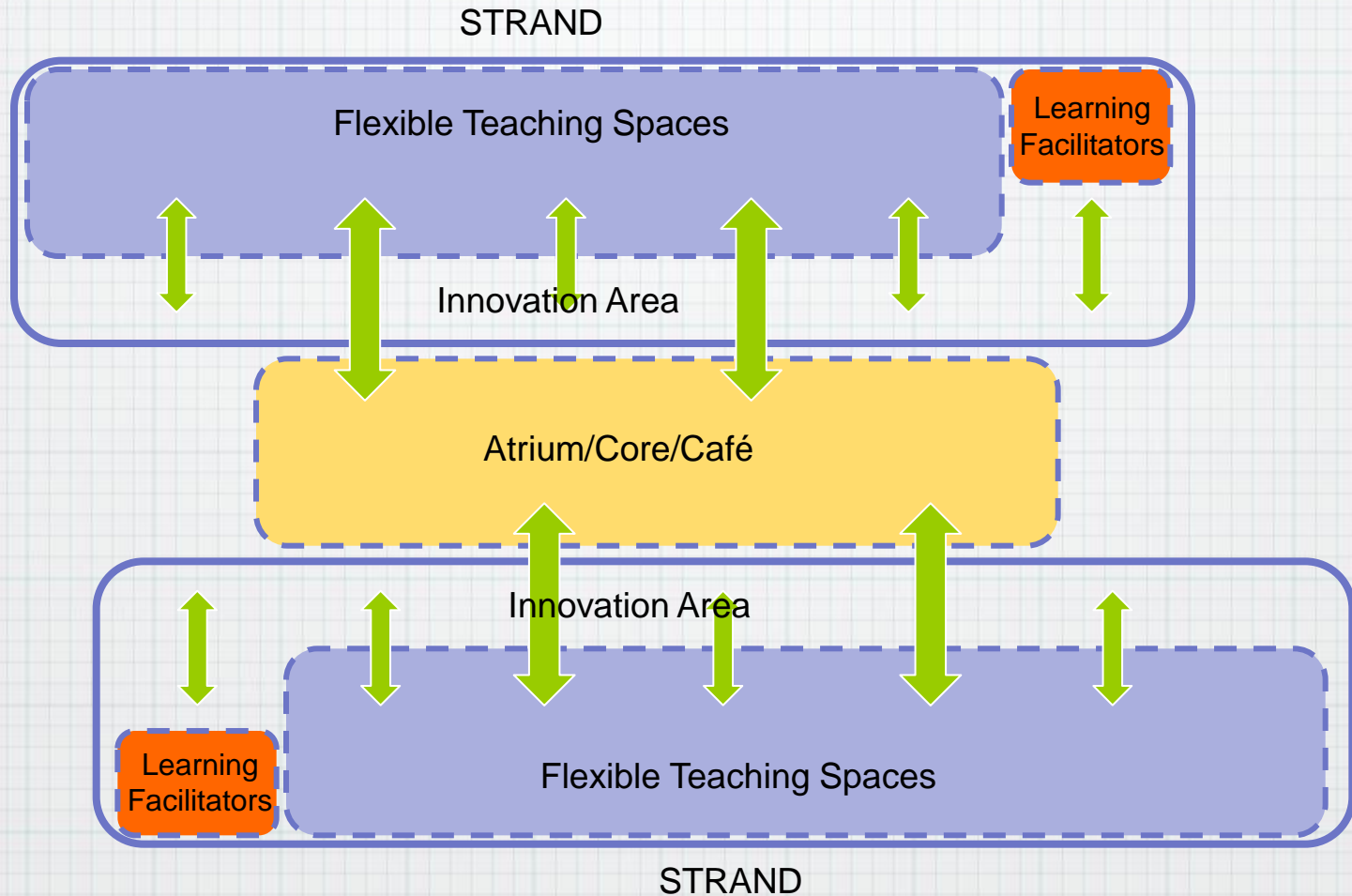
Prototype it.

Every decision we made had to answer the question...Does this look like a high school?
Would you see this in a high school?

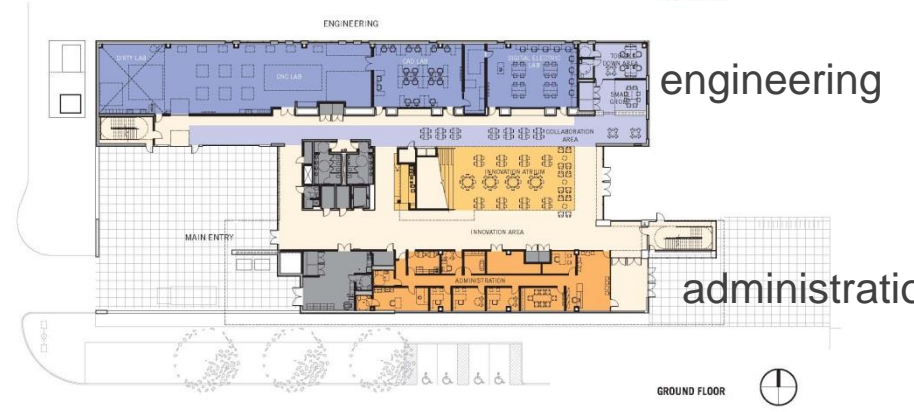
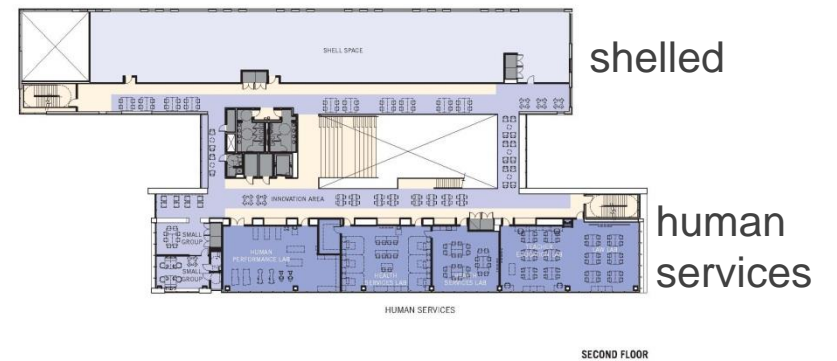
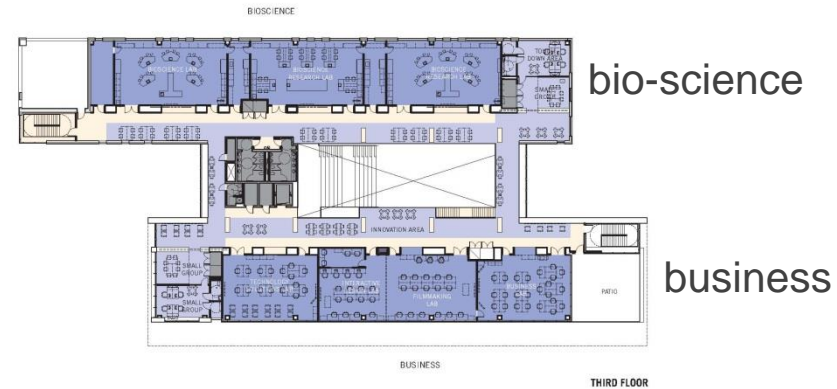
If so, then we made a different decision.

Donna Deeds
Executive Director

Building Diagram



- State of the Art Strands
- Interstitial Innovation Areas for collaboration and exhibition
- Ubiquitous Professional Learning Community
- A Visual Identity
- Sustainability that teaches





2011
EDISON AWARDS
INNOVATIONS & INVENTORS

















BV CAPS Accelerator

Objective

To provide students with comprehensive training in all aspects of discovering, growing and managing an invention and/or business.

n | s | p





No Talk. All Action.
Launch a Startup in 54 hours.

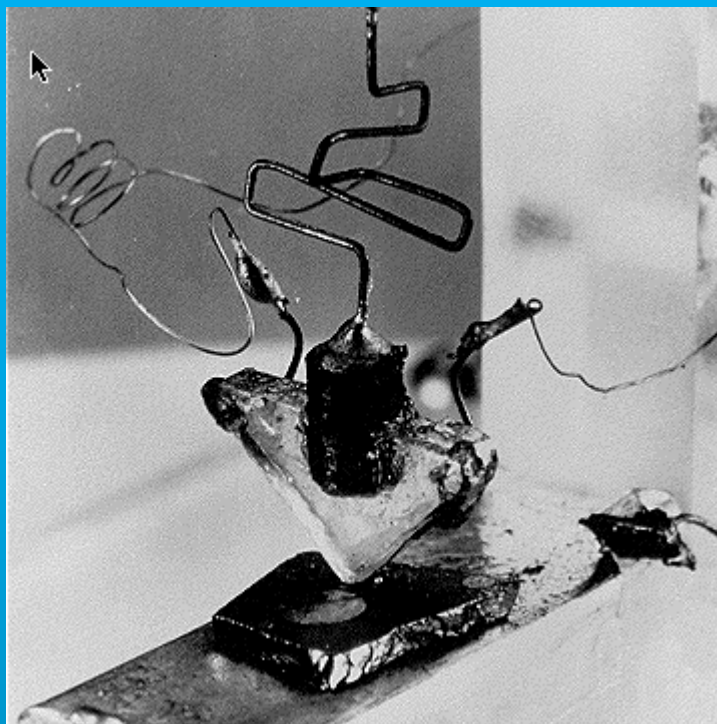
No Talk. All Action.
Launch a Startup in 54 hours.

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search ID: aba0138

"Your proposal is innovative. Unfortunately, we won't be able to use it because we've never tried something like this before."



“chance favors
the connected mind.”

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P E R K I N S + W I L L